March 29, 2023

PH4684-LET.01

Richard Theoret
809304 Ontario Inc.
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Geotechnical Engineering
Environmental Engineering
Hydrogeology
Materials Testing
Building Science
Rural Development Design
Retaining Wall Design
Noise and Vibration Studies

patersongroup.ca

Attention: Richard Theoret

Subject: **Terrain Analysis**
Proposed Subdivision Development
Eastview Subdivision
2161 Valley Street
Moose Creek, Ontario

INTRODUCTION

Paterson Group Inc. (Paterson) was retained by 809304 Ontario Inc. to carry out a Terrain Analysis in support of a proposed residential subdivision on the aforementioned property. It is our understanding that the proposed development will consist of the following:

- Fifty-six (56) residential lots of various sizes ranging from approximately 0.1 to 0.3 hectares (ha), with an average lot size of 0.14 ha for the 56 lots.
- Ten (10) of the 56 lots will be serviced by on-site sewage systems, with the remainder being municipally serviced. The average size of the lots which are proposed to have a sewage system is 0.20 ha.
- One (1) retained lot containing an existing privately serviced residential dwelling.
- One (1) lot for storm water management.
- One (1) lot for a park.

As the proposed development will be serviced by a municipal water supply, no new water wells are proposed. The subject site is located to the east of Valley Street and north of the Via Rail corridor in Moose Creek, Ontario. More specifically, the subject site consists of the municipal address of 2161 Valley Street and the adjacent property parcel to the south in Moose Creek, Ontario.

The purpose of this study has been to carry out a Terrain Analysis to determine the site's suitability for private on-site wastewater systems.

Hydrogeological Pre-consultation

A hydrogeological pre-consultation was completed with the Township and GRI Inc. (who was retained as the hydrogeological peer reviewer by the Township) on March 14, 2023. During the hydrogeological pre-consultation, the hydrogeological reviewer and the township indicated that the Terrain Analysis report should identify the methodology for replacing a sewage system, should the space for a second replacement system not be proposed on the privately serviced lots.

BACKGROUND

Subject Site

The subject site is located to the east of Valley Street and north of the Via Rail corridor in Moose Creek, Ontario. A residential lot is located on the north side of the subject site, with agricultural land located to the east. More specifically, the subject site consists of the municipal address of 2161 Valley Street and the adjacent property parcel to the south in Moose Creek, Ontario. Refer to the attached Atrel Engineering drawing titled Macro Sanitary Drainage Area Plan, for the proposed subdivision lotting.

Presently, the majority of the subject site consists of meadows and forested areas with the exception of an existing developed residential property located within the northeastern portion of the subject site, which is accessed from Valley Street. Small drainage ditches exist throughout the subject site. General overburden flow direction is anticipated to be to the southeast to an unnamed tributary which eventually connects to Moose Creek and flows north towards the Ottawa River.

The following report was completed by Paterson in support of the proposed development and was used in support of this Terrain Analysis:

- ❑ Paterson Report PG6536 - Geotechnical Investigation - Proposed Residential Development - 2161 Valley Street, report number PG6536-1 dated February 8, 2023

Proposed Development

The proposed lotting for the subdivision consists of 59 lots. The retained lot located within the north corner of the subject site consists of an existing residential property that is serviced by an on-site sewage system. The two southernmost lots of the development are anticipated to contain a storm water management pond (SWMP) and a designated park area. It is anticipated that low-rise residential dwellings will be constructed on the

remaining 56 lots. 10 of those proposed residential lots will be serviced by on-site sewage systems. It is anticipated that associated local roadways, vehicle parking areas and landscaped areas will surround the proposed low-rise residential dwellings. It is our understanding that all of the proposed lots will be serviced by a municipal water supply. Details regarding the proposed lotting can be found on the attached Atrel Engineering drawing titled Macro Sanitary Drainage Area Plan.

TERRAIN ANALYSIS

Surficial Geology

Published surficial geology mapping for the area in the vicinity of the subject site indicates that the site is underlain predominantly by a course-textured glaciomarine deposits consisting of sand, gravel, minor silt and clay overlying Paleozoic terrain (OGS MRD 128).

A subsurface investigation was completed as part of Paterson Report PG6536 - Geotechnical Investigation - Proposed Residential Development - 2161 Valley Street, report number PG6536-1 dated February 8, 2023. Soil profile logs from Paterson's boreholes at the subject site indicate that the soils at the subject site generally consist of topsoil overlying a glacial till deposit consisting of silty sand with gravel and occasional cobbles and boulders. At select borehole locations, fill material was encountered either at surface or below the topsoil, and above the glacial till deposit. A silty clay deposit was encountered underlying the glacial till deposit at BH7 -23. Refusal to auguring was not encountered at any borehole location. A Dynamic Cone Penetration Test (DCPT) was conducted at BH7-23 where refusal to DCPT was encountered at 12.7 m bgs. The test hole locations and soil profiles can be found on the attached Paterson Drawing PG6536 - 1 - Test Hole Location Plan and Soil Profile and Test Data Sheets, respectively.

Monitoring wells were installed at select borehole locations while the remaining boreholes were outfitted with piezometers. Groundwater levels were observed to vary from 1.0 to 3.0 m bgs.

According to the Paterson geotechnical field investigation and surrounding water well records, the overburden thickness is anticipated to be greater than 12 m.

Ontario Geologic Survey mapping (OGS MRD 219) indicates that the subject site is underlain by limestone of the Lindsay Formation.

Hydrogeological Sensitivity of the Site

The subject site is currently undeveloped, with the exception of a single residential dwelling located within the northeastern portion of the subject site, and currently consists of a mixture of meadows and treed land. The subject site is bordered by Valley Street to the west, the Via Rail corridor to the south, a residential lot to the north and agricultural land to the east. Ten (10) of the proposed lots at the subject site are to be serviced by on-site sewage systems in addition to the existing residential dwelling.

According to Paterson's geotechnical site investigation, the subject site slopes downwards from north to south, with a maximum relief of approximately 10 m over the entire site. The general groundwater flow direction is anticipated to be towards the southeast.

Based on the onsite subsurface investigation completed by Paterson and available geological mapping, the overburden is anticipated to be greater than 2 m. Overburden depths less than 2 m constitute a hydrogeologically sensitive area. However, given that bedrock was not encountered during the Paterson geotechnical subsurface investigation, the subject site is not considered hydrogeologically sensitive and additional setbacks from on-site sewage systems are not required.

Conceptual Lot Development

Building plans and design details were not available at the time of report preparation. As such, a 4 bedroom residential dwelling has been assigned to each of the proposed lots for the purpose of completing the study. The location of the proposed structures has not been assigned, however can be assumed to be central in most lots. As each proposed privately serviced lot is at least 0.19 ha in area, there is assumed to be adequate space to accommodate the associated private services and meet all the regulated separation criteria. Please note that any proposed design layouts are not meant to restrict the location of the proposed residence or private services and are designed to demonstrate that the minimum separation distances can be achieved.

Conceptual Sewage System Design

It is assumed that a single detached residence will be constructed on the proposed severed lots.

The theoretical dwelling design for this review consists of an assumed two story dwelling with four (4) bedrooms, a finished floor area of approximately 250 m^2 and a fixture unit count of 30. The total daily design flow (TDDSF), calculated in accordance with Article 8.2.1.3 of the OBC of such a residence would be 2,500 L/day. Typical residential

developments will have lower actual loading compared to the conservative design loads as per the OBC.

In order to minimize the risk of long-term contamination of services, a minimum horizontal separation distance of 15 meters is mandated between any drilled well (where applicable) and the closest distribution pipe of the onsite sewage systems. This separation distance shall be increased according to the OBC requirements for beds constructed above the original ground surface.

A Class 4 sewage system with a fully raised absorption trench style leaching bed may be installed to service each of the proposed single family dwellings. Assuming a 4 bedroom dwelling having a finished floor area of no greater than 250 m^2 and a fixture unit count of no greater than 30.0, the design sewage flow according to the Ontario Building Code would be 2,500 L/day. A minimum length of distribution pipe required for the leaching bed is determined by the formula QT/200, as per the OBC, where “Q” is the design sewage flow and “T” is the percolation rate of the leaching bed fill. Based on the design sewage flow of 2,500 L/day, a minimum distribution pipe length of 100 m would be required, assuming the percolation rate of the leaching bed fill used is 8 min/cm. The surficial silty sand stratum underlying the proposed severed parcels have an estimated percolation rate of the order of 35 min/cm, therefore an imported sand mantle will be required. The leaching bed area shall be designed such that the loading rate does not exceed 8 L/m^2/day. As such, for a daily sewage flow of 2,500 L, the leaching bed area required would be up to 312.5 m^2, however it should be noted that a fully raised absorption trench style leaching bed will typically exceed the minimum required sand area due to the area required to accommodate the minimum pipe length as well as the 15.0 m sand mantle. The reader should be aware that numerous other types of Class 4 sewage systems could potentially be used at the site. A sewage system using tertiary wastewater equipment would require a significantly reduced area, and potentially reduce the height.

