

July 11, 2022



**PATERSON
GROUP**

PH4499-LET.01

ARK Construction Ltd.
255 Michael Cowpland Dr, Suite 103
Ottawa, Ontario
K2M 0M5

Attention: Anthony Nicolini

Subject: **Hydrogeological Risk Brief
Proposed Residential Development
1185 Beaverwood Road, Ottawa, Ontario**

Consulting Engineers

9 Auriga Drive
Ottawa, Ontario
K2E 7T9
Tel: (613) 226-7381

Geotechnical Engineering
Environmental Engineering
Hydrogeology
Materials Testing
Building Science
Rural Development Design
Retaining Wall Design
Noise and Vibration Studies

patersongroup.ca

Dear Anthony Nicolini,

Further to your request and authorization, Paterson group (Paterson) was commissioned to complete a hydrogeological risk brief for the proposed residential development to be constructed at 1185 Beaverwood Road in Ottawa. This letter summarizes the results of the baseline water quality sampling program at the adjacent residences.

Background

A Geotechnical field investigation was previously completed on site in support of Paterson Group (Paterson) Report PG6160 - 1 - Geotechnical Investigation dated April 20, 2022. At the time of the field investigation, the subject site was occupied by a residential property. The subject site is bordered to the north and north-west by residential dwellings, to the east by Scharfield Road and commercial establishments beyond, to the south by Beaverwood Road and further residential dwellings, and to the west by an empty lot and residential dwellings. The ground surface across the site slopes down toward the east side of the property towards Scharfield Road.

Generally, the subsurface profile encountered at the test hole locations consisted of a thin layer of topsoil or asphaltic concrete overlying fill material which is underlain by a silty clay and further underlain by glacial till deposits. Practical refusal to auguring was encountered at select borehole locations ranging from 0.2 to 4.5 m below ground surface (bgs).

Based on available geological mapping (OGS MRD219), bedrock consists of dolostone from the Oxford formation of the Beekmantown group with an overburden drift thickness of approximately 5 to 10 m depth.





At the time of the geotechnical investigation completed at the subject site, groundwater levels at the test hole locations were observed to range from 1.3 to 3.1 m bgs. It should be noted that groundwater levels can fluctuate both seasonally and in conjunction with precipitation events. Therefore, groundwater levels may vary at the time of construction.

Based on groundwater levels measured at the subject site and surrounding area, a local flow direction is anticipated to have an eastern direction. Shallow groundwater flow in the vicinity of the subject site is expected to reflect local topography. Regional groundwater flow is considered to be in a northeasterly direction, towards the Rideau River.

A search of the Ontario Water Well Records online mapping database indicates there are 195 Water Well Records (WWR) in a 500 m radius of the proposed residential development. Many of the WWR's are either erroneously located or have been decommissioned with decommissioning records not being available.

The participating lots were chosen in consultation with City of Ottawa staff based on the nature of the subsurface material present in the area, the theoretical radius of influence related to construction activities at the subject site, the water service locations provided by the City of Ottawa and our understanding of the developed nature of subject area.

The baseline water quality sampling program has been completed to ensure that all parties considered in the project are protected (the developer, the City of Ottawa and the homeowners) should a concern arise during or after construction.

City of Ottawa Pre-consultation

A pre-consultation was completed with a City of Ottawa Hydrogeologist on March 29, 2022 in regards to the Baseline Sampling Program. As a result of the pre-consultation, 8 addresses to the east and south of the subject site were selected to participate in the baseline sampling program, which correlates to a 100 m buffer around the subject site.

As per the discussions with the City of Ottawa, a Reasonable Attempt for this baseline Sampling Program was to consist of sending a registered Letter to each of the proposed addresses. This way, there was documented proof which cannot be refuted of homeowner receipt of the Baseline Sampling Program Letter.



Baseline Sampling Program Participants

The municipal addresses selected, as shown in Figure 1 - Sampling Location Plan, are as follows:

- 5533 Colony Heights
- 5534 Colony Heights
- 1186 Maple Avenue
- 1190 Maple Avenue
- 1191 Beaverwood Road
- 1194 Maple Avenue
- 1195 Maple Avenue
- 1198 Maple Avenue

