Limited Phase II

Environmental Site Assessment

Centre Avenue Properties

New Rochelle, New York

NP&V Job # 17103

June 1, 2017

Limited Phase II

Environmental Site Assessment

Centre Avenue Properties

THIS DOCUMENT CONTAINS 13 PAGES OF TEXT

COPIES AND CIRCULATION OF THIS REPORT ARE AS FOLLOWS:

Two (2) copies to client

One (1) copy retained in NP&V files

Prepared For:

Don & Darren Monti
Renaissance Downtowns UrbanAmerica, LLC
9 Gerhard Road
Plainview, New York 11803

Prepared By:

Mr. Charles J. Voorhis, CEP, AICP
Nelson, Pope & Voorhis, LLC
572 Walt Whitman Road
Melville, New York 11747
(631) 427-5665

Long Island Analytical Laboratories
110 Colin Avenue
Holbrook, New York 11741

NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Limited Phase II

Environmental Site Assessment

Centre Avenue Properties

CONTENTS

1.0	**INTRODUCTION**		Page 1 of 13
2.0	**GROUND PENETRATING RADAR (GPR)**		Page 3 of 13
3.0	**SAMPLING AND ANALYSIS PROGRAM (SAP)**		Page 4 of 13
	3.1	**SOIL VAPOR SAMPLING**	Page 4 of 13
	2.1.1	Soil Vapor Probe Installation	Page 4 of 13
	2.1.2	Soil Vapor Sample Collection	Page 4 of 13
	2.1.3	Indoor Ambient Air and Outdoor Control Air Sampling	Page 4 of 13
	2.1.4	Laboratory Sample Location and Frequency	Page 5 of 13
4.0	**LABORATORY ANALYSIS**		Page 6 of 13
	4.1	**ANALYTICAL TEST METHODS**	Page 6 of 13
	4.2	**ANALYTICAL RESULTS**	Page 6 of 13
5.0	**QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)**		Page 8 of 13
6.0	**SUMMARY AND CONCLUSION**		Page 10 of 13
7.0	**REFERENCES**		Page 12 of 13
	APPENDICES		Page 13 of 13

Limited Phase II

Environmental Site Assessment

Centre Avenue Properties

1.0 INTRODUCTION AND PURPOSE

Nelson, Pope & Voorhis, LLC (NP&V) has been contracted to prepare a Limited Phase II Environmental Site Assessment for the subject property. This report is intended to address recognized environmental conditions that were identified in a Phase I Environmental Site Assessment report prepared by Nelson, Pope & Voorhis, LLC dated April 21, 2017. The Phase I ESA was performed in accordance with the standards detailed by the American Society of Testing and Materials (ASTM) for the Performance of a Phase I Environmental Site Assessment (E 1527). This Limited Phase II ESA was designed to determine what, if any, impact on-site activities have had upon the environmental quality of the subject property.

The subject properties are located in the City of New Rochelle, County of Westchester, New York. The subject properties consist of two (2) tax parcels located immediately west of Huguenot Street on the north and south sides of Centre Avenue. The subject properties may be more particularly described as Tax Lot #'s 2-417-0001, 2-437-0001 & 0003.

The subject properties currently consists of two (2) paved parking lots. The site was identified in historic maps as previously being occupied by apartment buildings. Reconnaissance of the subject properties revealed the presence of two (2) circular asphalt patched areas within the northern parking lot. These patched areas are suspected to be filled pot holes. No evidence of areas of stressed vegetation, pools of discharge, or residue of toxic substances, chemical odors, or other such indicators noted during the site reconnaissance.

A Tier 1 Vapor Encroachment Condition (VEC) Assessment was conducted as part of this Phase I ESA, due to the proximity of several spill incidents. The assessment was conducted in accordance to the methods and procedures, outlined within ASTM E2600-15, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions.

For this assessment, under conditions where the direction of groundwater flow can be ascertained, critical search distances are used to determine if a VEC exists. Specifically, the following distances are applied to the Tier I Assessment:

Upgradient Sources
1,760 feet for Chemical of Concern (COC)
520 feet for petroleum hydrocarbons

Cross-gradient Sources
365 feet for COC

165 feet for petroleum hydrocarbon LNAPL sources & 95 feet dissolved petroleum hydrocarbon sources with plume considerations

Down-gradient Sources
100 feet for COC/petroleum hydrocarbon LNAPL sources
30 feet dissolved petroleum hydrocarbon sources

Review of the regulatory agency database report provided for the subject property identified several sites located within the critical distances which documented a release or were involved in an activity which could result in a release of petroleum product or toxic chemicals. As a result, based on the information reviewed, it is concluded that a VEC cannot be ruled out.

