

Send corresponder	Send correspondence to			
Send correspondence to				
Vwner(s)	Agent	Others		
Who to send the Invoice to				
Vwner	Agent	Other		

Provide a description of the "entire" property

Concession		Lot		Registered Plan Number		
10 TELFER GLEN STREET MORRISTON		LOT 1		802		
Area in Hectares		Area in AcresDep1.024132		Depth in 1	Depth in Meters	
0.4146				132.737 &	132.737 & 108.375	
Depth in FeetFrontage in Meters435.49 & 355.5672.908		Frontage in Feet 239.2		Width of road allowance (if known)		

Reason for Application

Please indicate the Section of the Planning Act under which this application is being made

Section 45(1) relates to a change to a by-law standard (e.g. setbacks, frontage, height, etc.)

Section 45(2) relates to a change to or expansion of an existing legal non- conforming use

What is the nature and extent of the relief that is being applied for?	Why is it not possible to comply with the provisions of the by- law?
To build a legal additional detached residential unit, but in excess of the Puslinch Township by-law maximum allowed size of 130 square meters and also seeking relief to allow 5.4 meters of building height for the ARU instead 5 meters from the Zoning By-law.	Our son and his wife have 3 young children plus more child one on the way in March, need housing. Due to the unaffordable cost of housing, we plan to allow our son's family to move into the existing house. As aging parents, we would like plan to build a smaller house for ourselves on the same property. Since we have an unmarried daughter who is living us, we would need the extra space.

What is the current Official Plan and zoning status?			
Official Plan Designation	Zoning Designation		
Not sure	Urban Residential		
What is the access to the subject property?			
Provincial HighwayContinually maintained municipal roadSeasonally maintained municipal road			
Other Continually maintained county road			
What is the name of the road or street that provides access to the subject property? 10 Telfer Glen Street, Morriston, Ontario, Canada NOB 2C0	If access is by water only, please describe the parking and docking facilities used or to be used and the approximate distance of these facilities from the subject land to the nearest public road.		

Existing and Proposed Service					
Indicate the applicable water supply and sewage disposal:					
Private Well			Existing	Proposed	
Communal Water			Existing	Proposed	
Provincial Water Taking Permit			Existing	Proposed	
Private Septic			Existing	Proposed	
Communal Septic			Existing	Proposed	
Other Provincial Waste Water System			Existing	Proposed	
How is storm drainage provided? * Storm Sewers Image Ditches Swales Other means Image Ditches Image Ditches					
Existing Subject and Abutting Property La	nd Uses, Buildings and	d their Locations			
What is the existing use of the subject property? Residential Single Detached House		What is the existing use of the abutting properties? Residential Single Detached Houses			
Provide the following details for all existing	g buildings on the sub	ject land			
Main Building Height in MetersMain Building Height in Fe930		in Feet	Percentage Lot C 3.4	overage in Meters	
Percentage Lot Coverage in FeetNumber of Parking Spaces3.46		paces	Number of Loading Spaces 0		
Number of FloorsTotal Floor Area in Squar2256		quare Meters	Total Floor Area ii 2750	n Square Feet	
Ground Floor Area (Exclude Basement) in Square Meters 128		Ground Floor Area 1375	ound Floor Area (Exclude Basement) in Square Fee 75		

Provide the following details for all buildings proposed for the subject land				
Main Building Height in Meters	Main Building Height in Feet		Percentage Lot Coverage in Meters	
7	23		3.94	
Percentage Lot Coverage in Feet	Number of Parking Spaces		Number of Loading Spaces	
3.94	2		2	
Number of Floors	Total Floor Area in So	quare Meters	Total Floor Area in Square Feet	
1	162		1751	
Ground Floor Area (Exclude Basement) in Square Meters 162		Ground Floor Area (E 1751	xclude Basement) in Square Fee	

What is the location of all buildings existin lot lines)	g and proposed for the subject property? (s	pecify distances from front, rear and side

Front Yard in Meters	Front Yard in Feet		Rear Yard in Meters
21	69		61
Rear Yard in Feet	Side Yard (interior) in Meters		Side Yard (interior) in Feet
200	4		13
Side Yard (Exterior) in Meters 12		Side Yard (Exterior) i 40	n Feet

What are the dates of acquisition and construction of subject property and building property					
Date of acquisition of subject property March 2008	Date of construction of buildings property 1995	How long have the existing uses continued on the subject property? 39 years			
Has the owner previously applied for relief i subject property?	n respect of the				

Other Related Planning Applications	
Planning Application: Official Plan Amendment	Planning Application: Zoning By-Law Amendment
🗌 Yes ✔ No	🗌 Yes 🖌 No
Planning Application: Plan of Subdivision	Planning Application: Consent (Severance)
🗌 Yes 🖌 No	🗌 Yes 🖌 No
Planning Application: Site Plan	Planning Application: Minor Variance
🗌 Yes ✔ No	🗌 Yes 🖌 No

Minor Variance Application must be commissioned

Please confirm the following

I understand that prior to the Minor Variance Application being deemed complete it must be commissioned by all registered owners or the agent responsible for the application.