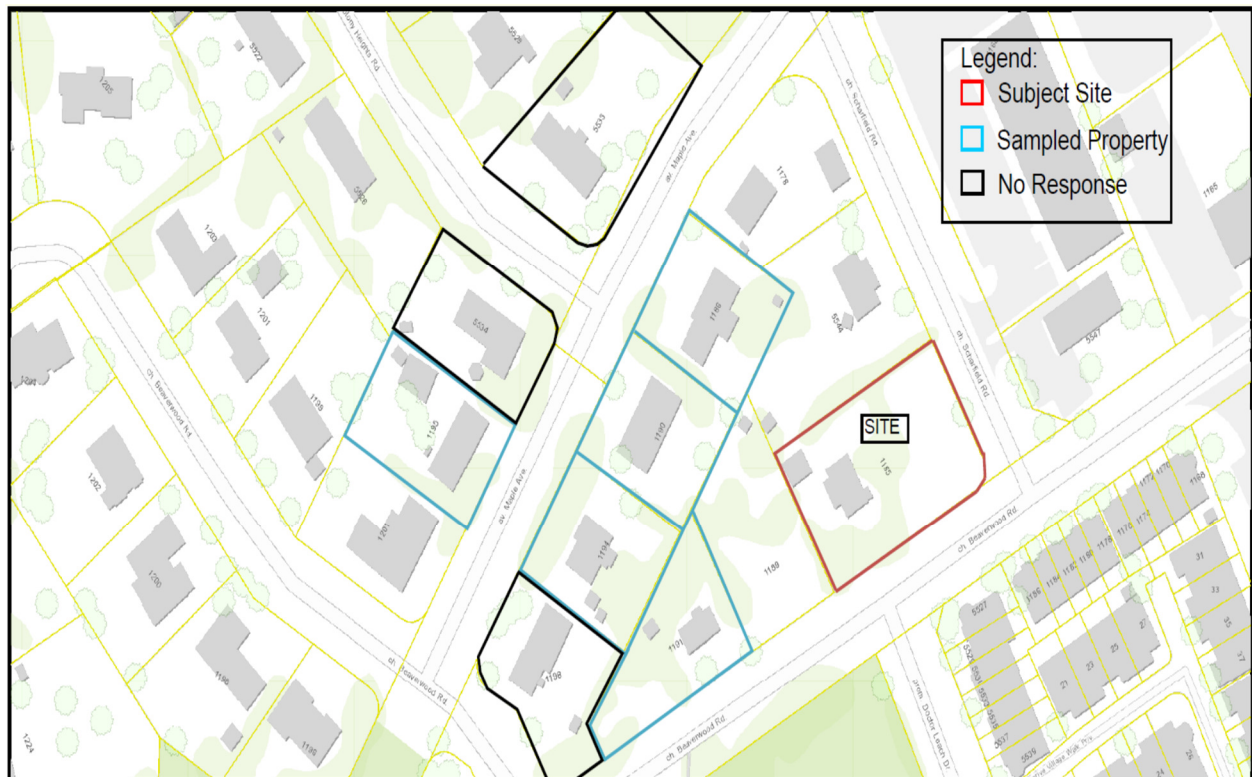


Figure 1 – Sample Location Plan

Well Inspection and Testing Program

The homeowners of the aforementioned properties were approached to have their raw well water sampled between May 10 and June 2, 2022 for the purpose of obtaining baseline water quality information prior to the commencement of construction activities at the subject site. Paterson and the City of Ottawa contact information was provided to allow the homeowner to set up a sampling time if they wished or discuss the sampling



program in more detail. Attached is a copy of the letter provided to the homeowners for the baseline water quality sampling program.

Out of the eight properties invited to participate in the baseline Sampling Program, five homeowners contacted Paterson to organize the sampling of their wells. The following are the municipal addresses that were successfully sampled:

- 1186 Maple Avenue
- 1190 Maple Avenue
- 1191 Beaverwood Road
- 1194 Maple Avenue
- 1195 Maple Avenue

The owners of 5533 Colony Heights, 5534 Colony Heights, and 1198 Maple Avenue provided no response to the sampling request within the timeframe laid out in the registered letters. Confirmation of the receipt of the registered letters was provided by Canada Post.

The following program was carried out at the sampled addresses:

- A survey was conducted to determine the construction specifications of the well (well type and age, pump type, treatment system, water quality and quantity).
- Water samples were recovered from the homeowners well prior to filtration or water treatment.
- The samples were submitted for analytical testing (subdivision package and E.Coli/Total Coliforms) at an accredited laboratory (Eurofins Environment Testing Canada Inc.).

Sampling Results

Each of the results provided exceedances of the Ontario Drinking Water Standards (ODWS) outlined in the City of Ottawa's Hydrogeological and Terrain Analysis Guidelines (HTAG) for various aesthetic and operational parameters. The aesthetic parameters would relate to the taste of the water and is a personal preference as to what treatment is used. Operational guidelines, if not controlled, may negatively affect the efficient and effective treatment, disinfection and distribution of the water.

Due to the high Hardness levels recorded (537-1980 mg CaCO₃/L) the use of a water softener is recommended. Dwellings with sodium sensitive residents should be informed of high sodium content, as all of the results indicated elevated sodium levels. Total Coliforms and E.Coli was not detected in any of the samples.

Four (4) of the dwellings have groundwater results which indicate that the water supply well is mineralized. The homeowners were provided the recommended notice as per the City of Ottawa and MECP "Mineralized water", as defined by Ontario Regulation 903 under the *Ontario Water Resources Act*, is well water that has chloride concentrations of



greater than 500 mg/L, sulphate concentrations greater than 500 mg/L or Total Dissolved Solids (TDS) concentrations greater than 6000 mg/L.

Potential Adverse Effects

The subsurface profile encountered at the subject site generally consists of a thin layer of topsoil and/or fill material overlying a silty clay and/or glacial till deposit overlying bedrock. Based on the well records, existing wells located in proximity to the subject site and included in this baseline water sampling program were noted to be accessing an aquifer within the bedrock between 12 and 49 m depth. Due to the horizontal and vertical separation between the existing wells and the subject site, construction activities at the site are not expected to cause any interference to the water supply of surrounding well users or other negative impacts. As bedrock excavation is unnecessary, blasting will be unlikely.

We trust that the current submission satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.

Alexander Schopf, PhD, EIT



Michael Laflamme, P.Geo.



Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54955
 Invoice to: Paterson Group

Report Number: 1979245
 Date Submitted: 2022-06-14
 Date Reported: 2022-06-20
 Project: PH4499
 COC #: 891861

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Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1631048 GW 2022-06-13 1186M
Anions	Cl	1	mg/L	AO 250	650*
	F	0.10	mg/L	MAC 1.5	0.19
	N-NO2	0.10	mg/L	MAC 1.0	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10
	SO4	1	mg/L	AO 500	136
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	342
	Colour (Apparent)	2	TCU	AO 5	38*
	Conductivity	5	uS/cm		2590
	pH	1.00		6.5-8.5	7.55
	Phenols	0.001	mg/L		0.002
	S2-	0.05	mg/L	AO 0.05	<0.05
	TDS (COND - CALC)	1	mg/L	AO 500	1680*
	Turbidity	0.1	NTU	AO 5	5.7*
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	698*
Indices/Calc	Ion Balance	0.01			0.99
Metals	Ca	1	mg/L		141
	Fe	0.03	mg/L	AO 0.3	0.47*
	K	1	mg/L		7
	Mg	1	mg/L		84
	Mn	0.01	mg/L	AO 0.05	0.04
	Na	1	mg/L	AO 200	313*
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0
	Total Coliforms	0	ct/100mL	MAC 0	0
Nutrients	N-NH3	0.010	mg/L		0.166
	Total Kjeldahl Nitrogen	0.100	mg/L		0.214

Guideline = ODWSOG

* = Guideline Exceedence

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 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54955
 Invoice to: Paterson Group

Report Number: 1979245
 Date Submitted: 2022-06-14
 Date Reported: 2022-06-20
 Project: PH4499
 COC #: 891861