Based on these findings, the Phase I Environmental Site Assessment report identified recognized environmental conditions that prompted the performance of this Limited Phase II Environmental Site Assessment. These conditions included:

1. The subject property was occupied by apartment buildings in the past. It is uncertain if subsurface structures associated with these apartment buildings (if present) have been properly removed.

2. The results of a Tier 1 Vapor Encroachment Condition (VEC) Assessment was conducted as part of this Phase I ESA and revealed the presence of several sites located within established critical distances which documented a release or were involved in an activity which could result in a release of petroleum product or toxic chemicals. As a result, based on the information reviewed, it has been concluded that a VEC cannot be ruled out.

This Limited Phase II ESA has been designed to address the recognized environmental conditions noted above. The protocol used to direct this investigation is based upon the following documents: 1) the New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York. The following sections detail the subject property and surrounding area characteristics, sampling program, quality assurance protocol, laboratory analysis methodology and laboratory results.

2.0 GROUND PENETRATING RADAR SURVEY (GPR)

2.1 GPR SURVEY

A remote sensing ground penetrating radar field survey was performed over portions of the planimetric surface of the property. The ground penetrating radar (GPR) used in this process was a GSSI model UtilityScan DF with a 300 and 800 MHz antennas.

The GPR system consisted of a control unit, control cable and a transducer. The GPR control unit transmits a trigger pulse at a normal repetition rate of 50 KHz. The pulse is then sent to the transmitter electronics in the transducer (antenna) via the control cable where the trigger pulses are transformed into bipolar pulses with higher amplitudes. The transformed pulse will vary in shape and frequency according to the transducer used. The GSSI system is capable of transmitting electromagnetic energy into the subsurface of the earth in the frequency range of 16 MHz to 2000 MHz. In the subsurface, reflections of the pulse occur at boundaries where there is a dielectric contrast (void, steel, soil type). The reflected portion of the signal travels back to the antenna and the control unit and is subsequently shown on the display of the computers color video monitor for interpolation.

A qualified technician specified a coordinate system on the planimetric surface to locate any subsurface dielectric anomalies on the premises. The operator used known knowledge of the subsurface soil composition to calibrate the UtilityScan DF system to site specific conditions. Factor settings such as range, gain, number of gain points, and scans per unit, are modified to yield the most accurate data to describe the subsurface conditions.

Upon finding a dielectric anomaly a more specific coordinate system was designed over the area to determine its size, shape and orientation. The data collected during the survey was reviewed by the operator and compared against past experience, technical judgment and prior site knowledge to classify the anomalies.

The GPR survey was utilized to determine if any underground fuel oil storage tanks associated with the former buildings were present on the subject property. This survey did not identify any underground fuel oil storage tanks on either of the subject properties.

Please note: NP&V received records from the City of New Rochelle which indicated that fuel oil storage tanks which were present in the basement of a former building had been removed and properly disposed of.

3.0 SAMPLING AND ANALYSIS PROGRAM (SAP)

3.1 SOIL VAPOR SAMPLING

All of the soil vapor and ambient air sampling was conducted using properly decontaminated Summa® canisters supplied by the laboratory and fitted with air flow regulators calibrated for a two (2) hour draw period. Two (2) temporary soil vapor probe were installed as well as one (1) ambient air sample were collected on May 17, 2017. All installation and sampling was completed by qualified NP&V personnel with experience in similar soil vapor sampling projects and hazardous waste sample training. All of the samples were sent directly to the laboratory by the sampling technician to be analyzed by Long Island Analytical Laboratories, Inc. The following sections describe the methods and procedures of the SAP for soil vapor and ambient air sampling.

3.1.1 Soil Vapor Probe Installation

One (1) of the soil-vapor probes was installed in the northwest corner of the northern property and one (1) was installed in the north side of the southern property. The probe borings were drilled to a depth of two (2) inches below the asphalt and the well probe was inserted into the borehole. The well probe was constructed with polyethylene tubing which was cut in several locations to promote the flow of any soil vapors which may be present in subsoils. The annular space surrounding the well probe was backfilled with a coarse gravel pack to cover the drilled section of tubing screen and the remaining annular space was filled with modeling clay to seal the well from any outside air intrusion.

3.1.2 Soil Vapor Sample Collection

Following installation, approximately one (1) to three (3) volumes of air were purged from each probe location to ensure the collection of a representative sample of soil vapor as outlined in Section 2.7 of the NYSDOH Guidance Manual.

Summa® canisters fitted with a two (2) hour regulators were used for the withdrawal of the soil vapor samples to ensure a soil vapor collection rate of less than 0.20 L/min. The canisters and regulators were connected to the well probe and soil vapor was extracted via the negative pressure atmosphere within the canister.

