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Geotechnical Engineering
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December 2, 2025
File: PE4710-LET.06

Minto Communities - Canada
200 – 180 Kent Street
Ottawa, Ontario
K1P 0B6

Attention: **Mr. Kevin Harper**

Subject: **Phase II-Environmental Site Assessment Update**
178, 180, 182 and 200 Isabella Street
Ottawa, Ontario

Dear Sir,

Further to your request, Paterson Group (Paterson) has completed a Phase II Environmental Site Assessment (ESA) Update for the aforementioned property. This report updates a Phase II ESA entitled “Phase II Environmental Site Assessment Update, 178, 180, 182 and 200 Isabella Stret, and 205 Pretoria Avenue, Ottawa, Ontario” prepared by Paterson Group Inc. (Paterson), dated August 4, 2023. It should be noted that 205 Pretoria Avenue is not included in the current Phase II ESA Update.

This update report is intended to meet the requirements for an updated Phase II ESA, as per the MECP O.Reg. 153/04, as amended. This update report is to be read in conjunction with the 2023 report.

Background Information

The Phase II Property is located on the south side of Isabella Street, approximately 50 m east of Bank Street, in the City of Ottawa, Ontario, in an urban area that consists primarily of residential land use with some commercial properties. The subject land has an approximate footprint of 0.23 hectares and currently exists as vacant land. The ground surface on the subject site consists of asphaltic concrete with some vegetated areas where the former buildings were situated. Drainage on the Phase II Property consists primarily of surface infiltration throughout the property.

The site is relatively at the grade of the surrounding lands with the regional topography sloping downwards in a south-easterly direction.

Previous Engineering Reports

- ❑ ‘‘Phase I Environmental Site Assessment, 178, 180, 182 and 200 Isabella Street, Ottawa, Ontario” prepared by Paterson Group, dated October 24, 2016.

Based on the aforementioned Phase I-ESA report, the subject site was first developed with residential dwellings in the 1890s. Neighbouring land use in the area consisted primarily of residential dwellings. A tinsmith was identified at the rear of 186 Isabella Street in the 1956 Fire Insurance Plans, and a heating service contractor was identified in the City Directories and Historic Land Use Inventory on 182 Isabella Street. These on-site Potentially Contaminating Activities were identified as Areas of Potential Environmental Concern. To the north, across Isabella Street, a former rail line and associated buildings were identified on the FIPs. These PCAs were also considered to represent APECs on the north-western portion of the Phase I Property. The buildings on the subject site were demolished early in 2016.

Following the historical review, a site visit was conducted. No potential environmental concerns were noted with the use of the site or adjacent lands. Based on the historic uses of the Phase I Property and railway lands to the north, a Phase II-ESA was recommended.

- ❑ ‘‘Phase II Environmental Site Assessment, 178, 180, 182 and 200 Isabella Street, Ottawa, Ontario” prepared by Paterson Group, dated November 7, 2016.

Based on the results of the Phase I-ESA report, a Phase II ESA was carried out for the subject property. Three (3) boreholes were placed on the Phase II Property and instrumented with groundwater monitoring wells. Site soils consisted of a layer of fill material, including demolition debris in former building locations, which was underlain by native silty clay. Based on the screening results, samples were selected for testing of metals and/or BTEX/PHC parameters. Based on the analytical results, the soil on the subject site was in compliance with the MECP Table 3 Commercial and Residential standards.

Groundwater samples were collected from the monitoring wells and analyzed for BTEX/PHCs and PAHs. No parameters were detected in the groundwater samples analysed. The analytical results complied with the MECP Table 3 Residential standards.

- ❑ "Phase I Environmental Site Assessment Update, 178, 180, 182 and 200 Isabella Street and 205 Pretoria Avenue, Ottawa, Ontario" prepared by Paterson Group, dated September 3, 2019.

A Phase I ESA Update was completed in 2019 which included an updated review of available information and a site visit. Based on the findings, the former on-site PCAs (former tinsmith at 186 Isabella Street, and former fuel business at 182 Isabella Street) were considered to represent APECs as well as fill material of unknown quality that was identified during the 2016 subsurface program, and the use of road salt on the parking lots of the Phase I Property.

An updated Phase II ESA was recommended to address the aforementioned APECs on the Phase I Property.