A Class 4 sewage system with a conventional absorption trench style leaching bed can be easily accommodated on each proposed privately serviced lot. The potential leaching bed discussed to service the proposed preliminary lot layout requires the greatest footprint of all the OBC approved styles of beds. This type of bed has been selected for illustration purposes only and the reader should be aware that numerous other types of Class 4 sewage systems could potentially be used at this site.

Future Sewage System Replacement

All sewage system replacements must have an Ontario Building Code (OBC) Part 8 Sewage System Replacement permit prior to completing any onsite sewage system replacement activities. The permit application must be filed and approved by the designated regulating authority of the region where the dwelling is located. The following

description of the methodology used to replace a sewage system is for guidance only, and the certified sewage system designer or installer which is designing or installing the replacement septic system should be consulted prior to commencing.

In order to replace a sewage system bed onsite which is located in the same area as the failed or “to be replaced” bed, the timing and construction methods must be discussed with the sewage system installer. Typically, the installation of a sewage system takes less than one working week. The existing tankage is pumped until empty prior to any onsite works, and the outlet pipe from the existing tankage is sealed. This way the homeowner may continue to use their water and sewage facilities during the sewage system replacement period. The contractor/homeowner must monitor the sewage tank effluent levels and pump the sewage tanks, as needed.

A sewage system installer would typically ensure the tankage outlet has been sealed off, then commence the excavation and replacement of the failed or “to be replaced” leaching bed area. The sewage system designer may choose to retain the existing sewage tankage or install new tankage. Should the existing tankage remain, the sewage system installer need only connect the new sewage system, once installed, to the existing tankage in order to commence use of the new bed. Should new tankage be installed, the sewage system installer should install the new tankage near the old tank. After the new sewage system bed and or new tankage has been installed, the sewage system installer should coordinate with the homeowner to not use their internal water and sewage facilities for a short period of time (usually a matter of hours) while the new septic tank is being connected to the dwellings main outlet line.

In this manner, a sewage system can be replaced without the need for an additional sewage system leaching bed, thereby making it unnecessary to size two separate leaching beds on each proposed property. There may be other methods that would provide the same result and this should not be used to restrict other reasonable processes.

Background Nitrate Sampling

As part of the onsite Geotechnical investigations completed by Paterson in support of the proposed residential development, two (2) monitoring wells (BH 6-23 and BH 7-23) were installed. Refer to the attached Paterson drawing PG6536 - 1 - Test Hole Location Plan and associated Soil Profile and Test Data Sheets for additional information.

Paterson personnel collected groundwater samples from the onsite monitoring wells on January 31, 2023 in order to determine background nitrate concentrations in support of the Nitrate Impact Analysis (NIA).

Each well was purged of standing water prior to sampling. All samples were placed directly into clean bottles supplied by the analytical laboratory. Samples were placed immediately into a cooler with ice and were transported directly to the Eurofins laboratory in Ottawa, Ontario. All samples were received by the laboratory within 24 hours of collection. The analytical test results can be found attached.

The laboratory results indicate that nitrates were non-detect in the groundwater samples. Background nitrate concentrations across the site can be considered negligible, as nitrates were not detected in the onsite monitoring wells.

Nitrate Impact Assessment

Nitrate is considered to be a critical parameter of concern when assessing impacts to groundwater quality downgradient of an onsite sewage system. The following assessment was completed using the Ministry of the Environmental, Conservation and Parks (MECP) Procedure D-5-4. For the purpose of this guideline, the Drinking Water Objective of 10 mg/L of nitrate is the maximum allowable concentration detectable in the groundwater prior to the property line.

Under this guideline, where the lot size is one hectare or larger, a detailed impact assessment may not be required. The MECP Procedure D-5-4 indicates that in developments with an average lot size of 1 ha or larger, a detailed assessment is typically not required if it can be demonstrated that the area is not hydrogeologically sensitive. The proposed subdivision has an average lot size of 0.14 ha, with the privately serviced lots averaging 0.20 ha. Therefore, a predictive nitrate impact assessment has been completed.

In order to demonstrate that private services would adequately support the proposed residential development, a predictive nitrate impact assessment for the subject site was completed. The values used in the NIA assessment were taken from Atrel Engineering's Macro Sanitary Drainage Area Plan, attached. The values shown in the predictive nitrate impact assessment attached to this report are summarized below.

❑	Site area	12.88 ha
❑	Impervious area %	18 %
❑	Daily sewage flow (1,000 L/day per lot) (Based on MECP Procedure D-5-4) (10 new lots + 1 existing lot)	11,000 l/day (11 Lots)

- ❑ Concentration of nitrate in effluent 40 mg/L
  (Value based on typical effluent concentration)

- ❑ Surplus Water 502 mm/year
  (The surplus water value was estimated based on Environment Canada's Engineering Climate Services Unit water balance modeling for fine sandy loam soils with a water holding capacity of 75 mm (Urban Lawn/Shallow Rooted Crops), which can be found attached. Meteorological data from the St. Albert climate station was used in support of this study.)

- ❑ Combined infiltration factor 0.58
  Based on:
  - Topography infiltration factor 0.15
  - Soil infiltration factor 0.30
  - Cover infiltration factor 0.13

The topography infiltration factor of 0.15 is based upon the subject site having a mixture of rolling land (average slope of 2.8 to 3.8 m per km) and hilly land (average slope of 28 to 47 m/km). As the subject site has relief of roughly 10 m over approximately 0.65 km, a combination of the two infiltration factors was used.

The soils at the subject site were predominantly a glacial till characterized by silty sand. Therefore, a soil infiltration factor of 0.3 was used (the value between 'medium combinations of clay and loam' and 'open sandy loam').

The cover infiltration factor of 0.13 is based upon the subject site containing a mixture of cultivated land (0.1 infiltration factor) and woodland (0.2 infiltration factor).

Based on the MECP Procedure D-5-4, the predictive nitrate impact assessment reviewed the potential impacts using a value of 1,000 L/day per lot. The calculation for a standard conventional sewage system results in a predicted nitrate concentration of 4.60 mg/L, using a value of 40 mg/L nitrate concentration within the effluent.

Based on the predicted nitrate concentration, nitrate reduction will not be required for the sewage system in order for the development to remain below the required value at the property boundaries.

Based on the results of the predicted nitrate impact assessment, it is our opinion that the proposed lots can adequately support the proposed single detached dwellings without having an adverse impact on the underlying bedrock aquifer.

All existing private wells or monitoring wells at the subject site, that are not being maintained according to the regulations, should be properly decommissioned by a licensed well contractor as per O.Reg. 903 prior to construction.

CONCLUSIONS

Based on the information contained within the body of this review, the following preliminary conclusions can be drawn:

1. The site is not considered hydrogeologically sensitive.

2. The predicted nitrate concentrations at the property boundary are calculated to be below the required 10 mg/L threshold.

3. A Sewage System Permit and Building Permit need to be issued prior to commencement of any construction activities related to the proposed sewage systems/residential development.

4. The results of the Terrain Analysis have provided satisfactory evidence that the subject site can support the proposed residential development with respect to the proposed sewage system flow volumes.

We trust that this report satisfies your present requirements. Should you have any questions regarding this report, do not hesitate to contact us.

We trust that the current submission satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.

Oliver Blume, M.Sc., P.Geo.

Erik Ardley, P.Geo.

FIGURE 1

KEY PLAN

Certificate of Analysis

Client: Paterson Group
9 AURIGA DRIVE
Ottawa, ON
K2E 7T9
Attention: Mr. Jeremy Milsom
PO#: 56714
Invoice to: Paterson Group

Report Number: 1993217
Date Submitted: 2023-01-30
Date Reported: 2023-02-02
Project: PH4684
COC #: 905196

Dear Jeremy Milsom:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

eurofins | Environment Testing

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9 AURIGA DRIVE
Ottawa, ON
K2E 7T9
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Report Number: 1993217
Date Submitted: 2023-01-30
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Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1673085 GW 2023-01-30 BH6-23	1673086 GW 2023-01-30 BH7-23
General Chemistry	pH	1.00				7.84	8.02
Nutrients	N-NH3	0.020	mg/L			0.021	0.281
	N-NH3 (unionized)	0.02	mg/L			<0.02	<0.02
	Total Kjeldahl Nitrogen	0.100	mg/L			0.381	0.572
Others	N-NO2	0.10	mg/L			<0.10	<0.10
	N-NO3	0.10	mg/L			<0.10	<0.10

Guideline = *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
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

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Certificate of Analysis

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 437019 **Analysis/Extraction Date** 2023-02-01 **Analyst** SKH **Method** EPA 351.2			
Total Kjeldahl Nitrogen	<0.100 mg/L	105	70-130
Run No 437052 **Analysis/Extraction Date** 2023-02-01 **Analyst** SKH **Method** EPA 350.1			
N-NH3	<0.020 mg/L	117	80-120
Run No 437053 **Analysis/Extraction Date** 2023-02-01 **Analyst** AsA **Method** SM2320,2510,4500H/F			
pH		100	90-110
Run No 437061 **Analysis/Extraction Date** 2023-02-02 **Analyst** AET **Method** C SM4500-NH3D			
N-NH3 (unionized)			
Run No 437063 **Analysis/Extraction Date** 2023-02-02 **Analyst** SKH **Method** C SM4500-NO3-F			
N-NO2	<0.10 mg/L	99	80-120
N-NO3	<0.10 mg/L	106	80-120

Guideline = *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
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

PH4684
2161 Valley Road
Moose Creek, Ontario

PREDICTIVE NITRATE IMPACT ASSESSEMENT

Infiltration Factors		
Topography	0.15	
Soil	0.30	
Cover	0.13	
Total	**0.58**	
Site Characteristics		
Site area	128848	m^2
Total roof areas	14250	m^2
Total area of paved surfaces	8550	m^2
Total area of roof + paved surfaces (impervious area)	22800	m^2
Percent impervious area	18	%
Infiltration area	106048	m^2
Septic Effluent		
Concentration of effluent (Cs)	40	mg/L
Daily sewage flow (Qs)	11	m^3
Infiltration Calculation		
Nitrate concentration in precipitation (C_i)	0	mg/L
Water surplus (Environment Canada's Engineering Climate Servises)	502	mm/yr
Factored water surplus	291	mm/yr
Infiltration % due to stormwater management measures	-	%
Infiltration rate from stormwater management measures	0	mm/yr
Infiltration flow entering the system (Q_i)	85	m^3/day
Mass Balance Model (MOEE, 1995)		
$C_T = (Q_bC_b+Q_eC_e+Q_iC_i)/(Q_b+Q_e+Q_i)$ = Cumulative Nitrate Concentration		
Q_b = flow entering the system across the upgradient area	0	m^3/day
C_b = background nitrate concentration	0	mg/L
Q_e = flow entering the system from the septic drainfield	11	m^3/day
C_e = concentration of nitrates in the septic effluent	40	mg/L
Q_i = flow entering the system from infiltration	85	m^3/day
C_i = Concentration of nitrates in the infiltrate	0	mg/L
Estimate number of lots with private sewage servicing (includes retained lot)	11	lots
Estimate number of lots with municipal sewage servicing	46	lots
C_T = Cumulative nitrate concenration	**4.60**	**mg/L**

Notes: Site characteristic values were measured as approximate values from the available site plan. A average roof area of 250 m2 and a average laneway area of 150 m2 was used to support this calculation.

St. Albert WATER BUDGET MEANS FOR THE PERIOD 1986-2022 DC20492

LAT.... 45.28 WATER HOLDING CAPACITY... 75 MM HEAT INDEX... 37.27
LONG... 75.05 LOWER ZONE..... 45 MM A..... 1.088

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC P
31- 1	-9.8	80	21	24	1	1	0	43	79	75	358
28- 2	-8.7	69	17	25	1	1	0	41	106	75	427
31- 3	-2.5	73	37	95	7	7	0	124	47	75	501
30- 4	6.1	91	87	51	33	33	0	106	0	75	593
31- 5	13.4	88	88	0	82	82	0	19	0	62	681
30- 6	18.4	99	99	0	117	114	-3	7	0	40	780
31- 7	20.8	105	105	0	135	116	-18	4	0	25	885
31- 8	19.7	96	96	0	117	101	-17	1	0	19	980
30- 9	15.1	102	102	0	77	73	-3	8	0	40	1081
31-10	8.4	100	99	1	37	37	0	37	0	66	100
30-11	1.7	89	72	11	11	11	0	64	6	75	190
31-12	-5.6	89	32	19	2	2	0	48	44	75	278
AVE	6.3	TTL 1081	855	226	620	578	-41	502			

St. Albert STANDARD DEVIATIONS FOR THE PERIOD 1986-2022 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC P
31- 1	3.2	28	21	25	1	1	0	38	46	0	71
28- 2	3.0	24	17	23	1	1	0	33	52	0	80
31- 3	2.6	32	22	48	5	5	0	59	70	0	86
30- 4	1.6	42	41	71	8	8	0	82	0	1	105
31- 5	1.7	38	38	0	11	11	0	29	0	19	120
30- 6	1.3	43	43	0	9	9	7	19	0	28	123
31- 7	1.4	45	45	0	10	24	27	13	0	29	141
31- 8	1.3	39	39	0	9	24	26	4	0	25	146
30- 9	1.6	40	40	0	9	10	8	21	0	29	142
31-10	1.7	42	42	3	8	8	2	34	2	18	42
30-11	2.1	27	26	12	5	5	0	32	10	2	54
31-12	3.3	37	24	16	2	2	0	31	35	0	64

patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

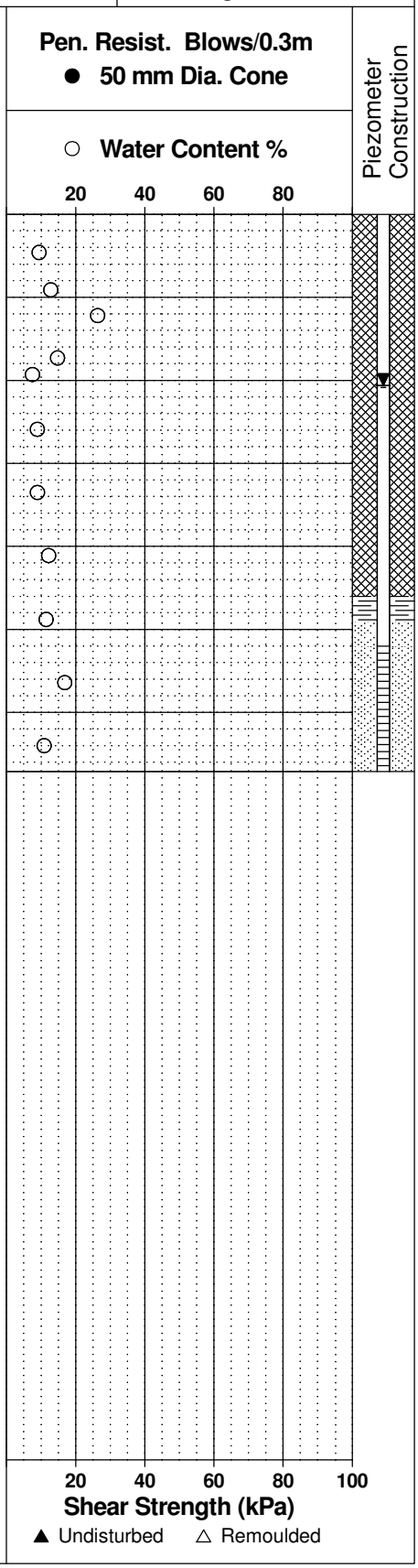
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** January 20, 2023

FILE NO. PG6536

HOLE NO. BH 1-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.78
FILL: Brown silty sand with gravel, topsoil, organics, occasional cobbles		AU	1				
1.22		SS	2	62	39	1	97.78
		SS	3	79	38	2	96.78
		SS	4	71	38		
GLACIAL TILL: Very dense to dense, brown silty sand, some gravel, occasional cobbles and boulders		SS	5	92	26	3	95.78
		SS	6	91	50+	4	94.78
- grey by 1.7m depth		SS	7	80	50+	5	93.78
		SS	8	100	44	6	92.78
6.71		SS	9	100	32		
End of Borehole							
(GWL @ 2.06m - Jan. 30, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
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DATUM Geodetic

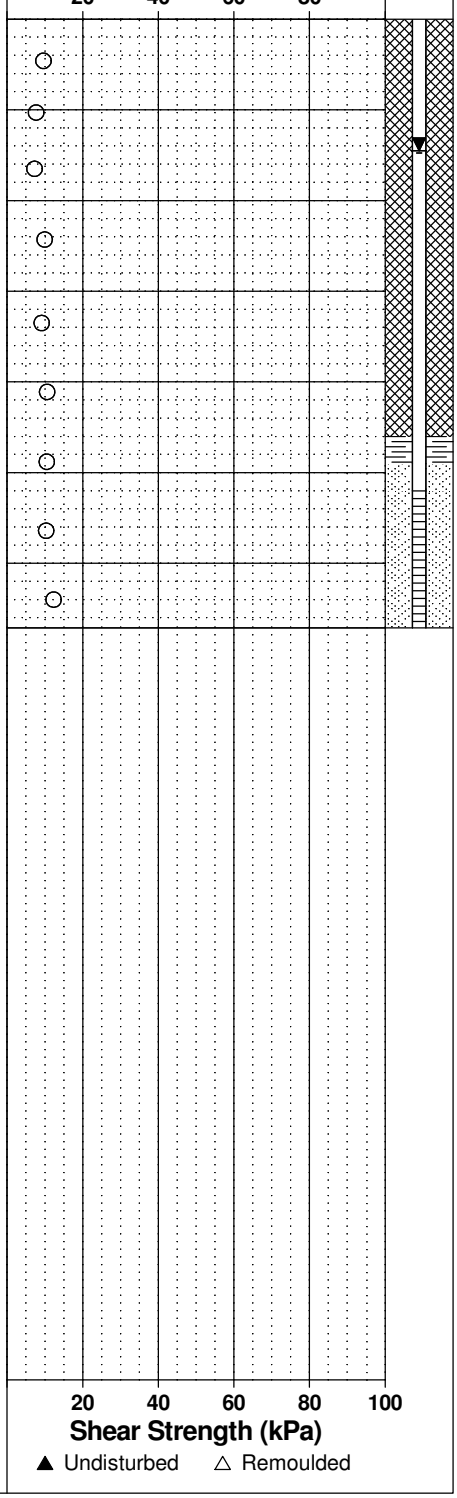
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** January 20, 2023

FILE NO. PG6536

HOLE NO. BH 2-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.92
TOPSOIL 0.25		AU	1				
		SS	2	48	50+	1	97.92
		SS	3	100	50+		
		SS	4	91	50+	2	96.92
GLACIAL TILL: Very dense to dense, brown silty sand with gravel, occasional cobbles and boulders		SS	5	100	50+	3	95.92
- grey by 2.2m depth		SS	6	100	45	4	94.92
		SS	7	100	47	5	93.92
		SS	8	83	39		
		SS	9	83	33	6	92.92
6.71 End of Borehole							
(GWL @ 1.45m - Jan. 30, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

REMARKS

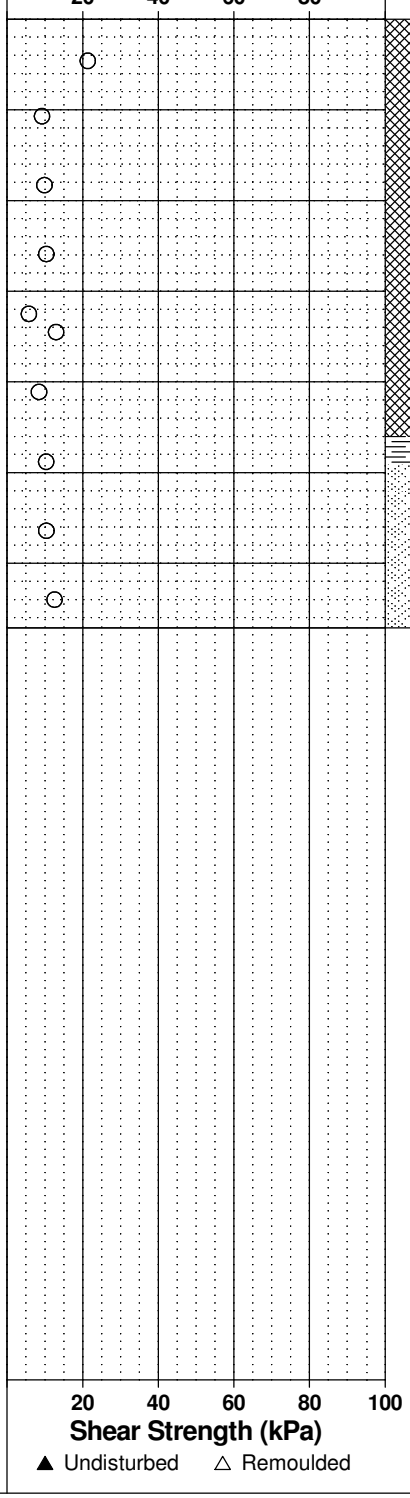
BORINGS BY Track-Mount Power Auger **DATE** January 20, 2023

FILE NO. PG6536

HOLE NO. BH 3-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.37
TOPSOIL 0.30		AU	1				
		SS	2	100	40	1	97.37
		SS	3	100	50+	2	96.37
		SS	4	100	50+		
GLACIAL TILL: Dense to very dense, brown silty sand with gravel, occasional cobbles and boulders		SS	5	79	48	3	95.37
- grey by 3.3m depth		SS	6	100	50+	4	94.37
		SS	7	100	50+	5	93.37
		SS	8	100	50+		
6.71		SS	9	75	46	6	92.37
End of Borehole							
(GWL @ 1.10m - Jan. 30, 2023)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

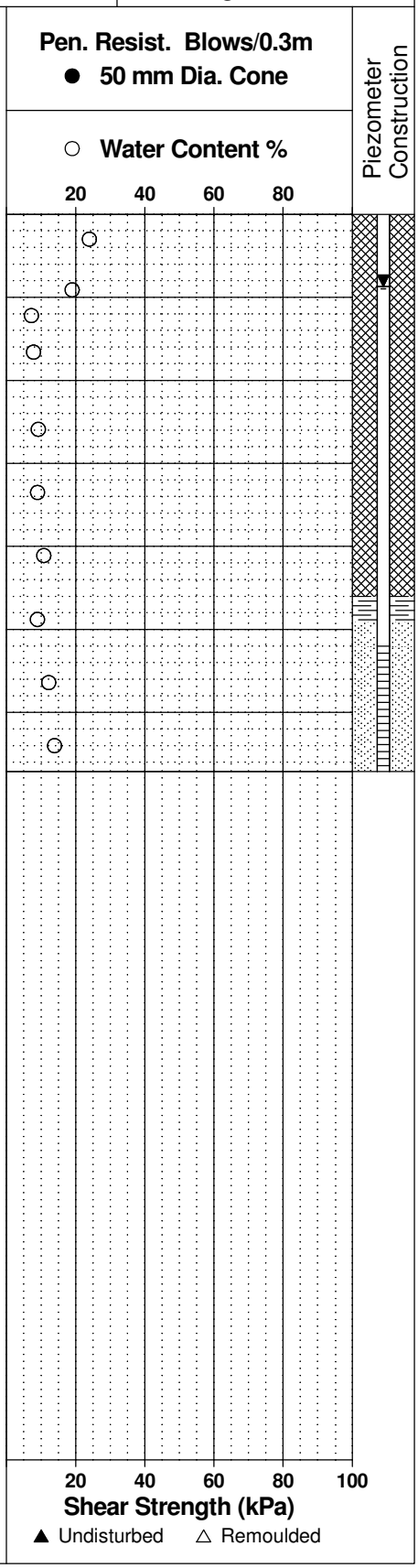
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** January 23, 2023

FILE NO. PG6536

HOLE NO. BH 4-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	96.58
FILL: Brown silty sand with topsoil, some gravel and organics		AU	1				
0.56							
		SS	2	75	38	1	95.58
		SS	3	64	50+		
						2	94.58
		SS	4	75	50+		
GLACIAL TILL: Dense to very dense, brown silty sand with gravel, occasional cobbles and boulders		SS	5	75	50+	3	93.58
- grey by 1.1m depth		SS	6	75	49	4	92.58
- dense to compact and grey by 5.2m depth		SS	7	83	50+	5	91.58
		SS	8	75	36		
						6	90.58
		SS	9	83	28		
6.71							
End of Borehole							
(GWL @ 0.87m - Jan. 30, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

REMARKS

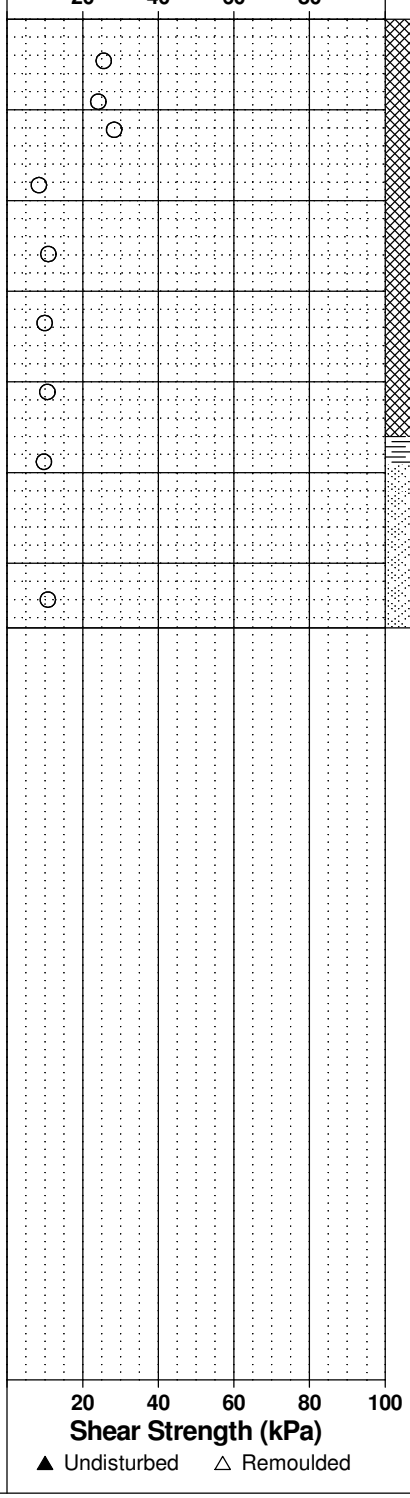
BORINGS BY Track-Mount Power Auger **DATE** January 23, 2023

FILE NO. PG6536

HOLE NO. BH 5-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	93.45
TOPSOIL 0.23							
FILL: Brown silty sand with topsoil, some gravel and organics 0.91		AU	1				
		SS	2	62	44	1	92.45
		SS	3	67	38	2	91.45
		SS	4	75	50+		
GLACIAL TILL: Dense, brown silty sand with gravel, occasional cobbles and boulders		SS	5	71	34	3	90.45
		SS	6	67	26	4	89.45
- grey by 1.5m depth		SS	7	67	35	5	88.45
						6	87.45
6.71		SS	8	67	37		
End of Borehole							
(GWL @ 0.70m - Jan. 30, 2023)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

REMARKS

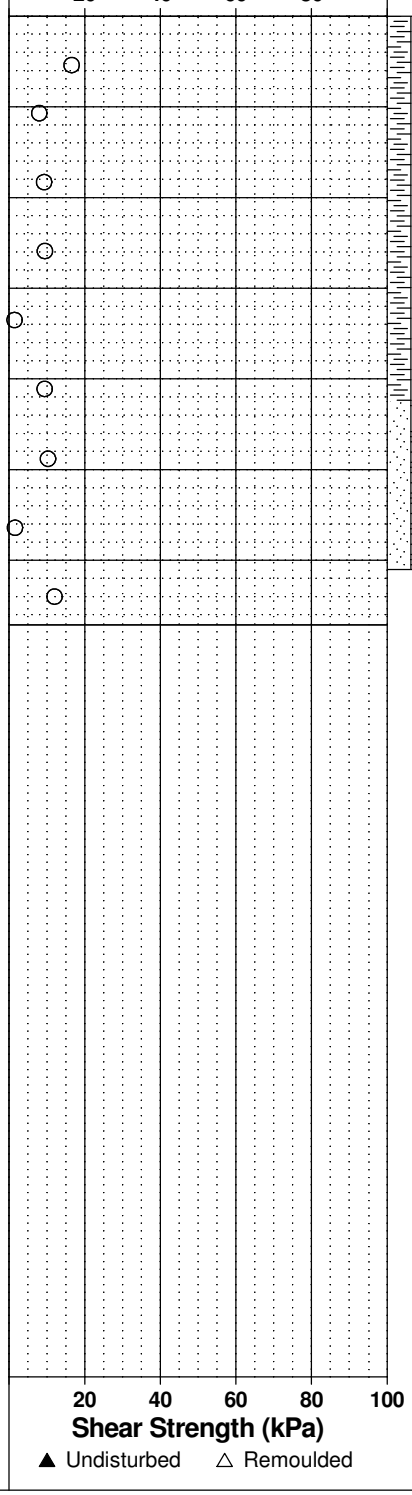
BORINGS BY Track-Mount Power Auger **DATE** January 23, 2023

FILE NO. PG6536

HOLE NO. BH 6-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.39
TOPSOIL 0.41		AU	1				
		SS	2	58	18	1	89.39
		SS	3	42	39	2	88.39
GLACIAL TILL: Compact to dense, brown silty sand with gravel, occasional cobbles and boulders		SS	4	42	26	3	87.39
		SS	5	100	14		
- grey by 1.2m depth		SS	6	79	26	4	86.39
		SS	7	100	13	5	85.39
		SS	8	75	42		
		SS	9	67	44	6	84.39
6.71 End of Borehole							
(GWL @ 1.88m - Jan. 30, 2023)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**



Monitoring Well Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

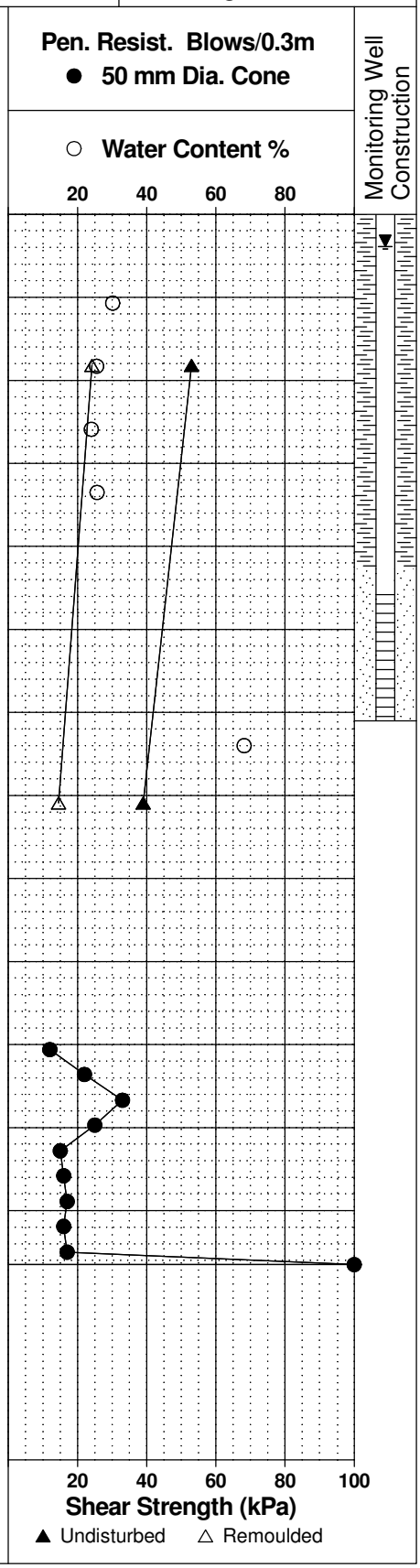
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** January 24, 2023

FILE NO. PG6536

HOLE NO. BH 7-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.38
TOPSOIL 0.56		AU	1				
Firm to stiff, brown **SILTY CLAY to CLAYEY SILT,** some sand		SS	2	100	1	1	87.38
- sand content increasing with depth 1.91		SS	3	25	P	2	86.38
		SS	4	100	24		
Compact to very loose, brown **SILTY SAND,** trace gravel		SS	5	75	3	3	85.38
5.18						4	84.38
						5	83.38
Firm, grey **SILTY CLAY**		SS	6	100	1	6	82.38
7.32						7	81.38
Dynamic Cone Penetration Test commenced at 7.32m depth. Cone pushed to 9.9m depth.						8	80.38
						9	79.38
						10	78.38
						11	77.38
						12	76.38
12.65							
End of Borehole							
Practical DCPT refusal at 12.65m depth.							
(GWL @ 0.39m - Jan. 30, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

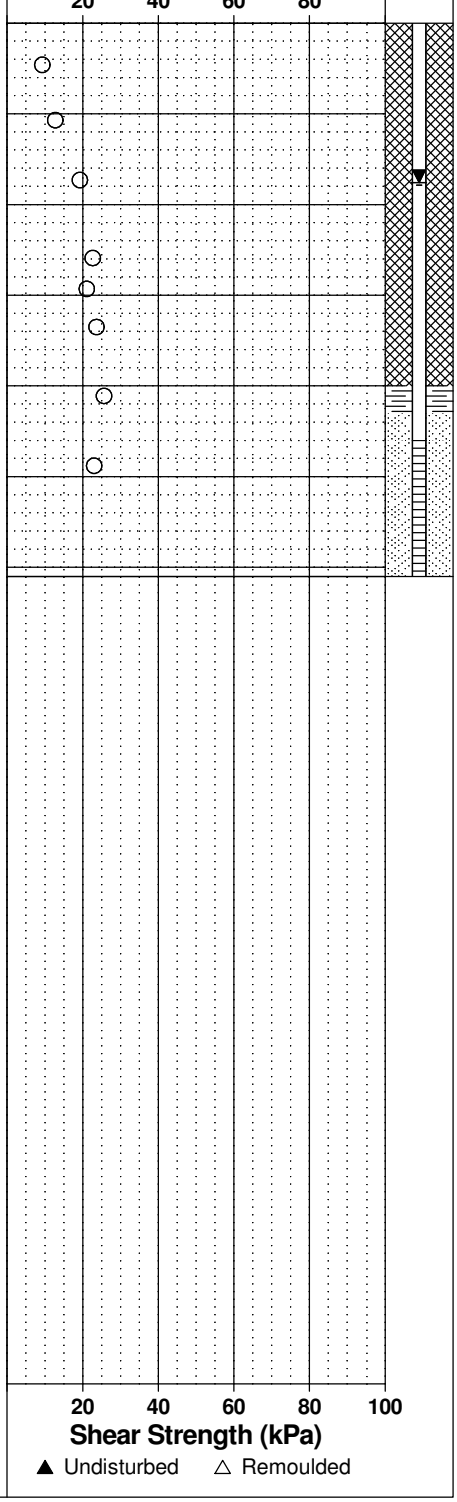
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** January 24, 2023

FILE NO. PG6536

HOLE NO. BH 8-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.83
TOPSOIL 0.13		AU	1				
Very loose, brown **SILTY SAND**		SS	2	83	3	1	87.83
- some seashells from 1.7 to 1.8m depth		SS	3	62	2	2	86.83
		SS	4	50	4		
- loose to compact and grey by 2.2m depth		SS	5	75	7	3	85.83
		SS	6	71	4	4	84.83
		SS	7	100	14	5	83.83
6.10						6	82.83
End of Borehole							
(GWL @ 1.76m - Jan. 30, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

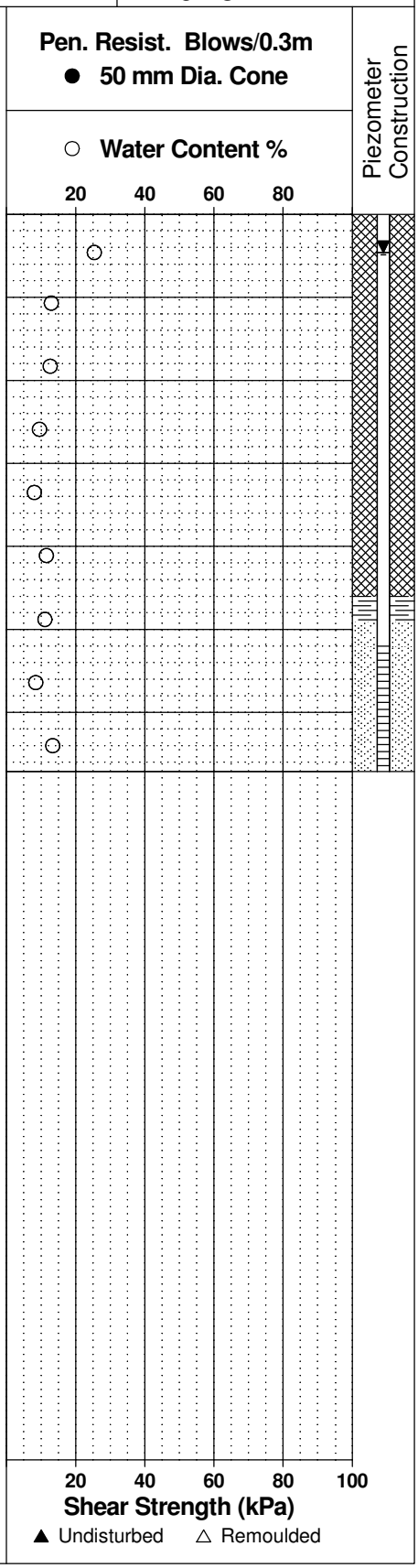
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** January 24, 2023

FILE NO. PG6536

HOLE NO. BH 9-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	92.11
TOPSOIL 0.15		AU	1				
		SS	2	75	24	1	91.11
		SS	3	75	50+	2	90.11
GLACIAL TILL: Compact to very dense, brown silty sand with gravel, occasional cobbles and boulders		SS	4	100	44		
		SS	5	75	36	3	89.11
- dense to compact and grey by 2.2m depth		SS	6	83	27	4	88.11
		SS	7	75	39	5	87.11
		SS	8	75	45		
		SS	9	71	25	6	86.11
6.71							
End of Borehole							
(GWL @ 0.46m - Jan. 30, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development - 2161 Valley Street
Moose Creek, Ontario

DATUM Geodetic

REMARKS

BORINGS BY Track-Mount Power Auger **DATE** January 24, 2023

FILE NO. PG6536

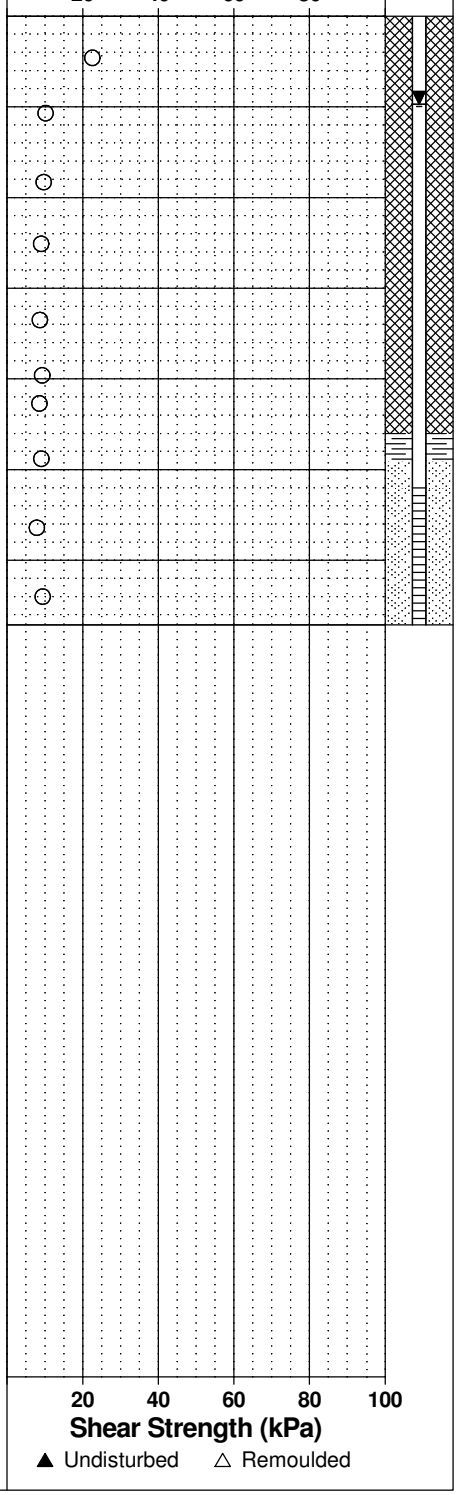
HOLE NO. BH10-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	96.49
TOPSOIL 0.23		AU	1				
Comapct, brown **SILTY SAND** 0.60		SS	2	71	27	1	95.49
		SS	3	83	50+	2	94.49
		SS	4	76	50+		
GLACIAL TILL: Compact to very dense, brown silty sand with gravel, cobbles and boulders		SS	5	79	50+	3	93.49
		SS	6	100	50+	4	92.49
- dense to compact and grey by 4.4m depth		SS	7	75	37	5	91.49
		SS	8	83	40		
		SS	9	75	28	6	90.49
6.71							
End of Borehole							
(GWL @ 0.97m - Jan. 30, 2023)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Piezometer Construction



SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the relative strength of cohesionless soils is the compactness condition, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm. An SPT N value of "P" denotes that the split-spoon sampler was pushed 300 mm into the soil without the use of a falling hammer.

Compactness Condition	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory shear vane tests, unconfined compression tests, or occasionally by the Standard Penetration Test (SPT). Note that the typical correlations of undrained shear strength to SPT N value (tabulated below) tend to underestimate the consistency for sensitive silty clays, so Paterson reviews the applicable split spoon samples in the laboratory to provide a more representative consistency value based on tactile examination.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their "sensitivity". The sensitivity, S_t, is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil. The classes of sensitivity may be defined as follows:

Low Sensitivity:	$S_t < 2$
Medium Sensitivity:	$2 < S_t < 4$
Sensitive:	$4 < S_t < 8$
Extra Sensitive:	$8 < S_t < 16$
Quick Clay:	$S_t > 16$

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NQ or larger size core. However, it can be used on smaller core sizes, such as BQ, if the bulk of the fractures caused by drilling stresses (called "mechanical breaks") are easily distinguishable from the normal in situ fractures.

RQD %	**ROCK QUALITY**
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube, generally recovered using a piston sampler
G	-	"Grab" sample from test pit or surface materials
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size BQ, NQ, HQ, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

PLASTICITY LIMITS AND GRAIN SIZE DISTRIBUTION

WC%	-	Natural water content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic Limit, % (water content above which soil behaves plastically)
PI	-	Plasticity Index, % (difference between LL and PL)
Dxx	-	Grain size at which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2$ / (D10 x D60)
Cu	-	Uniformity coefficient = D60 / D10

Cc and Cu are used to assess the grading of sands and gravels:
Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay
(more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

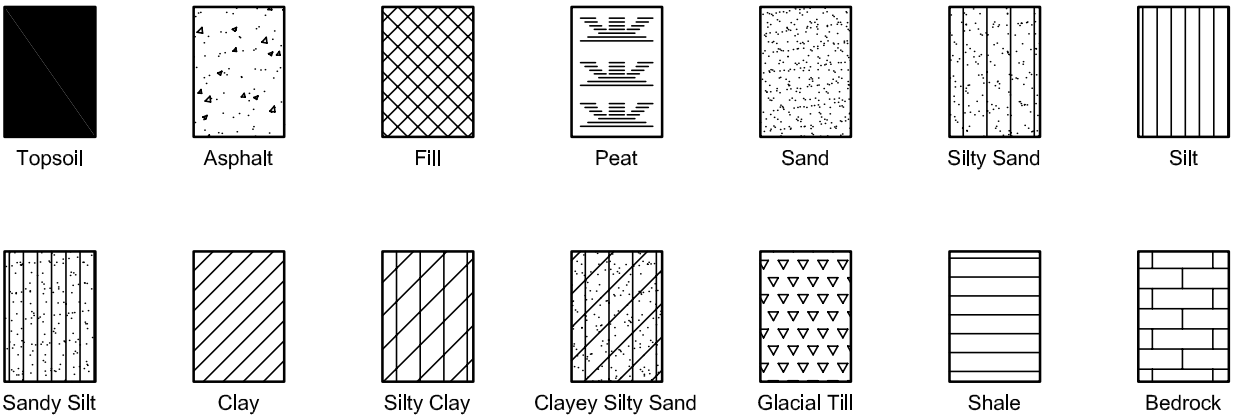
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.

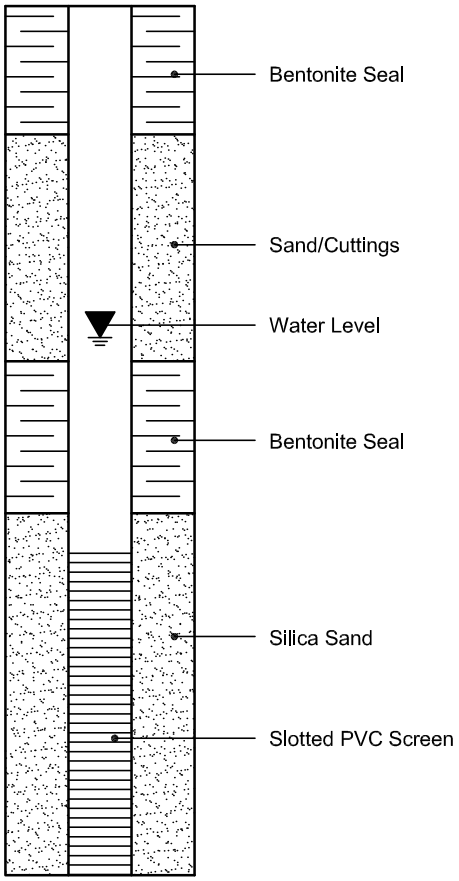
SYMBOLS AND TERMS (continued)

STRATA PLOT

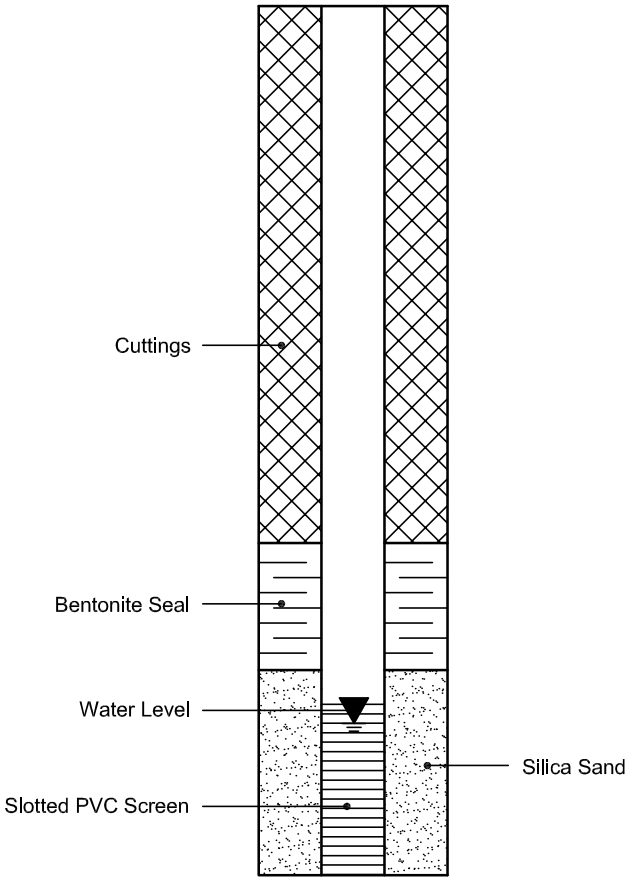


MONITORING WELL AND PIEZOMETER CONSTRUCTION

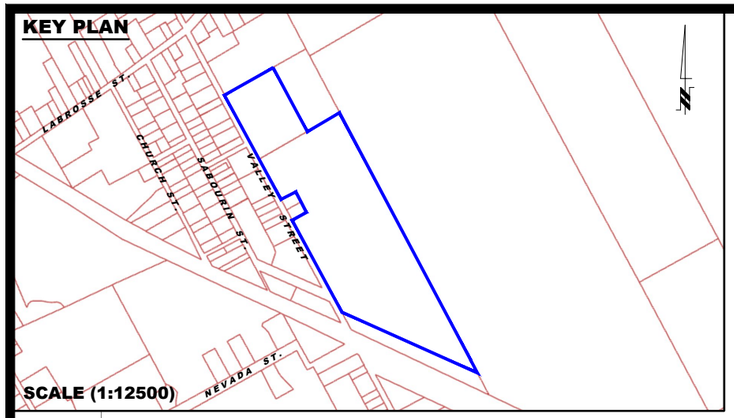
MONITORING WELL CONSTRUCTION



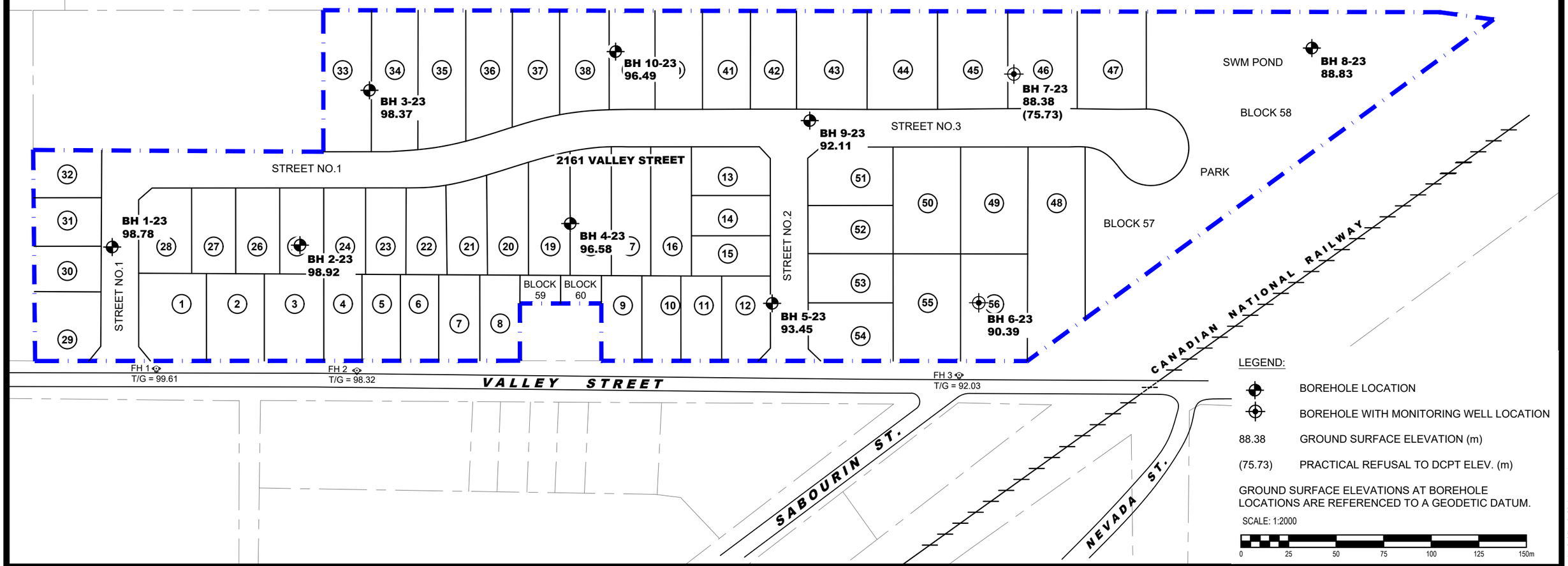
PIEZOMETER CONSTRUCTION



KEY PLAN



SCALE (1:12500)



LEGEND:

- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- 88.38 GROUND SURFACE ELEVATION (m)
- (75.73) PRACTICAL REFUSAL TO DCPT ELEV. (m)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:2000

0 25 50 75 100 125 150m

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

NO.	REVISIONS	DATE	INITIAL

809304 ONTARIO INC.

GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
2161 VALLEY STREET
MOOSE CREEK, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:2000	Date: 02/2023
Drawn by: JM	Report No.: PG6536-1
Checked by: NS	Dwg. No.: PG6536-1
Approved by: JV	Revision No.:

p:\autocad drawings\geotechnical\pg65xx\pg6536\pg6536-1 test hole location plan.dwg

11x17

AG

N28°23'00"W - 152.40m

N28°24'50"W - 103.15m

N28°18'50"W - 463.02m

N28°18'50"W 21.38m

N20°38'00"W 28.26m

EXISTING RESIDENTIAL

N61°12'09"E 75.35m

N61°12'09"E 75.29m

N28°24'15"W - 152.40m

STREET NO. 1

STREET NO. 3

STREET NO. 2

STREET NO. 1

SWM POND

BLOCK 58
0.82ha/2.03ac

PARK

BLOCK 57
0.63ha/1.55ac

N64°50'55"W - 304.20m

CANADIAN NATIONAL RAILWAY

N61°12'09"E 11.06m

N28°24'15"W 43.00m

BLOCK 59 BLOCK 60

N61°11'20"E 30.00m

N61°11'20"E 30.00m

N29°17'00"W 88.69m

N28°24'15"W - 83.71m

N28°24'15"W - 103.00m

N28°24'15"W - 43.00m

N28°24'15"W - 223.55m

VALLEY STREET

ST. JOSEPH STREET

SABOURIN STREET

R1

R2-15

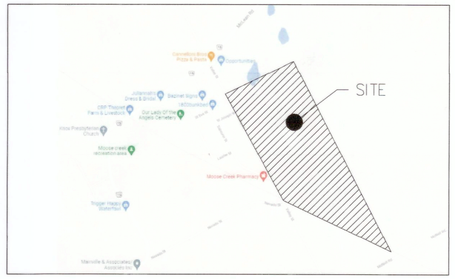
R2-5

CG

R2-7

R4

R1



KEY PLAN N.T.S.

DRAFT PLAN OF SUBDIVISION OF
PART OF LOT 18
CONCESSION 7
TOWNSHIP OF ROXBOROUGH
(IN THE HAMLET OF MOOSE CREEK)
COUNTY OF STORMONT
2022

SCALE 1 : 1250

1 : 1 250
10m 0 10 20 30 40m
HORIZONTAL

Surveyor's Certificate

I hereby certify that lands to be subdivided and their relationship to the adjacent lands are correctly shown.

SEPTEMBER 19, 2022
Dated

Ron M. Mason
Ontario Land Surveyor

Owner's Certificate

This is to certify that I am the owner of the lands to be subdivided and this plan was prepared in accordance with my instructions.

09/20/2022
Dated
809304 ONTARIO INC.
RICHARD THEORET

09/20/2022
Dated
RICHARD THEORET

09/20/2022
Dated
NICOLE THEORET

Additional Information required under Section 51-17, of the Planning Act.

A. as shown on plan
B. as shown on plan
C. as shown on plan
D. residential
E. as shown on plan
F. as shown on plan
G. as shown on plan
H. municipal water
I. glacial till
J. as shown on plan
K. Hydro, Telephone, Storm Sewers, Pipe water and Sanitary
L. as shown on plan

All elevations are Geodetic

Metric Note:

Distances shown hereon are in metres and can be converted to feet by dividing by 0.3048.

THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

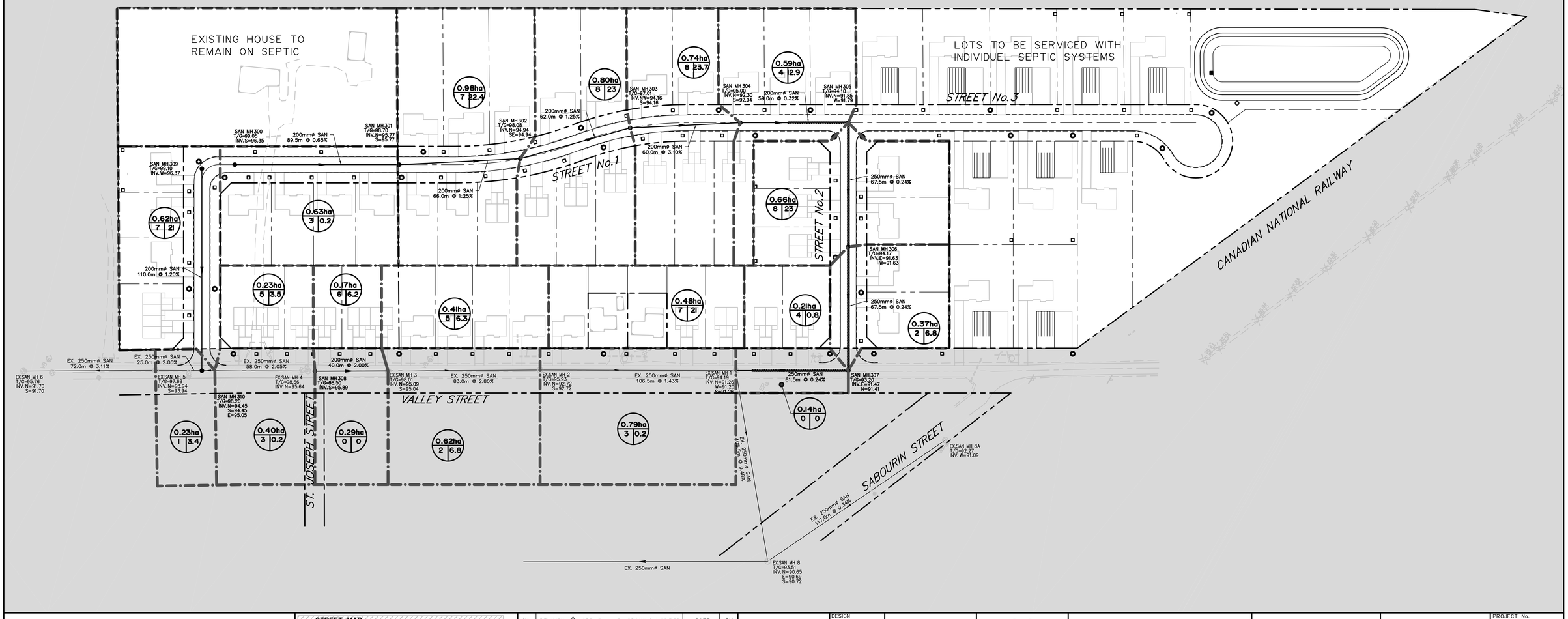
SCALE	1 : 1 250 (10m 0 10 20 30 40m)
DESIGN	AGS
CHECKED	AGS
DRAWN	AG
CHECKED	AGS
APPROVED	AGS

ATREL Engineering Ltd
Engineers – Ingénieurs
1-2884 CHAMBERLAND STREET, ROCKLAND, ONTARIO K4K 1M6
TEL.: (613) 446-7423

VILLAGE OF MOOSE CREEK EASTVIEW SUBDIVISION	809304 ONTARIO INC	PROJECT No. 210602
PLAN DRAFT PLAN		DRAWING No. 210602-DP1

LEGEND

- 0.63ha / 10 | 40 — SANITARY DRAINAGE SUB AREA / POPULATION EQUIVALENT
- NUMBER OF UNITS IN SUB AREA
- DRAINAGE AREA BOUNDARY
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED INSULATION
- OUTSIDE PROPOSED DEVELOPMENT



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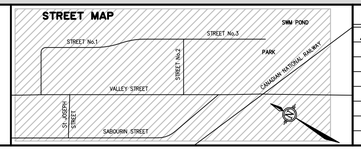
STREET MAP



No.	REVISION △ -APPLIES WHEN DRAWING MODIFIED	DATE	BY
1	FIRST SUBMISSION	SEPT 6/22	AGS

SCALE 1 : 1000 (10m 0 10 20 30m)

DESIGN	AGS
CHECKED	AGS
DRAWN	AG
CHECKED	AGS
APPROVED	AGS

LICENSED PROFESSIONAL ENGINEER — A. G. Y. SAUVÉ 100142393 — Sept 6, 2022 — PROVINCE OF ONTARIO

ATREL Engineering Ltd.
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VILLAGE OF MOOSE CREEK
EASTVIEW SUBDIVISION
809304 ONTARIO INC.

PROJECT No. 210602

PLAN
MACRO SANITARY DRAINAGE AREA PLAN

DRAWING No. 210602-SANM