53'-5"

8'10" FOUNDATION HEIGHT

ALL HEADERS TO BE 2-2×10 UNLESS NOTED OTHERWISE

BASEMENT TO REMAIN UNFINISHED

SCALE: 3/16" = 1'-0"	DRAWING TITLE	BASEMENT
DOUG SAVIN	TOTAL AREA	UNFINISHED
DEC/2023	PROJECT NAME	ACCESSORY DWELLING UNIT SAVIN RESIDENCE
	PROJECT ADDRES	™ 10 TELFER GLEN ST
I, DOUG SAVIN , HAVE REVIEWED AND TAKE FULL RESPONSBILITY FOR THE DESIGN WORK ON THIS DRAWING.		

ALL HEADERS TO BE 2-2×10 UNLESS NOTED OTHERWISE

BEAM POSTS TO BE THE FULL WIDTH OF THE BEAM ITS SUPPORTING

ANGLE IRONG TO BE 3.5" $\times 3.5" \times .25"$ UNLESS NOTED OTHERWISE

SCALE: 3/16" = 1'-0"	drawing title	AIN FLOOR
DOUG SAVIN	TOTAL AREA	51 SQ/FT
DEC/2023	PROJECT NAME AC	CESSORY DWELLING UNIT VIN RESIDENCE
	PROJECT ADDRESS 1C	TELFER GLEN ST
I, DOUG SAVIN , HAYE REVIEWED AND TAKE FULL RESPONSBILITY FOR THE DESIGN WORK ON THIS DRAWING.		

SCALE: 3/16" = 1'-0"		OSS SECTION
DOUG SAVIN	TOTAL AREA	
DEC/2023	PROJECT NAME AC	CESSORY DWELLING UNIT VIN RESIDENCE
	10 TE	LFER GLEN ST
I, DOUG SAVIN , HAVE REVIEWED AND TAKE FULL RESPONSBILITY FOR THE DESIGN WORK ON THIS DRAWING.		

February 21, 2024 32914-23

Dear Sir:

Re: Sewage System Design 10 Telfer Glen Lot 1 Plan, Plan 802 Township of Puslinch

1.0 Introduction

Van Harten is pleased to submit this report for the sewage system design recently completed for the above referenced property located on the north side of Telfer Glen, just west of Highway 6 as indicated on the Key Map in Appendix A.

The project involves the proposed construction of a new accessory structure to the northwest of existing privately serviced single family residence at 10 Telfer Glen. The purpose of this engineering task is to identify the subsurface conditions at the subject property and provide recommendations for future sewage disposal that conforms to the 2012 Ontario Building Code (OBC) and is suitable for obtaining a building permit from the Township of Puslinch building department.

2.0 Background Information

Weber Environmental Services was retained by the owner to conduct an assessment of the existing sewage system and to complete a test pit investigation. This information was provided to Van Harten to assist with the design and a copy of relevant soil information is attached to this report as Appendix B.

The existing sewage system comprises a 7,200 L septic tank, 1,800 L pump chamber and an inground leaching bed with 10 runs of 18.3 m of piping. The pump tank was found to not have a pump and was acting as an additional settling chamber. The bed was found to be unsaturated; however, the runs were found to have a significant buildup of sludge.

572 Weber Street North, Unit 7 Waterloo, ON, N2L 5C6 519-742-8371 2106 Gordon Street Guelph, ON, N1L 1G6 519-821-2763 660 Riddell Road, Unit 1 Orangeville, ON, L9W 5G5 519-940-4110

www.vanharten.com

Test pits were advanced by Weber Environmental Services and a representative sample of soil was retained and later delivered to CMT Engineering Inc. for particle size analysis and percolation rate assessment. Referring to Appendix B, a percolation rate of T = 20 min/cm has been assigned to the tested soil sample.

3.0 Sewage System Design

The project involves the proposed construction of an accessory dwelling unit to the northwest of an existing privately serviced dwelling at 10 Telfer Glen. The purpose of this work is to review background information regarding the existing sewage system and provide recommendations for future sewage disposal that conform to the minimum requirements of Division B - Part 8 of the OBC that will be suitable to obtain a permit from the Township of Puslinch building department. The following paragraphs of this report provide a summary of necessary design parameters and details of the proposed sewage system.

A percolation rate of T = 20 min/cm is chosen for design purposes based on the information provided to Van Harten. This rate shall be confirmed in the field by Van Harten at the time of construction.

In reviewing the report completed by Weber Environmental Services, it is understood that the existing single-family residence is a four-bedroom home with no more than 280 m² of living area and no more than about twenty-six (26) fixture units. Referring to Table 8.2.1.3.A, a peak flow of Q = 2,800 L/day is calculated for this residence. In reviewing architectural plans of the proposed accessory dwelling, it is found to be a two-bedroom unit with less than 200 m² of living area and no more than about twenty-six (26) fixture units. Referring to Table 8.2.1.3.A, a peak flow of Q = 1,400 L/day is calculated for this calculated for this accessory unit. A combined peak flow of Q = 4,200 L/day is calculated and proposed for design.

Referring to the report by Weber Environmental Services and the attached plan, the foundation for the proposed accessory dwelling will encounter the existing leaching bed. In addition to the physical impact of the proposed building, the septic tank and leaching bed is undersized by current design standards. Given the age and reported condition of the existing sewage system, a new sewage system is considered necessary.