- ❑ ''Phase II Environmental Site Assessment, 178, 180, 182 and 200 Isabella Street and 205 Pretoria Avenue, Ottawa, Ontario" prepared by Paterson Group, dated October 10, 2019.

The subsurface investigation for the 2019 Phase II ESA included the drilling of five boreholes (BH1-19 to BH5-19) and the installation of two groundwater monitoring wells (BH2-19 and BH3-19) to evaluate soil and groundwater quality at the Phase II Property. Site soils consisted of a layer of fill material, including demolition debris at former building locations, underlain by native silty clay.

Soil samples were submitted for BTEX, PHCs, PAHs and/or metals as well as EC/SAR and pH. BTEX and PHCs complied with the selected MECP Table 3 Residential Standards. Metals and PAHs were in excess of the selected standards in the fill material.

Groundwater samples were collected on September 12, 2019, from BH1 (analyzed for PHCs F1–F4 and metals, including Hg and Cr VI) and BH2 (analyzed for PAHs). Additional samples were collected on September 17, 2019, from BH2-19 (analyzed for sodium and chloride) and BH3-19 (analyzed for BTEX and PHCs). All analyzed parameters met the selected MECP Table 3 Standards, except for PHC F2 at BH1, which exceeded the standard.

A follow-up groundwater sample from BH1 was collected on September 24, 2019, and analyzed for PHCs F2–F4, with all results in compliance with the MECP Table 3 Standards.

Based on the analytical results, the contamination appears to be confined to the upper fill layer. It was recommended that this fill material be disposed of at an approved waste disposal facility. The removal process should be monitored to ensure proper segregation

and to confirm that the remediation effectively addresses the contaminated material on the property.

- ❑ “Phase I Environmental Site Assessment Update, 178, 180, 182 and 200 Isabella Street and 205 Pretoria Avenue, Ottawa, Ontario” prepared by Paterson Group, dated August 1, 2023.

A Phase I ESA Update was completed in 2023, which included a review of updated records and a site inspection. An ERIS report was obtained and reviewed as part of this update. Based on the site visit and updated information, no changes were noted to the Phase I Property or the surrounding Study Area. The findings of the 2023 update identified no new Potentially Contaminating Activities (PCAs) or Areas of Potential Environmental Concern (APECs) on the Phase I Property.

- ❑ ‘‘Phase II Environmental Site Assessment Update, 178, 180, 182 and 200 Isabella Street and 205 Pretoria Avenue, Ottawa, Ontario” prepared by Paterson Group, dated August 4, 2023.

As part of the 2023 Phase II ESA, one groundwater sample was collected from BH1 on July 21, 2023, and submitted for laboratory analysis of BTEX and PHCs (F1–F4). No BTEX or PHC concentrations were detected in the sample, and the results comply with MECP Table 3 Standards. No soil testing was conducted as part of the 2023 Phase II ESA.

The recommendations from the 2019 Phase II ESA remain unchanged. Contaminated material is considered to be confined to the upper fill layer, which should be disposed of at an approved waste disposal facility. The removal process should be monitored to ensure proper segregation and to confirm that the remediation effectively addresses the contaminated material on the property.

It was also recommended that BH1 be re-sampled to confirm the latest groundwater quality for the purpose of filing a Record of Site Condition (RSC) in the future.

- ❑ “Phase I Environmental Site Assessment Update, 178, 180, 182 and 200 Isabella Street, Ottawa, Ontario” prepared by Paterson Group, dated November 24, 2025.

A Phase I ESA Update was completed, which included a review of updated records and a site inspection. The HLUI response obtained from the request made during the 2023 Phase I ESA was reviewed as part of this update. The review identified new Potentially Contaminating Activities (PCAs) within the Phase I Study Area.

However, based on their separation distances from the Phase I Property, these PCAs are not considered to result in any Areas of Potential Environmental Concern (APECs) on the Phase I Property. No new PCAs or APECs were identified on the Phase I Property.

Applicable Site Condition Standard

The site condition standards for the property were obtained from Table 3 of the document entitled “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, prepared by the Ontario Ministry of the Environment, Conservation and Parks (MECP), April 2011. The intended use of the Phase II Property is residential, and therefore, the residential standards have been selected for the purpose of this Phase II ESA. The MECP Table 3 Residential Standards are based on the following considerations:

- ❒ Coarse-grained soil conditions;
- ❒ Full depth generic site conditions;
- ❒ Non-potable groundwater conditions; and
- ❒ Residential land use.