Lab I.D. 1631048
 Sample Matrix GW
 Sample Type
 Sampling Date 2022-06-13
 Sample I.D. 1186M

Group	Analyte	MRL	Units	Guideline	
Subcontract	Tannin & Lignin	1	mg/L		1
Subcontract-Inorg	DOC	0.5	mg/L	AO 5	1.0

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54840
 Invoice to: Paterson Group

Report Number: 1978337
 Date Submitted: 2022-06-02
 Date Reported: 2022-06-09
 Project: PH4499
 COC #: 891346

Group	Analyte	MRL	Units	Guideline	Value
				Lab I.D.	1628754
				Sample Matrix	GW
				Sample Type	
				Sampling Date	2022-06-01
				Sample I.D.	1190M
Anions	Cl	1	mg/L	AO 250	660*
	F	0.10	mg/L	MAC 1.5	0.23
	N-NO2	0.10	mg/L	MAC 1.0	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10
	SO4	1	mg/L	AO 500	127
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	345
	Colour (Apparent)	2	TCU	AO 5	14*
	Conductivity	5	uS/cm		2640
	pH	1.00		6.5-8.5	7.56
	Phenols	0.001	mg/L		<0.001
	S2-	0.01	mg/L	AO 0.05	<0.01
	TDS (COND - CALC)	1	mg/L	AO 500	1720*
	Turbidity	0.1	NTU	AO 5	1.3
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	714*
Indices/Calc	Ion Balance	0.01			1.05
Metals	Ca	1	mg/L		149
	Fe	0.03	mg/L	AO 0.3	0.52*
	K	1	mg/L		8
	Mg	1	mg/L		83
	Mn	0.01	mg/L	AO 0.05	0.04
	Na	1	mg/L	AO 200	349*
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0
	Total Coliforms	0	ct/100mL	MAC 0	0
Nutrients	N-NH3	0.010	mg/L		0.180
	Total Kjeldahl Nitrogen	0.100	mg/L		0.783

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54840
 Invoice to: Paterson Group

Report Number: 1978337
 Date Submitted: 2022-06-02
 Date Reported: 2022-06-09
 Project: PH4499
 COC #: 891346

Lab I.D. 1628754
 Sample Matrix GW
 Sample Type
 Sampling Date 2022-06-01
 Sample I.D. 1190M

Group	Analyte	MRL	Units	Guideline	
Subcontract	Tannin & Lignin	1	mg/L		2
Subcontract-Inorg	DOC	0.5	mg/L	AO 5	1.3

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54955
 Invoice to: Paterson Group

Report Number: 1979244
 Date Submitted: 2022-06-14
 Date Reported: 2022-06-20
 Project: PH4499
 COC #: 891860

Group	Analyte	MRL	Units	Guideline	Value
				Lab I.D.	1631047
				Sample Matrix	GW
				Sample Type	
				Sampling Date	2022-06-13
				Sample I.D.	1191B
Anions	Cl	1	mg/L	AO 250	396*
	F	0.10	mg/L	MAC 1.5	0.30
	N-NO2	0.10	mg/L	MAC 1.0	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10
	SO4	1	mg/L	AO 500	88
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	298
	Colour (Apparent)	2	TCU	AO 5	15*
	Conductivity	5	uS/cm		1760
	pH	1.00		6.5-8.5	7.47
	Phenols	0.001	mg/L		0.001
	S2-	0.01	mg/L	AO 0.05	<0.01
	TDS (COND - CALC)	1	mg/L	AO 500	1140*
	Turbidity	0.1	NTU	AO 5	2.7
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	539*
Indices/Calc	Ion Balance	0.01			0.96
Metals	Ca	1	mg/L		117
	Fe	0.03	mg/L	AO 0.3	0.37*
	K	1	mg/L		7
	Mg	1	mg/L		60
	Mn	0.01	mg/L	AO 0.05	0.09*
	Na	1	mg/L	AO 200	169
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0
	Total Coliforms	0	ct/100mL	MAC 0	0
Nutrients	N-NH3	0.010	mg/L		0.175
	Total Kjeldahl Nitrogen	0.100	mg/L		0.532

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54955
 Invoice to: Paterson Group

Report Number: 1979244
 Date Submitted: 2022-06-14
 Date Reported: 2022-06-20
 Project: PH4499
 COC #: 891860

Lab I.D. 1631047
 Sample Matrix GW
 Sample Type
 Sampling Date 2022-06-13
 Sample I.D. 1191B

Group	Analyte	MRL	Units	Guideline	
Subcontract	Tannin & Lignin	1	mg/L		1
Subcontract-Inorg	DOC	0.5	mg/L	AO 5	1.4

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54840
 Invoice to: Paterson Group

Report Number: 1978169
 Date Submitted: 2022-05-31
 Date Reported: 2022-06-08
 Project: PH4499
 COC #: 891272

Group	Analyte	MRL	Units	Guideline	Value
				Lab I.D.	1628347
				Sample Matrix	GW
				Sample Type	
				Sampling Date	2022-05-31
				Sample I.D.	1194M
Anions	Cl	1	mg/L	AO 250	780*
	F	0.10	mg/L	MAC 1.5	0.17
	N-NO2	0.10	mg/L	MAC 1.0	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10
	SO4	1	mg/L	AO 500	155
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	366
	Colour (Apparent)	2	TCU	AO 5	6*
	Conductivity	5	uS/cm		2910
	pH	1.00		6.5-8.5	7.56
	Phenols	0.001	mg/L		0.001
	S2-	0.01	mg/L	AO 0.05	<0.01
	TDS (COND - CALC)	1	mg/L	AO 500	1890*
	Turbidity	0.1	NTU	AO 5	1.3
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	755*
Indices/Calc	Ion Balance	0.01			0.99
Metals	Ca	1	mg/L		154
	Fe	0.03	mg/L	AO 0.3	0.45*
	K	1	mg/L		7
	Mg	1	mg/L		90
	Mn	0.01	mg/L	AO 0.05	0.04
	Na	1	mg/L	AO 200	388*
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0
	Total Coliforms	0	ct/100mL	MAC 0	0
Nutrients	N-NH3	0.010	mg/L		0.069
	Total Kjeldahl Nitrogen	0.100	mg/L		0.174