3.1.3 Indoor Ambient Air and Outdoor Control Air Sampling

The indoor and outdoor control air samples were collected using Summa® Canisters as described in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York. The Summa® canisters were equipped with a regulator valve to fill at a rate which ensures a soil vapor collection rate of less than 0.20 L/min. The indoor ambient air canister was placed in the southwest portion of the basement and the outdoor canister was

placed in front of the former Party Store. All of the ambient air sample canisters were set at a height of three (3) feet above floor/ground level as described in the NYSDOH Guidance Manual.

3.1.4 Laboratory Sample Location and Frequency

The soil vapor samples collected from the site were collected in the laboratory provided Summa® canisters and labeled for identification purposes. The labels were coded to correspond to the location from which the samples were secured. **Table 2** provides an index of how the samples were coded during labeling.

TABLE 2

SOIL VAPOR/AMBINET AIR SAMPLE IDENTIFICATION

SAMPLE LOCATION	SAMPLE ID CODE
Soil vapor sample located in the northwest corner of the northern property.	SV-3
Soil vapor sample located in the north portion of the southern property.	SV-4
Outdoor ambient air sample was located in the northwest corner of the southern property.	OA-2

4.0 LABORATORY ANALYSIS

4.1 ANALYTICAL TEST METHODS

Following sample collection, the Summa® Canisters were transported to a Certified Commercial Laboratory for analysis. Selection of the analytical test method for the presence of volatile organic compounds was based on USEPA Test Method TO-15.

4.2 ANALYTICAL RESULTS

Review of the analytical results finds that sampling detected the presence of several volatile organic compounds in all of the samples collected.

New York State currently does not have any specific standards for the concentrations of compounds in either ambient air or subsurface vapors but has established air guidance values for only three (3) volatile organic compounds in ambient air which include methylene chloride, tetrachloroethene and trichloroethene. In addition, the New York State Department of Health (NYSDOH) has issued the *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* **(NYS Department of Health - Center for Environmental Health - Bureau of Environmental Exposure Investigation, October, 2006)** which provides evaluation tools which may be used to evaluate the potential exposure impacts related to elevated levels of volatile organic compounds in soil vapors and ambient air. The applicable tools with respect to the sampling conducted as part of this assessment includes comparison with NYSDOH air guidance values as well as background air database results for a variety of property uses. In addition, soil vapor and ambient air results are reviewed "as a whole" to identify trends and special variations in the data, as outlined in the manual.

Review of the analytical results revealed that only two (2) compounds, tetrachloroethylene and methylene chloride, were detected in the soil vapor samples for which the NYSDOH has established guidance values. The concentrations for each of these compounds were found to be below their respective guidance values.

To complete the comprehensive assessment of soil vapor and ambient air quality at the property for compounds that do not have established guidance values or other recognized evaluation tools, the analytical results were compared to the Upper Fence values established in the NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes which was a study conducted between 1997 and 2003 to assess the occurrence of volatile organic chemicals in the indoor air of fuel oil heated homes. This database is the recommended source of comparison for evaluating residential properties in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in New York State. It should be noted however that these Upper Fence values are not considered regulatory standards and are only intended to be used as for comparative assessment in order to identify significant exceedances. Comparison of the analytical results to the Upper Fence Values found that several compounds exceeded their respective Upper Fence values with

several also significantly exceeding the levels detected in ambient air. However, the detections in soil gas do not correlate consistently with the results for ambient air and indicates that soil vapors are possibly being generated from an on-site or off-site source.

Table 2 provides a list of those constituents with elevated concentrations and their values. The laboratory analysis sheets (NYS ASPA) as prepared by Long Island Analytical are presented in **Appendix A** of this document.

TABLE 2
SOIL VAPOR AND AMBIENT AIR SAMPLE RESULTS

Parameters	(BASE) database 90th percentile	NYSDOH Air Guidance Values	SV-3	SV-4	(BASE) database Upper Fence	OA-2
Acetone	115	*NGV*	**754**	**636**	30	**44.8**
Acrolein	NL	*NGV*	72.5	69.8	NL	9.68
Benzene	13	*NGV*	9.62	9.07	4.8	ND
Benzyl Chloride	NL	*NGV*	ND	ND	NL	5.23
1,3-Butadiene	NL	*NGV*	ND	47.1	NL	ND
Carbon Disulfide	NL	*NGV*	14.6	13.4	NL	ND
1,2-Dichlorobenzene	0.5	*NGV*	ND	ND	0.4	**7.03**
1,3-Dichlorobenzene	0.5	*NGV*	ND	ND	0.4	**7.09**
1,4-Dichlorobenzene	1.2	*NGV*	ND	ND	0.5	**7.52**
Chloromethane	0.4	*NGV*	**80.5**	**70.7**	4.3	ND
4-Ethyltoluene	NL	*NGV*	4.97	5.06	NL	6.00
Ethanol	1,300	*NGV*	395	343	NL	29.5
Ethyl Acetate	NL	*NGV*	18.3	14.4	NL	ND
Isopropanol	NL	*NGV*	7.74	4.89	NL	5.95
Methylene Chloride	16	***60***	8.55	**19.4**	1.6	**6.91**
Methyl Ethyl Ketone (2-Hexanone	NL	*NGV*	213	214	5.3	**7.37**
Methyl Ethyl Ketone (2-Butanone)	16	*NGV*	**4,930**	**4,130**	NL	11.9
Propylene	NL	*NGV*	654	641	NL	4.46
1,2,4-Trimethylbenzene	0.5	*NGV*	ND	ND	1.9	**5.01**
1,3,5-Trimethylbenzene	3.9	*NGV*	ND	ND	0.7	**5.06**
Tetrachloroethylene	2.5	***30***	ND	**6.92**	NL	ND
Toluene	57	*NGV*	4.33	4.75	5.1	4.79
Vinyl Acetate	NL	*NGV*	9.05	7.04	NL	ND
m/p-xylene	11	*NGV*	8.98	8.93	1.0	**11.3**
o-xylene	7.1	*NGV*	ND	ND	1.5	**4.60**
n-Hexane	14	*NGV*	**27.8**	**25.1**	2.2	ND
Cyclohexane	6.3	*NGV*	**10.3**	**8.02**	0.9	ND

Notes: NGV - No value provided in NYSDOH Air Guideline Value. NL - No level provided.
Bold and Shaded - detection exceeds its applicable NYSDOH Air Guidance value. Indoor air results compared with indoor values and outdoor air results compared with outdoor values. Green is for exceedance of NYSDOH Indoor Upper Fence values and Blue is for exceedance of Outdoor Upper Fence values.
Italic - Detection exceeds its established NYSDOH Air Guideline Value.

5.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)

This sampling protocol was conducted in accordance with USEPA accepted sampling procedures for hazardous waste streams (Municipal Research Laboratory, 1980, Sampling and Sampling Procedures for Hazardous Material Waste Streams, USEPA, Cincinnati, Ohio EPA- 600\280-018) and ASTM Material Sampling Procedures. All samples were collected by or under the auspices of USEPA trained personnel having completed the course Sampling of Hazardous Materials, offered by the Office of Emergency and Remedial Response.

Separate QA/QC measures were implemented for each of the instruments used in the Sampling and Analysis Program. Sampling instruments included polyethylene tubing and Summa® canisters.

Prior to arrival on the site and between sample locations, the probes sections were decontaminated by washing with a detergent (alconox/liquinox) and potable water solution with distilled water rinse. The organic vapor analyzer was calibrated prior to sampling using a span gas of known concentration. All sample vessels were "level A" certified decontaminated containers. Samples were placed into vessels consistent with the analytical parameters. After acquisition, samples were preserved in the field. All containerized samples were refrigerated to 4^{o} C during transport.

A sample represents physical evidence; therefore, an essential part of liability reduction is the proper control of gathered evidence. To establish proper control, the following sample identification and chain-of-custody procedures were followed.

1.1.1.1 Sample Identification

Sample identification was executed by use of a sample tag, logbook and manifest. Documentation provides the following:

1. Project Code
2. Sample Laboratory Number
3. Sample Preservation
4. Instrument Used for Source Soil Grabs
5. Composite Medium Used for Source Soil Grabs
6. Date Sample was Secured from Source Soil
7. Time Sample was Secured from Source Soil
8. Person Who Secured Sample from Source Soil

1.1.1.2 Chain-of-Custody Procedures

Due to the evidential nature of samples, possession was traceable from the time the samples were collected until they were received by the testing laboratory. A sample was considered under custody if:

It was in a person's possession, or
It was in a person's view, after being in possession, or
It was in a person's possession and they were to lock it up, or
It is in a designated secure area.

When transferring custody, the individuals relinquishing and receiving signed, dated and noted the time on the Chain-of- Custody Form.

1.1.1.3 Laboratory Custody Procedures

A designated sample custodian accepted custody of the shipped samples and verified that the information on the sample tags matched that on the Chain-of-Custody records. Pertinent information as to shipment, pick-up, courier, etc. was entered in the "remarks" section. The custodian then entered the sample tag data into a bound logbook which was arranged by project code and station number.

The laboratory custodian used the sample tag number or assigned a unique laboratory number to each sample tag and assured that all samples were transferred to the proper analyst or stored in the appropriate source area.

The custodian distributed samples to the appropriate analysts. Laboratory personnel were responsible for the care and custody of samples from the time they were received until the sample was exhausted or returned to the custodian.

All identifying data sheets and laboratory records were retained as part of the permanent site record. Samples received by the laboratory were retained until after analysis and quality assurance checks were completed.

6.0 SUMMARY AND CONCLUSION

This investigation was completed to assess the potential impacts that former on-site activities may have had on the subject property as per the recommendations issued in the Phase I ESA prepared by NP&V, dated April 21, 2017. The sampling and analysis plan consisted of soil vapor/ambient air quality testing using analytical test methods consistent with expected parameters and regulatory agency guidance. The following presents an evaluation of the results of this investigation.

1. Review of the analytical results finds that sampling detected the presence of several volatile organic compounds in all of the samples collected.

   New York State currently does not have any specific standards for the concentrations of compounds in either ambient air or subsurface vapors but has established air guidance values for only three (3) volatile organic compounds in ambient air which include methylene chloride, tetrachloroethene and trichloroethene. In addition, the New York State Department of Health (NYSDOH) has issued the *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* **(NYS Department of Health - Center for Environmental Health - Bureau of Environmental Exposure Investigation, October, 2006)** which provides evaluation tools which may be used to evaluate the potential exposure impacts related to elevated levels of volatile organic compounds in soil vapors and ambient air. The applicable tools with respect to the sampling conducted as part of this assessment includes comparison with NYSDOH air guidance values as well as background air database results for a variety of property uses. In addition, soil vapor and ambient air results are reviewed "as a whole" to identify trends and special variations in the data, as outlined in the manual.

   Review of the analytical results revealed that only two (2) compounds, tetrachloroethylene and methylene chloride, were detected in the soil vapor samples for which the NYSDOH has established guidance values. The concentrations for each of these compounds were found to be below their respective guidance values.

   To complete the comprehensive assessment of soil vapor and ambient air quality at the property for compounds that do not have established guidance values or other recognized evaluation tools, the analytical results were compared to the Upper Fence values established in the NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes which was a study conducted between 1997 and 2003 to assess the occurrence of volatile organic chemicals in the indoor air of fuel oil heated homes. This database is the recommended source of comparison for evaluating residential properties in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in New York State. It should be noted however that these Upper Fence values are not considered regulatory standards and are only intended to be used as for comparative assessment in order to identify significant exceedances. Comparison of the analytical results to the Upper Fence Values found that several compounds exceeded their respective Upper Fence values with several also significantly exceeding the levels detected in ambient air. However, the detections in soil gas do not correlate consistently with the results for ambient air and indicates that soil vapors are possibly being generated from an on-site or

off-site source. As a result, the installation of mitigation measures should be conducted should the property be developed for residential or commercial use.

Based on these results, if the property is redeveloped for residential or commercial purposes it is recommended that soil vapor mitigation measures (i.e. soil vapor barrier, sub-slab depressurization system, etc.) should be installed as a protective measure.

The subject property has been evaluated in accordance with standard practice for the industry. This Limited Phase II ESA addresses only the specific areas of the site as requested by the client and can only provide conclusions regarding the subsurface soil quality in those specific areas tested. This Limited Phase II ESA report is limited to the evaluation of on-site conditions at the time of completion of the field sampling program.