Section 35 of O.Reg. 153/04 does apply to the Phase II Property in that the property, and the properties within the 250 m study area do not rely upon potable groundwater.

Section 41 of O.Reg. 153/04 does not apply to the Phase II Property, as the property is not considered an environmentally sensitive area.

Section 43.1 of O.Reg. 153/04 does not apply to the Phase II Property in that the property, is a not situated where Shallow Soils are present.

Impediments

No impediments were encountered during this Phase II ESA Update.

Investigation Method

A groundwater sampling event was conducted on November 6, 2025. A groundwater sample and one duplicate sample were collected from BH1 and submitted for laboratory analysis of BTEX and PHCs (F1–F4). In addition, groundwater levels were measured from the existing monitoring wells (BH1, BH2, BH2-19, and BH3-19). The monitoring well installed at BH3 in 2016 was damaged, and therefore no water level measurement could be obtained from this well.

No soil sampling or analysis was conducted as part of this Phase II ESA Update.

Review and Evaluation

Geology

Site soils consist of a layer of asphalt or topsoil material, followed by fill material, which is underlain by a native silty clay. Based on a DCPT performed during the geotechnical field drilling program in 2019 the approximate depth to bedrock at the subject site is 17.9 mbgs.

The fill material consisted of crushed stone at BH1-19, silty sand with some gravel at BH2-19, BH3-19 and BH5-19. Some concrete and brick fragments were noted in the fill material at BH5-19.

Groundwater was encountered within either the fill or native soil at depths ranging from approximately of 2.04 to 4.70 m, below the existing grade.

Further details regarding the soil profile are provided on the Soil Profile and Test Data Sheets, appended to the original Phase II ESA Report.

Groundwater Elevations, Flow Direction and Hydraulic Gradient

The groundwater levels were measured in BH1, BH2, BH2-19 and BH3-19 on November 6, 2025, using an electronic water level meter. Groundwater levels are summarized in Table 1. All elevations are relative to the temporary benchmark. It should be noted that groundwater levels are expected to fluctuate throughout the year with seasonal variations.

Table 1
Groundwater Level Measurements

Borehole Location	Ground Surface Elevation (m)	Water Level Depth (m below grade)	Water Level Elevation (m)	Date of Measurement
BH1	100.88	2.09	98.79	November 6, 2025
BH2	101.33	2.04	99.29	November 6, 2025
BH2-19	100.86	4.70	96.16	November 6, 2025
BH3-19	101.34	2.15	99.19	November 6, 2025

Based on the groundwater elevations from the 2025 groundwater monitoring event, groundwater flow beneath the Phase II Property appears to be in a northern direction. A horizontal hydraulic gradient of approximately 0.12 m/m was calculated. Groundwater contours are shown on Drawing PE4710-6R – Analytical Testing Plan - Groundwater.

Groundwater Quality

A groundwater sample and one duplicate sample were collected from BH1 on November 6, 2025. The groundwater sample was submitted for laboratory analysis of BTEX and PHCs (F1-F4).

The results of the analytical testing are presented in Table 2. The laboratory certificate of analysis has been appended to this report. The analytical results for all tested groundwater samples on the Phase II Property are shown on Drawing PE4710-6R – Analytical Testing Plan – Groundwater.

Table 2
Analytical Test Results – Groundwater – BTEX and PHCs (F1-F4)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L) November 6, 2025 BH1-GW5	Groundwater Samples (µg/L) November 6, 2025 DUP-Nov6	MECP Table 3 Standards (µg/L)
Benzene	0.5	ND (0.5)	ND (0.5)	44
Ethylbenzene	0.5	ND (0.5)	ND (0.5)	2300
Toluene	0.5	ND (0.5)	ND (0.5)	18000
m/p-Xylene	0.5	ND (0.5)	ND (0.5)	4200
o-Xylene	0.5	ND (0.5)	ND (0.5)	4200
Xylenes	0.5	ND (0.5)	ND (0.5)	4200
PHC F_1	25	ND (25)	ND (25)	750
PHC F_2	100	ND (100)	ND (100)	150
PHC F_3	100	ND (100)	ND (100)	500
PHC F_4	100	ND (100)	ND (100)	500

Notes:
- MDL - Method Detection Limit
- nd - Not Detected (i.e <MDL)

No BTEX or PHCs concentrations were detected in the groundwater sample alanyzed. The analytical results comply with the MECP Table 3 standards.

Phase II Conceptual Site Model

Potentially Contaminating Activity (PCA) and Area of Potential Environmental Concern (APEC)

As per the previous engineering reports, the PCAs considered to result in APECs on the Phase II Property as well as the contaminants of potential concern (CPCs) have been summarized in Table 3.

Table 3
Potentially Contaminating Activities and Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 1 Former tinsmith at rear of #186 Isabella Street (part of #200 Isabella Street)	Central portion of Phase I Property	Item 34, Table 2, O.Reg. 153/04: Metal fabrication	On-site	Metals	Soil and Groundwater
APEC 2 Former coal and oil business and heating contractor	Central and east portion of Phase I Property	No item: Distribution of fuel oil, coal, and fuel oil burners; Contractor business	On-site	PHCs (F_1-F_4), BTEX, PAHs	Soil and Groundwater
APEC 3: Importation of fill material across the site	Entire Phase I Property	Item 30, Table 2, O.Reg. 153/04: Importation of fill material of unknown quality	On-site	BTEX, PAHs, metals	Soil and Groundwater
APECs 4[1]: Use of road salt across the parking lots at 200 Isabella Street and 178 Isabella Street, respectively	Former parking lot on east side of 200 Isabella Street	No item: application of salt for de-icing purposes.	On-site	Sodium, chloride, sodium absorption ratio, electrical conductivity	Soil and Groundwater
APECs 5[1]: Use of road salt across the parking lots at 200 Isabella Street and 178 Isabella Street, respectively	Former parking lots on 178 and 180 Isabella Street	No item: application of salt for de-icing purposes.	On-site	Sodium, chloride, sodium absorption ratio, electrical conductivity	Soil and Groundwater

1 – In accordance with Section 49.1 of Ontario Regulation 153/04 standards are deemed to be met if an applicable site condition standard is exceeded at a property solely because the qualified person has determined that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. The exemption outlined in Section 49.1 is being relied upon with respect to the RSC property.

The rationale for identifying the aforementioned PCAs is based on a review of historical information (including but not limited to aerial photographs, municipal and federal records), personal interviews and field observations.

Contaminants of Potential Concern (CPCs)

The following Contaminants of Potential Concern (CPCs) were identified with respect to the Phase II Property:

- ❒ Petroleum Hydrocarbons fractions 1 through 4 (PHCs F_1-F_4);
- ❒ Polycyclic Aromatic Hydrocarbons (PAHs);
- ❒ Metals, including arsenic (As), antimony (Sb), and selenium (Se);
- ❒ Mercury (Hg), and Hexavalent Chromium (CrVI);

In accordance with Section 49.1 of O.Reg.153/04, as amended, electrical conductivity (EC) and sodium adsorption ratio (SAR) are not considered to be CPCs.

Physical Setting

Site Stratigraphy

The site stratigraphy consists of:

- ❒ **Pavement Structure** at BH1-19 consisting of 0.1 m of asphaltic concrete over crushed stone, to a depth of approximately 0.6 m below ground surface. Pavement was also present at the surface at BH3-19 but was underlain by a layer of sandy fill material instead of crushed stone.

- ❒ **Topsoil** at BH3-19, BH4-19 and BH5-19 consisting of 0.03 to 0.1 m of soil with some brown silty sand.

- ❒ **Fill Material** was encountered beneath the pavement structure in BH2-19 and below the topsoil layer in BH3-19 and BH5-19 and ranged in thickness from approximately 0.1-0.6 m; the fill in BH5-19 extended much deeper, to 2.80 m below ground surface. The fill generally consisted of brown silty sand with gravel. Occasional concrete and brick fragments were identified in the fill recovered from BH5-19.

- ❒ **Native silty clay** was encountered in all boreholes beneath the fill material, preceded in several boreholes by a layer of silty sand. This is the deepest unit investigated.

Hydrogeological Characteristics

The groundwater at the Phase II Property was encountered within either the fill or native soil at depths ranging from approximately of 2.04 to 4.70 m, below the existing grade.

Based on the groundwater contouring map from the 2025 groundwater levels, groundwater was measured to flow in a northern direction with a hydraulic gradient of 0.12 m/m.

Approximate Depth to Water Table

Depth to the water table at the Phase II Property varies between approximately 2.04 to 4.70 mbgs and is expected to fluctuate seasonal.