Considering the reported soil conditions, calculated peak sewage flow and limited space, an advanced treatment technology is required to accommodate this lot. After providing a few alternate design considerations, Van Harten has been instructed to proceed with an Infiltrator ATL System. The ATL system is approved under the Building Materials Evaluation Committee (BMEC) Authorization Report No. 23-08-410 that is attached to this report as Appendix C.

As outlined in the attached authorization report, the Infiltrator ATL system consists of a septic tank, pump chamber, effluent filter, Infiltrator ATL conduits and a layer of specified system sand. Details regarding the proposed system are found in the following paragraphs.

In accordance with 4.4 of the BMEC approval and 8.2.2.3 of the OBC, it is required to provide a minimum 8,400 L two-compartment septic tank. A 9,000 L is commonly available and could be considered for use. The septic tank shall be equipped with an effluent filter and risers to grade. As a gravity connection will not be feasible, an 1,800 L pump chamber equipped with effluent pump will be required.

In accordance with 4.5.2 of the BMEC authorization, a minimum of fifty-two (52) Infiltrator ATL conduits are required to treat a peak flow of Q = 4,200 L/day. In accordance with 4.5.4 with a peak flow of Q = 4,200 L/day and percolation rate of T = 20 min/cm, a minimum contact area of 210 m² is required. The proposed system comprises of fifty-four (54) Infiltrator ATL conduits overlying a total contact area of 265 m².

As noted on the plan, a minimum 450 mm vertical separation is required between native soil and underside of ATL System Sand beneath the conduits. This can be made up with T = 6 to 10 min/cm sand or ATL System Sand. A minimum thickness of 230 mm of ATL System Sand is required to be placed over the entire 265 m² area.

In Accordance with 8.7.2.2 (2) and as noted on the attached design drawing, the header line and ATL conduits within a leaching bed shall be constructed to allow for future subsurface detection by magnetic means, by means of a 14-gauge TW solid copper light coloured plastic coated tracer wire or by another means of subsurface detection. Future detection of the sewer line between the house and tank as well as between the tank and leaching bed may also be beneficial and should be considered by the installer.

Please refer to Appendix A for design drawings of the proposed sewage system, and for construction and inspection requirements.

4.0 Operation and Maintenance

The sewage system must be operated within the parameters for which it was designed and must be maintained according to Section 8.9 of the OBC and Section 4.6 of the BMEC Authorization. Proper use and maintenance of the system is necessary to minimize the potential of failure and to maximize the life of the system. Please refer to Appendix A for general operation and maintenance guidelines.

The septic tank and Infiltrator ATL must be operated and maintained in accordance with the manufacturer's requirements, Ontario Building Code and requirements of BMEC Authorization Report No. 23-08-410.

5.0 Water Supply

The water supply for the subject property is provided by an existing drilled well at the location shown on the attached plan. The proposed system is located more than 15 m away from this well. There are no other known wells within the immediate vicinity of the proposed sewage system.

6.0 Approval and Construction Requirements

This report must be submitted along with a completed application to the Township of Puslinch for review and approval, prior to construction of the proposed sewage system. Any technical questions arising from the review of the report should be directed to Van Harten.

Copies of this report may be submitted to various licensed contractors to obtain cost estimates to install the proposed sewage system. The contractor shall contact Van Harten to clarify any questions concerning the installation requirements and to carry out the construction inspection requirements outlined in Appendix A.

7.0 Closure

The completed sewage system design and report is specific to the subject property and cannot be applied to different properties. The proposed system exceeds the minimum requirements of the OBC and BMEC Authorization 23-08-410, given the design percolation rate and peak daily sewage flow, and is suitable for review and approval by the Township of Puslinch. It is noted that all private on-site sewage systems have a limited capacity, and it is the sole responsibility of the owner to expand or replace the system in the future if it becomes necessary.

I trust that this report and design has been completed within our terms of reference and is suitable for your present requirements. Please contact our office if you have any questions or require further consultation.

Respectfully submitted,

John Duffy, P. Eng. Consulting Engineer

Encl. Appendix A – Specifications and Design Drawing Encl. Appendix B – Background Information Encl. Appendix C – BMEC Authorization No. 23-08-410

APPENDIX A SPECIFICATIONS AND DESIGN DRAWING

SEWAGE SYSTEM MATERIALS

- 1. All material utilized in the construction of the proposed sewage system must conform to the requirements of the 2012 Ontario Building Code and BMEC Authorization No. 23-08-410.
- 2. As detailed in 8.2.2.2, the septic tank must have at least two compartments and conform to the requirements of CSA B66 'Design, Materials, and Manufacturing Requirements for Prefabricated Septic Tanks and Sewage Holding Tanks'.
- 3. As detailed in 8.6.2.1, the effluent filter shall conform to NSF/ANSI 46, 'Evaluation of Components and Devices Used in Wastewater Treatment Systems' and be used in accordance with the manufacturer's requirements; be sized to filter particles of 1.6 mm; have a minimum area of 550 cm²; and be installed in accordance with the manufacturer's specifications.
- 4. Sewer line shall be no less than 100 mm (4 inch) trade size PVC pipe.
- 5. The specified system sand shall meet the sand requirements set out in ASTM C33 "Standard Specification for Concrete Aggregates" as set out in Table 4.4.6.3.1 of BMEC Authorization No. 23-08-410.