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54840
 Invoice to: Paterson Group

Report Number: 1978169
 Date Submitted: 2022-05-31
 Date Reported: 2022-06-08
 Project: PH4499
 COC #: 891272

Lab I.D. 1628347
 Sample Matrix GW
 Sample Type
 Sampling Date 2022-05-31
 Sample I.D. 1194M

Group	Analyte	MRL	Units	Guideline	
Subcontract	Tannin & Lignin	1	mg/L		2
Subcontract-Inorg	DOC	0.5	mg/L	AO 5	1.2

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54840
 Invoice to: Paterson Group

Report Number: 1978170
 Date Submitted: 2022-05-31
 Date Reported: 2022-06-08
 Project: PH4499
 COC #: 891273

Group	Analyte	MRL	Units	Guideline	Result
				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1628348 GW 2022-05-31 1195M
Anions	Cl	1	mg/L	AO 250	840*
	F	0.10	mg/L	MAC 1.5	0.26
	N-NO2	0.10	mg/L	MAC 1.0	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10
	SO4	1	mg/L	AO 500	148
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	331
	Colour (Apparent)	2	TCU	AO 5	6*
	Conductivity	5	uS/cm		3050
	pH	1.00		6.5-8.5	7.67
	Phenols	0.001	mg/L		<0.001
	S2-	0.05	mg/L	AO 0.05	<0.05
	TDS (COND - CALC)	1	mg/L	AO 500	1980*
	Turbidity	0.1	NTU	AO 5	0.5
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	718*
Indices/Calc	Ion Balance	0.01			0.98
Metals	Ca	1	mg/L		154
	Fe	0.03	mg/L	AO 0.3	0.21
	K	1	mg/L		10
	Mg	1	mg/L		81
	Mn	0.01	mg/L	AO 0.05	0.05
	Na	1	mg/L	AO 200	417*
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0
	Total Coliforms	0	ct/100mL	MAC 0	0
Nutrients	N-NH3	0.010	mg/L		0.288
	Total Kjeldahl Nitrogen	0.100	mg/L		0.524

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Client: Paterson Group
 154 Colonnade Rd. South
 Nepean, ON
 K2E 7T7
 Attention: Mr. Kirby Magee-Dittburner
 PO#: 54840
 Invoice to: Paterson Group

Report Number: 1978170
 Date Submitted: 2022-05-31
 Date Reported: 2022-06-08
 Project: PH4499
 COC #: 891273

Lab I.D. 1628348
 Sample Matrix GW
 Sample Type
 Sampling Date 2022-05-31
 Sample I.D. 1195M

Group	Analyte	MRL	Units	Guideline	
Subcontract	Tannin & Lignin	1	mg/L		2
Subcontract-Inorg	DOC	0.5	mg/L	AO 5	1.1

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May 10, 2022

File No.: PH4499

Attention: Owner / Occupant

Subject: Baseline Water Well Testing

Geotechnical Engineering
Environmental Engineering
Hydrogeology
Geological Engineering
Materials Testing
Building Science

www.patersongroup.ca

Dear Sir/Madam:

Paterson Group Inc. (Paterson), an Ottawa based Geotechnical, Environmental and Hydrogeological Engineering Consulting Firm, is carrying out a baseline well water sampling program in your area, along with a short interview. This baseline well sampling program is being completed as a requirement by the City of Ottawa prior to starting construction works for the proposed development to be located at 1185 Beaverwood Road in Ottawa. The sample results will be used as a baseline to provide a reference water quantity and quality in the unlikely event that construction works impact your well.

We are anticipating carrying out the well sampling program over a three week period (**May 10 through June 2, 2022**). We would like to take this opportunity to schedule an appointment to sample your well when convenient.

As part of the baseline well sampling program, we are requesting access to your property to collect a raw water sample from an untreated tap / spigot. It is preferred to sample an untreated outdoor location to reduce potential for close contact and maintain social distancing. Participants will be asked if they can provide a copy of the Well Record from when the well was installed, but water samples will be taken even if the record is not available. The program will consist of a brief interview with our field staff regarding the well history, determining the location of the well on the property and taking a water sample from an exterior tap/spigot should the water not be subject to any filtration or treatment measures. The entire process will take **15 to 20 minutes**. The interview can be done either in person at the time of sampling, or over the phone in order to limit social interaction.

The purpose of the sampling program is to protect homeowners against possible effects of construction on the adjacent properties, for which contingency plans will be in place. Well water testing includes several chemical parameters (not only bacteria) and the results will be provided to you **free of charge** (value of approximately \$350).

Owner/Occupant
Page 2
File: PH4499

Homeowner names, addresses with related analytical results and contact information will **not** be released publicly by Paterson or the client. The information will be provided to the City where they have noted they will not share the report and that all personal information will remain private. If there are any questions as to how a party will handle your information, please reach out to the appropriate person noted below .

Please contact Kirby Magee-Dittburner at Paterson Group (613-218-3444) or via email at (kmageedittburner@patersongroup.ca) to schedule an appointment to sample your well. Please contact Michel Kearney at the City of Ottawa (613-606-5862) or via email at (Michel.Kearney@Ottawa.ca) should you require further information or if you have questions about the City's requirement for the well water sampling program.

We will continue to follow Public Health Ontario and Ottawa Public Health recommendations related to COVID-19 throughout these times. Please let us know if there are any health related concerns you may have in regards to the sampling.

Best Regards,

Paterson Group Inc.

A handwritten signature in black ink, appearing to read 'Kirby Magee-Dittburner', with a stylized flourish at the end.

Kirby Magee-Dittburner, B.Eng., EIT

Paterson Group Inc.