Approximate Depth to Bedrock

Bedrock was not confirmed during the drilling program. Based on a DCPT performed during the geotechnical field drilling program in 2019 the approximate depth to bedrock at the subject site is 17.9 mbgs.

Sections 35, 41 and 43.1 of the Regulation

Section 35 of O.Reg. 153/04 does apply to the Phase II Property in that the property, and the properties within the 250 m study area do not rely upon potable groundwater.

Section 41 of O.Reg. 153/04 does not apply to the Phase II Property, as the property is not considered an environmentally sensitive area.

Section 43.1 of the Regulation does not apply to the Phase II Property, as bedrock is not located less than 2 m below ground surface.

Fill Placement

Based on the findings of the subsurface investigation, the fill material consisted of crushed stone in areas of the former pavement structure(s), and demolition debris in areas of the former building footprints. Fill material on the eastern side of the Phase II Property exceeded the MECP Table 3 Residential Standards for lead and some PAH parameters. It is understood that the fill material will be removed in conjunction with the redevelopment of the Phase II Property.

Existing Buildings and Structures

No buildings or structures are present on the Phase II Property.

Proposed Buildings and Other Structures

The proposed redevelopment of the Phase II Property will be for residential land use. Due to the change in land use to a more sensitive use (commercial to residential), a record of site condition (RSC) will be required as per O.Reg 154/03.

Subsurface Structures and Utilities

The Phase II Property is located in a municipally serviced area. There are no known potable water wells in the study area. No underground structures are known to be present beneath the Phase II Property, with the exception of the existing groundwater monitoring wells.

Based on the findings of the Phase II ESA and Phase II ESA Update, the presence of any former utilities would not have affected contaminant distribution at the RSC Property.

Water Bodies and Areas of Natural Significance

No areas of natural significance or natural bodies of water are present within the Phase Study Area.

Environmental Condition

Based on the Phase II ESA Update, there are no contaminants present in the groundwater beneath the Phase II Property.

Conclusion

Based on the findings of the Phase II ESA Update, no further investigation is required on the Phase II Property.

Recommendations

Soil

As recommended in the original Phase II ESA, contaminated material identifed in 2019 is considered to be confined to the upper fill layer. It is our understanding that the impacted fill and building demolition debris identified during the field program will be removed as part of the site redevelopment. This fill material should be disposed of at an approved waste disposal facility. The removal of this material should be monitored to ensure that proper segregation occurs, and that the removal of this material is effective in remediating the property.

Any excess soil generated during site redevelopment must be managed in accordance with Ontario Regulation 406/19 – On-site and Excess Soil Management. Any soils deemed excess during construction will require additional analytical testing to determine an appropriate off-site reuse or disposal site.

Monitoring Wells

It is recommended the monitoring wells be maintained for future sampling purposes. At such a time that the monitoring wells are no longer required, they must be decommissioned in accordance with O.Reg. 903. These wells do not need to be abandoned if they are completely excavated during site redevelopment.

Statement of Limitations

This Phase II - Environmental Site Assessment Update report has been prepared by a qualified person, in general accordance with Ontario Regulation 153/04, as amended. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase II - ESA Update are based on the review of the previous subsurface program completed on the Phase II Property in conjunction with the most recent analytical test results.

Should any conditions be encountered at the Phase II Property that differ from our findings, we request that we be notified immediately.

This report was prepared for the sole use of Minto Communities. Permission and notification from Minto Communities and Paterson will be required to release this report to any other party.

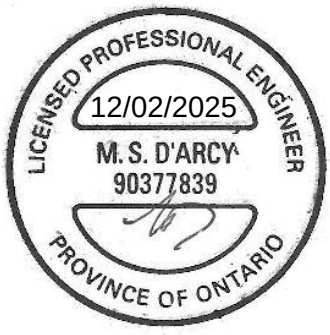
We trust that this submission satisfies your current requirements. Should you have any questions please contact the undersigned.

Regards,

Paterson Group Inc.



Kuldeep Panchal, M. Eng.