Table 4.4.0.3.1, DMEC AutionZation No. 23-08-410			
Infiltrator Specified System Sand Requirements			
Excerpt from ASTM C33 "Standard specification for Concrete Aggregates"			
Sieve Size	Square Sieve Opening	Specification % Passing	
0.375"	9.5 mm	100.0	
#4	4.75 mm	95.0 - 100.0	
#8	2.36 mm	80.0 - 100.0	
#16	1.18 mm	50.0 - 85.0	
#30	600 µm	25.0 - 60.0	
#50	300 µm	5.0 - 30.0	
#100	150 µm	0.0 – 10.0	
#200	75 µm	0.0 – 5.0	
Request a sieve analysis from the material supplier to confirm that the system sand			

Table 4.4.6.3.1 BMEC Authorization No. 23.08.410

meets the specifications requirements listed above

CONSTRUCTION REQUIREMENTS

- 1. The installation of the leaching bed must conform to the various construction requirements in Division B-Part 8 of the 2012 OBC and BMEC Authorization No. 23-08-410.
- 2. The contractor is to strip topsoil and stockpile this material away from the proposed leaching bed area. Once removed, the area is to be sub excavated to the specified subgrade elevations and scarified perpendicular to the slope of the subgrade.
- 3. Specified System Sand is to be end-dumped at the edge of the prepared leaching bed and either pushed or cast across the open subgrade to meet the vertical separation requirements of BMEC Authorization 23-08-410. Dump trucks are not to travel across the prepared subgrade.
- 4. Infiltrator ATL conduits are to be constructed in a sand layer with a minimum 300 mm spacing, measured side to side and evenly space over the infiltrative surface as determined by QT/400.
- 5. Each row shall start and stop to provide a minimum of 300mm inside the perimeter defined by the Specified System Sand.
- 6. The Infiltrator ATL Conduits within the leaching bed shall be constructed so that they can be detected by magnetic means; by means of a 14-gauge TW solid copper, light-coloured, plastic-coated tracer wire; or other means of subsurface detection.
- 7. The sewage system is to be backfilled immediately following inspection. Topsoil is to be placed and grass growth established as soon as possible. Surface grading shall conform to the approved lot grading plan.

INSPECTION REQUIREMENTS

- 1. The contractor shall contact the local township or municipality at the start of the project to determine what inspections would be required by them to permit backfilling of the system.
- 2. The contractor shall contact Van Harten to carry out a base inspection prior to placing specified system sand. The purpose of the inspection is to certify that soil and groundwater conditions are consistent with the design, and that the base is properly graded and scarified.
- 3. The contractor shall contact Van Harten to carry out a second inspection prior to backfilling, once the tanks and conduits are constructed. The purpose of this inspection is to certify that the tank and Infiltrator ATL conduits are constructed in accordance with the design.
- 4. It is recommended that Van Harten be retained to carry out a final inspection of the sewage system once the system is backfilled (mandatory in some municipalities). The purpose of the inspection is to certify that the sewage system has been properly backfilled and graded in accordance with Section 8.7.2.1. (3) of the OBC and Section 4.5.4 of BMEC Authorization 23-08-410.

OPERATION AND MAINTENANCE

- 1. The sewage system must be operated and maintained in accordance with Section 8.9 of the OBC.
- 2. The effluent filter shall be inspected and cleaned on a regular basis as recommended by the manufacturer to ensure that it functions as it is designed.
- 3. The septic tank should be inspected periodically and cleaned whenever sludge and scum occupy 1/3 of the working capacity of the tank.
- 4. Excessive use of bleaches and other cleaning agents can kill bacteria in the sewage system and cause operation problems. Water softener and other backwash discharge are harmful to sewage systems and shall not be connected to the sanitary sewer. Paint and other solvents can destroy the biological operation of the system and shall not be discharged to the system. The sewage system is designed for domestic sewage only.
- 5. The owner shall use reasonable water conservation techniques to not overload the system with excessive peak flows or high day to day average daily water use.
- 6. All unnecessary sources of water shall be removed from the sewage system. For example, sump pump discharge and roof leaders should discharge to properly graded swales away from the septic tank and leaching bed.
- 7. The leaching bed should be provided with grass cover to reduce the amount of infiltration and promote evaporation and transpiration of water from the ground.
- 8. The owner must operate and maintain the system within the limits of the design and Section 8.9 of the OBC.

APPENDIX B BACKGROUND INFORMATION

CMT Engineering Inc. 1011 Industrial Crescent, Unit 1 St. Clements, Ontario NOB 2M0 Tel: 519-699-5775 Fax: 519-699-4664 www.cmtinc.net

August 15, 2023

21-314.R39

Weber Septic Service (Weber Environmental) 3828 Chilligo Road Breslau, Ontario N0B 1M0

Re: Laboratory Test Results Grain Size Analysis and T-Time Determination Doug Savin 10 Telfer Glen, Morriston, Ontario

As requested, CMT Engineering Inc. (CMT Inc.) has performed a gradation analysis on a sample obtained from the above-referenced site and submitted to the CMT Inc. laboratory in St. Clements, Ontario on August 8, 2023.

The sample can be classified as ML using the Unified Soil Classification System. The corresponding soil percolation rate, as referenced to Section 6 of the Supplementary Guidelines to the Ontario Building Code 2012 (amended in 2019), would be T = 20 min/cm. The grain size analysis is attached (Figure 1).

It should be noted that these test results are based on a single sample delivered to our laboratory and do not constitute as a guarantee for the entire site. Additional test samples should be obtained and tested if there is a variation observed at any time.

We trust this information meets with your present requirements. Should you have any questions, please do not hesitate to contact our office.

Yours very truly,

Laboratory Manager

Encl. Grain Size Analysis

Nathan Chortos, P. Eng.

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
0	Client	1		Doug Savin - 10 Telfer Glen, Morriston, Ontario	ML
				sandy silt, some clay	
				Estimated Percolation Rate; T = 20 min/cm	
	Sample received in Lab August 8, 2023				
	Tested by JM of CMT Engineering Inc. August 9, 2023				

CMT Engineering Inc.	Client: Weber Septic Service Project: Miscellaneous Laboratory Testing		
St. Clements, ON	Project No.: 21-314	Figure 1	

APPENDIX C BMEC AUTHORIZATION 23-08-410 (INFILTRATOR ATL SYSTEM)

777 Bay Street, 12th Floor Toronto, Ontario, M5G 2E5 777, rue Bay, 12^e étage Toronto, Ontario, M5G 2E5

Commissio

 T:
 416 585 4234

 W:
 ontario.ca/buildingcode/

416 585 4234 ontario.ca/buildingcode/

Building Materials Evaluation Commission Commission d'évaluation des

matériaux de construction

BMEC AUTHORIZATION: 23-08-410 Infiltrator ATL System

T:

W٠

Date of Authorization:	October 25, 2023
Date of Expiry ¹ :	October 25, 2028

1. Applicant

Infiltrator Water Technologies 4 Business Park Rd PO Box 768 Old Saybrook, CT USA 06475

Tel: (800) 221-4436 Web: www.infiltratorwater.com

2. Manufacturing Facility

Infiltrator Water Technologies 1030 Corporate Center Dr Salisbury, NC USA 28146

Tel: (800) 221-4436 Web: <u>www.infiltratorwater.com</u>

3. Authorization

The Infiltrator ATL System is a combined treatment and dispersal system. The Infiltrator ATL (Advanced Treatment Leachfield) System primarily consists of a septic tank, an effluent filter, the Infiltrator ATL conduits and a layer of Specified System Sand. The Infiltrator ATL System can be installed in-ground, partially raised, or fully raised.

This authorization is not an approval for the use of the Infiltrator ATL System as a treatment unit, where treatment units are permitted for use with Class 4 sewage systems.

The 300 mm Infiltrator ATL conduits consist of a 100 mm diameter perforated pipe, large diameter synthetic aggregate, coarse geotextile, and small synthetic aggregate all wrapped in a fine geotextile. The Infiltrator ATL conduits are positioned within a layer of Specified System Sand covering a total dispersal area based on characteristics of the native soil. Effluent is filtered and treated by the components of the Infiltrator ATL

¹ This Authorization expires on the date shown. It is the responsibility of Authorization holders to make a complete application considering the time for review and complexity of the new application.

System through a combination of biological, physical, and chemical processes. The Infiltrator ATL System operates as a media network to support bacteria that colonize in the media and decompose organic waste.

Additional descriptive information is provided in documents supplied by the Applicant which are listed in Appendix A.

Reports and assessments provided by the Applicant demonstrate that if the Infiltrator ATL System is manufactured, designed, constructed, installed, tested, and maintained in accordance with the manufacturer's instructions and limitations, and the specific terms and conditions stated in this authorization, the use of the Infiltrator ATL System shall be deemed to not be a contravention of Sections 8.6. "Class 4 Sewage System" and 8.7. "Leaching Beds" of Division B of the Building Code.

All other requirements pertaining to the manufacture, design, construction, testing, and installation are subject to the requirements of the Building Code, and subject to the following terms and conditions contained below.

4. Specific Terms and Conditions

4.1. General

4.1.1. This Authorization is valid only for Infiltrator Water Technologies' Infiltrator ATL System;

4.2. Definitions

- 4.2.1. Raised or Partially Raised means a sewage system in which any part of the system is above the natural ground elevation;
- 4.2.2. Vertical Separation means the depth of unsaturated soil below the system, as measured from the bottom of the ASTM C33 Specified System Sand, to a limiting layer such as a high groundwater table, bedrock, or native soil with a percolation time (T) less than 1 min/cm or greater than 50 min/cm; and
- 4.2.3. Infiltrator Water Technologies' Infiltrator ATL System "Specified System Sand" is defined in Section 4.4.6 of this Authorization.

4.3. Installation Requirements

- 4.3.1. Infiltrator ATL System shall be installed as per the manufacturer's installation instructions as found in the "Design and Installation Manual for the Infiltrator ATL System in Ontario", dated August 2023;
- 4.3.2. The Infiltrator Water Technologies' installation manual "Design and Installation Manual for the Infiltrator ATL System in Ontario" dated August 2023 and this Authorization, shall be placed, and remain on site during the installation of the Infiltrator ATL System.

- 4.3.3. Information required by the Chief Building Official/ Principal Authority as per Sentence 1.3.5.4.(1) of Division C of the Building Code shall be provided prior to the start of construction;
- 4.3.4. No person shall operate the Infiltrator ATL System unless the person has entered into an agreement whereby the servicing and maintenance of the Infiltrator ATL System and its related components will be carried out by either the manufacturer, an authorized representative, or a duly trained service provider to service and maintain the Infiltrator ATL System according to Section 4.6; and who shall:

Inspection

4.3.4.1. Conduct and record at least once during every twelve (12) month period, an inspection and servicing, as specified by the Applicant, Infiltrator Water Technologies, "Infiltrator ATL System 3-Year Service Agreement – ONTARIO", and

Testing

- 4.3.4.2. Test in accordance with the requirements set out in Article 8.9.2.4. "Sampling of Treatment Units" of Division B of the Building Code.
- 4.3.5. No reduction in the size of the Infiltrator ATL System shall be permitted with the use of a treatment unit beyond that of a septic tank.

4.4. System Requirements

- 4.4.1. There are six (6) main components to the Infiltrator ATL System:
 - 1. Primary/Septic tank;
 - 2. Effluent filter;
 - 3. Distribution Devices;
 - 4. Infiltrator ATL conduits;
 - 5. ASTM C33 Specified System Sand; and
 - 6. Sampling Device (Lysimeter);
- 4.4.2. All raw sewage will enter into a septic tank sized in accordance with Article 8.2.2.3. "Septic Tanks" of Division B of the Building Code;
- 4.4.3. The effluent filter shall meet the requirements of Article 8.6.2.1. "Septic Tank Systems" of Division B of the Building Code and shall be connected to the outlet of the septic tank;
- 4.4.4. The distribution devices may include a distribution box, distribution valve, an equalizer, a header or a low-pressure distribution system;
- 4.4.5. The Infiltrator ATL conduits:

- 4.4.5.1. consists of a 100 mm diameter perforated pipe, large diameter synthetic aggregate, coarse geotextile, and small synthetic aggregate all wrapped in a fine geotextile to form a 3.05 m long x 300 mm diameter cylindrical bundle;
- 4.4.5.2. shall be placed level, end to end, with the white stripe at the 12 o'clock position and form rows;
 - 4.4.5.2.1. Internal pipe couplings are used to connect individual Infiltrator ATL conduits;
 - 4.4.5.2.2. Only full Infiltrator ATL conduits shall be used; conduits shall not be cut;
- 4.4.6. Infiltrator ATL System's Specified System Sand
 - 4.4.6.1. All Infiltrator ATL System configurations require Infiltrator ATL Specified System Sand under and between the Infiltrator ATL conduits;
 - 4.4.6.2. Following the installation of the required Specified System Sand around each Infiltrator ATL Conduit, imported sand or Specified System Sand must be used to fill the area between the ATL conduit rows to cover the complete dispersal surface/contact area. The thickness of imported sand/Specified System Sand between the ATL conduit rows shall be a minimum 530 mm;
 - 4.4.6.3. The Specified System Sand shall:
 - 4.4.6.3.1. meet the sand requirements set out in ASTM C33 "Standard Specification for Concrete Aggregates", as set out in Table 4.4.6.3.1 below:

Infiltrator ATL Specified Sand Requirements			
Excerpt from ASTM C33 "Standard Specification for Concrete Aggregates"			
Sieve Size	Sieve Square Opening	Specification % Passing	
0.375"	9.5 mm	100.0	
#4	4.75 mm	95.0 - 100.0	
#8	2.36 mm	80.0 - 100.0	
#16	1.18 mm	50.0 - 85.0	
#30	600 µm	25.0 - 60.0	
#50	300 µm	5.0 - 30.0	
#100	150 μm	0.0 - 10.0	
#200	75 μm	0.0 - 5.0	
Request a sieve analysis from the material supplier to confirm that the system sand meets the specifications requirements listed above			

Table 4.4.6.3.1

- 4.4.6.3.2. be a minimum depth of 230 mm under the Infiltrator ATL conduit rows;
- 4.4.6.3.3. extend a minimum of 300 mm on both ends of the Infiltrator ATL conduit rows;

- 4.4.6.3.4. extend a minimum of 300 mm horizontally beyond the outer Infiltrator ATL conduit rows;
- 4.4.6.3.5. be a minimum of 300 mm between each Infiltrator ATL conduit row; and
- 4.4.6.3.6. be installed to the top of each Infiltrator ATL conduit rows;
- 4.4.6.4. The imported sand must have a percolation time of 6 to 10 min/cm and not have more than 5% fines passing through a 0.074 mm (No. 200) sieve.

4.5. Design Requirements

- 4.5.1. Vertical Separation
 - 4.5.1.1. The percolation time (T) of the native soil shall determine the minimum vertical distance from the bottom of the Specified System Sand to the high ground water table, bedrock, or soil with a percolation time (T) less than 1 min/cm or greater than 50 min/cm:
 - 4.5.1.1.1. If (T) is less than or equal to 6 min/cm, or greater than 50 min/cm, then the vertical separation distance shall be at least 600 mm, or
 - 4.5.1.1.2. If (T) is greater than 6 min/cm, or less than or equal to 50 min/cm, then the vertical separation shall be at least 450 mm;
 - 4.5.1.1.3. Where the native soil cannot provide for the entire vertical separation, Specified System Sand or imported sand may be provided to achieve the required vertical separation;
- 4.5.2. Number of Infiltrator ATL Conduits Required
 - 4.5.2.1. Each Infiltrator ATL Conduit has the capacity to treat 81L per day;
 - 4.5.2.2. The formula to determine the number of Infiltrator ATL Conduits required is Q/81. Where Q is the total daily design sanitary sewage flow in litres;
 - 4.5.2.3. The number of Infiltrator ATL Conduits must be rounded up at all times;
- 4.5.3. Conduit spacing requirements
 - 4.5.3.1. The Infiltrator ATL Conduits shall be spaced using the following criteria:

- 4.5.3.1.1. The rows shall be spaced a minimum of 300 mm apart, measured side to side;
- 4.5.3.1.2. Each row shall start and stop to provide a minimum of 300 mm inside the perimeter defined by the Specified System Sand;
- 4.5.3.1.3. Where conduits are installed on sites with a slope between 10:1 and 4:1, the 230 mm deep Specified System Sand layer shall extend a minimum of 900 mm horizontally on the downslope side, beyond the conduits;
- 4.5.3.1.4. When multiple rows are used, each row of the Infiltrator ATL conduits shall be evenly spaced over the entire area of the Specified System Sand (QT/400), subject to adjustment to ensure:
 - (a) Minimum clearances are provided in accordance with Article 8.2.1.6. of the Building Code, and
 - (b) Minimum separation distances are provided in accordance with 4.5.3 above;
- 4.5.4. Dispersal Surface (A) In-ground, partially raised, or above ground
 - 4.5.4.1. The area to be covered by the Specified System Sand used in the Infiltrator ATL System shall be equal to or larger than the area determined by the formula:

A = QT/400

Where:

- A is the area of contact in m^2
- T is the percolation time of the underlying native soil in min/cm to a maximum of 50, and
- Q is the total daily design sanitary sewage flow in litres.
- 4.5.4.2. All Infiltrator ATL System designs shall meet the minimum spacing requirements of Section 4.5.3. above;
- 4.5.4.3. The dispersal surface shall have the long dimension perpendicular to the direction in which effluent entering the soil will move horizontally; and
- 4.5.4.4. When the native soil has a (T) of 50 min/cm or greater, the Infiltrator ATL System shall be raised;
- 4.5.5. Additional design requirements
 - 4.5.5.1. The Infiltrator ATL System shall be designed, installed, and constructed using these criteria:

- 4.5.5.1.1. Infiltrator ATL System shall not be installed in an area where the original ground has a slope in excess of 4 horizontal to 1 vertical;
- 4.5.5.1.2. A minimum total length of 39.6 m of Infiltrator ATL conduit is required for any Infiltrator ATL System;
- 4.5.5.1.3. Each row can reach a maximum length of 30.5 m;
- 4.5.5.1.4. The Infiltrator ATL System shall have a sampling device (Lysimeter), for the purpose of sampling effluent, and it shall be installed as described in the "Design and Installation Manual for the Infiltrator ATL System in Ontario" dated August 2023;
- 4.5.5.1.5. The site shall be protected from erosion by proper grading, mulching, seeding, and runoff control; and
- 4.5.5.1.6. The Infiltrator ATL System, measured from the centre of the conduits, shall meet the setback requirements outlined in Article 8.2.1.4. "Clearances" and Table 8.2.1.6.B. "Minimum Clearances for Distribution Piping and Leaching Chambers" of Division B of the Building Code.

4.6. Servicing, Operation and Maintenance Requirements

- 4.6.1. The Infiltrator ATL System shall be operated and maintained as per the manufacturer's "Ontario Infiltrator ATL System Operation and Maintenance Guidelines" dated August 2023;
- 4.6.2. Conduct and record at least once during every twelve (12) month period, an inspection and servicing as specified by the Applicant and Infiltrator Water Technologies;
- 4.6.3. Effluent sampling shall be performed in accordance with the requirements of Sentence 8.9.2.4.(1) of Division B of the Ontario Building Code, as follows:
 - (a) initially, once during the first 12 months after the sewage system was put into use, and
 - (b) thereafter, once during every 12 month period, at least 10 months and not more than 18 months after the previous sampling has been completed;
- 4.6.4. The concentration of CBOD₅ and suspended solids in the grab sample described in Section 4.6.3. is deemed to comply with the Building Code requirements when neither exceed 20 mg/L;
- 4.6.5. If the results of a sample do not comply with Section 4.6.4, then the person operating the system shall promptly submit the results to the Chief Building Official/ Principal Authority and inform Infiltrator Water Technologies or an authorized agent, and the course of action to remedy the problem shall be identified. The system shall be resampled within six (6) months of a non-

compliant sample and the results are to be submitted to the Chief Building Official/ Principal Authority; and

4.6.6. Infiltrator Water Technologies or their agent shall retain records of the sampling test results for each Infiltrator ATL System received pursuant to the terms and conditions set out in Sections 4.6.1. to 4.6.5. above, for a period of ten (10) years and shall promptly forward copies of those records to the Chief Building Official/ Principal Authority when requested.

5. General Conditions

- 5.1. The use of the Infiltrator ATL System as described in Section 3. and the Specific Terms and Conditions set out in Section 4. must comply with:
 - (a) the Building Code Act, 1992, (the "Act") as amended or re-enacted,
 - (b) except as specifically authorized herein, the Building Code as amended or remade, and
 - (c) all other applicable legislation.
- 5.2. A copy of this Authorization shall accompany each application for a building permit and shall be maintained on the site of the construction with the building permit.
- 5.3. The Applicant specified in Section 1. shall promptly notify the BMEC of:
 - (a) the failure of the Applicant to comply with any of the Specific Terms and Conditions set out in Section 4.,
 - (b) the failure of the material, system or building design that is the subject matter of this Authorization to
 - i. comply with any of the Specific Terms and Conditions set out in Section 4., or
 - ii. provide a satisfactory level of performance in situ, or
 - (c) the occurrence of any of the events described in General Conditions 5.4.(a), (b), or (e).
- 5.4. The BMEC may amend or revoke this Authorization at any time on its own initiative, or at the request of the Applicant specified in Section 1. Without restricting the foregoing, the BMEC may amend or revoke this Authorization where it determines that:
 - (a) any change has been made to:
 - (i) the name of the Applicant specified in Section 1.,
 - (ii) the address or other contact name information of the Applicant specified in Section 1.,
 - (iii) the ownership of the Applicant specified in Section 2.,
 - (iv) the manufacturing facilities specified in Section 2,
 - (v) the material, system, or building design that is the subject matter of this Authorization, or
 - (vi) a test method relevant to this Authorization,
 - (b) the Applicant has failed to comply with any of the terms and conditions set out in this Authorization,

- (c) in the opinion of the BMEC, the use of the material, system or building design authorized herein provides an unsatisfactory level of performance in situ,
- (d) in the opinion of the BMEC, amendment or revocation of the Authorization is appropriate on the basis of potential danger to public health and safety,
- (e) the *Act* or Building Code has been amended, re-enacted or remade in a manner relevant to this Authorization,
- (f) this Authorization was issued on mistaken, false or incorrect information, or
- (g) a revision of an editorial nature is appropriate.

Dated at Toronto this October 25, 2023

BUILDING MATERIALS EVALUATION COMMISSION

CHAIR, BUILDING MATERIALS EVALUATION COMMISSION

attached - "Appendix A - Supporting Information"

Appendix A – Supporting Information

The following is a list of the documents that were submitted and reviewed, but were not limited to:

- 1. Application, Infiltrator Water Technologies, "APPLICATION FOR EVALUATION TO THE BMEC" as amended;
- 2. Approval, Alabama Department of Public Heath, "State-Issued Product Permit", dated June 2, 2020;
- 3. Approval, Commonwealth of Virginia, dated June 17, 2015;
- 4. Approval, Department of Environmental Protection, "Standard Conditions for Alternative Soil Absorption Systems with General Use Certification and/or Approved for Remedial Use", dated March 5, 2018;
- 5. Approval, Department of Health and Human Services Maine Center for Disease Control and Prevention, "Updated Product Registration, Infiltrator ATL System", dated June 4, 2015;
- 6. Approval, Illinois Department of Public Heath, dated January 27, 2017;
- Approval, Indiana State Department of Health, "Approval renewal of the Design and Installation Manual for the Infiltrator ATL[™] System in Indiana, March 2015, for use in residential and commercial on-site sewage systems", dated April 13, 2020;
- 8. Approval, New York Department of Health, "Presby Environmental, Inc (PEI) Advanced Treatment Leachfield and Advanced Enviro-Septic Wastewater System NYSDOH Compliance Determination", dated April 15, 2021;
- 9. Approval, North Carolina Department of Health and Human services, dated July 29, 2021;
- 10. Approval, OHIO Department of Health, dated February 12, 2016;
- Approval, State of Idaho Department Of Environmental Quality, "Updated Proprietary Wastewater Treatment Product Approval – Infiltrator ATL" dated September 3, 2020;
- Approval, State of Michigan, "Delta Treatment Systems and Presby Environmental Advanced Enviro-Septic Product Technology" dated April 15, 2021;
- 13. Approval, Wisconsin Department of Safety, "Powts Component Manual", dated July 22, 2019;
- 14. Approvals, Infiltrator Technologies, "Infiltrator ATL (Advanced Treatment Leachfield) System Canadian Provincial Approvals";
- 15. Brochure, Infiltrator Water Technologies, "Advanced Treatment Leachfield", version ATL01ON 0523;
- 16. Data Table, Infiltrator Water Technologies, "Infiltrator ATL System Ontario Laboratory Field Test Data Table", dated May 2023;
- 17. Design and Installation Manual, Infiltrator Technologies, "Design and Installation Manual for the Infiltrator ATL System in Ontario, as amended;
- Engineer's report, Gunnel Engineering Ltd., "Application for Infiltrator ATL (Advanced Treatment Leachfield) System Certification and Analysis Report", as amended;
- 19. Letter, Infiltrator Water Technologies "ON ATL BMEC Response to Comments Round 2" dated August 8, 2023;
- 20. Letter, Infiltrator Water Technologies, "Answers to BMEC questions" dated July 13, 2023;

- Operation and Maintenance Guidelines, Infiltrator Water Technologies, "Ontario Infiltrator ATL System Operation and Maintenance Guidelines", dated August 2023;
- 22. Test report, Massachusetts Alternative Septic System Test Center, "Onsite Wastewater Technology Testing Report", dated February 2017; and
- 23. Test report, NSF International, "NSF/ANSI Standard 40 Infiltrator ATL-450-Additional Testing report", dated May 8, 2017.