Head Office
154 Colonnade Road South
Ottawa - Ontario - K2E 7J5
Tel: (613) 226-7381

Ottawa Laboratory
1-28 Concourse Gate
Ottawa - Ontario - K2E 7T7
Tel: (613) 226-7381

Northern Office and Laboratory
63 Gibson Street
North Bay - Ontario - P1B 8Z4
Tel: (705) 472-5331



WATER WELL RECORD

31649A

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 1511745-15004 CON. CO. W. IA

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Manotick CON., BLOCK, TRACT, SURVEY, ETC.: 31649A LOT: 25-27

OWNER (SURNAME FIRST): [REDACTED] ADDRESS: 21 "D" ST LAURENT BLVD DATE COMPLETED: 21 April 72 48-53: 10002

GRID: 007773 RC: 9 ELEVATION: 0323 BASIN CODE: 3317650

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	TOP SOIL			0	12
Brown	GRAVEL			12	36
Brown	Limestone	Rock	medium hard	36	83

31 100121602 100366111 100836115

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
15-18	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
20-23	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
25-28	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
30-33	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	STEEL		0	18-16
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
17-18	1 <input type="checkbox"/> STEEL			20-23
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
24-25	1 <input type="checkbox"/> STEEL			27-30
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
31-33	34-38	39-40

MATERIAL AND TYPE: _____ INCHES: _____ FEET: _____

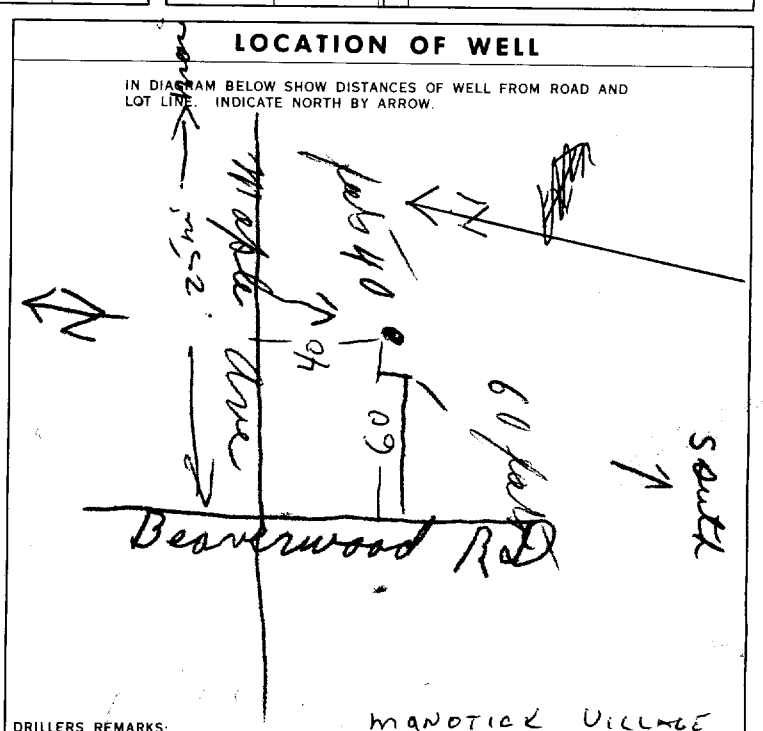
DEPTH TO TOP OF SCREEN: _____ FEET: _____

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	0010 GPM	01 HOURS 00 MINS.
STATIC LEVEL: -35 FEET	WATER LEVEL END OF PUMPING: 045 FEET	WATER LEVELS DURING PUMPING:
		15 MINUTES: 043 FEET
		30 MINUTES: 044 FEET
		45 MINUTES: 045 FEET
		60 MINUTES: 045 FEET
IF FLOWING, GIVE RATE: 0010 GPM	PUMP INTAKE SET AT: 60 FEET	WATER AT END OF TEST: 045 FEET
RECOMMENDED PUMP TYPE: <input checked="" type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING: 060 FEET	RECOMMENDED PUMPING RATE: 0005 GPM
50-53 001.0 GPM./FT. SPECIFIC CAPACITY		



FINAL STATUS OF WELL

54 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
 TEST HOLE 7 UNFINISHED
 RECHARGE WELL

WATER USE

55-56 DOMESTIC 5 COMMERCIAL
 STOCK 6 MUNICIPAL
 IRRIGATION 7 PUBLIC SUPPLY
 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 OTHER 9 NOT USED

METHOD OF DRILLING

57 CABLE TOOL 6 BORING
 ROTARY (CONVENTIONAL) 7 DIAMOND
 ROTARY (REVERSE) 8 JETTING
 ROTARY (AIR) 9 DRIVING
 AIR PERCUSSION

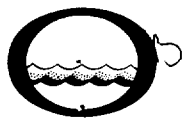
CONTRACTOR

NAME OF WELL CONTRACTOR: Maurice Cayer LICENCE NUMBER: 31517
 ADDRESS: Carleton Place Ont
 NAME OF DRILLER OR BORER: _____ LICENCE NUMBER: _____
 SIGNATURE OF CONTRACTOR: Maurice Cayer SUBMISSION DATE: 21 April 72

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 1517 DATE RECEIVED: 100572
 DATE OF INSPECTION: _____ INSPECTOR: _____
 REMARKS: _____
 PK
 WI

OWRC COPY



The Ontario Water Resources Commission Act

WATER WELL RECORD

3164g A

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED

2. CHECK CORRECT BOX WHERE APPLICABLE

11 1512263 MUNICIPAL 15004 CON. CAN. 1A
 COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: North Gower CON., BLOCK, TRACT, SURVEY, ETC.: Maple ave A LOT: 18002
 OWNER (SURNAME FIRST): [REDACTED] ADDRESS: Manastick DATE COMPLETED: 09 MO. 11 YR. 72
 HING: 007810 RC: 9 ELEVATION: 0322 RC: 4 BASIN CODE: 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>Grey</u>	<u>hard pan</u>	<u>stone</u>		<u>0</u>	<u>39</u>
<u>Grey</u>	<u>limestone</u>			<u>39</u>	<u>80</u>

31 003921/1121 008021/15
 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
<u>0080</u>	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<u>05"</u>	<input checked="" type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE	<u>188</u>	<u>0</u>	<u>39</u> <u>0039</u>
	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE			
	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: _____ FEET

61 PLUGGING & SEALING RECORD

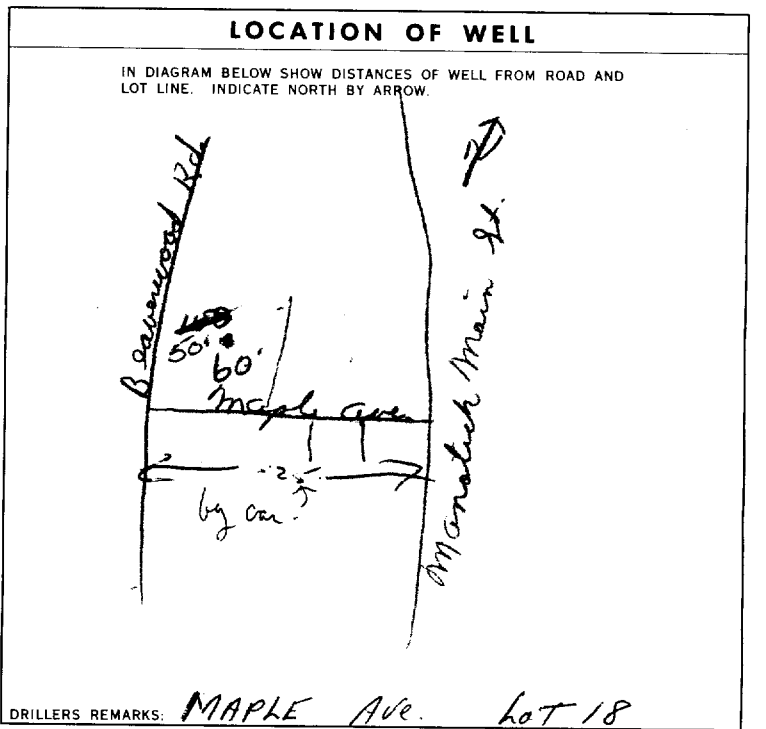
DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
<u>10-13</u>	<u>14-17</u>
<u>18-21</u>	<u>22-25</u>
<u>26-29</u>	<u>30-33</u>

71 PUMPING TEST METHOD

PUMP WEAVER 10 PUMPING RATE: 0010 GPM 11-14 DURATION OF PUMPING: 01 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
<u>-20</u>	<u>040</u>	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
<u>020</u>	<u>025</u>	<u>030</u>	<u>035</u>	<u>040</u>	

IF FLOWING, GIVE RATE: 0010 GPM 38-41 PUMP INTAKE SET AT: 60 FEET 42 WATER AT END OF TEST: 0035 FEET
 RECOMMENDED PUMP TYPE: 2 SHALLOW RECOMMENDED PUMP SETTING: 060 FEET RECOMMENDED PUMPING RATE: 0035 GPM.



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
 2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
 3 TEST HOLE 7 UNFINISHED
 4 RECHARGE WELL 8 UNFINISHED

WATER USE

1 DOMESTIC 5 COMMERCIAL
 2 STOCK 6 MUNICIPAL
 3 IRRIGATION 7 PUBLIC SUPPLY
 4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 OTHER 9 NOT USED

METHOD OF DRILLING

1 CABLE TOOL 6 BORING
 2 ROTARY (CONVENTIONAL) 7 DIAMOND
 3 ROTARY (REVERSE) 8 JETTING
 4 ROTARY (AIR) 9 DRIVING
 5 AIR PERCUSSION

DRILLERS REMARKS: MAPLE Ave. Lot 18

CONTRACTOR

NAME OF WELL CONTRACTOR: Maurice Cayer LICENCE NUMBER: 1517
 ADDRESS: Casselman Ont.
 NAME OF DRILLER OR BORER: _____ LICENCE NUMBER: _____
 SIGNATURE OF CONTRACTOR: Maurice Cayer SUBMISSION DATE: 09 MO. 11 YR. 72

OFFICE USE ONLY

DATA SOURCE: 1 58 CONTRACTOR: 1517 59-62 DATE RECEIVED: 110173 63-68 80
 DATE OF INSPECTION: _____ INSPECTOR: K
 REMARKS: _____
P
WI



The Ontario Water Resources Commission Act WATER WELL RECORD

31g 49

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK CORRECT BOX WHERE APPLICABLE

11 1511819 MUNICIPAL 152004 CON. COW A

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: North York CON. BLOCK, TRACT, SURVEY, ETC.: Beaverbrook St. A LOT 25-27

OWNER (SURNAME FIRST): J. J. Construction ADDRESS: Richmond Ont. DATE COMPLETED: 17 July 72

UTM ZONE: 18 EASTING: 445915 NORTHING: 5007740 RC: 4 ELEVATION: 032.0 RC: 5 BASIN CODE: 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay	boulders		0	34
grey	limestone			34	84

31 003420513 0084215

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
			FROM TO
10-11	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0-18
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30

SCREEN

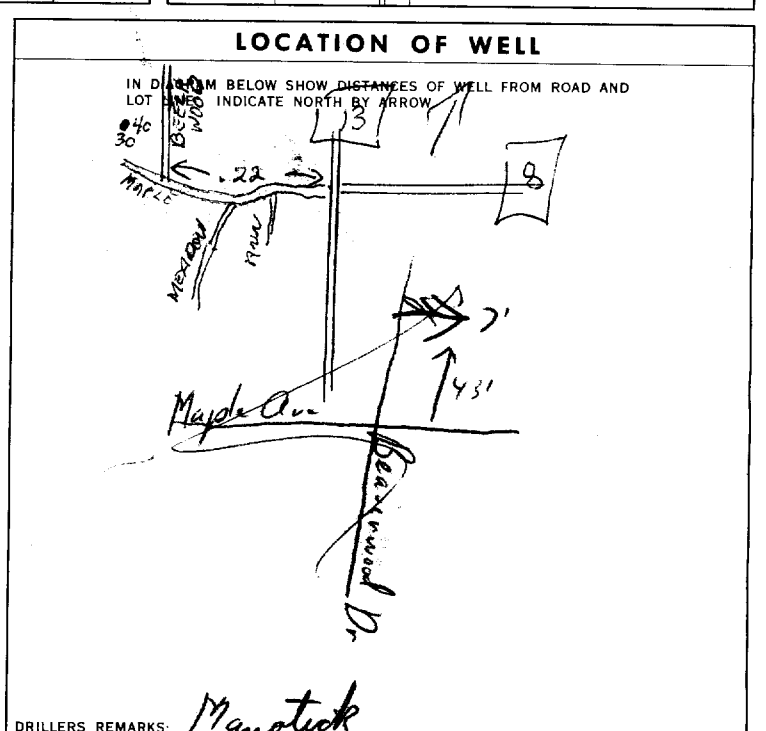
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
		INCHES FEET
		41-44 80