Mark D'Arcy, P.Eng., QP_{ESA}

Report Distribution:

- ❑ Minto Communities
- ❑ Paterson Group

Appendix

- ❑ Drawing PE4710-6R – Analytical Testing Plan – Groundwater
- ❑ Laboratory Certificates of Analysis

BH1-GW5 (4.62-7.62) 06-NOV-2025
BTEX complies with MECP Table 3 Standards
PHCs F1-F4 comply with MECP Table 3 Standards

BH1-GW5 (DUP) (4.62-7.62) 06-NOV-2025
BTEX complies with MECP Table 3 Standards
PHCs F1-F4 comply with MECP Table 3 Standards

BH1 (4.62-7.62) 21-JUL-2023
BTEX complies with MECP Table 3 Standards
PHCs F1-F4 comply with MECP Table 3 Standards

BH1-GW2 (4.62-7.62 m bgs) 24-SEP-2019
PHCs F2-F4 comply with MECP Table 3 Standards

BH1-GW1 (4.62-7.62 m bgs) 12-SEPT-2019

Parameter	Result (ug/L)	Standard (ug/L)
PHC (F2)	2400	150

Remaining PHC are in compliance with the MECP Table 3 Standards
BTEX, Sodium, Chloride, metals, Hg and CR VI comply with MECP Table 3 Standards

BH 1 - GW1 (4.62-7.62) 14-OCT-2016
PAHs comply with MECP Table 3 Standards

HIGHWAY 417

BH 2 - GW1 (3.09-6.09) 14-OCT-2016
PHC (F1-F4) & BTEX comply with MECP Table 3 Standards

ISABELLA STREET

BH2-19-GW1 (1.52-4.57 m bgs) 17-SEP-2019
Sodium and chloride comply with MECP Table 3 Standards

CONCRETE SIDEWALK

BH 1
100.88
(98.79)

98.5

98

98.5

(0.12m/m)

99

99.5

99

BH 2-19
100.86
(96.16)

BH 2
101.33
(99.29)

BH 5-19
101.22

200 ISABELLA STREET
VACANT

(FORMER TINSMITH AT REAR OF #186 ISABELLA)

BH 1-19
101.44

BH 3
101.37

182 ISABELLA STREET
VACANT (FORMER COAL AND OIL BUSINESS)

180 ISABELLA STREET
VACANT
(FORMER COAL AND OIL BUSINESS, HEATING CONTRACTOR)

178 ISABELLA STREET
VACANT
(FORMER COAL AND OIL BUSINESS)

BH 4-19
101.48

ASPHALTIC CONCRETE
BH 3-19
101.34
(99.19)

210 ISABELLA STREET
RANDALL'S PAINTS

ASPHALTIC CONCRETE
PARKING AREA

460 O'CONNOR STREET
COMMERCIAL / OFFICE BUILDING

BH3-19-GW1 (1.52-4.57 m bgs) 17-SEP-2019
PHCs F2-F4 and BTEX parameters comply with MECP Table 3 Standards

BH 3 - GW1 (4.62-7.62) 14-OCT-2016
PHC (F1-F4) & BTEX comply with MECP Table 3 Standards

575 BANK STREET
RESTAURANT

211 PRETORIA AVENUE
RESIDENTIAL

209 PRETORIA AVENUE
RESIDENTIAL

205 PRETORIA AVENUE
RESIDENTIAL

195-199 PRETORIA AVE.
RESIDENTIAL

191 PRETORIA AVENUE
RESIDENTIAL

187 PRETORIA AVENUE
RESIDENTIAL

183-185 PRETORIA AVENUE
RESIDENTIAL

177 PRETORIA AVENUE
RESIDENTIAL

LEGEND:

- PHASE - I PROPERTY BOUNDARY
- BOREHOLE WITH MONITORING WELL LOCATION (PATERSON 2016 AND 2019 PHASE II ESAS)
- BOREHOLE LOCATION (PATERSON 2016 & 2019)
- BOREHOLE WITH MONITORING WELL LOCATION (DESTROYED)
- 100.88 GROUND SURFACE ELEVATION (m)
- (98.79) GROUNDWATER SURFACE ELEVATION (m) (NOVEMBER 06, 2025)
- 98 GROUNDWATER CONTOUR (m)
- APPROX.GROUNDWATER FLOW DIRECTION (HORIZONTAL HYDRAULIC GRADIENT) (0.12m/m)

TBM - TOP SPINDLE OF FIRE HYDRANT LOCATED IN FRONT OF 210 ISABELLA STREET. AN ARBITRARY ELEVATION OF 100.00 m WAS ASSIGNED TO THE TBM.