6/1/17
Date of Completion

Charles J. Voorhis, CEP, AICP
Project Manager

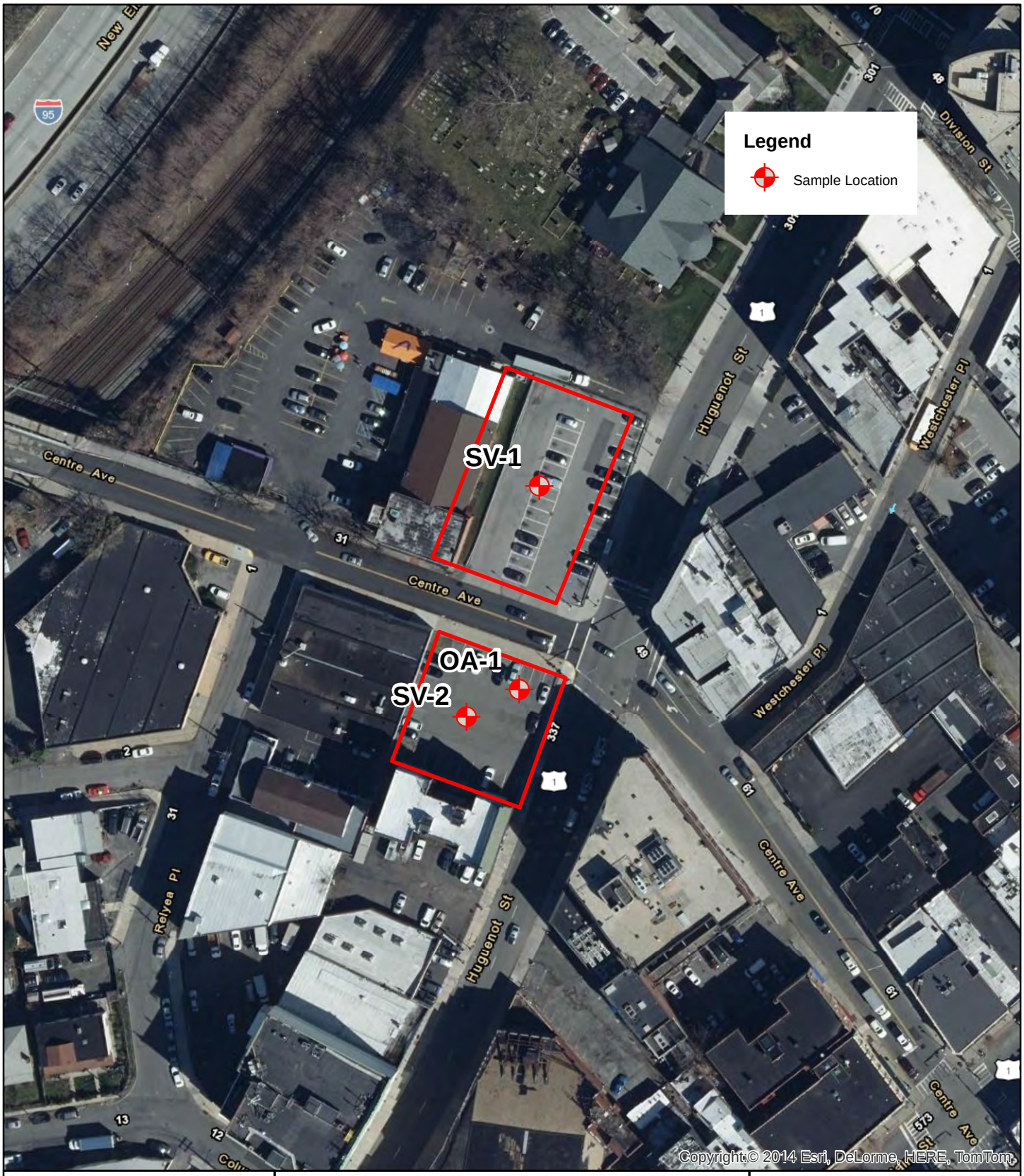
7.0 REFERENCES

New York State Department of Environmental Conservation (NYSDEC), 1992, Sampling Guidelines and Protocols, Technology Background and Quality Control/Quality Assurance for NYSDEC Spill Response Program, NYSDEC, Albany, New York.

ASTM, June 2010, E2600-15 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions, West Conshohocken, Pennsylvania.

New York State Department of Health (NYSDOH), October 2006, Guidance for Evaluating Soil Vapor Intrusion in the State of New York, Bureau of Environmental Exposure Investigation, Troy, New York.

FIGURES



NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

FIGURE 1
SAMPLE LOCATION MAP

Source: NYS Orthophotography, 2016

Scale: 1 inch = 100 feet

N

Centre Avenue Parcels
New Rochelle

Limited Phase II ESA

APPENDICES

REMEDIAL INVESTIGATION REPORT
INDUSTRIAL OVERALL SERVICES
SITE # 360109

WORK ASSIGNMENT NO. D007619-07

Prepared for:

New York State Department of Environmental Conservation
Albany, New York

Prepared by:
MACTEC Engineering and Consulting, P.C.
Portland, Maine

MACTEC: 3612112221

NOVEMBER 2016

3.5.1 Evaluation of Groundwater Gradients

Vertical hydraulic gradients are variable across the study area based on water level measurements documented since 2012, as shown in Table 3.2. Upgradient from the Site and located on a topographical high (MW-26/B), the hydraulic gradient between overburden and bedrock is downward. In the immediate vicinity of the Site, vertical hydraulic gradients are variable, ranging from downward (MW-25/25B), to flat in the Site building (PZ-15/23), and finally to upward gradients, moving along the interpreted bedrock trough (MW-23/BR-102). Monitoring wells downgradient of the Site (MW-1/MW-1B and PZ-14/MW-28B), located topographically lower and within the interpreted bedrock trough, show relatively flat vertical hydraulic gradients. As groundwater gets closer to its potential discharge area, Burling Brook the vertical hydraulic gradient between the overburden and bedrock will likely be upward as bedrock groundwater is anticipated to discharge to New Rochelle Harbor in the Long Island Sound.

3.5.2 Evaluation of Groundwater Elevation and Slug Test Data

Overburden Groundwater. Figure 3.5 presents interpreted overburden groundwater contours from synoptic water levels measurements collected in March 2015. Overburden groundwater flows southwest, following the interpreted geologic valley and underlying bedrock trough. Overburden groundwater is present at the Site ranging between 0.2 (beneath the Site building) to ten feet bgs. Groundwater in the overburden flows southwest, following an apparent bedrock trough towards the New Rochelle Harbor.

Calculated K values in overburden ranges between 1.1 feet per day and 2.9 feet per day, with mean value estimated at 1.8 feet per day. Based on a horizontal gradient of 0.031 feet per foot and an assumed overburden porosity of 0.25, the seepage velocity for overburden groundwater was calculated to be approximately 80 feet per year.

Bedrock Groundwater. Figure 3.6 presents interpreted bedrock groundwater contours from synoptic water levels measurements collected in March/April 2015. Shallow bedrock groundwater also flows to the southwest, following the same trough feature. The trough is expressed at the ground surface as a

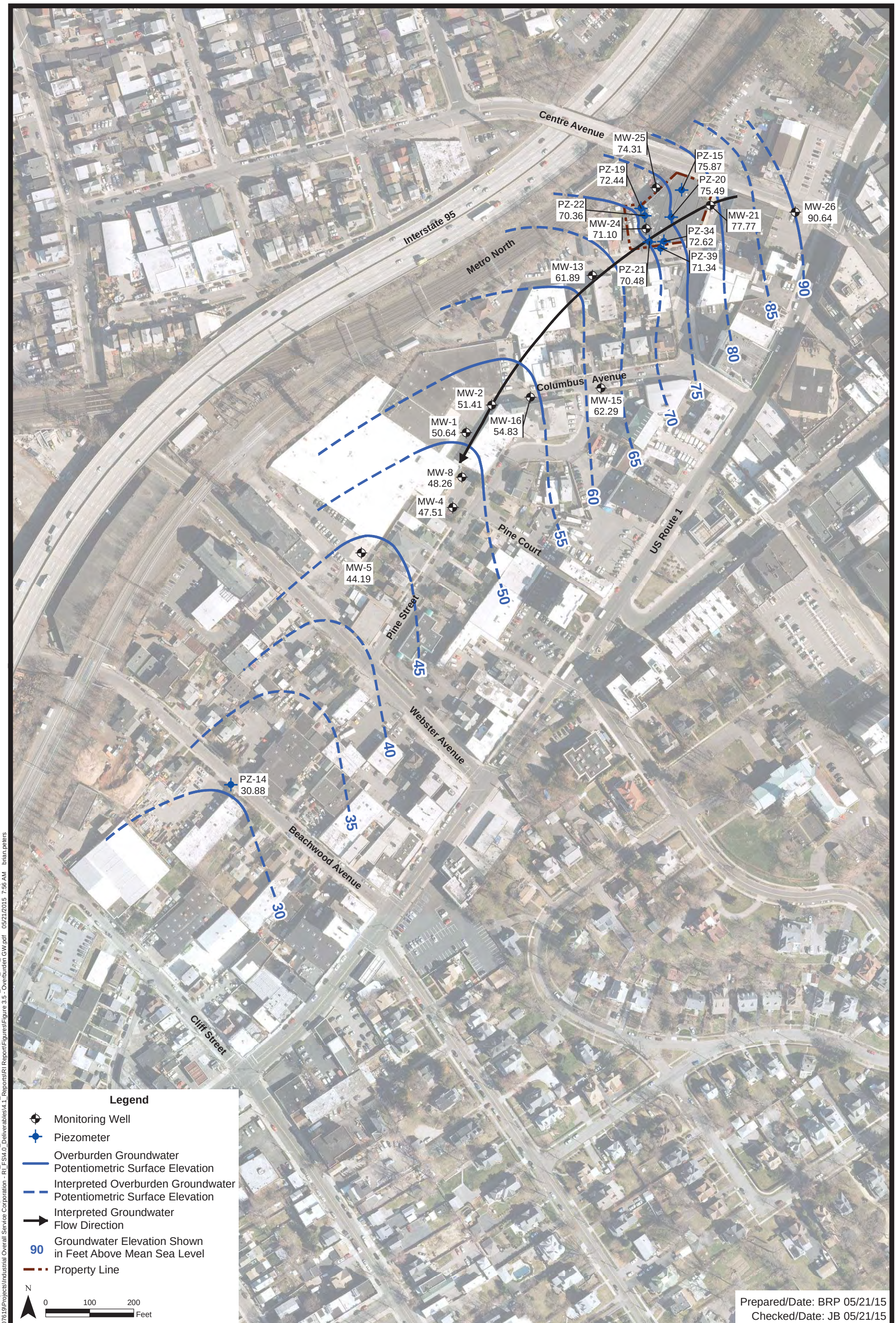
5.4 CONTAMINANT MIGRATION

Mapping of the potentiometric surface in the overburden and bedrock was completed and is shown on Figure 3.5 and Figure 3.6. These figures indicate that groundwater is following a subtle topographic valley that was once occupied by a stream. The stream is now contained in a culvert, estimated to be five feet in diameter, and re-appears as Burling Brook, about one mile downgradient of the Site. The overburden groundwater contours southwest of MW-5 suggests that the culvert system may be moving a substantial amount of groundwater (Figure 3.5). The vertical hydraulic gradient between the overburden and bedrock aquifers changes across the area investigated from downward upgradient of the Site to variable at the Site and changing to upward downgradient of the Bakers Pride site.

The downgradient extent of PCE and/or its breakdown products in the overburden and bedrock have been identified. Pore water samples collected at Burling Brook do not indicate the presence of Site-related contaminants. The furthest downgradient detection of Site-related contaminants was at the well pair PZ-14 and MW-28B. Both wells contained low-levels (less than 10 ug/L) of PCE, TCE and cis-1,2-DCE. These wells are approximately 1,900 feet downgradient of the source area. MW-26 cliff, located another 500 feet downgradient, was non-detect Site related COCs (Figures 4.2 to 4.5).

Upgradient nested wells (i.e., overburden/bedrock) indicate a low concentration of TCE (4.4 µg/l) in the bedrock well (MW-26B). Chlorinated solvents were not detected in the upgradient overburden well (MW-26). The vertical hydraulic gradient between the overburden and bedrock is downward at the MW-26/26B well pair. The presence of low-level TCE contamination is potentially the result of an upgradient source that has contaminated the bedrock aquifer; the presence of TCE in MW-26B does not appear to be related to the Site.

Surface soil samples collected in a drainage pathway on an adjacent Residential Use Property showed PCE at a concentration of 46 mg/kg at less than a foot in depth. This contamination was likely the result of soil migration through transportation from the debris disposal areas located on the Site and MNR properties. The presence of PCE at this concentration in surface soil presented a potential for direct contact to residents of the property, and indicate that discharge of PCE to the environment may still be on-going. An IRM was conducted in 2014 to remove the soil exceeding the Residential SCO and re-grade the Site to prevent future transport of contaminants via surface run-off from the debris areas onto the Residential Use Property.



REMEDIAL INVESTIGATION
INDUSTRIAL OVERALL SERVICES
NEW ROCHELLE, NEW YORK

MACTEC

2015 OVERBURDEN
GROUNDWATER CONTOURS
Project 3612112221 Figure 3.5

Document: P:\Projects
ysdec1\Contract D007619\Projects\Industrial Overall Service Corporation - RI_FS\4.0_Deliverables\4.5_Databases\GIS\Map Documents\RI\RI_2015_GW_11x17P.mxd PDF: P:\Projects
ysdec1\Contract D007619\Projects\Industrial Overall Service Corporation - RI_FS\4.0_Deliverables\4.1_Reports\RI Report\Figures\Figure 3.5 - Overburden GW.pdf 05/21/2015 7:56 AM brian.peters

Table 4.1: Background Groundwater VOCs Results

Area		*Centre Avenue*							
Location		**MW-026**	**MW-026**	**MW-026**	**MW-26B**	**MW-26B**	**MW-26B**	**MW-27BA**	**MW-27BA**
Sample Date		7/25/2012	1/9/2013	5/22/2014	7/25/2012	1/9/2013	5/22/2014	1/14/2014	5/22/2014
Sample ID		360109-MW026007	360109-MW026007	360109-MW026007	360109-MW26B025	360109-MW26B025	360109-MW26B025	360109-MW27B030	360109-MW27B030
Screen Interval (ft bgs)		5 - 10	5 - 10	5 - 10	18 - 28	18 - 28	18 - 28	29.9 - 30.4	29.9 - 30.4
Aquifer		Overburden	Overburden	Overburden	Bedrock	Bedrock	Bedrock	Bedrock	Bedrock
Sample Method		Low flow	Low flow	Low flow	Low flow	Low flow	Low flow	Low flow	Low flow
Qc Code		FS	FS	FS	FS	FS	FS	FS	FS
Parameter	**GA GW**								
Site Related Contaminates of Concern									
Tetrachloroethene	5	1 U	1 U	1 U	**2.1**	1 U	1 U	**1.1**	1 U
Trichloroethene	5	1 U	1 U	**4**	1 U	**4.4**	**2**	1 U	1 U
Other VOCs									
1,1-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5	1 U	1 U	**3**	1 U	1 U	**1**	1 U	1 UJ
Chloroform	7	1 U	1 U	1 U	1 U	**0.91** J	1 U	**2**	**2**

Notes: See Table 4A

Results are reported in micrograms per liter (ug/L)