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM TO	
10-13	14-17
18-21	22-25
26-29	30-33

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> TRAILER	GPM.	HOURS MINS.
	0020	01 00
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
19-21	22-24	15 MINUTES 26-28 30 MINUTES 29-31 45 MINUTES 32-34 60 MINUTES 35-37
021 FEET	050 FEET	042 FEET 050 FEET 050 FEET 050 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	GPM.	FEET
	050	1 <input type="checkbox"/> CLEAR 2 <input checked="" type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
1 <input type="checkbox"/> SHALLOW 2 <input checked="" type="checkbox"/> DEEP	050	00/0
50-53	000.7 GPM./FT. SPECIFIC CAPACITY	



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
 2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
 3 TEST HOLE 7 UNFINISHED
 4 RECHARGE WELL

WATER USE

1 DOMESTIC 5 COMMERCIAL
 2 STOCK 6 MUNICIPAL
 3 IRRIGATION 7 PUBLIC SUPPLY
 4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 9 NOT USED

METHOD OF DRILLING

1 CABLE TOOL 6 BORING
 2 ROTARY (CONVENTIONAL) 7 DIAMOND
 3 ROTARY (REVERSE) 8 JETTING
 4 ROTARY (AIR) 9 DRIVING
 5 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Manis Well Drilling LICENCE NUMBER: 3644
 ADDRESS: 326, Richmond Ont.
 NAME OF DRILLER OR BOREH: George Whittaker
 SIGNATURE OF CONTRACTOR: Henry Manis SUBMISSION DATE: 20 July 72

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 180872
 DATE OF INSPECTION: INSPECTOR:
 REMARKS: P K
 WI



The Ontario Water Resources Commission Act

WATER WELL RECORD

31949

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED

2. CHECK CORRECT BOX WHERE APPLICABLE

1511320

MUNICIP. 15.004 CON. edn

COUNTY OR DISTRICT Carleton Place TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE North Gower CON. BLOCK, TRACT, SURVEY, ETC. A LOT 25-27 2

Manotick Ont DATE COMPLETED 48-53 DAY 30 MO 07 YR 71

RC. 1 01820 4 ELEVATION 26 0320 5 RC. 30 BASIN CODE 31 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>brown</u>	<u>clay</u>	<u>sand</u>	<u>packed</u>	<u>0</u>	<u>10</u>
<u>grey</u>	<u>"</u>	<u>sand & boulders</u>	<u>hard</u>	<u>10</u>	<u>56</u>
<u>grey</u>	<u>lime</u>		<u>hard</u>	<u>56</u>	<u>89</u>

31 001000509 00502050913 0089215

32

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
10-13	<input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
15-18	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
20-23	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
25-28	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<u>6 1/2</u>	<input checked="" type="checkbox"/> STEEL	<u>188</u>	<u>0</u>	<u>59</u>
<u>06</u>	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input checked="" type="checkbox"/> OPEN HOLE			
	<input type="checkbox"/> STEEL			
	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input checked="" type="checkbox"/> OPEN HOLE			
	<input type="checkbox"/> STEEL			
	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input type="checkbox"/> OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET

MATERIAL AND TYPE _____ DEPTH TO TOP OF SCREEN 41-44 80 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM TO	
10-13	14-17
18-21	22-25
26-29	30-33

71 PUMPING TEST

PUMPING TEST METHOD PUMP BAILER

PUMPING RATE 0010 GPM. DURATION OF PUMPING 01 HOURS 00 MINS.

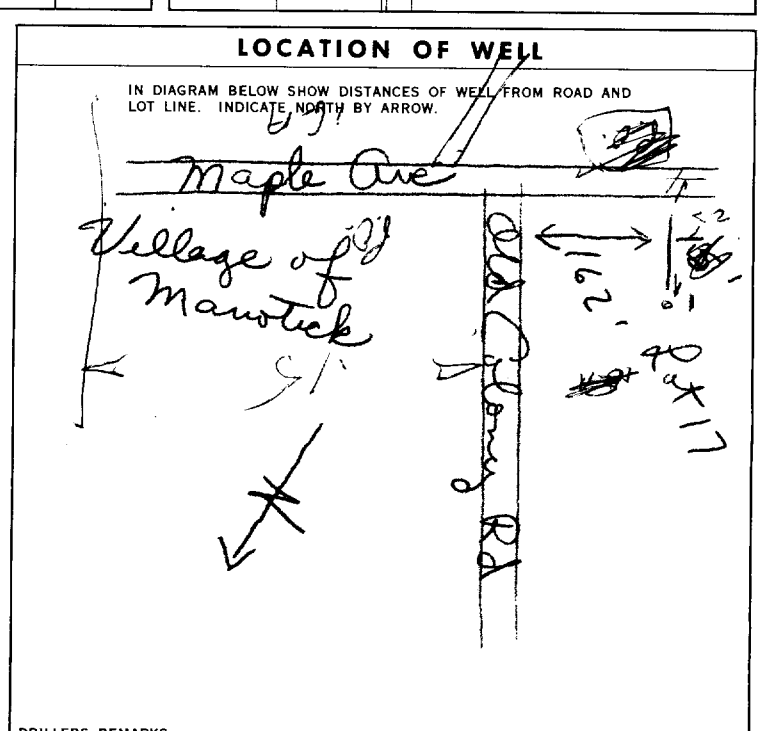
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
19-21 FEET	22-24 FEET	15 MINUTES 26-28 FEET	30 MINUTES 29-31 FEET	45 MINUTES 32-34 FEET	60 MINUTES 35-37 FEET
<u>055</u>	<u>080</u>	<u>080</u>	<u>080</u>	<u>080</u>	<u>080</u>

IF FLOWING, GIVE RATE _____ GPM. PUMP INTAKE SET AT _____ FEET WATER AT END OF TEST _____ FEET

RECOMMENDED PUMP TYPE SHALLOW DEEP

RECOMMENDED PUMP SETTING 080 FEET RECOMMENDED PUMPING RATE 0005 GPM.