SCALE: 1:300

0 1 2 3 4 5 10 15 20m

GROUNDWATER PARAMETERS ARE IN COMPLIANCE WITH MECP TABLE 3 STANDARDS

GROUNDWATER PARAMETERS EXCEED MECP TABLE 3 STANDARDS

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

MINTO COMMUNITIES INC.

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
178, 180, 182 AND 200 ISABELLA STREET

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - GROUNDWATER

Scale: 1:300	Date: 11/2025
Drawn by: GK	Report No.: PE4710-LET.06
Checked by: KMP	Dwg. No.: PE4710-6R
Approved by: MSD	Revision No.:

11x17

p:\autocad drawings\environmental\pe4710\pe4710-1r site plan (november 2025).dwg

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Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Kuldeep Panchal

Client PO: 64414
Project: PE4710
Custody:

Report Date: 11-Nov-2025
Order Date: 6-Nov-2025

Order #: 2545417

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2545417-01	BH1-GW5
2545417-02	DUP-Nov6

Approved By:



Mark Foto, M.Sc.
Laboratory Director

Certificate of Analysis

Report Date: 11-Nov-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 6-Nov-2025

Client PO: **64414**

Project Description: PE4710

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	7-Nov-25	7-Nov-25
PHC F1	CWS Tier 1 - P&T GC-FID	7-Nov-25	7-Nov-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	10-Nov-25	10-Nov-25

	Client ID:	BH1-GW5	DUP-Nov6	-	-	-	-
	Sample Date:	06-Nov-25 11:30	06-Nov-25 11:30	-	-		
	Sample ID:	2545417-01	2545417-02	-	-		
	Matrix:	Ground Water	Ground Water	-	-		
	MDL/Units						
Volatiles							
Benzene	0.5 ug/L	<0.5	<0.5	-	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-	-	-
Toluene-d8	Surrogate	100%	101%	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	25	ug/L					
F2 PHCs (C10-C16)	ND	100	ug/L					
F3 PHCs (C16-C34)	ND	100	ug/L					
F4 PHCs (C34-C50)	ND	100	ug/L					
Volatiles								
Benzene	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					
Xylenes, total	ND	0.5	ug/L					
Surrogate: Toluene-d8	*80.6*		*%*	*101*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*80.5*		*%*		*101*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1910	25	ug/L	ND	111	85-115			
F2 PHCs (C10-C16)	1530	100	ug/L	ND	95.4	60-140			
F3 PHCs (C16-C34)	4240	100	ug/L	ND	108	60-140			
F4 PHCs (C34-C50)	2680	100	ug/L	ND	108	60-140			
Volatiles									
Benzene	35.3	0.5	ug/L	ND	88.3	60-130			
Ethylbenzene	46.9	0.5	ug/L	ND	117	60-130			
Toluene	41.5	0.5	ug/L	ND	104	60-130			
m,p-Xylenes	77.6	0.5	ug/L	ND	97.0	60-130			
o-Xylene	45.3	0.5	ug/L	ND	113	60-130			
Surrogate: Toluene-d8	*74.1*		*%*		*92.6*	*50-140*			

Certificate of Analysis

Report Date: 11-Nov-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 6-Nov-2025

Client PO: **64414**

Project Description: PE4710

Qualifier Notes:

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

- When reported, data for F4G has been processed using a silica gel cleanup.

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

PARACEL LABORATORIES LTD.

Paracel ID: 2545417

Paracel Order Number (Lab Use Only): 2545417

Chain Of Custody (Lab Use Only)

Client Name: Paterson Group
Contact Name: Kuldeep Panchal
Address: 9 Auriga Drive
Telephone: (613) 226-7381

Project Ref: PE4710
Quote #:
PO #: 64414
E-mail: kpanchal@patersongroup.ca
idillonsullivan@ "

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Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required:

☒ REG 153/04 ☐ REG 406/19

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☐ Other:

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☐ No

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	BH1-GW5	GW	–	3	Nov 6, 2025	11:30am	X											
2	DUP-Nov6	GW	–	3	〃	〃	X											
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Paracel courier

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: LTJ	Verified By: SO
Relinquished By (Print): Isabelle D.S.	Date/Time:	Date/Time: 06/11/25; 15:40	Date/Time: Nov 6, 2025 - 4:15pm
Date/Time: Nov 6, 2025 3pm	Temperature: °C	Temperature: 11.6°C	pH Verified: ☐ By: