RESIDENTIAL PROPERTIES
245 - 267 ROCHESTER STREET,
27 & 29 BALSAM STREET
OTTAWA, ONTARIO
K1R 7M9

Phase II
Environmental Site Assessment

PREPARED FOR:
Carl Madigan
3N Group Holdings Inc.
1769 St Laurent Boulevard
Ottawa, Ontario
K1G 3V4

Rubicon Job Number • R63048.10
Report Date • March 29, 2023

Rubicon ENVIRONMENTAL (2008) INC.

"….Environmental Solutions."

60 Toronto Road, P.O. Box 509
Flesherton, Ontario
N0C 1E0

T: 519-924-0003
F: 519-924-0004

Rubicon Environmental (2008) Inc.

March 29, 2023

Carl Madigan
3N Group Holdings Inc.
1769 St Laurent Boulevard
Ottawa, Ontario

Job #: R63048.11

Phase II – Environmental Site Assessment
Residential Properties
245 - 267 Rochester Street, 27 & 29 Balsam Street, Ottawa, Ontario, K1R 7M9

Dear Client,

Please find enclosed the results for the above-mentioned investigation conducted on your behalf.

Please feel free to contact me at 519-924-0003 if you require any additional information.

Sincerely,

RUBICON ENVIRONMENTAL (2008) INC.

Paul Rew, P. Eng., QP

Distribution:

Client: 1
Office: 1

PO Box 509,
60 Toronto Road,
Flesherton, Ontario N0C 1E0

Tel: 519 924 0003
Fax: 519 924 0004
Email: paulrew@rubiconenviro.com

TABLE OF CONTENTS

LIST OF FIGURES, TABLES and APPENDICES

1.0 EXECUTIVE SUMMARY

Rubicon Environmental (2008) Inc. (Rubicon) was retained by Mr. Carl Madigan on behalf of 3N Group Holdings Inc. to undertake a Phase II Environmental Site Assessment (ESA) at the vacant former residential properties located at 245, 247, 249, 261, 263, 265, 267 Rochester Street, 27 & 29 Balsam Street, Ottawa, Ontario. (Hereby referred to as the 'RSC property').

The environmental assessment was completed to ascertain and fully explore surficial and subsurface groundwater conditions in the vicinity of the APECs identified in the Phase One. No soil was identified on site at the time of this investigation. The investigation was completed in accordance with O. Reg 153/04 (as amended 2011, 2019). The current investigation was conducted for the purpose of filing a record of site condition with the MECP (Ministry of the Environment Conservation and Parks) in order to determine if the groundwater on site is suitable for mixed Commercial/Residential Land Use.

The subject property was assessed using the Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition from the Ministry of Environment Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*" (April 15, 2011), referred to as MECP Table 7 Site Condition Standards. Based on Rubicon's evaluation, two (2) Areas of Potential Environmental Concern was identified on the subject property. The APEC's identified on site included the following:

APEC #1 is due to the historic use of dry-cleaning equipment from 1920 to 1926 and 1965 to 1982. APEC #1 is considered to encompass the southwest corner of the subject property, where the buildings of 263 & 267 Rochester Street were located.

APEC #2 is due to the historical oil corporation that existed at 263 Rochester Street. APEC #2 is considered to encompass the area where the building of 263 Rochester Street was located.

The three (3) contaminants of potential concern (COPC) were identified at the Site with respect to the two (2) areas of potential environmental concern: Petroleum Hydrocarbons (PHC F_1-F_4), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), Volatile Organic Compounds (VOC's), identified on the RSC property. These contaminants of potential concern were identified using the Method Groups as outlined in the, Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011.

The Phase II ESA drilling investigation was conducted on Feb 7th and April 22nd, 2022. In total, two (2) boreholes were advanced on-site to a maximum depth 5.11m below grade level (mbgl), to explore the groundwater conditions within the vicinity of the APECS identified in the previous Phase One ESA. Field-testing was also conducted using an RKI Eagle calibrated against hexane gas. Two (2) boreholes were advanced as monitoring wells but were unable to be sampled as no soil was encountered; the ground consisted of limestone. A total of eight (8) verification groundwater samples, one (1) duplicate sample and one (1) trip blank were submitted for laboratory analysis.

During the period from August 2021 through September 2022, approximately 4,000 L was purged from the eight (8) wells into four (4) – 1,000 L totes. The eight (8) monitoring wells were purged using designated bailers, low flow pump and jet pump. Following the approximate 4,000 L of groundwater purged from the eight (8) monitoring wells, Rubicon collected the confirmatory samples following preliminary and intermediate groundwater purging and removal of the contaminant plume from August 2021, through September 2022.

On October 3, 2022, with the use of a Solinst 101 Water Level Meter - P7 Probe with PVDF flat tape, all eight (8) groundwater monitoring wells onsite (EX-MW1, EX-MW2, EX-MW4, EX-MW5, EX-MW6, EX-MW7, MW3 & MW5) were measured and sampled. Samples were analyzed for pH, VOCs and PHC F_1-F_4. The analytical results were compared to Table 7 O. Reg.511/09 criteria for residential land use, Shallow Soils in a Non-Potable Ground Water Condition, with coarse textured soil. The groundwater sample analytical results from each well showed that the parameters tested for, met the applicable MECP criteria.

Based on the findings of the Phase II ESA, and the removal of 4,000 L of impaired groundwater the subject property meets the applicable Table 7 Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition for Residential Land use, Coarse Textured Soil from the Ministry of Environment (MECP) document “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (April 15, 2011), referred to as MECP Table 7 Site Condition Standards. Based on the Phase II ESA findings, Rubicon Environmental (2008) Inc. holds the opinion that a single round of ground water sampling should be performed in spring 2023 to verify the absence of any rebound events.

2.0 INTRODUCTION

2.1 Site Description

Rubicon Environmental (2008) Inc. was retained by Mr. Carl Madigan on behalf of 3N Group Holdings Inc. to undertake a Phase I Environmental Site Assessment (ESA) at the residential properties located at 245 – 267 Rochester Street, 27 & 29 Balsam Street in Ottawa, Ontario. (also referred to as 'subject property or Record of Site Condition Property'). The Phase II ESA investigation was completed on-site to assess the soil and groundwater pertaining to any Potentially Contaminating Activities (PCA) that may have occurred in the past or present on the Phase Two Property or adjacent properties, and Areas of Potential Environmental Concerns (APEC) on the Phase Two Property.

The subject property is located on the northeast corner of the intersection between Balsam Street and Rochester Street in Ottawa/ ON. The total the area of the RSC site encompasses approximately 2,000.0 m². The municipal address is: 245 – 267 Rochester Street, and 27 - 29 Balsam Street in Ottawa, Ontario, K1R 7M9.

27 Balsam Street, Ottawa, Ontario: PT LT 259, PL 16 , BEING THE W1/2, S/T N329529 ; OTTAWA/NEPEAN

PIN: 04108-0280 (LT)

245 – 247 Rochester Street, Ottawa, Ontario: LT 210, PL 14 ; OTTAWA/NEPEAN

PIN: 04108-0263 (LT)

249 Rochester Street, Ottawa, Ontario: PT LT 260, PL 16 , PART 1 , 4R1493 , T/W N631371 ; OTTAWA/NEPEAN

PIN: 04108-0281 (LT)

261 Rochester Street, Ottawa, Ontario: PT LT 260, PL 16 , PART 2 , 4R1493 ; OTTAWA/NEPEAN ; OTTAWA/NEPEAN

PIN: 04108-0282 (LT)

265/267 Rochester Street, Ottawa, Ontario: PT LT 261, PL 16 , AS IN NS1464 ; OTTAWA/NEPEAN

PIN: 04108-0283 (LT)

263 Rochester Street & 29 Balsam Street, Ottawa, Ontario: LT 261, PL 16 , EXCEPT NS1464 ; OTTAWA/NEPEAN

PIN: 04108-0284 (LT)

Contact information

Property owner: Carl Madigan on behalf of 3N Group Holdings Inc.
1769 St Laurent Boulevard, Ottawa, Ontario K1G 3V4

Authorized Person: Carl Madigan (Subject Property Owner), carlmadigan@ymail.com
Site Contact Person: Carl Madigan (Subject Property Owner), carlmadigan@ymail.com

2.2 Current and Proposed Future Uses

At the time of this investigation, the Phase II property is currently developed for residential land use, with no current site buildings and four (4) basement foundations left over from demolition. Based on the information gathered during this investigation the subject property was used for residential purposes since its initial development in 1855. From the city directory search, it was determined that most of the properties operated as commercial from the mid-1990s to early 2000s. It appears that the subject property switched back to residential use in 2011. The proposed development includes a nine-storey apartment building.

Rubicon Environmental (2008) Inc. was informed by the authorized individual that 245 – 267 Rochester Street and 27 – 29 Balsam Street, Ottawa Ontario is proposed to be a multi building mixed commercial/residential property be constructed.

2.3 Applicable Site Condition Standard

The RSC subject property was assessed using the Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition from the Ministry of Environment Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (April 15, 2011), referred to as MECP Table 7 Site Condition Standards.

The following rationale was used to determine the applicable site condition standard for use at this site: **Under *Section 35: Non-potable and potable groundwater conditions*** of the regulation, the RSC property meets the following conditions to warrant the use of non-potable groundwater criteria;

(a) the property, and all other properties located, in whole or in part, within 250 metres of the boundaries of the property, are supplied by a municipal drinking water system, as defined in the *Safe Drinking Water Act, 2002*, and have no wells installed;

(b) the property is not located in an area designated in a municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of ground water, or

(c) the record of site condition does not specify agricultural or other use as the type of property use;

(d) The City of Ottawa is a single tier municipality. The City of Ottawa was not notified of designating the RSC property with use non—potable Table 7 SCS.

(e) As a result of the above mentioned, a non-objection notification letter from the City of Ottawa has not been requested for use of shallow soils in a non-potable ground water site condition standards for the subject property.

Section 41: Site condition standards, environmentally sensitive areas of the regulation, does **not** apply to the RSC property due to the following conditions;

(a) the property is **not**,

(i) within an area of natural significance,

(ii) includes or is adjacent to an area of natural significance or part of such an area, or

(iii) includes land that is within 30 metres of an area of natural significance or part of such an area;

(b) the soil at the property does **not** have a pH value as follows:

(i) for surface soil, less than 5 or greater than 9,

(ii) for sub-surface soil, less than 5 or greater than 11; or

Not Applicable as no soil was obtained from the RSC subject property.

Section 43.1: Site condition standards, shallow soil property or water body of the regulation does apply to the RSC property for the following conditions;

(a) the property is a shallow soil property; or

(b) the property does **not** include all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body. O. Reg. 511/09, s. 21.

(c) In this section,

"shallow soil property" means a property of which 1/3 or more of the area consists of soil equal to or less than 2 metres in depth beneath the soil surface, excluding any non-soil surface treatment such as asphalt, concrete or aggregate;

"soil" means, for the purposes of the definition of shallow soil property, unconsolidated naturally occurring mineral particles and other naturally occurring material resulting from the natural breakdown of rock or organic matter by physical, chemical, or biological processes that are smaller than 2 millimetres in size or that pass the US #10 sieve and includes a mixture of soil and rock if less than 50 per cent by mass of the mixture is rock. O. Reg. 511/09, s. 21.

Property Use: Current property use is residential. The proposed property use will be commercial/residential.

Soil Texture Criteria: No particle size analysis was completed for the RSC property as no soil was present on the RSC subject property, therefore the coarse textured soil standard will apply;

Refer to Appendix 3 - Laboratory Certificates of Analysis.

"coarse textured soil" means soil that contains more than 50 per cent by mass of particles that are 75 micrometres or larger in mean diameter;

"medium and fine textured soil" means soil that contains 50 per cent or more by mass of particles that are smaller than 75 micrometres in mean diameter. O. Reg. 153/04, s. 42 (2); O. Reg. 511/09, s. 19.

Rubicon Environmental (2008) Inc. (Rubicon) was retained by Mr. Carl Madigan on behalf of 3N Group Holdings Inc. to undertake a Phase II Environmental Site Assessment (ESA) at the residential properties located at 245 – 267 Rochester Street, 27 & 29 Balsam Street, Ottawa, Ontario. (hereby referred to as the 'RSC property').

The environmental assessment was completed to ascertain and fully explore surficial and subsurface soil (if present) and groundwater conditions in the vicinity of the APECs identified in the Phase One. The investigation was completed with in accordance with O. Reg 153/04 (as amended 2011, 2019). The current investigation was conducted for the purpose of filing a record of site condition with the MECP (Ministry of the Environment Conservation and Parks) in order to determine if the soils and groundwater on site are suitable for Residential Land Use.

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

The subject property is located on the northeast corner of the intersection between Balsam Street and Rochester Street in Ottawa/ ON. The municipal address is: 245 – 267 Rochester Street, and 27 - 29 Balsam Street in Ottawa, Ontario, K1R 7M9. The total the area of the RSC site encompasses approximately 2,000.0 m².

No water bodies or areas of natural significance were identified within the Phase one study area.
All properties within the Phase I study area are serviced with municipal water supply by the City of Otttawa.

Based on a topographic survey of 245 – 267 Rochester Street, and 27 – 29 Balsam Street the topography of the subject property is generally flat.

3.2 Past Investigations

Rubicon Environmental (2008) Inc. determined that information and data contained within the following previous ESA investigations were relied upon for the purpose of providing additional site condition information as part of the current Phase II ESA investigation.

A report entitled, '*Phase II – Environmental Site Assessment, 247 – 267 Rochester Street and 27 Balsam Street, Ottawa, Ontario'*, *dated March, 2011*, completed by Patterson Group Inc. The following is a summary of the conclusions:

A Phase II Environmental Site Assessment was conducted at the properties located at 245, 247, 249, 261, 263-267 Rochester Street and 27 Balsam Street, Ottawa Ontario. The purpose of the investigation was to assess potential VOC contamination from a former dry cleaners located at 267 Rochester Street. The Phase II Investigation was conducted over the period of September 2009 to November 2010, which consisted of ten (10) boreholes, instrumented with groundwater monitoring wells on the subject site.

The groundwater levels were measured on November 2, 2009 and were found to be present at depths ranging from 1.5 and 2.8 m below the existing grade, with the exception of BH6, which was cored 10.6 m into the bedrock and had a groundwater level approximately 9.0 m below surface grade. Groundwater levels were resampled on November 1, 2010 and were found to be present at depths ranging from 3.3 to 4.9 m below surface grade. Patterson Group Inc. collected a total of fourteen (14) groundwater samples obtained from the ten (10) monitoring wells and were submitted for testing of volatile organic compounds (VOCs). The analytical test results identified the presence of a number of VOC parameters from boreholes BH1, BH3, BH8 & BH9 that exceed the MOE Table 1 Standards. The final groundwater samples from BH1, BH3, BH8 and BH9 displayed exceedances for one or more VOC concentrations comparing to MOE Table 1 Standards. The rest of the groundwater samples taken from the other boreholes do not indicate any presence of VOC concentrations in excess of the MOE Table 1 Standards, with the exception of BH2 with an exceedance for Chloroform. Patterson Group states that "Chloroform was detected in most of the initial groundwater samples and is expected to be present as a result of the use of city water used as core water during the drilling program. The observed concentrations of chloroform were less than that which are typically found in municipal tap water."

Patterson Group concluded that the site had been impacted by former on-site dry-cleaning operations. The VOC impacted groundwater appears to rely in the southwest area of the subject property. Tetrachloroethylene (PCE) and trichloroethylene (TCE) were the identified contaminants of concern. The former dry-cleaning operation at 267 Rochester Street is suspected to be the source of contamination. Patterson Group recommends "that a remediation program be conducted on the subject property to clean up the VOC contaminated groundwater.

Pending FOI report entitled, '*245, 247, 249, 261, 263-267 Rochester Street & 27 Balsam Street – Offsite Groundwater Delineation Program'*, *dated April 23, 2013*, completed by Patterson Group Inc. was requested, when the report is received it will be reviewed.

Pending FOI report entitled, '*245, 247, 249, 261, 263-267 Rochester Street & 27 Balsam Street – Groundwater Delineation Program'*, *dated June 25, 2013*, completed by Patterson Group Inc. was requested, when the report is received it will be reviewed.

A report entitled, '*Supplementary Assessment of Soil Vapour, Rochester Street Right of Way, Ottawa, Ontario'*, *dated December 16, 2019*, completed by Malroz Engineering Inc. The following is a summary of the conclusions:

Malroz Engineering was retained by the City of Ottawa in order to conduct a soil vapour assessment within the Rochester Street right of way (ROW), between the intersection of Balsam Street and Willow Street in Ottawa, Ontario.

Malroz Engineering states that an inferred chlorinated solvent contaminant plume along the Rochester Street ROW was identified in a letter dated May 12, 2015. The source of the contamination appears to be the historic dry-cleaning operations. Data suggests that a groundwater contaminant plume comprising of toluene, tetrachloroethylene (PCE), trichloroethylene (TCE), dichloroethylene (DCE), vinyl chloride, and chloroform has migrated into the Rochester and Balsam Street ROWs.

Malroz conducted a preliminary soil vapour assessment in May 2018 which is considered to be Event #1. Four (4) soil vapour probes (SVPs) were installed along the Rochester Street ROW and soil vapour samples were collected from each probe. Results from the probes indicated measurable concentrations of toluene, chloroform, methylene chloride, PCE and TCE. However, reported concentrations of these contaminants were below calculated maximum acceptable vapour intrusion target levels (VITLs) for residential property use. Considering the variability of soil vapour data, additional sampling was recommended to confirm the results from the preliminary soil vapour assessment."

Malroz completed two additional soil vapour sampling events at the subject site, once in April 2019, and once in July 2019. Results from April 2019 "indicated that measurable concentrations of PCE were reported at each of the SVPs and were below VITLs. However, concentrations of PCE at SVP102 were only slightly below (3-12 µg/m3) the corresponding VITL." Results from July 2019 "indicated that concentrations of PCE at SVP102 and SVP103 exceeded the VITL. Measurable concentrations of PCE were also reported at SVP101 and SVP104, however, the measured concentrations met the VITL. Given the exceedances of VITLs at SVP102 and SVP103 during July 2019, an additional sampling event was recommended in the fall of 2019 to confirm the results and to further assess seasonal and temporal variability."

Malroz recommended the following: that sub-slab vapour probes be installed in select buildings adjacent to the subject site, indoor air samples be taken within select residential buildings adjacent to the subject site, and that the groundwater impacts should be laterally and vertically delineated to evaluate the extent, magnitude and stability of the plume.