50-53 000.4 GPM./FT. SPECIFIC CAPACITY



FINAL STATUS OF WELL

WATER SUPPLY

OBSERVATION WELL

TEST HOLE

RECHARGE WELL

ABANDONED, INSUFFICIENT SUPPLY

ABANDONED, POOR QUALITY

UNFINISHED

WATER USE

DOMESTIC

STOCK

IRRIGATION

INDUSTRIAL

OTHER

COMMERCIAL

MUNICIPAL

PUBLIC SUPPLY

COOLING OR AIR CONDITIONING

NOT USED

METHOD OF DRILLING

CABLE TOOL

ROTARY (CONVENTIONAL)

ROTARY (REVERSE)

ROTARY (AIR)

AIR PERCUSSION

BORING

DIAMOND

JETTING

DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR Capital Water Supply LICENCE NUMBER 1558

ADDRESS 14 Ashford Dr Ottawa

NAME OF DRILLER OR BORER B Bisson LICENCE NUMBER _____

SIGNATURE OF CONTRACTOR Halter Kawanaq SUBMISSION DATE _____ DAY _____ MO _____ YR _____

OFFICE USE ONLY

DATA SOURCE 1 CONTRACTOR 1558 DATE RECEIVED 190871

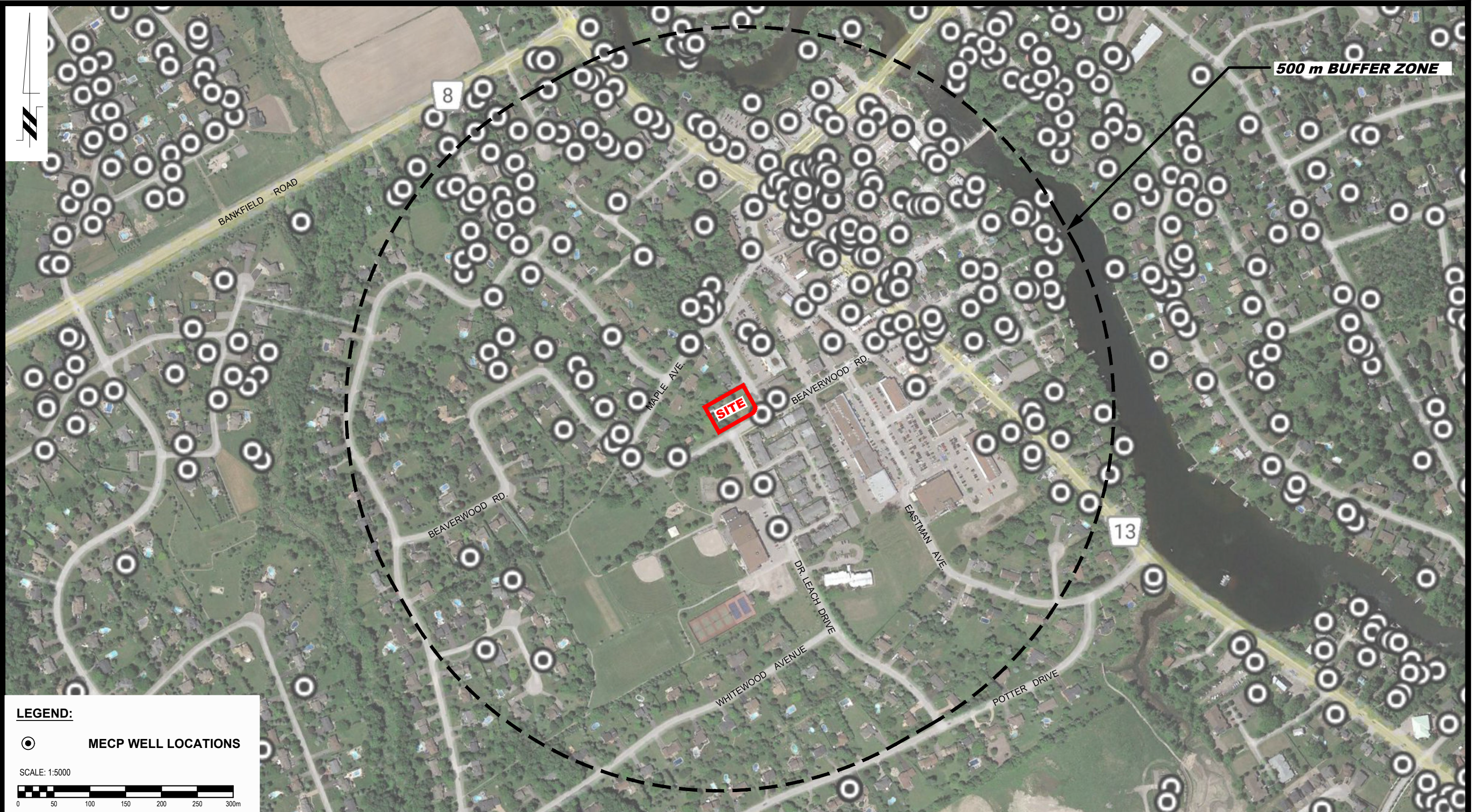
DATE OF INSPECTION _____ INSPECTOR _____

REMARKS: _____

P K

WI





LEGEND:

⊙ MECP WELL LOCATIONS

SCALE: 1:5000



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

ARK CONSTRUCTION
GROUNDWATER IMPACT ASSESSMENT
1185 BEAVERWOOD ROAD

OTTAWA, ONTARIO

Title: **MECP WATER WELL LOCATION PLAN**

Scale: 1:5000
Drawn by: YA
Checked by: KP
Approved by: ML

Date: 05/2022
Report No.: PH4499-1
Dwg. No.: **PH4499-2**
Revision No.: