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Ontario
Building Materials Evaluation Commission
Commission d'évaluation des matériaux de construction

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BMEC AUTHORIZATION: 18-03-384
Infiltrator ATL System

Date of Authorization: **April 26, 2018**
Date of Expiry[1]: **April 26, 2023**

1. Applicant

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of Infiltrator Water Technologies
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2. Manufacturing Facility

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Engineering and Design
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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.

The Infiltrator ATL conduits are positioned within a layer of Specified System Sand covering the native soil and offering a total dispersal area based on characteristics of the underlying soil.

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.

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 manufactured in modules that are installed within an ASTM C33 Specified System Sand layer (Specified System Sand). Effluent is filtered and treated by the components of the Infiltrator ATL 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.

Reports and assessments provided by the Applicant demonstrate that if the Infiltrator ATL System is manufactured, designed, constructed, installed, sampled, 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, installation, sampling, and maintenance are subject to the requirements of the Building Code, and subject to the following terms and conditions contained below.

4. Specific Terms and Conditions

1.0 Definitions

A word or phrase used in this Authorization has the following meaning for the purposes of this Authorization:

1.1. Raised or Partially Raised means a sewage system in which any part of the system is above the natural ground elevation.

1.2. 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 soil with a percolation time (T) greater than 50 min/cm.

2.0 Installation Requirements

2.1. The 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 December 2017.

2.2. The Infiltrator Water Technologies’ installation manual “Design and Installation Manual for the Infiltrator ATL System in Ontario” dated December 2017, shall be placed on site and remain on site during the installation of the Infiltrator ATL System.

2.3. 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 a person who is authorized by the manufacturer to service and maintain the Infiltrator ATL System, and who shall:

Inspection

2.3.1. 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

2.3.2. 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.

3.0. System Requirements

3.1. The Infiltrator ATL System – The main components of the Infiltrator ATL System are:

3.1.1. The Septic Tank
3.1.2. The Effluent Filter
3.1.3. Distribution Devices
3.1.4. The Infiltrator ATL conduits
3.1.5. The ASTM C33 Specified System Sand
3.1.6. The Sampling Device

3.2. The Septic Tank - All raw sewage shall enter into a septic tank sized in accordance with Article 8.2.2.3. “Septic Tanks” of Division B, of the Building Code.

3.3. The Effluent Filter - An effluent filter, meeting the requirements of Article 8.6.2.1. “Septic Tank Systems” of Division B of the Building Code, shall be connected to the outlet of the septic tank.

3.4. Distribution Devices – The distribution devices may include a distribution box, distribution valve, an equalizer, a header, or a low pressure distribution system.

3.5. The Infiltrator ATL conduits:

3.5.1. The Infiltrator ATL conduit 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,

3.5.2. The Infiltrator ATL conduits shall be placed level, end to end, and form rows.

3.5.2.1. Internal pipe couplings are used to connect individual Infiltrator ATL conduits.

3.5.2.2. Only full Infiltrator ATL conduits shall be used; conduits shall not be cut.

3.6. The Infiltrator ATL System's Specified System Sand

3.6.1. All Infiltrator ATL System configurations require Infiltrator ATL Specified System Sand under and between the Infiltrator ATL conduits.

3.6.2. The Specified System Sand shall:

3.6.2.1. be a minimum depth of 230 mm under the Infiltrator ATL conduit rows,

3.6.2.2. extend a minimum of 300 mm on both ends of the Infiltrator ATL conduit rows,

3.6.2.3. extend a minimum of 300 mm horizontally beyond the outer Infiltrator ATL conduit rows,

3.6.2.4. be a minimum of 300 mm between each Infiltrator ATL conduit row,

3.6.2.5. be installed to the top of each Infiltrator ATL conduit rows,

3.6.2.6. meet the sand requirements set out in ASTM C33 "Standard Specification for Concrete Aggregates", as set out in Table 3.6.

Table 3.6.

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		

4.0 Design

Vertical Separation

4.1. 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:

4.1.1. 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

4.1.2. 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.

Number of Infiltrator ATL Conduits Required

4.2. Each Infiltrator ATL Conduit has the capacity to treat 81L per day.

4.2.1. 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.

4.2.2. The number of Infiltrator ATL Conduits must be rounded up at all times.

Conduit Spacing Requirements

4.3. The Infiltrator ATL Conduits shall be spaced using the following criteria:

4.3.1. The rows shall be spaced a minimum of 300 mm apart, measured side to side,

4.3.2. Each row shall start and stop to provide a minimum of 300 mm inside the perimeter defined by the Specified System Sand,

4.3.3. When multiple rows are used, each row of the Infiltrator ATL conduits shall be evenly spaced over the receiving infiltrative surface,

4.3.4. 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.

Dispersal Surface (A) – In-ground, partially raised, or above ground

4.4. 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.

4.4.1. All Infiltrator ATL System designs shall meet the minimum spacing requirements of 4.3. above,

4.4.2. Where the area determined using QT/400 is larger than that required by the minimum spacing required by 4.3. above, the Infiltrator ATL Conduits shall be evenly spaced over the entire area of the Specified System Sand,

4.4.3. The dispersal surface shall have the long dimension perpendicular to the direction in which effluent entering the soil will move horizontally, and

4.4.4. When the native soil has a T of 50 min/cm or greater, the Infiltrator ATL System shall be raised.

Other

4.5. The Infiltrator ATL System shall be designed, installed, constructed, and maintained using these criteria:

4.5.1. 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,

4.5.2. A minimum total length of 39.6 m of Infiltrator ATL conduit is required for any Infiltrator ATL System,

4.5.3. Each row can reach a maximum length of 30 m,

4.5.4. The Infiltrator ATL System shall have a sampling device, 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 December 2017,

4.5.5. The site shall be protected from erosion by proper grading, mulching, seeding, and runoff control,

4.5.6. No reduction in size of the Infiltrator ATL System shall be permitted with the use of a treatment unit beyond that of a septic tank, and

4.5.7. The Infiltrator ATL System, measured from the centre of the conduits, shall meet the setback requirements outlined in Article 8.2.1.4. and Table 8.2.1.6.B. of Division B, of the Building Code.

5. General Conditions

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.

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.

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), (e) or (f).

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 1 and 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 26th day of April 2018

BUILDING MATERIALS EVALUATION COMMISSION

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Leo Grellette
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. Letter Report, Gunnell Engineering Ltd., “Building Materials Evaluation Commission, Application for Infiltrator ATL (Advanced Treatment Leachfield) System”, dated August 23, 2017, two pages
2. Letter Report, Gunnell Engineering Ltd., “BMEC Application for Infiltrator ATL ATL System, Certification and Analysis Report, Our File No: D2366”, dated August 23, 2017, four pages
3. Specification, “Detailed Description”, one page, undated
4. Manufacturer Literature, Infiltrator® Water Technologies, “Advanced Treatment Leachfield”, two page, undated
5. Test Report, MASSTC, “DRAFT - Onsite Wastewater Technology Testing Report: Infiltrator ATL 450”, dated February 2017
6. Test Report, NSF, “NSF/ANSI Standard 40 – Residential Wastewater Treatment Systems – Final Report – ALT 450 – 13/07/055/0030”, dated July 2014
7. Design and Installation Manual for the Infiltrator® ATL™ System in Ontario, dated August 2017
8. Design and Installation Manual for the Infiltrator® ATL™ System in Ontario, dated December 2017
9. Sample Contract, Infiltrator Water Technologies, “Infiltrator ATL System, 3-Year Service Agreement – ONTARIO”, two pages
10. Approvals and Statements made by other Authority’s Having Jurisdiction:
    a. State of Alabama Department of Public Health
    b. Department of Health, New York
    c. Illinois Department of Public Health
    d. Indiana State Department of Health
    e. Maine Center for Disease Control and Prevention
    f. Ohio Department of Health
    g. State of Montana
    h. British Columbia Ministry of Health
11. Letter Report, Infiltrator® Water Technologies, “BMEC 2017-04: Infiltrator ATL System, Follow-up Information”, dated October 13, 2017, three pages
12. Letter Report, Gunnell Engineering Ltd., “BMEC 2017-04: Infiltrator (ATL) System, BMEC Septembers 29, 2017 Letter – ASTM C33 Sand Percolation Rate, Our File No: D2366”, dated October 12, 2017, four pages
13. Photos, images of Infiltrator ATL conduits connections, undated, three pages
14. Letter Report, Gunnell Engineering Ltd., “BMEC 2017-04: Infiltrator ATL System, Certification and Analysis – BMEC Letter dated September 29, 2017, Our File No: D2366 ”, dated October 13, 2017, two pages
15. Letter Report, Infiltrator® Water Technologies, “BMEC 2017-04: Infiltrator (ATL) System, Supplemental Information”, dated November 15, 2017, seven pages
16. Drawings, Infiltrator® Water Technologies, “In-Ground Infiltrator ATL System”, dated 11/15/2017

17. Drawings, Infiltrator® Water Technologies, “Partially Raised Infiltrator ATL System”, dated 11/15/2017
18. Drawings, Infiltrator® Water Technologies, “Fully Raised Infiltrator ATL System”, dated 11/15/2017
19. Drawings, Infiltrator® Water Technologies, “As-Built NFS 40 Detail”, dated 07/25/2013
20. Drawings, Infiltrator® Water Technologies, “Ontario – ATL Lysimeter Cross Section Detail”, dated 10/12/2017
21. Letter Report, Gunnell Engineering Ltd., “Building Materials Evaluation Commission, Application for Infiltrator ATL (Advanced Treatment Leachfield) System, BMEC A2017-04”, dated November 16, 2017, one page