A report entitled, '*Air Quality Assessment, Residential Properties 246, 250 & 254 Rochester Street, Ottawa, Ontario*, K1R 7N1' *dated July 28, 2021*, completed by Rubicon Environmental (2008) Inc. The following is a summary of the conclusions:

Rubicon Environmental (2008) Inc. was retained by Mr. Carl Madigan to undertake an Air Quality Assessment at the properties located at 246, 250 & 254 Rochester Street, Ottawa Ontario. The air quality monitoring consisted of an initial meeting with the building management, an air sampling program to establish base line data with respect to Total Volatile Organic Compounds (TVOCs), as well as a provision of a summary report to document the findings.

The purpose of the air sampling program was to document the levels of basic air quality parameters in the off-site buildings and previously installed vapour probes. MECP greatly assisted in reviewing all of the Patterson Group Inc. reports and determining the time and place of the testing. As well Rubicon assessed the historical presence of elevated soil vapour concentrations and contaminants of concern by sampling the existing soil vapour probes present along Rochester Street. The collected vapour samples were submitted for laboratory analysis.

The Air Sampling Program was conducted on June 21, 2021. In total, eight (8) air cannister samples were taken in a four (4) hour sampling period in order to ascertain the air quality parameters, presence of elevated soil vapour concentrations and contaminants of concern in the study area. Three (3) samples were taken inside the residential properties located at 246, 250 and 254 Rochester Street, one (1) sample was taken from outside, and four (4) additional samples were taken from the existing vapour probes on the Rochester ROW.

Eight (8) verification air samples were collected and analysed for permanent gases and VOCs. The subject property was assessed using the List of Ambient Air Quality Criteria (AAQCs) from Ontario's Ambient Air Quality Criteria set by the Ministry of Environment, Conservation and Parks. The analytical results for all of the samples submitted were below the applicable site standard, apart for several exceedances for chloroform. Rubicon also compared the results to a study done on Canada's air quality as well as multiple other air quality documents, which indicates that the levels of Chloroform are regular indoor air quality concentrations. None of the potential contaminants of concern which included; toluene, tetrachloroethylene (PCE), trichloroethylene (TCE) dichloroethylene (DCE), vinyl chloride, and chloroform were present at concentrations greater than the typical site condition standards.

Based on the findings in the Air Quality Assessment, Rubicon states that the subject meets the applicable list of Ambient Air Quality Criteria (AAQCs) from Ontario's Ambient Air Quality Criteria set by the Ministry of the Environment, Conservation and Parks. It is the opinion of Rubicon that there are no known environmental conditions within the areas investigated on the subject property to warrant further environmental investigation at this time.

A letter entitled, '*Conditions and Report Letter, Commercial/Residential Property 245 – 247, & 261 – 263 Rochester Street, 27 & 29 Balsam Street, Ottawa, Ontario*,' *dated October 27, 2022*, completed by Rubicon Environmental (2008) Inc. The following is a summary of the conclusions:

The Conditions & Removal status report was written with respect to the subject properties located at 245 – 247, & 261 – 263 Rochester Street, 27 & 29 Balsam Street, Ottawa Ontario. Rubicon Environmental (2008) Inc. was contracted in April 2021 to undergo a remedial environmental site assessment prior to the redevelopment of a mixed commercial and residential building of nine (9) storeys with an underground parking garage, commercial floor level and 8 residential storeys.

The contaminants of concern on the eastern portion of the subject properties were related to the former asphalt once located above the granular A and gravel, the contaminants are BTEX, PHC and PAHs. The contaminants of concern located in the southwestern portion of the subject property pertains to the dry-cleaning chemicals used when the southern building was used as a dry cleaning facility. The contaminants of concern identified are Dichloroethylene 1,1 (cis and trans), - Tetrachloroethylene, Trichloroethylene.

Rubicon Environmental (2008) Inc. retained the services of Canadian Environmental Drilling and Contractors Inc. (CEDC), to complete the borehole drilling program on February 7, 2022. A truck mounted rig equipped with a combination of solid stem augers and split spoon samplers were utilized by Sonic Soil Sampling to complete the boreholes.

All four (4) representative soil samples, one (1) duplicate and one (1) trip blank selected for laboratory analysis were placed in dedicated sterile sample jars using a dedicated sterile T-Core soil sampler, all provided in advance by the laboratory, and placed in ice packed coolers at a temperature of approximately 3-10 degrees Celsius.

On October 10, 2022, excess soil was excavated to limestone bedrock stockpiled for transport to be used as recycled asphalt/granular A, as per MTO guidelines for parking and driveways. The minimal soil collected from west of the subject property and the minor amounts of soil on the east of the subject property excavated with a maximum depth of 0.60 mbgl. excess soil was excavated to limestone bedrock stockpiled by 3N Group Holdings Inc. and for removal on October 24, 2022, by Robert Gourlay, transporting 66 MT to 64 Banks Street, in Ottawa. The soil weigh ticket is in the report – Solid Transport Ticket.

From August 2021 to September 2022, approximately 4,000 L was purged form the eight (8) wells into four (4) – 1,000 L totes. Following the approximate 4,000 L of groundwater purged, Rubicon took confirmatory groundwater samples following preliminary and intermediate water samples through the purging of the contaminant plume from August 2021 and September 2022. The four (4) – 1,000 L water totes is subject to further testing to determine if the purged groundwater is subject to removal.
On October 3, 2022, all eight (8) groundwater monitoring wells ((EX-MW1, EX-MW2, EX-MW4, EX-MW5, EX-MW6, EX-MW7, MW3 & MW5) were measured, sampled and submitted for the following: VOCs and PHCs (F_1-F_4).

The subject property was assessed using the Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition, for residential land use, coarse textured soil from the Ministry of Environment (MECP) document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (April 15, 2011), referred to as MECP Table 7 SCS.

The laboratory analytical results for all the soil samples analyzed showed that each of the locations and depths of samples submitted were below the applicable site conditions standards. None of the potential contaminants of concerns which included: VOCs and Petroleum Hydrocarbons (PHC F_1-F_4) were present at concentrations greater than the applicable site condition standard.

Rubicon concludes that based on the soil removal and the current groundwater conditions the subject property does not exhibit VOC groundwater impairment as a result of the remedial activities from August 2021 to October 2022. The four (4) – 1,000 L totes are subject to environmental testing to determine the removal. Rubicon recommends one (1) final water sampling program once fractured bedrock has exposed sufficient water for due diligence during construction. The subject property is suitable for redevelopment.

A report entitled, '*Geotechnical Investigation, Residential Properties 245 – 267 Rochester Street, 27 & 29 Balsam Street, Ottawa, Ontario K1R 7M9*,' *dated October 17, 2022*, completed by Rubicon Environmental (2008) Inc. The following is a summary of the conclusions:

Rubicon Environmental (2008) Inc. was retained by Mr. Carl Madigan to undertake a Geotechnical Investigation at the vacant former residential properties located at 245, 247, 249, 261, 263, 265, 267 Rochester Street, 27 & 29 Balsam Street in Ottawa, Ontario. The investigation was conducted in reference to the Geotechnical Investigation and Reporting Guidelines for Development Applications.

The understood proposed development on the site was to construct a one structure with one level of underground parking. The proposed building will consist of one underground level of parking, ground floor retail and eight floors of residential above the retail floor. The proposed development is to be municipally serviced. The subject property currently consists of four exposed basements and limestone bedrock.

The purpose of the geotechnical investigation was to address the following terms of reference:
- *Determine the bearing value of the bedrock for design of the footings;*
- *Provide recommendations for pavement structures, and;*
- *Comment on the geotechnical considerations relating to the construction of the project.*

The Geotechnical Investigation fieldwork was conducted on February 7, 2022. In total, six (6) boreholes were drilled to determine the bedrock bearing value. Six (6) boreholes were advanced to a maximum depth of 3.00 m below existing grade to confined bedrock as per Table 2 of the guideline. The borehole locations were conducted for general site coverage of the proposed development taking into consideration existing site features.

No subsoil was encountered on site at the time of the investigation, as the soil was stockpiled on site to be removed to a licensed facility. Limestone bedrock was identified on site from the Ottawa formation.

Based on the borehole data, it is evident that the proposed 9 storey structure can be supported on conventional spread footings. He recommended safe net bearing value for the designs on the sound limestone is 2,500 KPa.

Based on the findings of this report, from a geotechnical perspective, the subject site is considered suitable for the proposed development. The proposed mid-rise buildings are anticipated to be founded on spread footings placed directly on a clean, surface sounded bedrock bearing space.

Rubicon's Evaluation of the Background Information

Based on Rubicon's evaluation and interpretation of the background information obtained on the subject property, one (1) potential contaminating activity identified in the previous report was the former dry-cleaning operation at 267 Rochester Street as it contained to be the source of contamination. This PCA is considered an APEC on the subject property. From the Air Quality Assessment conducted by Rubicon, all on-site verification air samples were confirmed to have met the applicable criteria as of 2021. Based on the conclusions made in the conditions and removal report by Rubicon, subject property does not exhibit VOC groundwater impairment as a result of the remedial activities from August 2021 to October 2022. Due diligent groundwater sampling is recommended for comparison to current O.Reg 511/09 residential land use standards, as no soil was identified on the site.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

Based on the findings of the Phase I ESA investigation completed by Rubicon Environmental (2008) Inc., a judgemental sampling approach was implemented based on the potentially contaminating activities and areas of environmental concerns identified on the RSC property. The Phase II ESA investigation completed on the RSC property included the advancement of two (2) boreholes (BH) to a maximum depth of 5.11 mbgl (meters below grade level) and the installation of two (2) groundwater monitoring wells. The locations of the boreholes and groundwater monitoring wells were strategically placed to fully investigate and identify any contaminants of concern which may be present on, in or under the RSC Phase II Subject Property. Refer to Figure 5 – Site Investigation.

4.2 Media Investigated

Soil and groundwater media were deemed relevant to the Phase II ESA based on the potentially contaminating activities, the areas of environmental concerns and potential contaminants of concern including; Petroleum Hydrocarbons (PHC F_1-F_4), Benzene, Toluene, Ethylbenzene and Volatile Organic Compounds (VOC's). identified on the RSC property.

4.3 Phase One Conceptual Site Model

The following outlines the key findings pertaining to the RSC property as part of the Phase One ESA report completed by Rubicon Environmental (2008) Inc.

Based on the findings of the Phase One ESA completed by Rubicon Environmental (2008) Inc. potentially contaminating activities (PCA's) were identified on the RSC property and surrounding that are outlined in the following table; also refer to Figure 4 and Figure 5 for an illustration of the PCA's pertaining the RSC property.

Potentially Contaminating Activities Directly Contributing to APEC on the Subject Property

Note: PCA # - as per Clause 16 (2) (a) of Schedule D, Table 2 - Refer to Figure 3

PCA #	Historic or Current Source (Address)	Activity Description	Date	PCA's	Rationale
1	On Site - Historic 263 & 267 Rochester Street, Ottawa ON	Historical Dry Cleaner Operations (Chinese Dry Cleaners & Minelli's Dry Cleaning)	1920-1926 1965 - 1982	(37) – Operations of Dry-Cleaning Equipment (where chemicals are used)	From the information gathered during the Phase One Investigation, more specifically the city directory search, it appears that there was a dry cleaner operating at 263 and 267 Rochester Street from 1920 to 1926, and 1965 to 1982, respectively. The 2011 Patterson Group Phase II was made available for this time. The review documented groundwater VOC exceedances related to dry cleaning detergent chemicals. The exceedances were found to be present at depths ranging from 1.5 and 2.8 m below the existing grade, with the exception of BH6, which consisted of 3.30 - 9.00 m below surface .There was further ESA investigated in 2013 but not available at this time. Due to the historical documentation and former exceedances, the PCA is considered an APEC.
2	On Site – Historical 263 Rochester Street, Ottawa ON	Historical Oil Corporation (Sleiman Oil Corporation)	2006 - 2007	(28) – Gasoline and Associated Products Storage in Fixed Tanks	From the information gathered during the Phase One Investigation, more specifically the city directory search, it appears that there was an oil corporation operating at 263 Rochester Street from 2006 - 2007. As there was no documentation of the quality of the soil or groundwater available for review, due diligent soil and groundwater sampling is recommended for comparison to current O.Reg 511/09 residential land use standards. Due to the historical documentation of this PCA to exist on the RSC property, it is considered an APEC.

TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN"
(Refer to clause 16(2) (a), Schedule D, O. Reg. 153/04)
Refer to Figure 6 for the location of areas of potential environmental concern.

Areas of Potential Environmental Concern (APECs)	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1 Historic Dry Cleaning Operations (Related to PCA #1)	Southwest corner of the subject property; where the site building for 263 & 267 Rochester Street were previously located.	(37) – Operations of Dry-Cleaning Equipment (where chemicals are used)	On-site	VOCs	Groundwater
APEC 2 Historic Historical Oil Corporation (Sleiman Oil Corporation) (Related to PCA #2)	Southwest corner of the subject property; where the site building for 263 Rochester Street was previously located.	(28) – Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs (F_1 – F_4) BTEX	Groundwater

The three (3) contaminants of potential concern were identified at the Site with respect to the two (2) areas of potential environmental concern: Petroleum Hydrocarbons (PHC F_1-F_4), Volatile organic compounds (VOCs) and BTEX (Benzene, Toluene, Ethylbenzene and Xylene).

4.4 Deviations from Sampling and Analysis Plan

No deviations from the sampling and analysis plan were necessary during the completion of the Phase II ESA on the RSC property. Refer to Appendix 5 – Field Sampling and Analysis Plan.

4.5 Impediments

Bedrock was encountered during the Phase II Investigation at the surface level of the subject property, therefore, site access restrictions were encountered during the completion of the Phase II ESA on the RSC property, specifically in regards to obtaining soil samples.

5.0 INVESTIGATION METHOD

5.1 General

The Phase II ESA investigation was conducted in accordance with the criteria meeting O. Reg. 153/04, as amended by O. Reg. 511/09, for the purpose of filing a Record of Site Condition (RSC) with the Ontario Ministry of the Environment.

Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition from the Ministry of Environment Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards Use Under Part XV.1 of the Environmental Protection Act" (April 15, 2011), referred to as MECP Table 7 Site Condition Standards.

All Chemical analyses were conducted by ALS Environmental Laboratories of Waterloo, Ontario. ALS Environmental Laboratories is a member of the Canadian Association for Laboratory Accreditation Inc. (CALA) and meets the requirements of Section 47 of O.Reg. 153/04 certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with standards developed by the Standards Council of Canada.

Deviations from the standard operating procedures, outlined in the above-mentioned methods were not necessary.

5.2 Drilling and Excavating

(i) Rubicon Environmental (2008) Inc. retained the services of Canadian Environmental Drilling & Contractors Inc., 4102 Perth Road, Inverary, Ontario, KOH 1X0, to complete the borehole drilling program and installation of groundwater monitoring wells at the RSC property on February 7th, and April 22nd 2022.

(ii) A *LST1A* trailer mounted drill rig equipped with a combination of solid stem augers with repeated drilling and hallow stem augers split spoon samplers was utilized by Canadian Environmental Drilling & Contractors to complete the boreholes.

(iii) All equipment that came into contact with subsurface conditions during the drilling program was thoroughly cleansed with 'Alconox' powder mixed with water by the licensed drillers for best management practices.

(iv) Soil samples were collected at 0.75 m intervals using a 76 cm long, 5 cm diameter split spoon sampler.

5.3 Soil Sampling

(i) No Soil samples were retrieved at the time of this investigation as a result of direct bedrock encounter at the surface level.

(ii) A geological description of the historical soil samples encountered within the overburden investigated is generally characterized as follows (from surface: ~ 66.4 m.a.s.l. asphalt followed by 1 m of overfill material 65.4 m a.s.l. followed by grey limestone bedrock.

Refer to Appendix 2 – Borehole Logs.

5.4 Field Screening Measurements

The headspace vapours of each sample were tested for petroleum vapour concentrations using a RKI Eagle 2 portable handheld VOC instrument, calibrated against hexane. The RKI Eagle 2 was calibrated on February 7th and April 22nd, 2022. As part of the field screening method, No deviations from standard operating procedures relating to the proposed field-screening methods were necessary.

5.5 Groundwater: Monitoring Well Installation

The installation of two (2) groundwater monitoring wells at the RSC property was completed on February 7th and April 22nd, 2022 by Canadian Environmental Drilling & Contractors Inc., 4102 Perth Road, Inverary, Ontario, KOH 1X0. The requirements for installing these wells were completed by the licensed drilling company as per Ontario Regulation 903 enacted under the EPA, as amended. The groundwater monitoring wells were developed using 2", Schedule 40 PVC pipe with slotted screen in the suspected region of the groundwater table. Silica sand was positioned around the screen with a bentonite seal located above the filter pack to grade to prevent surface water from entering the monitoring well. None of the well screens exceeded 3.00 m. Refer to Table 8 and Refer to Appendix 2 - Borehole Logs

5.6 Groundwater: Field Measurement of Water Quality Parameters

The headspace vapours of each sample were tested for petroleum vapour concentrations using a RKI Eagle 2 portable handheld VOC instrument, calibrated against hexane. The RKI Eagle 2 was calibrated on October 3rd, 2022. As part of the field investigation method, all monitoring wells were examined for VOC vapour concentrations prior to groundwater sampling. No VOC vapour concentrations were detected in the monitoring wells. With the use of disposal paper pH indicator slips, the average pH levels recorded for the groundwater monitoring wells were recorded on October 6, 2022, as follows: 7.25. The temperature on the groundwater was also recorded on October 3, 2022, as follows: ±2.5˚C to ±2.6˚C.

5.7 Groundwater: Sampling

Prior to sampling approximately three (3) well water volumes were purged from each of the groundwater monitoring wells with the use of dedicated disposable bailers. All purged groundwater was placed in sealed containers. On October 3, 2022, with the use of peristaltic low flow pump, Spectra Field Pro, groundwater samples were collected from each of the installed groundwater monitoring wells as well as the existing monitoring (Patterson Wells labelled with a pre-six) wells onsite (EX-MW1, EX-MW2, EX-MW4, EX-MW5, EX-MW6, EX-MW7, MW3 & MW5), including one (1) duplicate and one (1) trip blank samples. All representative groundwater samples collected for laboratory analysis were placed in specified sampling bottles/vials provided by the laboratory and placed in ice packed coolers at a temperature of approximately 3-10 degrees Celsius.

5.8 Sediment Sampling

Sediment sampling was not completed as part of the Phase II ESA investigation on the RSC property.

5.9 Analytical Testing

The chemical analyses of all soil and groundwater samples were completed by ALS, a member of the Canadian Association for Laboratory Accreditation Inc. (CALA) and meet the requirements of Section 47 of O.Reg. 153/04 certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with standards developed by the Standards Council of Canada.

5.10 Residual Management Procedures

All residual limestone clippings from each borehole advanced, all purged groundwater volumes, and all fluids from equipment cleaning, were placed in sealed drums and water containers and stored at 245 – 267 Rochester Street, 27 & 29 Balsam Street in Ottawa, Ontario for future disposal.

5.11 Elevation Surveying

Elevations were obtained from a survey provided to Rubicon Environmental (2008) Inc. by the authorized individual, completed by Farley, Smith & Denis Surveying Ltd., Ontario Land Surveyors, on May 11, 2022. Benchmark elevations are identified to be an elevation of 66.40 metres based on a concrete pin utility pole. Bearings are derived from the Can-Net Real Time Network and referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) And – 83 (Original). Bearing notes as follows: bearing comparisons, rotation of 0°03'25" counter – clockwise was applied to bearings on P3, P4, P6, P7 & P8. Bearing comparisons, a rotation of 0°02'00" counter – clockwise was applied to bearings on P5.

Refer to Appendix 4.

5.12 Quality Assurance and Quality Control Measures

(i) Description of sample containers and preservation.

For groundwater samples submitted for chemical analyses:

Parameter	Container / Field Preservative Information
BTEX, PHCs (F_1) and VOCs	2 x 40 ml glass vials with no headspace, field preservative NaHSO4
PHCs (F_2-F_4)	2 x 100 ml amber glass bottle, Teflon lined lid, field preservative NaHSO4

No deviation from the sampling and analysis plan was necessary. Refer to Appendix 5 – Sampling Plan.

Each sample selected for analysis were placed in the laboratory provided containers/vials/jars and labelled according to the borehole/monitoring well location and/or split spoon sample ID, as per the proposed investigation and analysis plan.

(ii) All equipment that came into contact with subsurface conditions during the drilling program was thoroughly cleansed with 'Alconox' powder mixed with water by the licensed drillers for best management practices.

All groundwater samples were collected with the use of dedicated peristaltic low flow pump, Spectra Field Pro. All representative groundwater samples collected for laboratory analysis were placed in specified sampling bottles/vials provided by the laboratory and placed in ice packed coolers at a temperature of approximately 3-10 degrees Celsius.

(iii) All non-dedicated sampling and monitoring equipment was cleaned following each use. One (1) trip blank was submitted for laboratory analysis (VOC/F1 parameters) for each soil and groundwater laboratory submission. For every ten (10) groundwater samples submitted for laboratory analysis, one (1) duplicate soil and groundwater was submitted. Calibration checks on field instruments were conducted regularly to ensure accuracy of measurements.

(iv) No deviation from the procedures set out in the quality assurance and quality control programs set out in the sampling and analysis plan was necessary.

6.0 REVIEW AND EVALUATION

6.1 Geology

Based on the historical sub surface investigations conducted by Patterson Group, the overburden on the RSC property is characterized and consistent as follows (from surface: ~ 66.4 m.a.s.l. asphalt followed by 1 m of overfill material 65.4 m a.s.l. followed by grey limestone bedrock.

As no particle size analysis was able to be completed for the RSC property the more conservative coarse textured soil standard will apply.

The sites are located in a physiographic region known as the Limestone Plain (Physiography of Southern Ontario, Chapman and Putnam, 1984). The terrain of the subject property is generally flat.

"Quaternary Geology of Ontario, Southern Sheet" Map 2556, shows the sites to be within an area known as Bedrock: undifferentiated igneous and metamorphic rock, exposed at surface or covered by a discontinuous, thin layer of drift.

"Bedrock Geology of Ontario, Southern Sheet" Map 2544, shows that the bedrock in the area of the sites is comprised of Middle Ordovician: limestone, dolostone, arkose and sandstone of the Ottawa Gp.; Simcoe Gp.; and Shadow lake Formation. Refer to Appendix 6.

The mapping available as Figure 4. Drift Thickness Trend, Ottawa-Hull, Ontario & Quebec Natural Resources Canada indicated that bedrock in the general area of the subject property is approximately 1-5 m below grade.

Based on elevation marked on a survey of the subject property the subject property ranges is relatively flat for 66.4 masl. Appendix 4.

No other aquifer was investigated on the RSC property, as no known releases, potentially migrating contaminates, or potentially contaminating activities were identified that could potentially result in an impact beyond the shallow sub-surface groundwater table.

6.2 Groundwater: Elevations and Flow Direction

The eight (8) groundwater monitoring wells on the RSC property on 245 – 267 Rochester Street, 27 & 29 Balsam Street, Ottawa, Ontario were used for interpreting the groundwater flow direction on the RSC property. The screened intervals for the newly installed groundwater monitoring wells on the RSC property (RMW3 & RMW5) began at ~2.11 m to a maximum depth of ~5.11 m below grade. The depth of screened intervals installed was based on groundwater data reviewed from 245 – 267 Rochester Street, Ottawa investigations to ensure that the anticipated shallow aquifer was encountered. This aquifer was encountered during Phase II ESA at depths of approximately 3.30 – 4.90 mbgl.

On October 3, 2022 with the use of a Solinst 101 Water Level Meter - P7 Probe with PVDF flat tape, the depth to groundwater in each of the groundwater monitoring wells on the RSC property were recorded as; EX-MW1 at 1.98 m bgl, EX-MW2 at 1.50 m bgl, EX-MW4 at 1.33 m bgl, EX-MW5 at 1.70 m bgl, EX-MW6 at 4.37 m bgl, EX-MW7 at 2.14 m bgl, MW3 at 2.25 m bgl and MW5 at 4.22 m bgl. The relative elevations for the onsite monitoring wells ranged from 64.31 masl to 66.82 masl.

There was no indication of free-flowing product encountered in any of the groundwater monitoring wells investigated as part of this Phase II ESA. The groundwater flow direction was calculated to be southwest. The groundwater levels were determined by use of a Solinst 101 Water Level Meter with P7 Probe with PVDF flat tape and were measured from the grade level to the top of the groundwater in the monitoring well water volume. The groundwater flow direction was calculated using a groundwater contour modelling in a two-dimensional setting using data from all available O.Reg. 903 compliant monitoring wells on the RSC property. Refer to Figure 6. It is anticipated that the potential for temporal variability in groundwater flow direction at the RSC property would be present given the site conditions encountered.

There are currently no buildings on the RSC property. Bell, hydro utilities, municipal water, storm sewer, and natural gas services are available below ground. Based on the depth to groundwater recorded on the RSC property (ranging between 1.50 m – 4.37 m below grade level) In October 2022 and the evaluation of buried utilities for the property (estimated to range between 0.61 m – 2.33 m below grade), there is a low potential for interaction between known buried utilities in or under the Phase II property and the water table. Although there is a potential for interaction between known buried utilities and the water table resulting in the presence of potential distribution pathways, it is the opinion of Rubicon that this interaction represents a low risk due to the fact that no contaminants were present in the subsurface soil and groundwater at concentrations greater than the applicable site condition.

6.3 Groundwater: Hydraulic Gradients

No contaminants were present in the groundwater aquifer investigated on the RSC property. The horizontal hydraulic gradient of the aquifer investigated on the RSC property was calculated as follows (Refer to Figures 8 for an illustration of the horizontal hydraulic gradient):

<u>October 2022</u>
Hydraulic Gradient: $h_A – h_B/D = 0.166$
(65.47 – 61.98)/21.06 = 0.166

6.4 Fine-Medium Soil Texture

Based on a historic site condition reported by Patterson Group, the field observations and particle size analysis completed for the RSC property the coarse textured soil was used in determining the applicable site condition standards. Due to the grey limestone bedrock encountered in all boreholes advanced on the RSC property, no soil sample was able to be submitted for particle size analysis. Therefore, the more conservative coarse-grained textured has been applied.

6.5 Soil: Field Screening

No soil was encountered during the Phase II Site Investigation, therefore, no headspace vapor readings were able to be obtained.

6.6 Soil Quality

The location of borehole locations and the depths are presented in Appendix 2 - Borehole Logs. Soil samples were unable to be taken as no soil was present; the ground consisted of exposed bedrock. The location of the boreholes are presented in Figure 5 – Site Investigation and Appendix 2 - Borehole Logs.

6.7 Groundwater Quality

The locations of the groundwater monitoring wells, and groundwater sample locations are outlined in Figure 5. The RSC property was assessed using the Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition from the Ministry of Environment Conservation and Parks (MECP) document “Soil, Ground Water and Sediment Standards Use Under Part XV.1 of the Environmental Protection Act” (April 15, 2011), referred to as MECP Table 7 Site Condition Standards.

The laboratory analytical results for all the groundwater samples analyzed showed that each of the samples submitted were below the applicable site conditions standards.

None of the potential contaminants of concerns which included Petroleum Hydrocarbons (PHC F_1-F_4), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Volatile Organic Compounds (VOC’s) were present at concentrations greater than the applicable site condition standard at any of the sampling locations. Refer to Table 5 – 7.

6.8 Sediment Quality

Sediment sampling and / or investigation was not part of the Phase II ESA.

6.9 Quality Assurance and Quality Control Results

As part of the quality control procedures for groundwater sampling, of the ten (10) groundwater samples submitted for laboratory analysis; one (1) was a duplicate groundwater sample and one (1) was a trip blank. This ensured that sufficient duplicate samples were met (one for every ten samples) and adequate trip blank samples (if analyzing for VOCs, one trip blank for every laboratory submission) were also submitted. All samples were handled in accordance with analytical protocols with respect to holding times, preservation methods, storage requirements, and container types.

Meeting the minimum requirements for quality control sampling ensured that a higher level of accuracy could be developed in determining whether the RSC property meets the applicable site condition standards. All certificates of analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47(3). A certificate of analysis or analytical report has been received for each sample submitted for analysis. All certificates of analysis or analytical reports received have been included in full in Appendix 3 - Laboratory Certificates of Analysis.

It is the opinion of Rubicon Environmental (2008) Inc. that the overall quality of the field data was adequate and accurately reflects the site conditions in a manner that any decision making was not affected, and the overall objectives of the investigation and the assessment were met.

6.10 Phase Two Conceptual Site Model

Based on the findings of the Phase I ESA investigation completed by Rubicon Environmental (2008) Inc., a judgemental sampling approach was implemented based on the potentially contaminating activities and areas of environmental concerns identified on the RSC property. The Phase II ESA investigation completed on the RSC property included the advancement of two (2) boreholes (BH) to a maximum depth of 5.11 mbgl (meters below grade level) and the installation of two (2) groundwater monitoring wells. Due to the orientation of the eight (8) boreholes on the RSC property, the groundwater elevations of eight (8) groundwater monitoring wells on the RSC property was included as part of this investigation in order to calculate the groundwater flow direction using the contour method. The locations of the boreholes and groundwater monitoring wells were strategically placed to fully investigate and identify any contaminants of concern which may be present on, in or under the RSC Phase II ESA property. Refer to Figure 5 – Site Investigation

6.11 Areas of Potentially Contaminating Activity and Concerns

The Phase Two Conceptual Site Model has been prepared based on information and data collected as part of Rubicon Environmental (2008) Inc.'s Phase One ESA and Phase Two ESA completed at the Site. The subject property is located on the northeast corner of the intersection between Balsam Street and Rochester Street in Ottawa/ ON. The total the area of the RSC site encompasses approximately 2,000.0 m². The municipal address is: 245 – 267 Rochester Street, and 27 - 29 Balsam Street in Ottawa, Ontario, K1R 7M9.

Based on the findings of the Phase I ESA investigation, a judgemental sampling approach was implemented based on the potentially contaminating activities and areas of environmental concerns identified on the RSC property. The Phase II ESA investigation completed on the RSC property included the advancement of two (2) boreholes (BH) and the installation of two (2) groundwater monitoring wells. The locations of the boreholes and groundwater monitoring wells were strategically placed to fully investigate and identify any contaminants of concern which may be present on, in or under the Phase II ESA property. In accordance with O. Reg 153/04, the potentially contaminating activities (PCAs) were identified both on site and within the Phase I ESA study boundary of 250 m. In total, two (2) PCAs that were identified on the subject property representing two (2) Areas of Potential Environmental Concern (APEC). Each of the PCAs identified within the Phase One Study area were further evaluated by Rubicon in order to determine if the individual PCA represented an APEC on the subject property. Also refer to Figure 3 for an illustration of the locations of the PCA's pertaining to the RSC property.

Potentially Contaminating Activities Pertaining to the RSC Property

Note: PCA # - as per Clause 16 (2) (a) of Schedule D, Table 2

PCA #	Historic or Current Source (Address)	Activity Description	Date	PCA's	Rationale
1	On Site - Historic 263 & 267 Rochester Street, Ottawa ON	Historical Dry Cleaner Operations (Chinese Dry Cleaners & Minelli's Dry Cleaning)	1920 – 1926 1965 - 1982	(37) – Operation of Dry-Cleaning Equipment (where chemicals are used)	From the information gathered during the Phase One Investigation, more specifically the city directory search, it appears that there was a dry cleaner operating at 263 and 267 Rochester Street from 1920 to 1926, and 1965 to 1982, respectively. The 2011 Patterson Group Phase II was made available for this time. The review documented groundwater VOC exceedances related to dry cleaning detergent chemicals. The exceedances were found to be present at depths ranging from 1.5 and 2.8 m below the existing grade, with the exception of BH6, which consisted of 3.30 - 9.00 m below surface .There was further ESA investigated in 2013 but not available at this time. Due to the historical documentation and former exceedances, the PCA is considered an APEC.
2	On Site – Historical 263 Rochester Street, Ottawa ON	Historic Oil Corporation (Sleiman Oil Corporation)	2006 – 2007	(28) – Gasoline and Associated Products Storage in Fixed Tanks	From the information gathered during the Phase One Investigation, more specifically the city directory search, it appears that there was an oil corporation operating at 263 Rochester Street from 2006 - 2007. Due to he historical operations this PCA is deemed an APEC.

As part of the Phase One ESA, Rubicon Environmental (2008) Inc.; two (2) areas of potential environmental concern were identified and are listed in the Table of Areas of Potential Environmental Concern. The third Apec identified in the Phase One was deemed to not be an APEC as a result of the Phase Two Investigations the conditions of the subject property (consisting of bedrock). Refer to Figure 4 for an illustration of the APEC's on the RSC property. The scope of work for the Phase Two ESA was designed in order to assess the environmental quality of groundwater at identified APECs, respectively.

"TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN"
(Refer to clause 16(2) (a), Schedule D, O. Reg. 153/04)
Refer to Figure 4 for the location of areas of potential environmental concern.

Areas of Potential Environmental Concern (APECs)	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1 Historic Dry Cleaning Operations (Related to PCA #1)	Southwest corner of the subject property; where the site building for 263 & 267 Rochester Street were previously located.	(37) – Operations of Dry-Cleaning Equipment (where chemicals are used)	On-site	VOCs	Groundwater
APEC 2 Historic Historical Oil Corporation (Sleiman Oil Corporation) (Related to PCA #2)	Southwest corner of the subject property; where the site building for 263 Rochester Street was previously located.	(28) – Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs (F1 – F4) BTEX	Groundwater

The three (3) potential contaminants of concern were identified at the Site: Petroleum Hydrocarbons (PHC F_1-F_4), Benzene, Toluene, Ethylbenzene and Volatile Organic Compounds (VOC's).

The Phase Two Environmental Site Assessment and Supplementary Phase II ESA completed by Rubicon Environmental (2008) Inc., in accordance with O.Reg 153/04 was designed to investigate the environmental quality of the subsurface soil and groundwater conditions on the site; with respect to the potential contaminants of concern identified within areas of potential environmental concern on the subject property. The following table Sampling Details Summary, presents the sampling details from the Phase Two ESA completed on the RSC property:

Sampling Details Summary

SAMPLE ID	COMMENTS
EX-MW1	• Located within APEC #1-2 • Sampled on October 3, 2022 • No petroleum odours staining present • VOC reading using field instruments (< 5 ppm) • Soil sample analysed for VOCs, PHC and BTEX.
EX-MW2	• Located within APEC #1-2 • Sampled on October 3, 2022 • No petroleum odours staining present • VOC reading using field instruments (< 5 ppm) • Soil sample analysed for VOCs, PHC and BTEX.
EX-MW4	• Located within APEC #1-2 • Sampled on October 3, 2022 • No petroleum odours staining present • VOC reading using field instruments (< 5 ppm) • Soil sample analysed for VOCs, PHC and BTEX.
EX-MW5	• Located within APEC #1-2 • Sampled on October 3, 2022 • No petroleum odours staining present • VOC reading using field instruments (<5 ppm) • Soil sample analysed for VOCs, PHC and BTEX.
EX-MW6	• Located within APEC #1 • Sampled on October 3, 2022 • No petroleum odours or soil staining present • VOC reading using field instruments (< 5 ppm) • Soil sample analysed for VOCs, PHC and BTEX.
EX-MW7	• Located within APEC #1-2 • Sampled on October 3, 2022 • No petroleum odours staining present • VOC reading using field instruments (< 5 ppm) • Soil sample analysed for VOCs, PHC and BTEX.
MW3	• Located within APEC #1-2 • Sampled on October 3, 2022 • No petroleum odours staining present • VOC reading using field instruments (< 5 ppm) • Soil sample analysed for VOCs, PHC and BTEX.
MW5	• Located on the south perimeter line of the subject property, northeast of EX-MW1, in order to investigate the groundwater in the groundwater flow direction. • Sampled on October 3, 2022 • No petroleum odours staining present • VOC reading using field instruments (< 5 ppm) • Soil sample analysed for VOCs, PHC, and BTEX.
Trip Blanks	• Trip blanks submitted for groundwater

Refer to Figure 7 – Site Investigation for an illustration of the borehole and groundwater monitoring well locations.

The RSC property was assessed using the Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition from the Ministry of Environment Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards Use Under Part XV.1 of the Environmental Protection Act" (April 15, 2011), referred to as MECP Table 7 Site Condition Standards.

Soil analysis was unable to be completed during the Phase Two ESA as the soil conditions consisted of unfractured bedrock and was unable to be sampled.

Groundwater analysis completed during the Phase Two ESA indicated that groundwater met the MECP Table 7 Standards for all parameters tested which included potential contaminants of concern; Petroleum Hydrocarbons (PHC F_1-F_4), Benzene, Toluene, Ethylbenzene and Volatile Organic Compounds (VOC's).

Refer to Figure 5 – Site Investigation for an illustration of the borehole and groundwater monitoring well locations.

Chemical analyses were conducted by ALS Environmental Laboratories of Waterloo, Ontario. ALS Environmental Laboratories is a member of the Canadian Association for Laboratory Accreditation Inc. (CALA) and meets the requirements of Section 47 of O.Reg. 153/04 certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with standards developed by the Standards Council of Canada.

The Phase II Conceptual Site Model includes the following figures / diagrams:

FIGURES / DRAWINGS	DESCRIPTION
FIGURE 1	SITE LOCATION
FIGURE 2	SITE PLAN
FIGURE 3	PCAS – STUDY AREA
FIGURE 4	APECS
FIGURE 5	SITE INVESTIGATION
FIGURE 6	GROUNDWATER FLOW DIRECTION
FIGURE 7	CORSS – SECTION LAYOUT A – A ' B – B' C – C'
FIGURE 8	CROSS SECTION A – A'
FIGURE 9	CROSS SECTION B – B'
FIGURE 10	CROSS SECTION C – C'

6.12 Effects of Any Subsurface Structures and Utilities

There are no buildings on the RSC property. Bell, hydro utilities are available above ground with municipal water, storm sewer, and natural gas serviced below ground. Based on the depth to groundwater recorded on the RSC property (ranging between 1.50 m – 4.37 m below grade level) In October 2022 and the evaluation of buried utilities for the property (estimated to range between 0.61 m – 2.33 m below grade), there is a low potential for interaction between known buried utilities in or under the Phase II property and the water table. Although there is a potential for interaction between known buried utilities and the water table resulting in the presence of potential distribution pathways, it is the opinion of Rubicon that this interaction represents a low risk due to the fact that no contaminants were present in the groundwater at concentrations greater than the applicable site condition.

6.13 Stratigraphy

Based on the historical sub surface investigations conducted by Patterson Group Inc., the overburden on the RSC property is characterized and consistent as follows A geological description of the historical soil samples encountered within the overburden investigated is generally characterized as follows (from surface: ~ 66.4 m.a.s.l. asphalt followed by 1 m of overfill material 65.4 m a.s.l. followed by grey limestone bedrock.

As no particle size analysis was able to be completed for the RSC property the more conservative coarse textured soil standard will apply.

The sites are located in a physiographic region known as the Limestone Plain (Physiography of Southern Ontario, Chapman and Putnam, 1984). The terrain of the subject property is considered generally flat.

"Quaternary Geology of Ontario, Southern Sheet" Map 2556, shows the sites to be within an area known as Bedrock: undifferentiated igneous and metamorphic rock, exposed at surface or covered by a discontinuous, thin layer of drift.

"Bedrock Geology of Ontario, Southern Sheet" Map 2544, shows that the bedrock in the area of the sites is comprised of Middle Ordovician: limestone, dolostone, arkose and sandstone of the Ottawa Gp.; Simcoe Gp.; and Shadow lake Formation. Refer to Appendix 6.

The mapping available as presented in Figure 4 - Drift Thickness Trend, Ottawa-Hull, Ontario & Quebec Natural Resources Canada indicated that bedrock in the general area of the subject property is approximately 1-5 m below grade. Based on elevation marked on a survey of the subject property the subject property ranges is relatively flat for 66.4 masl. Appendix 4.

No other aquifer was investigated on the RSC property, as no known releases, potentially migrating contaminates, or potentially contaminating activities were identified that could potentially result in an impact beyond the shallow sub-surface groundwater table.

6.14 Hydrogeological Characteristics

Table 9: Hydrogeological Characteristics (October 3, 2022)

Monitoring Well ID (Surface Elevation m.a.s.l.)	Well Construction	Screen Elevation (*suspected)	Depth to water table (mbgl)	Water table elevation[1]
EX-MW1 (64.31)	Suspected Screen: 3.00 m Total: 3.73 m	63.58– 60.58* Masl	1.98– October 2022	62.23 – January 2022
EX-MW2 (64.63)	Suspected Screen: 3.00 m Total: 4.52 m	63.11 – 60.11* Masl	1.50 – October 2022	63.13 – October 2022
EX-MW4 (66.48)	Suspected Screen: 3.00 m Total: 6.29 m	63.19 – 60.19* Masl	1.33 – October 2022	65.47 – October 2022
EX-MW5 (66.82)	Suspected Screen: 3.00 m Total: 4.33 m	65.49 – 62.49* Masl	1.70 – October 2022	65.12 – October 2022
EX-MW6 (66.35)	Suspected Screen: 3.00 m Total: 5.81 m	63.54 – 60.54* Masl	4.37 – October 2022	61.98 – October 2022
EX-MW7 (66.76)	Suspected Screen: 3.00 m Total: 5.97 m	63.79 – 60.79* Masl	2.14 – October 2022	64.49 – October 2022
MW3 (66.28)	Riser: 2.00 m Screen: 3.00 m Total: 5.00 m	66.28 – 63.28 Masl	2.25 – October 2022	64.03 – October 2022
MW5 (66.39)	Riser: 2.00 m Screen: 3.11 m Total: 5.11 m	66.39 – 63.41 masl	4.22 – October 2022	62.17 – October 2022

*Surface elevations referenced from elevations points on Site Plan.

The horizontal hydraulic gradient of the single aquifer investigated on the property was calculated in October to be as follows; Hydraulic Gradient: $h_A – h_B/D = 0.166$ (65.47 – 61.98)/21.06 = 0.166 (Refer to Figures 6 for an illustration of the horizontal hydraulic gradient). The groundwater flow direction was calculated in the two-dimensional plane and is inferred to be in the southwest direction. Refer to Figure 8 for an illustration of the groundwater flow contours. The property and all other properties located, in whole or in part, within 250 meters of the boundaries of the RSC property are supplied by the City of Ottawa municipal drinking water system. The City of Ottawa is a single tier municipality. As a result of the above mentioned, a non-objection notification letter from the City of Ottawa has not been requested for use of shallow soils in a non-potable ground water site condition standards for the subject property.

6.15 Approximate Depth to Bedrock

The mapping available as Figure 4. Drift Thickness Trend, Ottawa-Hull, Ontario & Quebec Natural Resources Canada indicated that bedrock in the general area of the subject property is approximately 1-5 m below grade.

6.16 Approximate Depth to Water Table

As part of the Phase II ESA, the measured depth to groundwater onsite was recorded between 1.50 m to 4.37 m below ground surface (bgs). The relative elevations range between 61.98 – 64.49 m asl.

6.17 Any respect which section 41 or 43.1 applies to the property

Section 41: Site condition standards, environmentally sensitive areas of the regulation, does not apply to the Phase II property due to the following conditions;

(a) the property is **not**,

(i) within an area of natural significance,

(ii) includes or is adjacent to an area of natural significance or part of such an area, or

(iii) includes land that is within 30 metres of an area of natural significance or part of such an area;

(b) the soil at the property does **not** have a pH value as follows:

(i) for surface soil, less than 5 or greater than 9,

(ii) for sub-surface soil, less than 5 or greater than 11; or

Not applicable as no soil was obtained from the RSC subject property.

Section 43.1: Site condition standards, shallow soil property or water body of the regulation does apply to the Phase II property for the following conditions;

(a) the property is a shallow soil property; or

(b) the property does **not** include all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body. O. Reg. 511/09, s. 21.

(c) In this section, “shallow soil property” means a property of which 1/3 or more of the area consists of soil equal to or less than 2 metres in depth beneath the soil surface, excluding any non-soil surface treatment such as asphalt, concrete or aggregate; “soil” means, for the purposes of the definition of shallow soil property, unconsolidated naturally occurring mineral particles and other naturally occurring material resulting from the natural breakdown of rock or organic matter by physical, chemical or biological processes that are smaller than 2 millimetres in size or that pass the US #10 sieve and includes a mixture of soil and rock if less than 50 per cent by mass of the mixture is rock. O. Reg. 511/09, s. 21.

6.18 Imported Soil

No fill material of any quality was located on the RSC property at this time. No contaminants were present at concentrations greater than the applicable site condition standard.

6.19 Proposed Building and/or Structures

Rubicon Environmental (2008) Inc. was informed by the authorized individual that 245 – 267 Rochester Street, & 27 – 29 Balsam Street is proposed to be a multi-unit commercial/residential property to be constructed.

Based on the notion that the lands will be used for commercial residential purposes, it is the opinion of Rubicon that a Record of Site Condition is required to be filed, as per O. Reg. 153/04.

6.20 Contaminants Present at Concentrations Greater than the Applicable Site Condition Standard

No contaminants were present at concentrations greater than the applicable site condition standard.

8.0 CONCLUSIONS

Rubicon Environmental (2008) Inc. (Rubicon) was retained by Mr. Carl Madigan on behalf of 3N Group Holdings Inc. to undertake a Phase II Environmental Site Assessment (ESA) at the vacant former residential properties located at 245, 247, 249, 261, 263, 265, 267 Rochester Street, 27 & 29 Balsam Street, Ottawa, Ontario. (Hereby referred to as the 'RSC property').

The environmental assessment was completed to ascertain and fully explore surficial and subsurface groundwater conditions in the vicinity of the APECs identified in the Phase One. No soil was identified on site at the time of this investigation. The investigation was completed in accordance with O. Reg 153/04 (as amended 2011, 2019). The current investigation was conducted for the purpose of filing a record of site condition with the MECP (Ministry of the Environment Conservation and Parks) in order to determine if the groundwater on site is suitable for mixed Commercial/Residential Land Use.

The subject property was assessed using the Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition from the Ministry of Environment Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*" (April 15, 2011), referred to as MECP Table 7 Site Condition Standards. Based on Rubicon's evaluation, two (2) Areas of Potential Environmental Concern was identified on the subject property. The APEC's identified on site included the following:

APEC #1 is due to the historic use of dry-cleaning equipment from 1920 to 1926 and 1965 to 1982. APEC #1 is considered to encompass the southwest corner of the subject property, where the buildings of 263 & 267 Rochester Street were located.

APEC #2 is due to the historical oil corporation that existed at 263 Rochester Street. APEC #2 is considered to encompass the area where the building of 263 Rochester Street was located.

The three (3) contaminants of potential concern (COPC) were identified at the Site with respect to the two (2) areas of potential environmental concern: Petroleum Hydrocarbons (PHC F_1-F_4), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), Volatile Organic Compounds (VOC's), identified on the RSC property. These contaminants of potential concern were identified using the Method Groups as outlined in the, Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011.

The Phase II ESA drilling investigation was conducted on Feb 7th and April 22nd, 2022. In total, two (2) boreholes were advanced on-site to a maximum depth 5.11m below grade level (mbgl), to explore the groundwater conditions within the vicinity of the APECS identified in the previous Phase One ESA. Field-testing was also conducted using an RKI Eagle calibrated against hexane gas. Two (2) boreholes were advanced as monitoring wells but were unable to be sampled as no soil was encountered; the ground consisted of limestone. A total of eight (8) verification groundwater samples, one (1) duplicate sample and one (1) trip blank were submitted for laboratory analysis.

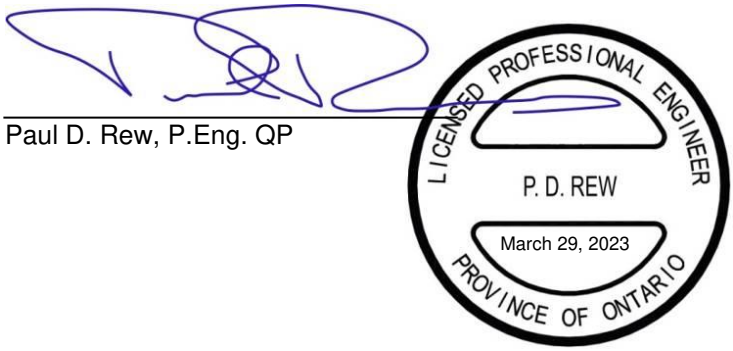
From August 2021 through September 2022 approximately 4,000 L was purged from the eight (8) wells into four (4) – 1,000 L totes. The eight (8) monitoring wells were purged using designated bailers, low flow pump and jet pump. Following the approximate 4,000 L of groundwater purged from the eight (8) monitoring wells, Rubicon took a confirmatory sample following preliminary and intermediate water samples through the purging of the contaminant plume from the period from August 2021 through September 2022.

On October 3, 2022, with the use of a Solinst 101 Water Level Meter - P7 Probe with PVDF flat tape, all eight (8) groundwater monitoring wells onsite (EX-MW1, EX-MW2, EX-MW4, EX-MW5, EX-MW6, EX-MW7, MW3 & MW5) were measured and sampled. Samples were analyzed for pH, VOCs and PHC F_1-F_4. The analytical results were compared to Table 7 O. Reg.511/09 criteria for residential land use, Shallow Soils in a Non-Potable Ground Water Condition, with coarse textured soil. The groundwater sample analytical results from each well showed that the parameters tested for, met the applicable MECP criteria.

Based on the findings of the Phase II ESA, and the removal of 4,000 L of impaired groundwater the subject property meets the applicable Table 7 Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition for Residential Land use, Coarse Textured Soil from the Ministry of Environment (MECP) document “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (April 15, 2011), referred to as MECP Table 7 Site Condition Standards. Based on the Phase II ESA findings, Rubicon Environmental (2008) Inc. holds the opinion that a final round of groundwater sampling should be performed in spring 2023 to verify the absence of any rebound events.

Respectfully submitted,

RUBICON ENVIRONMENTAL (2008) INC.



Paul D. Rew, P.Eng. QP

9.0 REFERENCES

Google Maps URL: http://maps.google.ca/maps

Ministry of Northern Development and Mines *"Bedrock Geology of Ontario, Southern Sheet, Map 2544"*

Ontario Geological Survey, *"Quaternary Geology of Ontario. 1991. Map 2556"*

Ontario Ministry of the Environment, Ontario Regulation 153/04, as amended by Ontario Regulation 511/09.

Topographic Map referenced from Natural Resources Canada:
http://www.atlas.nrcan.gc.ca/site/english/toporama/index.html

Phase II – Environmental Site Assessment 247-267 Rochester Street and 27 Balsam Street Ottawa, Ontario. Dated March, 2011. Completed by Paterson Group Inc.

Supplementary Assessment of Soil Vapour Rochester Street Right of Way, Ottawa Ontario K1R 7N1. Dated July 28, 2019. Completed by Malroz Engineering Inc.

Air Quality Assessment Residential Properties 246, 250 & 254 Rochester Street, Ottawa Ontario K1R 7N1. Dated July 28, 2021. Completed by Rubicon Environmental (2008) Inc.

10.0 LIMITATIONS

1. This assessment was conducted in accordance with generally accepted engineering standards. It is possible that materials other than those described in this report are present at the site. The client acknowledges that no assessment can necessarily identify the existence of all contaminants, potential contaminants, or environmental conditions;

2. This report was prepared for the sole and exclusive use of Mr. Carl Madigan on behalf of 3N Group Holdings Inc., Rubicon Environmental (2008) Inc. accepts no responsibility or liability for any loss, damage, expense, fine or any other claim of any nature or type, including any liability or potential liability arising from its own negligence, for any use of this report or reliance on it, in whole or in part, by anyone other than Mr. Carl Madigan on behalf of 3N Group Holdings Inc.;

3. There is no representation, warranty or condition, express or implied, by Rubicon Environmental (2008) Inc. or its officers, directors, employees or agents that this assessment has identified all contaminants, potential contaminants or environmental conditions at the site or that the site is free from contamination, potential contaminants or environmental conditions other than those noted in this report;

4. This assessment has been completed from information and documentation described in this report as well as the results of limited chemical analysis of soil samples collected from accessible locations on the date(s) specified. We have assumed that any such information and documentation is accurate and complete. We can accept no responsibility or liability for any errors, deficiencies or inaccuracies in this report arising from errors or omissions in the information and documentation provided by others;

5. This assessment was based on information and the results of investigation(s) obtained on the date(s) specified. Rubicon Environmental (2008) Inc. accepts no responsibility or liability for any changes or potential changes in the condition of the site subsequent to the date of our investigation(s);

6. The conditions between sampling locations have been inferred, to the best of our ability, based on the conditions observed at sampling locations. Conditions between and beyond sampling locations may vary. This assessment pertains, only, to the site specifically described in this report and not to any adjacent or other property;

7. This assessment does not include, nor is it intended to include, any opinion regarding the suitability of any structure on the site for any particular function, the integrity of the on-site buildings or the geotechnical conditions on the site, with the exception of how they may identify with environmental concerns. Inspections of buildings do not include compliance with building, gas, electrical or boiler codes, or any other federal, provincial or municipal codes not associated with environmental concerns. Should concerns regarding any parameters other than environmental concerns arise as a result of our investigation(s), they should be addressed by appropriately qualified professionals; and,

8. This report is not to be reproduced or released to any other party, in whole or in part, without the express written consent of Rubicon Environmental (2008) Inc.

FIGURES

R63048	NAME	DATE
DRAWN BY:	NP	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa, ON		

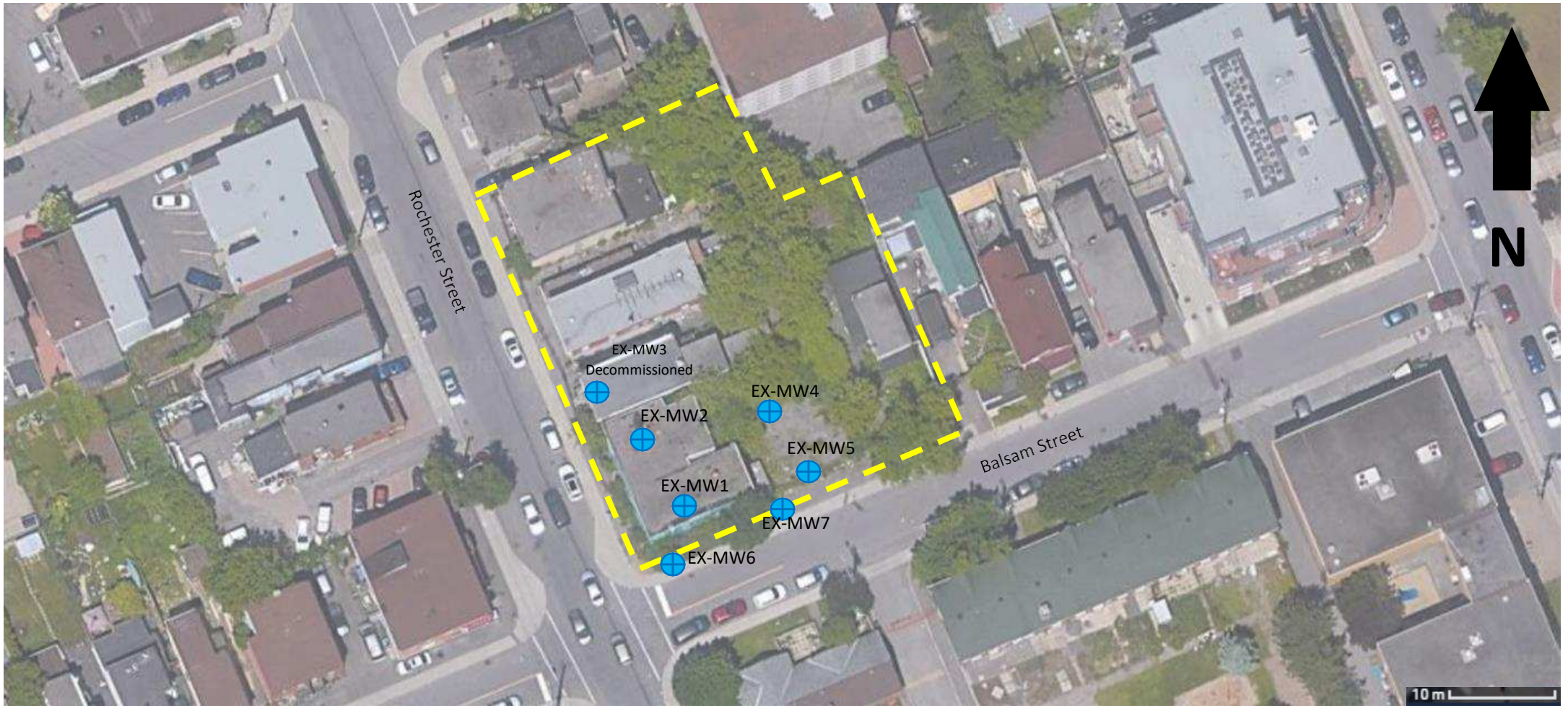
Rubicon Environmental (2008) Inc.

Figure 1: Site Location

Legend

RSC Phase One and Phase Two Subject Property

RSC Phase One and Phase Two Study Area

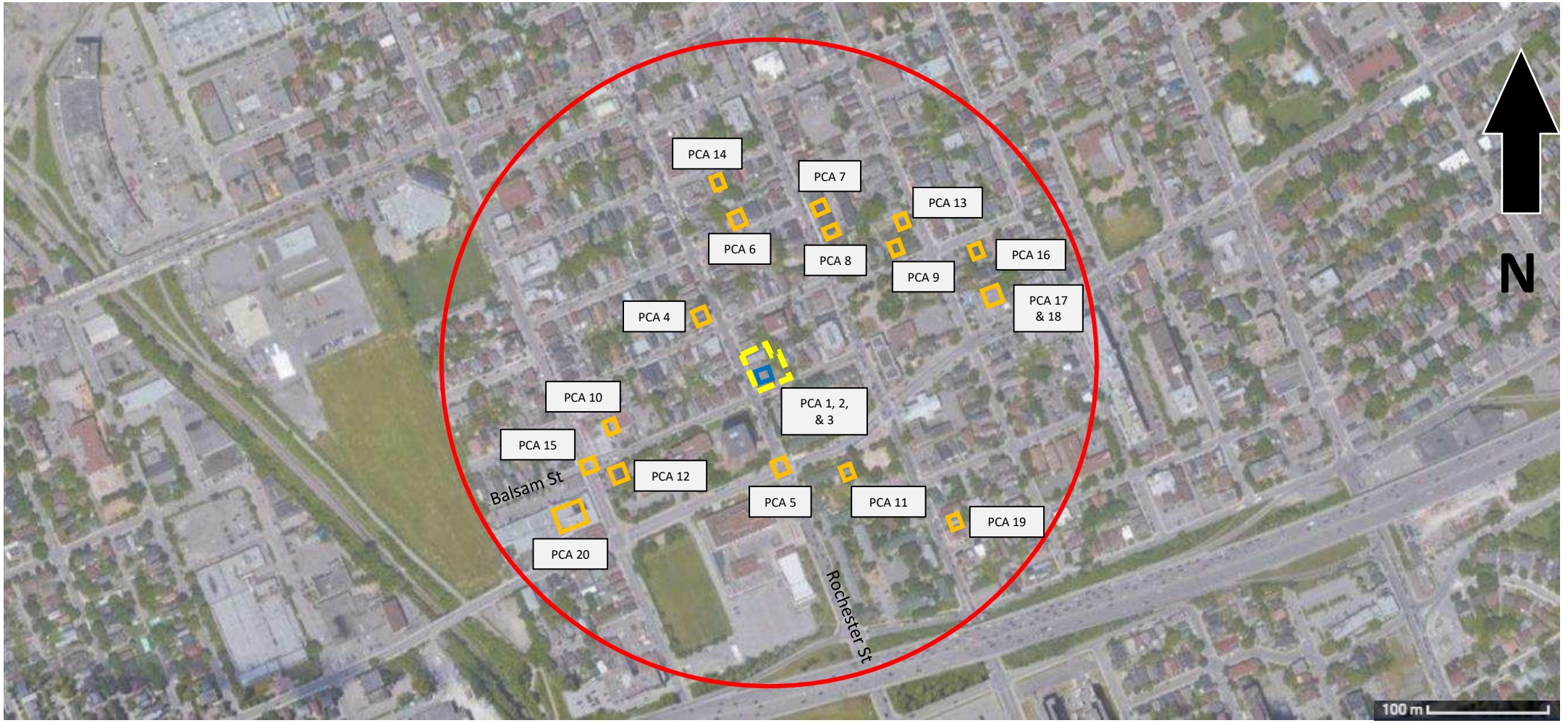


R63048	NAME	DATE
DRAWN BY:	NP	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa / ON		

Rubicon Environmental (2008) Inc.

Figure 2:
Site Plan

Legend
RSC Phase One, Phase Two Subject Property
Monitoring wells

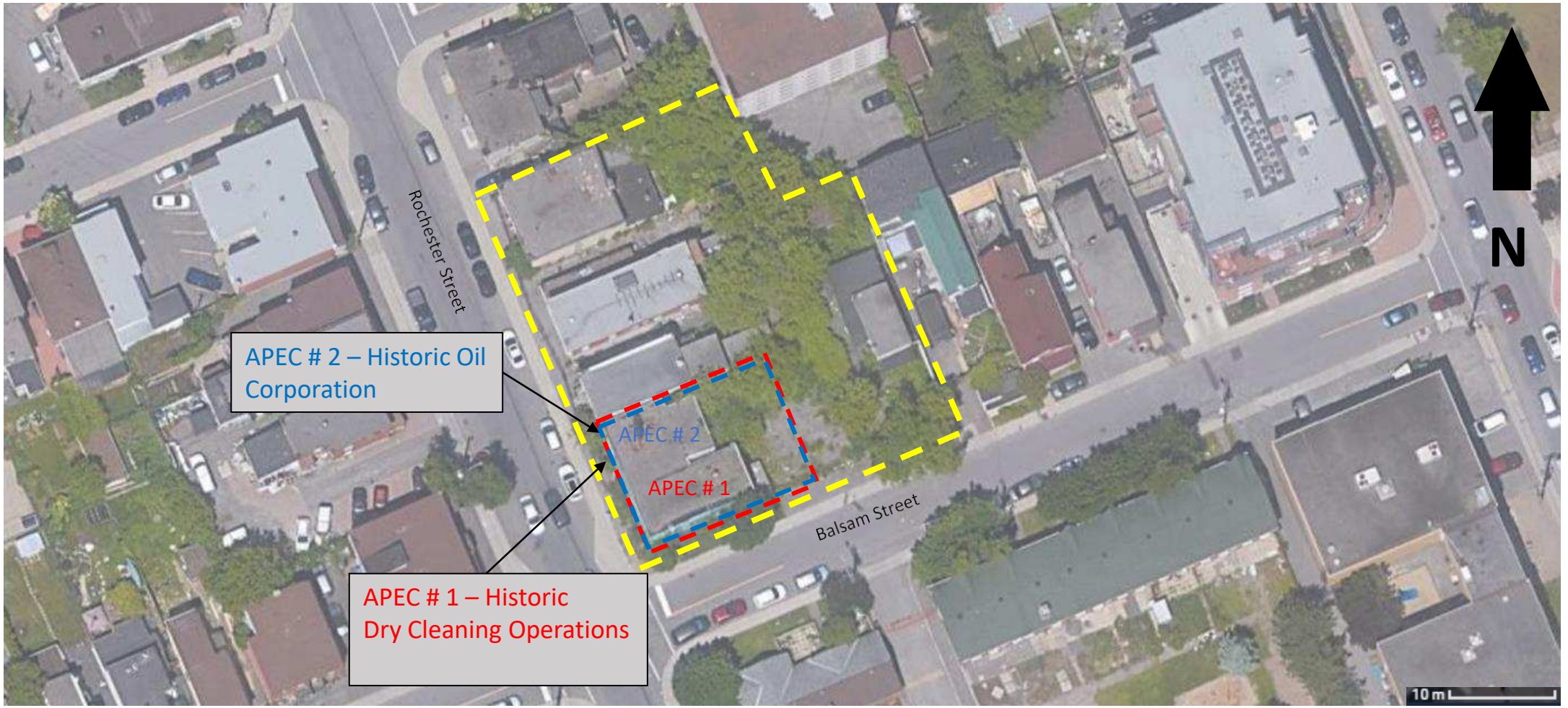


R63048	NAME	DATE
DRAWN BY:	NP	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa, ON		

Rubicon Environmental (2008) Inc.

Figure 3: PCAs - Study Area

Legend
- RSC Phase One, Phase Two Subject Property
- RSC Phase One, Phase Two Study Area
- Contributing PCAs
- Non-Contributing PCAs

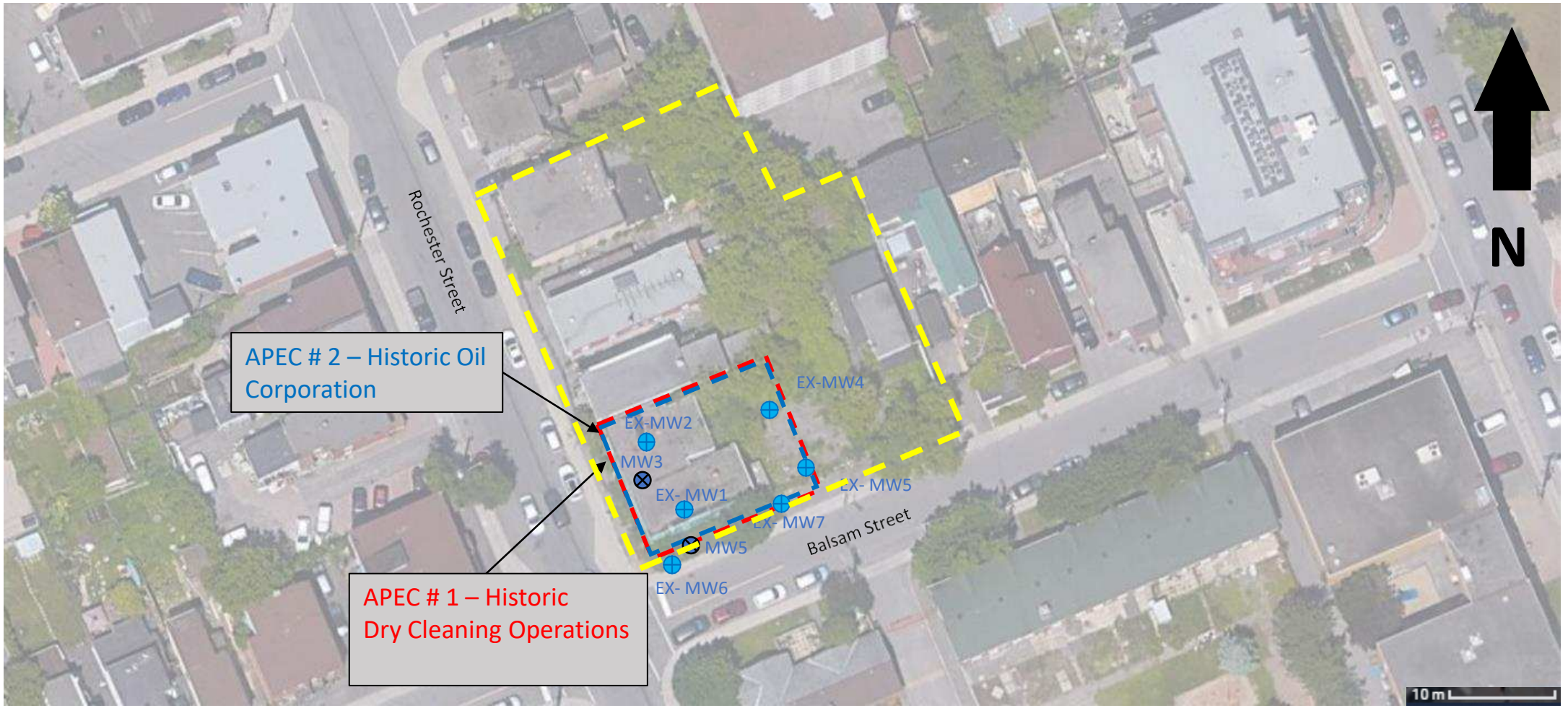


R63048	NAME	DATE
DRAWN BY:	AA	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa / ON		

Rubicon Environmental (2008) Inc.

Figure 4: APECs

Legend
RSC Phase One, Phase Two Subject Property



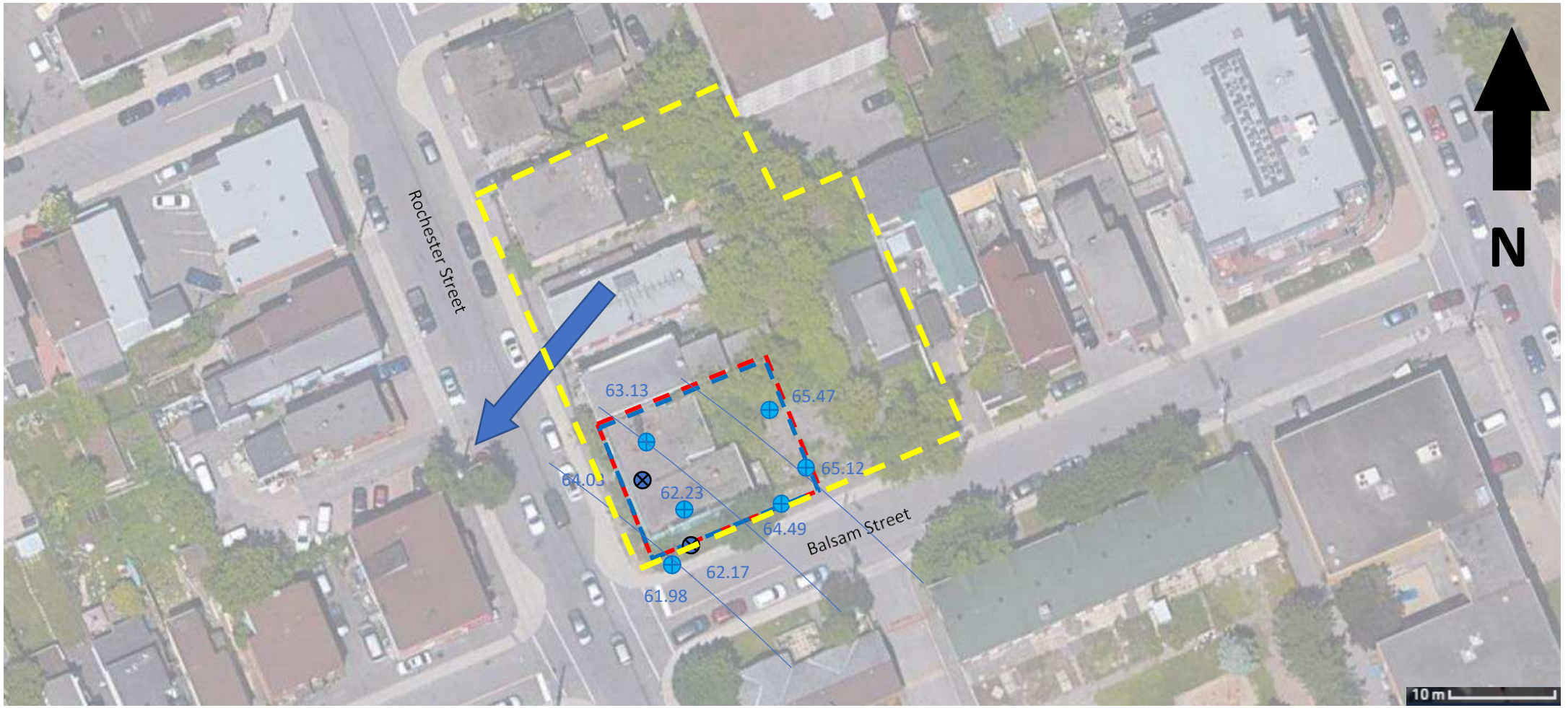
R63048	NAME	DATE
DRAWN BY:	AA	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa / ON		

Rubicon Environmental (2008) Inc.

Figure 5: Site Investigation

Legend

RSC Phase One, Phase Two Subject Property



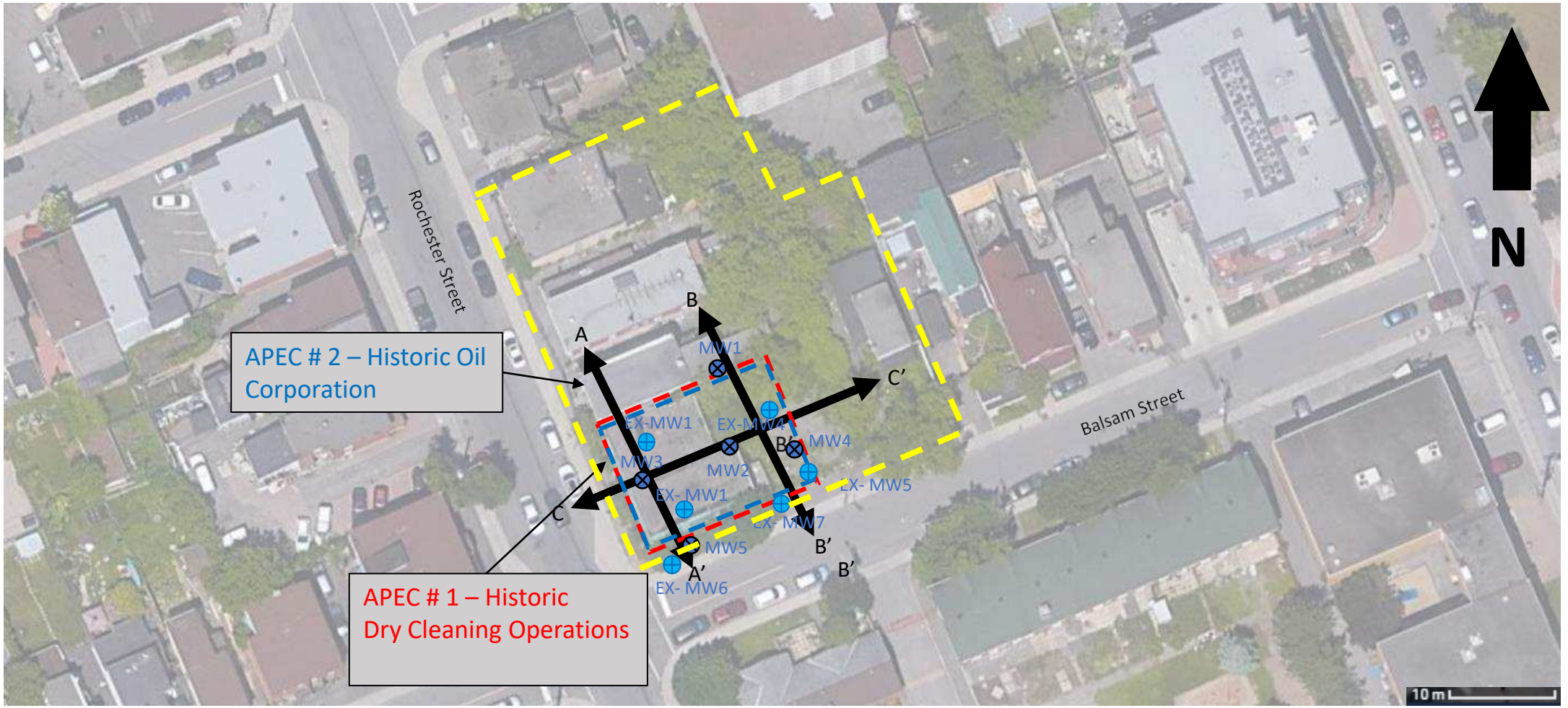
R63048	NAME	DATE
DRAWN BY:	JG	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa / ON		

Rubicon Environmental (2008) Inc.

Figure 6: Groundwater Flow Direction

Legend

- RSC Phase One, Phase Two Subject Property
- Groundwater Contour
- Groundwater Flow Direction



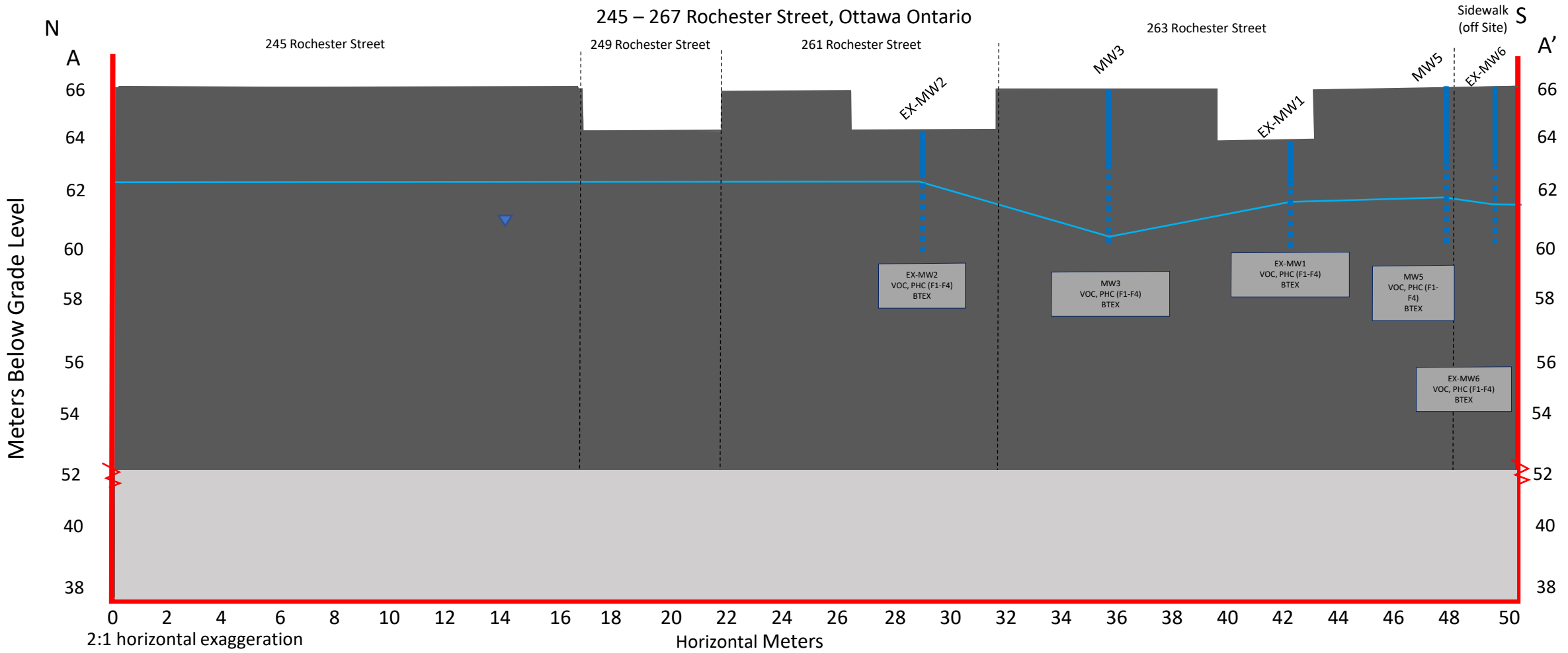
R63048	NAME	DATE
DRAWN BY:	AA	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 247 - 267 Rochester Street, Ottawa / ON		

Rubicon Environmental (2008) Inc.

Figure 7:
Cross Section Layout
A – A'
B – B'
C – C'

Legend
RSC Phase One, Phase Two Subject Property

RSC Phase One and Phase Two Subject Property
Cross Section
245 – 267 Rochester Street, Ottawa Ontario



R63048	NAME	DATE
DRAWN BY:	JG	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa / ON		

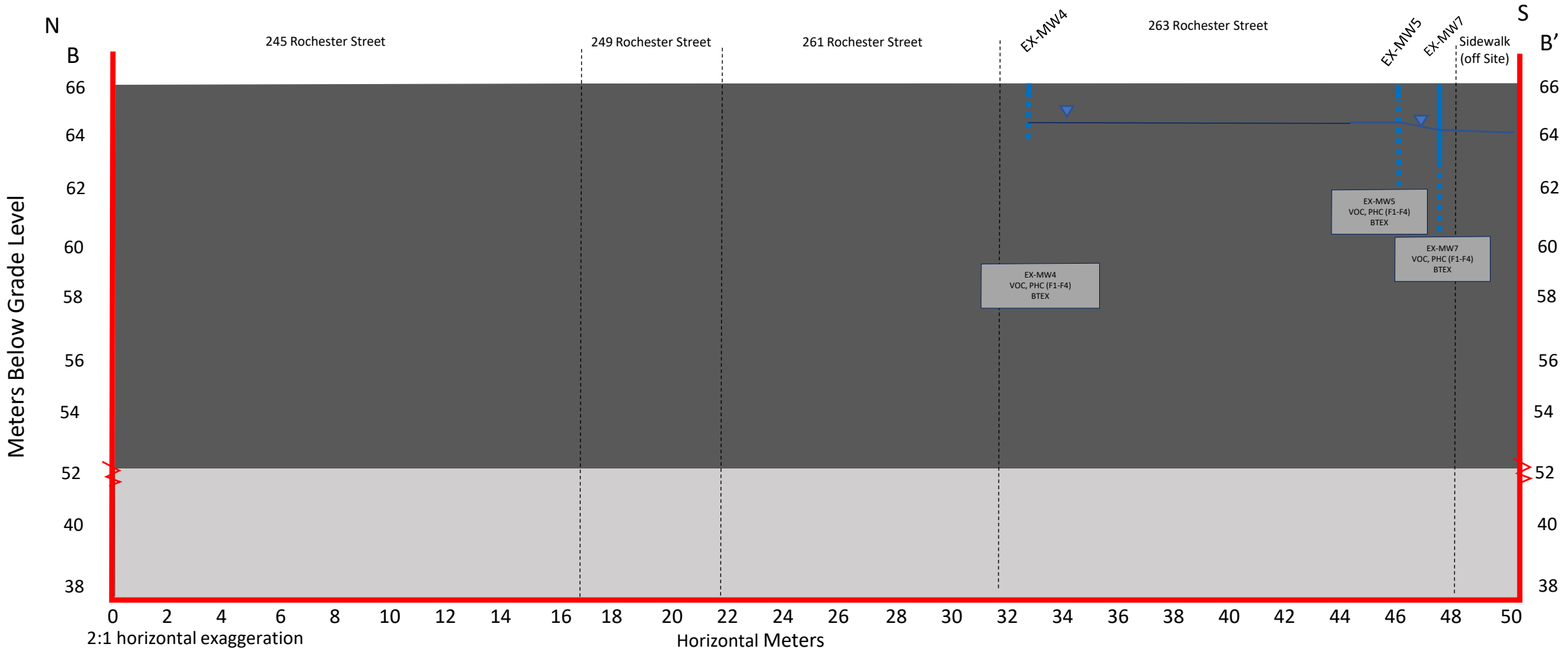
Rubicon Environmental (2008) Inc.

Figure 8:
Cross Section
A-A'

Legend:
- Limestone
- Water Table
- Bedrock
- Borehole
- Asphalt
- Borehole/ Monitoring well)
- Casing
- Screen

RSC Phase One and Phase Two Subject Property Cross Section

245 – 267 Rochester Street, Ottawa Ontario



R63048	NAME	DATE
DRAWN BY:	JG	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa / ON		

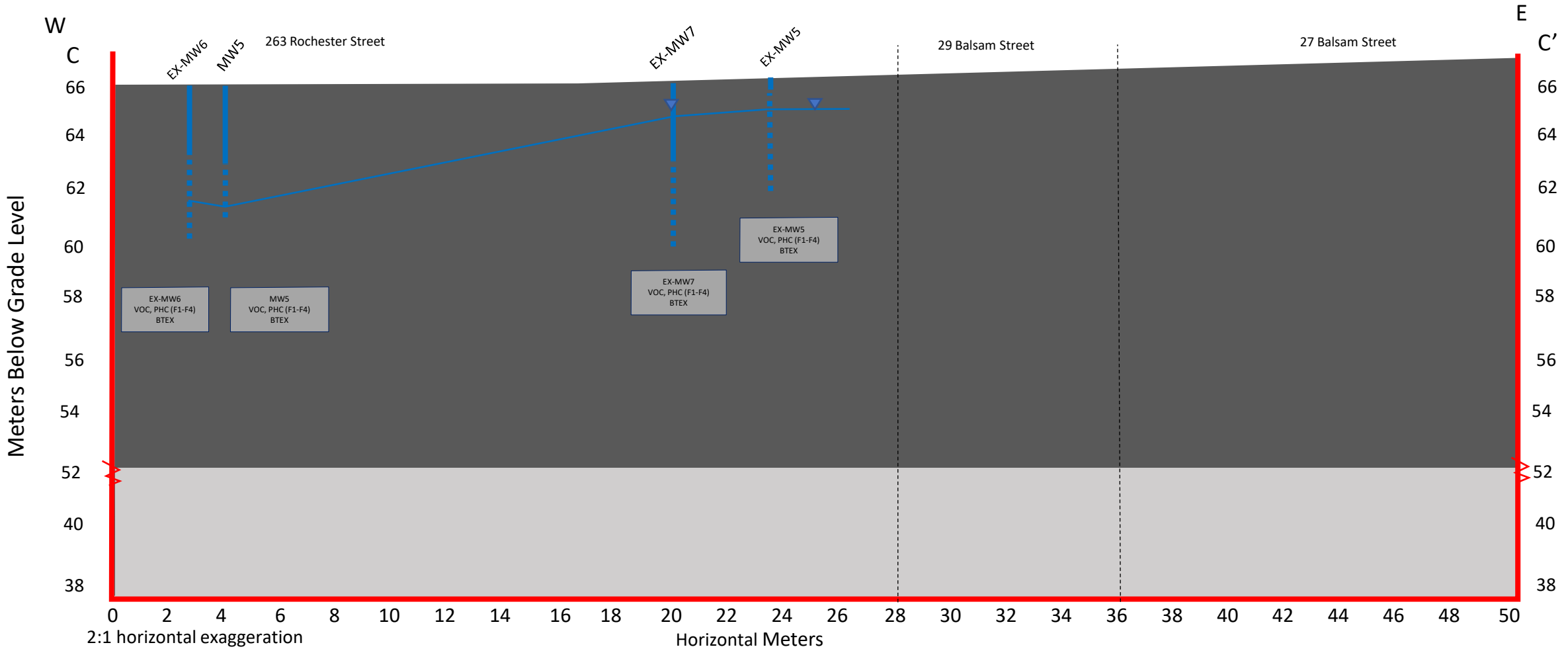
Rubicon Environmental (2008) Inc.

Figure 9: Cross Section B-B'

Legend:
- Limestone
- Water Table
- Bedrock
- Borehole
- Asphalt
- Borehole/ Monitoring well)
- Casing
- Screen

RSC Phase One and Phase Two Subject Property Cross Section

245 – 267 Rochester Street / 27 Balsam Street, Ottawa Ontario



R63048	NAME	DATE
DRAWN BY:	JG	October 2022
CHECKED BY:	PDR	October 2022
27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa / ON		

Rubicon Environmental (2008) Inc.

Figure 10: Cross Section C-C'

Legend:

- Limestone
- Water Table
- Bedrock
- Borehole
- Asphalt
- Borehole/ Monitoring well)
- Casing
- Screen

TABLES

TABLE 1: SOIL AND GROUNDWATER FIELD SAMPLING OBSERVATIONS AND ANALYSIS PLAN

BOREHOLE ID (Max Depth)	SOIL SAMPLE ID	SOIL SAMPLE DEPTH (Mbgl)	RATIONALE/COMMENTS
MW3 (5.00)	*N/A*	N/A	• Located within APEC 1 & APEC 2 • Soil sample unable to be retrieved due to the ground consisting of bedrock.
MW5 (5.11)	*N/A*	N/A	• Located within APEC 1 • Soil sample unable to be retrieved due to the ground consisting of bedrock.
Trip Blank	-	-	• Trip Blank submitted with Soil Laboratory Submission
Groundwater			
Monitoring well	**GW Sampling ID**	**Depth (m)**	**Rationale/Comments**
EX-MW1 (64.31)	*EX-MW1*	3.73	• Located within APEC 1 & APEC 2 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs • Duplicate submitted
EX-MW2 (64.63)	*EX-MW2*	4.52	• Located within APEC 1 & APEC 2 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs
EX-MW4 (66.8)	*EX-MW4*	6.29	• Located within APEC 1 & APEC 2 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs
EX-MW5 (66.82)	*EX-MW5*	4.33	• Located within APEC 1 & APEC 2 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs
EX-MW6 (66.35)	*EX-MW6*	5.81	• Located within APEC 1 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs
EX-MW7 (66.63)	*EX-MW7*	5.97	• Located within APEC 1 & APEC 2 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs
MW3 (66.28)	*MW3*	6.00	• Located within APEC 1 & APEC 2 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs
MW5 (66.39)	*MW5*	5.98	• Located on the south perimeter line of the subject property, northeast of EX-MW1 • No significant well vapour readings using field instruments (< 5 ppm) • Groundwater sample analyzed for PHCs & VOCs
Trip Blank	-	-	• Trip Blank submitted with Groundwater Laboratory Submission

*Refer to Appendix 3 - Borehole Logs

TABLE 2: SUMMARY OF GROUNDWATER LEVELS AND OBSERVATIONS

Monitoring Well ID (Surface Elevation m.a.s.l.)	Well Construction	Screen Elevation (*suspected)	Depth to water table (mbgl)	Water table elevation[1]
EX-MW1 (64.31)	Suspected Screen: 3.00 m Total: 3.73 m	63.58– 60.58* Masl	1.98– October 2022	62.23 – January 2022
EX-MW2 (64.63)	Suspected Screen: 3.00 m Total: 4.52 m	63.11 – 60.11* Masl	1.50 – October 2022	63.13 – October 2022
EX-MW4 (66.48)	Suspected Screen: 3.00 m Total: 6.29 m	63.19 – 60.19* Masl	1.33 – October 2022	65.47 – October 2022
EX-MW5 (66.82)	Suspected Screen: 3.00 m Total: 4.33 m	65.49 – 62.49* Masl	1.70 – October 2022	65.12 – October 2022
EX-MW6 (66.35)	Suspected Screen: 3.00 m Total: 5.81 m	63.54 – 60.54* Masl	4.37 – October 2022	61.98 – October 2022
EX-MW7 (66.76)	Suspected Screen: 3.00 m Total: 5.97 m	63.79 – 60.79* Masl	2.14 – October 2022	64.49 – October 2022
MW3 (66.28)	Riser: 2.00 m Screen: 3.00 m Total: 5.00 m	66.28 – 63.28 Masl	2.25 – October 2022	64.03 – October 2022
MW5 (66.39)	Riser: 2.11 m Screen: 3.00 m Total: 5.11 m	66.39 – 63.41 masl	4.22 – October 2022	62.17 – October 2022

TABLE 3: GROUNDWATER CHEMICAL ANALYSIS – VOC/BTEX/PHC (F_1-F_4)/pH

Parameter	2011 MECP Table 7 Residential Coarse	EX-MW1	EX-MW1 DUPE	EX-MW2	EX-MW4	EX-MW5	EX-MW6	EX-MW7	MW3	MW5	TRIP BLANK
Date of Collection		Oct 3, 2022	Oct 3, 2022	Oct 3, 2022	Oct 3, 2022	Oct 3, 2022	Oct 3, 2022	Oct 3, 2022	Oct 3, 2022	Oct 3, 2022	Oct 3, 2022
Date Reported		Oct 14, 2022	Oct 14, 2022	Oct 14, 2022	Oct 14, 2022	Oct 14, 2022	Oct 14, 2022	Oct 14, 2022	Oct 14, 2022	Oct 14, 2022	Oct 14, 2022
Sampling Depth (mbgl)		-	-	-	-	-	-	-	-	-	-
Analytical report reference number		WT2217618	WT2217618	WT2217618	WT2217618	WT2217618	WT2217618	WT2217618	WT2217618	WT2217618	WT2217618
Acetone	100000(U)	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	67000(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	0.89(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	0.2(U)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	140(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	2(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	65000(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	0.2(U)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	150(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	7600(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	3500(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	11(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	1.6(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	1.6(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	26(U)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	0.58(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis & trans)	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethyl Benzene		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
n-Hexane		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	54(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MTBE	21000(U)	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Styrene	5200(U)	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
1,1,1,2-Tetrachloroethane	15(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	43(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	1.1(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	320(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	23(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	0.5(U)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes (Total)	72	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
F1 (C6 – C10)	420	<25	<25	<25	<25	<25	<25	<25	<25	<25	
F2 (C10 – C16)	150	<100	<100	<100	<100	<100	<100	<100	<100	<100	
F3 (C16 – C34)	500	<250	<250	<250	<250	<250	<250	<250	<250	<250	
F4 (C34 – C50)	500	<250	<250	<250	<250	<250	<250	<250	<250	<250	

All values in ug/g – ppm – parts per million MDL – method detection limit. D- Duplicate Sample *MOE O. Reg. – Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition, Residential property use, and coarse textured soil criteria applied.
Orange – MDL exceeds applicable SCS
Red – Measured Conc. exceeds applicable SCS

Table 4: Groundwater Monitoring Well Construction Details

Monitoring Well ID	Construction Details	Elevation (m asl.) at Well Location
RMW3	-Installed February 7, 2022, as part of the Sampling Plan -Developed using 2", Schedule 40 PVC pipe with slotted screen in the suspected region of the groundwater table. Silica sand was positioned around the screen with a bentonite seal located above the filter pack to grade to prevent surface water from entering the monitoring well and a flush mount cap. -Riser: 2.00 m, Screen: 3.0 m Total Depth: 5.00 m -Well constructed as per O.Reg. 903, and O.Reg. 153/04 criteria.	66.28
RMW5	-Installed February 7, 2022, as part of the Sampling Plan -Developed using 2", Schedule 40 PVC pipe with slotted screen in the suspected region of the groundwater table. Silica sand was positioned around the screen with a bentonite seal located above the filter pack to grade to prevent surface water from entering the monitoring well and a flush mount cap. -Riser: 2.11 m, Screen: 3.0 m Total Depth: 5.11 m -Well constructed as per O.Reg. 903, and O.Reg. 153/04 criteria.	66.39

APPENDIX 1
PHOTOGRAPHS

Image 1 – Monitoring Well 4, facing west (later decommissioned)

Image 2 – Monitoring Well 1, facing east (later decommissioned)

Image 3 – Monitoring Well 2, facing west

Image 3 - EXMW2 within the basement foundation

Image 4 – MW3 stick southwest of the subject property

Image 5 – EX–MW1 within basement foundation southwest of the subject property

Image 6 – EX-MW5 south of the subject property

Image 7 – EX-MW7 southwest on the property bounds

Image 8 – EX-MW6 offsite monitoring well

Image 9 – MW5 on the subject property

APPENDIX 2
LABORATORY CERTIFICATES OF ANALYSIS

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2217618**	Page	: 1 of 8
Client	: **Rubicon Environmental Inc.**	Laboratory	: Waterloo - Environmental
Contact	: Paul Rew	Account Manager	: Gayle Braun
Address	: 60 Toronto St Flesherton ON Canada N0C 1E0	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 924 0003	Telephone	: +1 519 886 6910
Project	: R63048	Date Samples Received	: 12-Oct-2022 15:28
PO	: ----	Date Analysis Commenced	: 12-Oct-2022
C-O-C number	: 20-1005665	Issue Date	: 14-Oct-2022 14:05
Sampler	: CLIENT		
Site	: ----		
Quote number	: SOA		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Sarah Birch	Team Leader - Volatiles	Organics, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
µg/L	micrograms per litre

>: greater than.
<: less than.
Red shading is applied where the result is greater than the Guideline Upper Limit or the result is lower than the Guideline Lower Limit.
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Unit	Client sample ID	EXMW1	EXMW1-DUPE	EXMW2	EXMW4	EXMW5	EXMW6	EXMW7
			Sampling date/time	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022
			Sub-Matrix	Water	Water	Water	Water	Water	Water	Water
				WT2217618-001	WT2217618-002	WT2217618-003	WT2217618-004	WT2217618-005	WT2217618-006	WT2217618-007
Volatile Organic Compounds										
Acetone	67-64-1	µg/L		<20	<20	<20	<20	<20	<20	<20
benzene	71-43-2	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
bromodichloromethane	75-27-4	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
bromoform	75-25-2	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
bromomethane	74-83-9	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
carbon tetrachloride	56-23-5	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
chlorobenzene	108-90-7	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
chloroform	67-66-3	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dibromochloromethane	124-48-1	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dibromoethane, 1,2-	106-93-4	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
dichlorobenzene, 1,2-	95-50-1	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichlorobenzene, 1,3-	541-73-1	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichlorobenzene, 1,4-	106-46-7	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichlorodifluoromethane	75-71-8	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethane, 1,1-	75-34-3	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethane, 1,2-	107-06-2	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethylene, 1,1-	75-35-4	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethylene, cis-1,2-	156-59-2	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloroethylene, trans-1,2-	156-60-5	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloromethane	75-09-2	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
dichloropropane, 1,2-	78-87-5	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloropropylene, cis+trans-1,3-	542-75-6	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
dichloropropylene, cis-1,3-	10061-01-5	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
dichloropropylene, trans-1,3-	10061-02-6	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
ethylbenzene	100-41-4	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
hexane, n-	110-54-3	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
methyl ethyl ketone [MEK]	78-93-3	µg/L		<20	<20	<20	<20	<20	<20	<20
methyl isobutyl ketone [MIBK]	108-10-1	µg/L		<20	<20	<20	<20	<20	<20	<20
methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Unit	Client sample ID: EXMW1	EXMW1-DUPE	EXMW2	EXMW4	EXMW5	EXMW6	EXMW7
		Sampling date/time	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022
		Sub-Matrix	Water	Water	Water	Water	Water	Water	Water
			WT2217618-001	WT2217618-002	WT2217618-003	WT2217618-004	WT2217618-005	WT2217618-006	WT2217618-007
Volatile Organic Compounds									
styrene	100-42-5	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
tetrachloroethylene	127-18-4	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
toluene	108-88-3	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trichloroethane, 1,1,1-	71-55-6	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trichloroethane, 1,1,2-	79-00-5	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trichloroethylene	79-01-6	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trichlorofluoromethane	75-69-4	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
vinyl chloride	75-01-4	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
xylene, m+p-	179601-23-1	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
xylene, o-	95-47-6	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
xylenes, total	1330-20-7	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
BTEX, total	----	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hydrocarbons									
F1 (C6-C10)	----	µg/L	<25	<25	<25	<25	<25	<25	<25
F2 (C10-C16)	----	µg/L	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	----	µg/L	<250	<250	<250	<250	<250	<250	<250
F4 (C34-C50)	----	µg/L	<250	<250	<250	<250	<250	<250	<250
F1-BTEX	----	µg/L	<25	<25	<25	<25	<25	<25	<25
hydrocarbons, total (C6-C50)	----	µg/L	<370	<370	<370	<370	<370	<370	<370
chromatogram to baseline at nC50	n/a	-	YES	YES	YES	YES	YES	YES	YES
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	%	98.7	96.9	101	90.9	96.8	96.5	94.6
dichlorotoluene, 3,4-	97-75-0	%	88.2	99.0	100	96.3	93.0	94.0	94.3
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	%	94.9	95.8	95.6	95.7	95.3	94.7	95.0
difluorobenzene, 1,4-	540-36-3	%	100	99.9	99.8	99.8	99.7	99.7	99.8

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Unit	Client sample ID	MW3	MW5	TRIP BLANK	----	----	----	----
			Sampling date/time	03-Oct-2022	03-Oct-2022	03-Oct-2022	----	----	----	----
			Sub-Matrix	Water	Water	Water	----	----	----	----
				WT2217618-008	WT2217618-009	WT2217618-010	--------	--------	--------	--------
Volatile Organic Compounds										
Acetone	67-64-1	µg/L		<20	<20	<20	----	----	----	----
benzene	71-43-2	µg/L		<0.50	<0.50	<0.50	----	----	----	----
bromodichloromethane	75-27-4	µg/L		<0.50	<0.50	<0.50	----	----	----	----
bromoform	75-25-2	µg/L		<0.50	<0.50	<0.50	----	----	----	----
bromomethane	74-83-9	µg/L		<0.50	<0.50	<0.50	----	----	----	----
carbon tetrachloride	56-23-5	µg/L		<0.20	<0.20	<0.20	----	----	----	----
chlorobenzene	108-90-7	µg/L		<0.50	<0.50	<0.50	----	----	----	----
chloroform	67-66-3	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dibromochloromethane	124-48-1	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dibromoethane, 1,2-	106-93-4	µg/L		<0.20	<0.20	<0.20	----	----	----	----
dichlorobenzene, 1,2-	95-50-1	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichlorobenzene, 1,3-	541-73-1	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichlorobenzene, 1,4-	106-46-7	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichlorodifluoromethane	75-71-8	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloroethane, 1,1-	75-34-3	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloroethane, 1,2-	107-06-2	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloroethylene, 1,1-	75-35-4	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloroethylene, cis-1,2-	156-59-2	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloroethylene, trans-1,2-	156-60-5	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloromethane	75-09-2	µg/L		<1.0	<1.0	<1.0	----	----	----	----
dichloropropane, 1,2-	78-87-5	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloropropylene, cis+trans-1,3-	542-75-6	µg/L		<0.50	<0.50	<0.50	----	----	----	----
dichloropropylene, cis-1,3-	10061-01-5	µg/L		<0.30	<0.30	<0.30	----	----	----	----
dichloropropylene, trans-1,3-	10061-02-6	µg/L		<0.30	<0.30	<0.30	----	----	----	----
ethylbenzene	100-41-4	µg/L		<0.50	<0.50	<0.50	----	----	----	----
hexane, n-	110-54-3	µg/L		<0.50	<0.50	<0.50	----	----	----	----
methyl ethyl ketone [MEK]	78-93-3	µg/L		<20	<20	<20	----	----	----	----
methyl isobutyl ketone [MIBK]	108-10-1	µg/L		<20	<20	<20	----	----	----	----
methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L		<0.50	<0.50	<0.50	----	----	----	----
styrene	100-42-5	µg/L		<0.50	<0.50	<0.50	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Unit	Client sample ID: MW3	MW5	TRIP BLANK	----	----	----	----
			Sampling date/time: 03-Oct-2022	03-Oct-2022	03-Oct-2022	----	----	----	----
			Sub-Matrix: Water	Water	Water	----	----	----	----
			WT2217618-008	WT2217618-009	WT2217618-010	--------	--------	--------	--------
Volatile Organic Compounds									
tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	<0.50	<0.50	<0.50	----	----	----	----
tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	<0.50	<0.50	<0.50	----	----	----	----
tetrachloroethylene	127-18-4	µg/L	<0.50	<0.50	<0.50	----	----	----	----
toluene	108-88-3	µg/L	<0.50	<0.50	<0.50	----	----	----	----
trichloroethane, 1,1,1-	71-55-6	µg/L	<0.50	<0.50	<0.50	----	----	----	----
trichloroethane, 1,1,2-	79-00-5	µg/L	<0.50	<0.50	<0.50	----	----	----	----
trichloroethylene	79-01-6	µg/L	<0.50	<0.50	<0.50	----	----	----	----
trichlorofluoromethane	75-69-4	µg/L	<0.50	<0.50	<0.50	----	----	----	----
vinyl chloride	75-01-4	µg/L	<0.50	<0.50	<0.50	----	----	----	----
xylene, m+p-	179601-23-1	µg/L	<0.40	<0.40	<0.40	----	----	----	----
xylene, o-	95-47-6	µg/L	<0.30	<0.30	<0.30	----	----	----	----
xylenes, total	1330-20-7	µg/L	<0.50	<0.50	<0.50	----	----	----	----
BTEX, total	----	µg/L	<1.0	<1.0	<1.0	----	----	----	----
Hydrocarbons									
F1 (C6-C10)	----	µg/L	<25	<25	----	----	----	----	----
F2 (C10-C16)	----	µg/L	<100	<100	----	----	----	----	----
F3 (C16-C34)	----	µg/L	<250	<250	----	----	----	----	----
F4 (C34-C50)	----	µg/L	<250	<250	----	----	----	----	----
F1-BTEX	----	µg/L	<25	<25	----	----	----	----	----
hydrocarbons, total (C6-C50)	----	µg/L	<370	<370	----	----	----	----	----
chromatogram to baseline at nC50	n/a	-	YES	YES	----	----	----	----	----
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	%	87.6	93.0	----	----	----	----	----
dichlorotoluene, 3,4-	97-75-0	%	73.1	84.1	----	----	----	----	----
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	%	98.3	94.6	95.3	----	----	----	----
difluorobenzene, 1,4-	540-36-3	%	99.7	99.5	99.7	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T7-NPGW-C-All	ON153/04 T7-NPGW-F-All					
Volatile Organic Compounds									
Acetone	67-64-1	µg/L	**100000 µg/L**	**100000 µg/L**					
benzene	71-43-2	µg/L	**0.5 µg/L**	**0.5 µg/L**					
bromodichloromethane	75-27-4	µg/L	**67000 µg/L**	**67000 µg/L**					
bromoform	75-25-2	µg/L	**5 µg/L**	**5 µg/L**					
bromomethane	74-83-9	µg/L	**0.89 µg/L**	**0.89 µg/L**					
BTEX, total	----	µg/L							
carbon tetrachloride	56-23-5	µg/L	**0.2 µg/L**	**0.2 µg/L**					
chlorobenzene	108-90-7	µg/L	**140 µg/L**	**140 µg/L**					
chloroform	67-66-3	µg/L	**2 µg/L**	**2 µg/L**					
dibromochloromethane	124-48-1	µg/L	**65000 µg/L**	**65000 µg/L**					
dibromoethane, 1,2-	106-93-4	µg/L	**0.2 µg/L**	**0.2 µg/L**					
dichlorobenzene, 1,2-	95-50-1	µg/L	**150 µg/L**	**150 µg/L**					
dichlorobenzene, 1,3-	541-73-1	µg/L	**7600 µg/L**	**7600 µg/L**					
dichlorobenzene, 1,4-	106-46-7	µg/L	**0.5 µg/L**	**0.5 µg/L**					
dichlorodifluoromethane	75-71-8	µg/L	**3500 µg/L**	**3500 µg/L**					
dichloroethane, 1,1-	75-34-3	µg/L	**11 µg/L**	**11 µg/L**					
dichloroethane, 1,2-	107-06-2	µg/L	**0.5 µg/L**	**0.5 µg/L**					
dichloroethylene, 1,1-	75-35-4	µg/L	**0.5 µg/L**	**0.5 µg/L**					
dichloroethylene, cis-1,2-	156-59-2	µg/L	**1.6 µg/L**	**1.6 µg/L**					
dichloroethylene, trans-1,2-	156-60-5	µg/L	**1.6 µg/L**	**1.6 µg/L**					
dichloromethane	75-09-2	µg/L	**26 µg/L**	**26 µg/L**					
dichloropropane, 1,2-	78-87-5	µg/L	**0.58 µg/L**	**0.58 µg/L**					
dichloropropylene, cis+trans-1,3-	542-75-6	µg/L	**0.5 µg/L**	**0.5 µg/L**					
dichloropropylene, cis-1,3-	10061-01-5	µg/L							
dichloropropylene, trans-1,3-	10061-02-6	µg/L							
ethylbenzene	100-41-4	µg/L	**54 µg/L**	**54 µg/L**					
hexane, n-	110-54-3	µg/L	**5 µg/L**	**5 µg/L**					
methyl ethyl ketone [MEK]	78-93-3	µg/L	**21000 µg/L**	**21000 µg/L**					
methyl isobutyl ketone [MIBK]	108-10-1	µg/L	**5200 µg/L**	**5200 µg/L**					
methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L	**15 µg/L**	**15 µg/L**					
styrene	100-42-5	µg/L	**43 µg/L**	**43 µg/L**					
tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	**1.1 µg/L**	**1.1 µg/L**					
tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	**0.5 µg/L**	**0.5 µg/L**					
tetrachloroethylene	127-18-4	µg/L	**0.5 µg/L**	**0.5 µg/L**					
toluene	108-88-3	µg/L	**320 µg/L**	**320 µg/L**					
trichloroethane, 1,1,1-	71-55-6	µg/L	**23 µg/L**	**23 µg/L**					

Analyte	CAS Number	Unit	ON153/04 T7-NPGW-C-All	ON153/04 T7-NPGW-F-All					
Volatile Organic Compounds - Continued									
trichloroethane, 1,1,2-	79-00-5	µg/L	**0.5 µg/L**	**0.5 µg/L**					
trichloroethylene	79-01-6	µg/L	**0.5 µg/L**	**0.5 µg/L**					
trichlorofluoromethane	75-69-4	µg/L	**2000 µg/L**	**2000 µg/L**					
vinyl chloride	75-01-4	µg/L	**0.5 µg/L**	**0.5 µg/L**					
xylene, m+p-	179601-23-1	µg/L							
xylene, o-	95-47-6	µg/L							
xylenes, total	1330-20-7	µg/L	**72 µg/L**	**72 µg/L**					
Hydrocarbons									
chromatogram to baseline at nC50	n/a	-							
F1 (C6-C10)	----	µg/L	**420 µg/L**	**420 µg/L**					
F1-BTEX	----	µg/L	**420 µg/L**	**420 µg/L**					
F2 (C10-C16)	----	µg/L	**150 µg/L**	**150 µg/L**					
F3 (C16-C34)	----	µg/L	**500 µg/L**	**500 µg/L**					
F4 (C34-C50)	----	µg/L	**500 µg/L**	**500 µg/L**					
hydrocarbons, total (C6-C50)	----	µg/L							

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04 Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)

T7-NPGW-C-All 153 T7-Non-Potable Ground Water-All Types of Property Use - Coarse

T7-NPGW-F-All 153 T7-Non-Potable Ground Water-All Types of Property Uses (Fine)

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2217618**	Page	: 1 of 9
Client	: **Rubicon Environmental Inc.**	Laboratory	: Waterloo - Environmental
Contact	: Paul Rew	Account Manager	: Gayle Braun
Address	: 60 Toronto St Flesherton ON Canada N0C 1E0	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 924 0003	Telephone	: +1 519 886 6910
Project	: R63048	Date Samples Received	: 12-Oct-2022 15:28
PO	: ----	Issue Date	: 14-Oct-2022 14:05
C-O-C number	: 20-1005665		
Sampler	: CLIENT		
Site	: ----		
Quote number	: SOA		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Volatile Organic Compounds	QC-693114-002	----	Acetone	67-64-1	E611D	150 % LCS-H	70.0-130%	Recovery greater than upper control limit
Volatile Organic Compounds	QC-693114-002	----	methyl ethyl ketone [MEK]	78-93-3	E611D	148 % LCS-H	70.0-130%	Recovery greater than upper control limit
Volatile Organic Compounds	QC-693114-002	----	methyl isobutyl ketone [MIBK]	108-10-1	E611D	140 % MES	70.0-130%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	Description
LCS-H	*Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Recoveries								
Volatile Organic Compounds	Anonymous	Anonymous	methyl ethyl ketone [MEK]	78-93-3	E611D	145 % MES	60.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) EXMW1	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) EXMW1-DUPE	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) EXMW2	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) EXMW4	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) EXMW5	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) EXMW6	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) EXMW7	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) MW3	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) MW5	E581.F1-L	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) EXMW1	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) EXMW1-DUPE	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) EXMW2	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) EXMW4	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) EXMW5	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) EXMW6	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) EXMW7	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW3	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW5	E601.SG	03-Oct-2022	13-Oct-2022	14 days	10 days	✓	13-Oct-2022	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
EXMW1	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
EXMW1-DUPE	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
EXMW2	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
EXMW4	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
EXMW5	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
EXMW6	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
EXMW7	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW3	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW5	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
TRIP BLANK	E611D	03-Oct-2022	12-Oct-2022	----	----		12-Oct-2022	14 days	10 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	693117	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	693114	2	20	10.0	5.0	✓
Laboratory Control Samples (LCS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	693117	1	18	5.5	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	693420	1	16	6.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	693114	1	20	5.0	5.0	✓
Method Blanks (MB)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	693117	1	18	5.5	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	693420	1	16	6.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	693114	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	693117	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	693114	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L Waterloo - Environmental	Water	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG Waterloo - Environmental	Water	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4).
VOCs (Eastern Canada List) by Headspace GC-MS	E611D Waterloo - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
F1-BTEX	EC580 Waterloo - Environmental	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
SUM F1 to F4 where F2-F4 is SG treated	EC581SG Waterloo - Environmental	Water	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fraction F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50), where F2-F4 have been treated with silica gel. F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581 Waterloo - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 Waterloo - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **WT2217618**	Page	: 1 of 10
Client	: Rubicon Environmental Inc.	Laboratory	: Waterloo - Environmental
Contact	: Paul Rew	Account Manager	: Gayle Braun
Address	: 60 Toronto St Flesherton ON Canada N0C 1E0	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 924 0003	Telephone	: +1 519 886 6910
Project	: R63048	Date Samples Received	: 12-Oct-2022 15:28
PO	: ----	Date Analysis Commenced	: 12-Oct-2022
C-O-C number	: 20-1005665	Issue Date	: 14-Oct-2022 14:05
Sampler	: CLIENT		
Site	: ----		
Quote number	: SOA		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Sarah Birch	Team Leader - Volatiles	Waterloo Organics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 693114)											
TY2202625-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	24	25	0.7	Diff <2x LOR	----
TY2202625-001	Anonymous	benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 693114) - continued											
TY2202625-001	Anonymous	toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 693117)											
TY2202625-001	Anonymous	F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 693114)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
toluene	108-88-3	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 693114) - continued						
trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 693117)						
F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	----
Hydrocarbons (QCLot: 693420)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 693114)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	# 150	70.0	130	LCS-H
benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	117	70.0	130	----
bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	113	60.0	140	----
carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	98.1	70.0	130	----
chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	98.5	70.0	130	----
chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	118	70.0	130	----
dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	94.0	70.0	130	----
dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	95.8	70.0	130	----
dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	124	60.0	140	----
dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	119	70.0	130	----
dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	95.4	70.0	130	----
dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	99.0	70.0	130	----
dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	111	70.0	130	----
dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	116	70.0	130	----
dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	119	70.0	130	----
ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	93.8	70.0	130	----
hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	93.2	70.0	130	----
methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	# 148	70.0	130	LCS-H
methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	# 140	70.0	130	MES
methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	122	70.0	130	----
tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	92.5	70.0	130	----
toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	96.7	70.0	130	----
trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	97.1	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 693114) - continued									
trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	116	70.0	130	----
trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	97.2	70.0	130	----
trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	96.6	60.0	140	----
vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	94.9	60.0	140	----
xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	93.8	70.0	130	----
xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	96.4	70.0	130	----
Hydrocarbons (QCLot: 693117)									
F1 (C6-C10)	----	E581.F1-L	25	µg/L	2000 µg/L	97.7	80.0	120	----
Hydrocarbons (QCLot: 693420)									
F2 (C10-C16)	----	E601.SG	100	µg/L	4382.38 µg/L	111	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	5331.82 µg/L	116	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4620.98 µg/L	113	70.0	130	----

Qualifiers

Qualifier	Description
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 693114)										
TY2202625-001	Anonymous	benzene	71-43-2	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		bromodichloromethane	75-27-4	E611D	114 µg/L	100 µg/L	114	60.0	140	----
		bromoform	75-25-2	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		bromomethane	74-83-9	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		carbon tetrachloride	56-23-5	E611D	95.3 µg/L	100 µg/L	95.3	60.0	140	----
		chlorobenzene	108-90-7	E611D	96.3 µg/L	100 µg/L	96.3	60.0	140	----
		chloroform	67-66-3	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		dibromochloromethane	124-48-1	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		dibromoethane, 1,2-	106-93-4	E611D	114 µg/L	100 µg/L	114	60.0	140	----
		dichlorobenzene, 1,2-	95-50-1	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		dichlorobenzene, 1,3-	541-73-1	E611D	93.4 µg/L	100 µg/L	93.4	60.0	140	----
		dichlorobenzene, 1,4-	106-46-7	E611D	95.1 µg/L	100 µg/L	95.1	60.0	140	----
		dichlorodifluoromethane	75-71-8	E611D	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		dichloroethane, 1,1-	75-34-3	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		dichloroethane, 1,2-	107-06-2	E611D	116 µg/L	100 µg/L	116	60.0	140	----
		dichloroethylene, 1,1-	75-35-4	E611D	91.0 µg/L	100 µg/L	91.0	60.0	140	----
		dichloroethylene, cis-1,2-	156-59-2	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		dichloroethylene, trans-1,2-	156-60-5	E611D	96.6 µg/L	100 µg/L	96.6	60.0	140	----
		dichloromethane	75-09-2	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		dichloropropane, 1,2-	78-87-5	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		dichloropropylene, cis-1,3-	10061-01-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		dichloropropylene, trans-1,3-	10061-02-6	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		ethylbenzene	100-41-4	E611D	91.7 µg/L	100 µg/L	91.7	60.0	140	----
		hexane, n-	110-54-3	E611D	88.7 µg/L	100 µg/L	88.7	60.0	140	----
		methyl ethyl ketone [MEK]	78-93-3	E611D	145 µg/L	100 µg/L	145	60.0	140	MES
		methyl isobutyl ketone [MIBK]	108-10-1	E611D	136 µg/L	100 µg/L	136	60.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	99.9 µg/L	100 µg/L	99.9	60.0	140	----
		styrene	100-42-5	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611D	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611D	117 µg/L	100 µg/L	117	60.0	140	----
		tetrachloroethylene	127-18-4	E611D	90.2 µg/L	100 µg/L	90.2	60.0	140	----
		toluene	108-88-3	E611D	94.2 µg/L	100 µg/L	94.2	60.0	140	----
		trichloroethane, 1,1,1-	71-55-6	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----

Sub-Matrix: **Water**

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
					Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 693114) - continued										
TY2202625-001	Anonymous	trichloroethane, 1,1,2-	79-00-5	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		trichloroethylene	79-01-6	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		trichlorofluoromethane	75-69-4	E611D	91.2 µg/L	100 µg/L	91.2	60.0	140	----
		vinyl chloride	75-01-4	E611D	87.3 µg/L	100 µg/L	87.3	60.0	140	----
		xylene, m+p-	179601-23-1	E611D	184 µg/L	200 µg/L	91.8	60.0	140	----
		xylene, o-	95-47-6	E611D	94.2 µg/L	100 µg/L	94.2	60.0	140	----
Hydrocarbons (QCLot: 693117)										
TY2202625-001	Anonymous	F1 (C6-C10)	----	E581.F1-L	2110 µg/L	2000 µg/L	106	60.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1005665

Canada Toll Free: 1 800 668 9878

Page of

www.alsglobal.com

Environmental Division Waterloo
Work Order Reference
WT2217618

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Rubicon Environmental (2008) Inc.
Contact:	Paul Rew
Phone:	519-942-7358
	Company address below will appear on the final report
Street:	723361 Side Road 250
City/Province:	Melancthon ON
Postal Code:	L9V 2N9
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: Jvmjomez@rubiconenviro.com
Email 2:
Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: Admin@rubiconenvir.com
Email 2:

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minir
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge mini
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge mini
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge mini
☑ Same day [E2] if received by 10am M-S - 200% rush surcharge. A may apply to rush requests on weekends, statutory holidays and no

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, plea

Project Information

ALS Account # / Quote #:
Job #: R63048
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#:
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: Gayle

Sampler:

Analysis

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P)

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	VOC	PHC (F1-F4)		SAMPLES ON HOLD	EXTENDED STORAGE	SUSPECTED HAZARD (SEE NOTES)
	EXMW1	03-OCT-22		Water		X	X	X			
	EXMW1-Dupe					X	X	X			
	EXMW2					X	X	X			
	EXMW4					X	X	X			
	EXMW5					X	X	X			
	EXMW6					X	X	X			
	EXMW7					X	X	X			
	MW3					X	X	X			
	MW5					X	X	X			
	Trip Blank					X					

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO
Are samples for human consumption/ use? ☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Table 7 residential

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☑ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
19.8				4.6			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
Kamelyn	12/10/2022	15:28

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
FH	2022-10-12	5:30PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

MA VW-163 / MM-285 / OR-328

APPENDIX 3
BOREHOLE LOGS

LOG OF MW3

PROJECT NUMBER R63048.10
PROJECT NAME PII RSC
CLIENT 3N Group Holdings Inc.
ADDRESS 27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa, ON
DRILLING DATE February 7, 2022

DRILL RIG Acker AD II Truck Mount Rig
DRILLING METHOD Hallow Stem Auger, Split Sp
TOTAL DEPTH 5.00 m
DIAMETER 2.5 inch spoon, 5 inch auger

SURFACE ELEVATION CENTROID
LOGGED BY AA
CHECKED BY Paul Rew

COMPLETION
CASING uPVC
SCREEN uPVC Factory Slotted

COMMENTS

Depth (m)	PID	Samples	Sample Type	Analysis	Water	Well Installation	Material Description	Graphic Log	Moisture	Additional Observations	Depth
0		SS1	Soil				- Topsoil				0
0.2											0.2
0.4	<5 ppm						- Weathered Limestone				0.4
0.6											0.6
0.8		SS2	Soil								0.8
1											1
1.2											1.2
1.4	<5 ppm										1.4
1.6		SS3	Soil								1.6
1.8											1.8
2											2
2.2	<5 ppm										2.2
2.4		SS4	Soil				- Limestone				2.4
2.6											2.6
2.8											2.8
3		SS5	Soil								3
3.2	<5 ppm										3.2
3.4											3.4
3.6											3.6
3.8		SS6	Soil								3.8
4											4
4.2	<5 ppm										4.2
4.4											4.4
4.6		SS7									4.6
4.8	<5 ppm										4.8
5					▽						5
5.2							Total depth 5.00 m				5.2

Disclaimer This bore log is intended for environmental not geotechnical purposes.

LOG OF MW5

PROJECT NUMBER R63048.10
PROJECT NAME PII RSC
CLIENT 3N Group Holdings Inc.
ADDRESS 27, 29 Balsam Street, & 245 - 267 Rochester Street, Ottawa, ON
DRILLING DATE April 22, 2022

DRILL RIG Acker AD II Truck Mount Rig
DRILLING METHOD Hallow Stem Auger, Split Sp
TOTAL DEPTH 5.11 m
DIAMETER 2.5 inch spoon, 5 inch auger

SURFACE ELEVATION CENTROID
LOGGED BY AA
CHECKED BY Paul Rew

COMPLETION
CASING uPVC
SCREEN uPVC Factory Slotted

COMMENTS

Depth (m)	PID	Samples	Sample Type	Analysis	Water	Well Installation	Material Description	Graphic Log	Moisture	Additional Observations	Depth
0		SS1	Soil				- Topsoil				0
0.2											0.2
0.4	<5 ppm						- Weathered Limestone				0.4
0.6											0.6
0.8		SS2	Soil								0.8
1											1
1.2											1.2
1.4	<5 ppm										1.4
1.6		SS3	Soil								1.6
1.8											1.8
2											2
2.2	<5 ppm										2.2
2.4		SS4	Soil				- Limestone				2.4
2.6											2.6
2.8											2.8
3		SS5	Soil								3
3.2	<5 ppm										3.2
3.4											3.4
3.6											3.6
3.8		SS6	Soil								3.8
4											4
4.2	<5 ppm										4.2
4.4											4.4
4.6		SS7	Soil								4.6
4.8	<5 ppm										4.8
5					▽						5
5.2							Total depth 5.11 m				5.2

Disclaimer This bore log is intended for environmental not geotechnical purposes.

APPENDIX 4
LICENSED SURVEY

366627, 5029894

TOPOGRAPHIC PLAN OF SURVEY OF

LOT 210
REGISTERED PLAN 14
LOTS 260 AND 261
AND PART OF LOT 259
REGISTERED PLAN 16
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2022

Scale 1: 150

0 1.5 3 6 9 12 15 metres

Metric Note

Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99994.

Bearing Note

Bearings hereon are grid bearings derived from the Can-Net Real Time Network and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) Nad-83 (Original).

For bearing comparisons, a rotation of 0°03'25" counter-clockwise was applied to bearings on P3, P4, P6, P7 & P8.

For bearing comparisons, a rotation of 0°02'00" counter-clockwise was applied to bearings on P5.

Elevation Notes

1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978. (Monument No. 197534238)
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

Utility Notes

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data derived from City of Ottawa utility sheet reference: E-10-21, E-10-25, 2621p&p1, 2621p&p2, 3067p&p2 & 3067p&p3.
4. Sanitary and storm sewer grades and inverts were derived from: Field measurement.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Notes & Legend

Denotes

—□—	=	Survey Monument Planted
—■—	=	Survey Monument Found
SIB	=	Standard Iron Bar
SSIB	=	Short Standard Iron Bar
IB	=	Iron Bar
CP	=	Concrete Pin
(Wit)	=	Witness
Meas	=	Measured
(P1)	=	Registered Plan 14
(P2)	=	Plan by (1692) dated December 3, 2020 (File No. 567-20)
(P3)	=	Plan by (1236) dated October 7, 1992 (Ref. No. 92-1146)
(P4)	=	Plan by (1236) dated October 7, 1992 (Ref. No. 92-1149)
(P5)	=	Plan by (990) dated May 31, 1989
(P6)	=	Plan by (725) dated September 10, 1985 (Ref. No. 635-85)
(P7)	=	Plan by (1287) dated August 1, 1985 (Job No. 526-85)
(P8)	=	Plan 4R-1493
(P9)	=	Plan by (AOG) dated September 2, 1980
(N1)	=	Notes by (857) dated September 23, 1980 (Job No. 7461)
MH-S	=	Maintenance Hole (Sanitary)
—— S ——	=	Underground Combination Sewer
—— W ——	=	Underground Water
—— G ——	=	Underground Gas
—— OHW ——	=	Overhead Wires
	=	Utility Pole
	=	Catch Basin
WV	=	Water Valve
SP	=	Water Stand Post
GM	=	Gas Meter
S	=	Sign
M-W	=	Monitoring Well
	=	Diameter
CLF	=	Chain Link Fence
BF	=	Board Fence
Inv.	=	Invert
T/G	=	Top of Grate
T/P	=	Top of Pipe
U/Eave	=	Underside of Eave
TpFdn	=	Top of Foundation
C/L	=	Centreline
+65.00	=	Location of Elevations
+65.00	=	Top of Concrete Curb Elevation
	=	Property Line
	=	Deciduous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.

Site Area=1832.1 sq.m.

Site Benchmark
Concrete Pin In Utility Pole
Elevation=66.40

Surveyor's Certificate

I certify that :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Regulations made under them.
2. The survey was completed on the 9th day of May, 2022.

May 11/22
Date

Jamie Leslie
Ontario Land Surveyor

This plan of survey relates to AOLS Plan Submission Form Number V-25607.

FARLEY, SMITH & DENIS SURVEYING LTD.

ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS

Unit 275, 30 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J6
TEL. (613) 727-8226 E-mail: fsdsurveys@bellnet.ca

FILE No. : 132-22

J:\2022\132-22_245-263 Rochester St & 27 Balsam St_topo\Final\132-22_245-263 Rochester St & 27 Balsam St_Lt210 RP14 & Lt259-261 RP16_T_F.dwg

IUPU_4A39