

Design and Installation Manual for the Infiltrator ATL System in Virginia



The purpose of this manual is to provide the minimum specifications for design and installation of the Infiltrator ATL (Advanced Treatment Leachfield) System in Virginia. All local ordinances, requirements, and procedures must be followed. Each revised version of this manual supersedes the previous version.

The configurations presented in this document are common designs and are provided for illustrative purposes. They are not intended to restrict the use of other configurations, which may be utilized provided the design conforms to the Sewage Handling and Disposal Regulations (12 VAC 5-610) and/or Alternative Onsite Sewage System Regulations (12 VAC 5-613) as applicable.

For more detailed design and installation information, please contact Infiltrator Water Technologies at 1-800-221-4436.

Infiltrator ATL System in Virginia

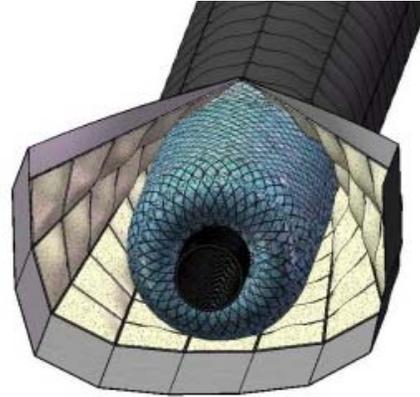
INTRODUCTION	2
SYSTEM CONFIGURATIONS	4
SYSTEM DESIGN	10
SYSTEM DESIGN EXAMPLE	13
INFORMATION FOR SYSTEM OWNERS	16
INFORMATION FOR SYSTEM OPERATORS	18
INSTALLATION INSTRUCTIONS	20
VIRGINIA SITE-SPECIFIC DESIGN FORM	23
WARRANTY	24

Virginia

The Infiltrator ATL System

The Infiltrator ATL is a patent-pending, proprietary system consisting of six components. Upon entering the Infiltrator ATL, septic tank effluent progresses through each component as follows:

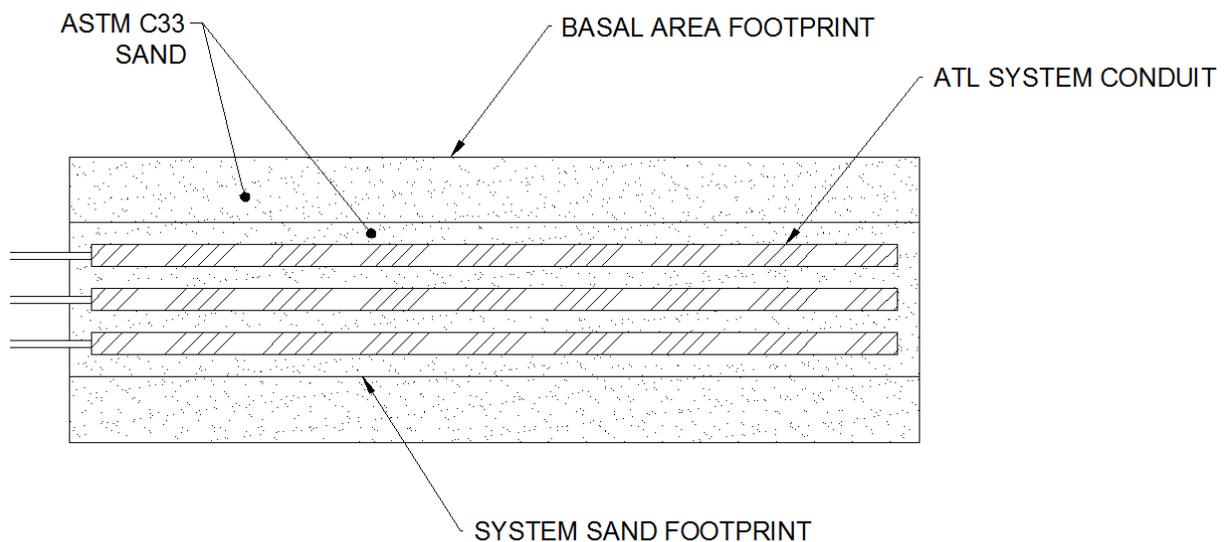
- 4-inch-diameter pipe
- Large-diameter synthetic aggregate;
- Coarse geotextile;
- Small-diameter synthetic aggregate;
- Fine geotextile; and
- 6-inch depth of specified system sand.



Infiltrator ATL System Definitions

“System sand” is the term used to describe the ASTM C33 material that surrounds the Infiltrator ATL System conduits. Upon exiting the system sand, treated effluent is accepted by the underlying native soil.

In this document, the “system sand footprint” refers to the surface onto which the Infiltrator ATL System conduits are placed and the 12 inches of component sand. The “basal area footprint” refers to the interface between the lowermost surface of the system sand and native soil. These definitions are portrayed in the diagram below.



Information Specific to Use of the Infiltrator ATL System in Virginia

The Infiltrator ATL System is approved for use by the Virginia Department of Health as an alternative treatment system in accordance with the Alternative Onsite Sewage System Regulations (12 VAC 5-613). Testing in accordance with NSF/ANSI Standard 40 has determined that the Infiltrator ATL System treats domestic strength wastewater to Class I levels, which allows for design and installation of the Infiltrator ATL System at modified TL-2 loading rates per 12 VAC 5-613-80(10).

The following section of the Alternative Onsite Sewage System Regulations (12 VAC 5-613) is not applicable to the use of the Infiltrator ATL System:

- 12 VAC 5-613-80.(11): 12-inch cover requirement. The Infiltrator ATL System may be designed and installed with a minimum of six inches of material that can sustain plant growth.

If design, installation, operation, or maintenance specifications are not specifically addressed in this manual, relevant requirements in the Sewage Handling and Disposal Regulations (12 VAC 5-610) and Alternative Onsite Sewage System Regulations (12 VAC 5-613) are applicable.

SYSTEM CONFIGURATIONS

The Infiltrator ATL System can be designed for use on level and sloped, subsurface and above-ground sites. Examples are shown in the following pages.

The following minimum system sand dimensions are required for all Infiltrator ATL System configurations:

- 12 inches between adjacent Infiltrator ATL conduit rows;
- 12 inches beside (outside) any Infiltrator ATL conduit row with no adjacent conduit row; and
- 12 inches extending beyond both ends of the Infiltrator ATL conduit rows.

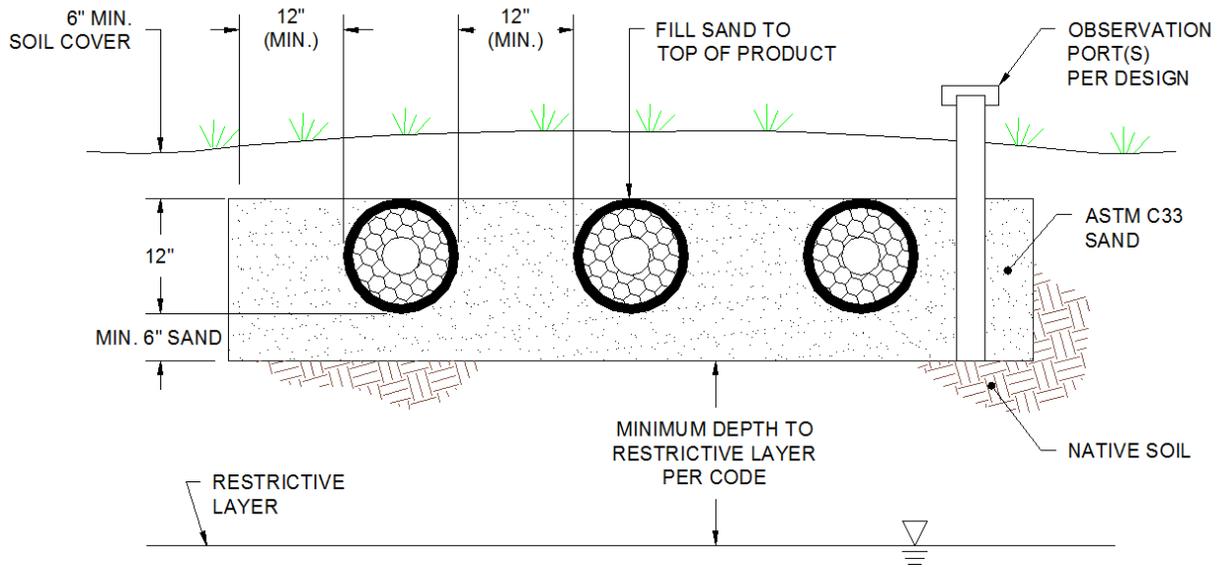
Additional requirements apply depending upon site-specific slope conditions and the position of the Infiltrator ATL System relative to ground surface elevation, as outlined in Table 1.

Site-Specific Slope Conditions	Requirements
Level (less than or equal to 5% slope)	<ul style="list-style-type: none">• No minimum sand extension requirements
Sloped (5 to 33% slope)	<ul style="list-style-type: none">• 25% maximum allowable system slope• 2.5-foot-minimum downslope system sand extension on above-ground sites

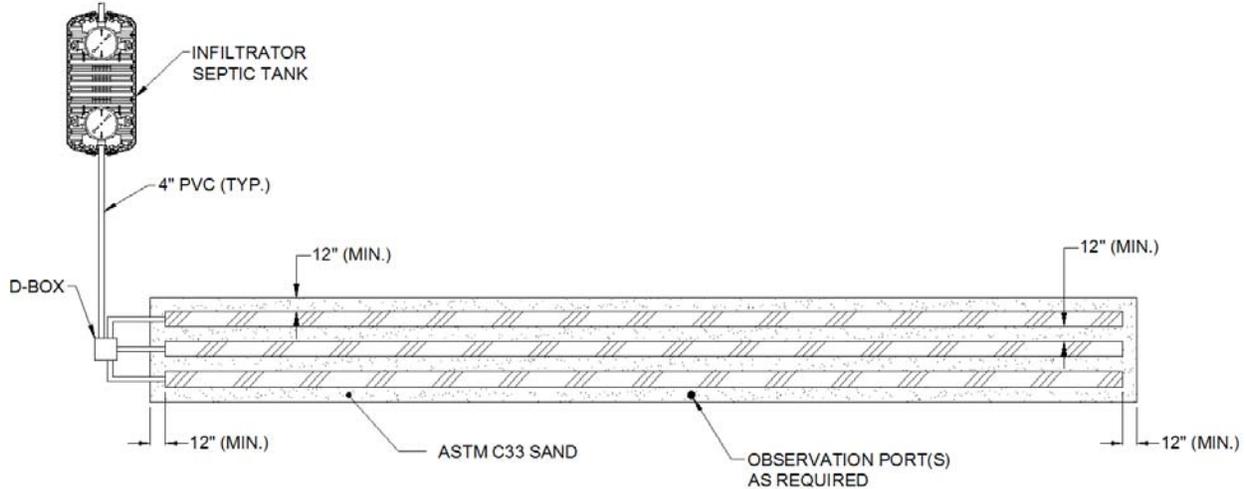
Table 1: Infiltrator ATL requirements based on site-specific conditions.

Level Subsurface Systems

Cross-Section View



Plan View

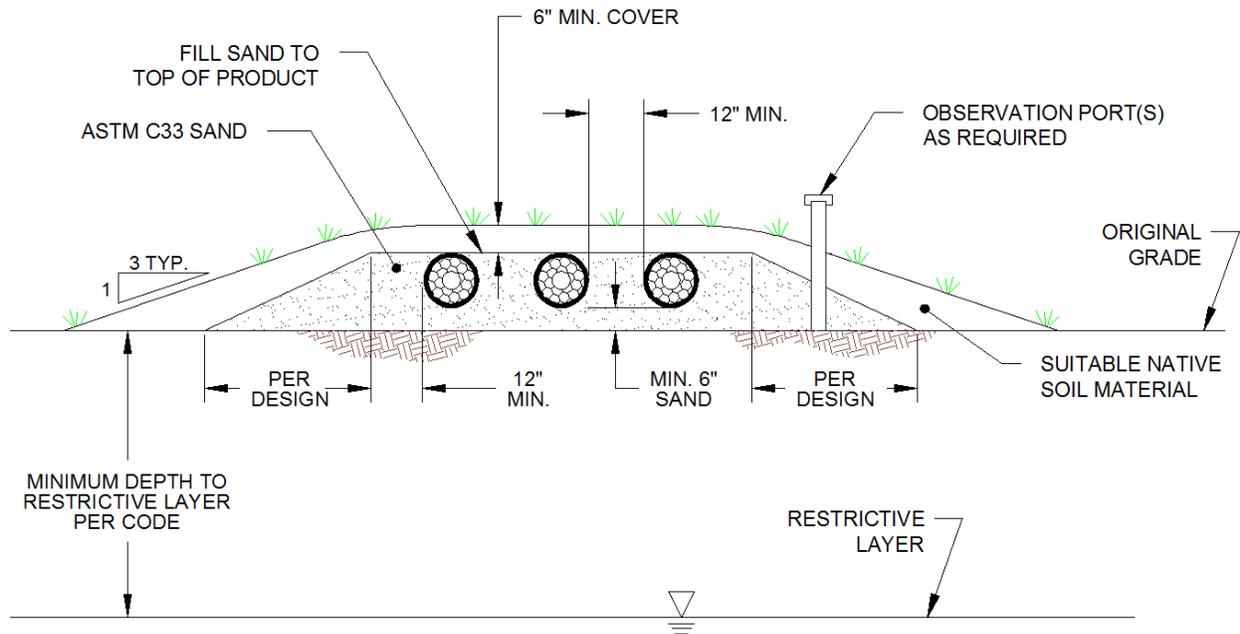


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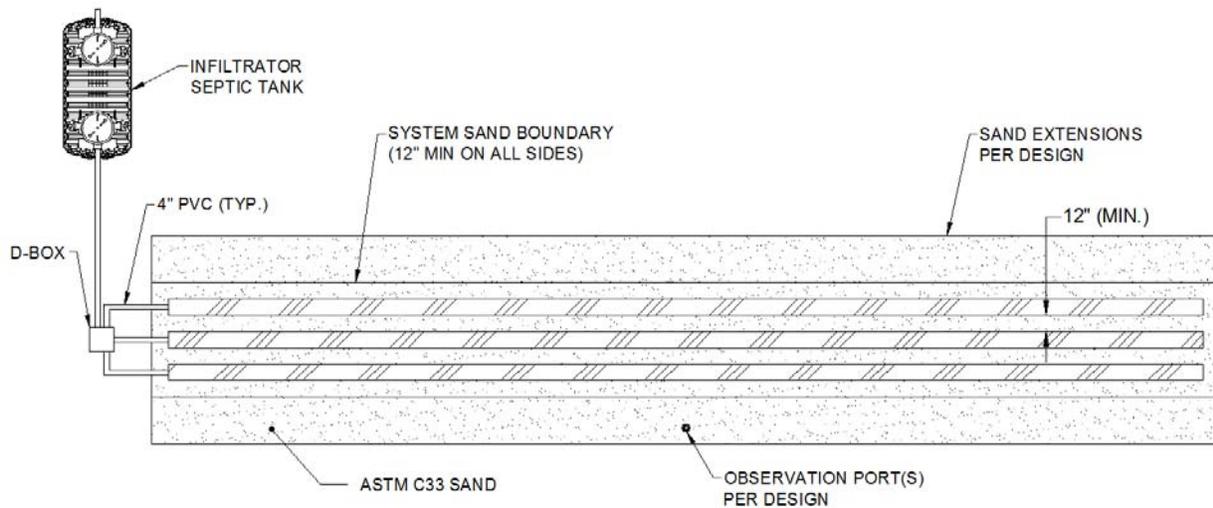
1. Number and length of conduits per design.
2. Venting is not required but is optional at the discretion of the designer.
3. Pumping is not required unless gravity flow cannot be achieved.
4. Observation ports are optional, per engineer design.
5. The ATL System is intended for use in non-traffic applications.

Level Above-Grade Systems

Cross-Section View



Plan View

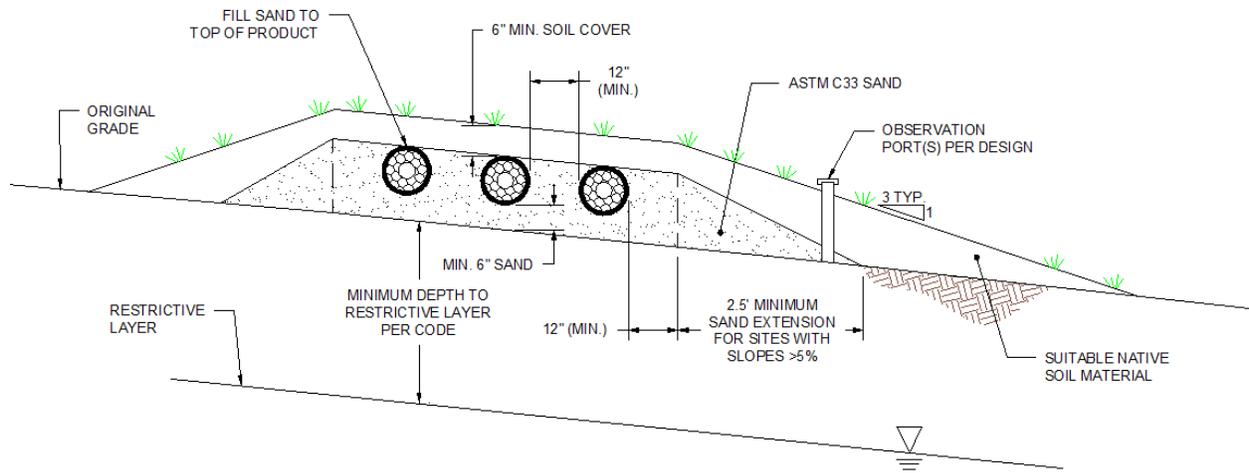


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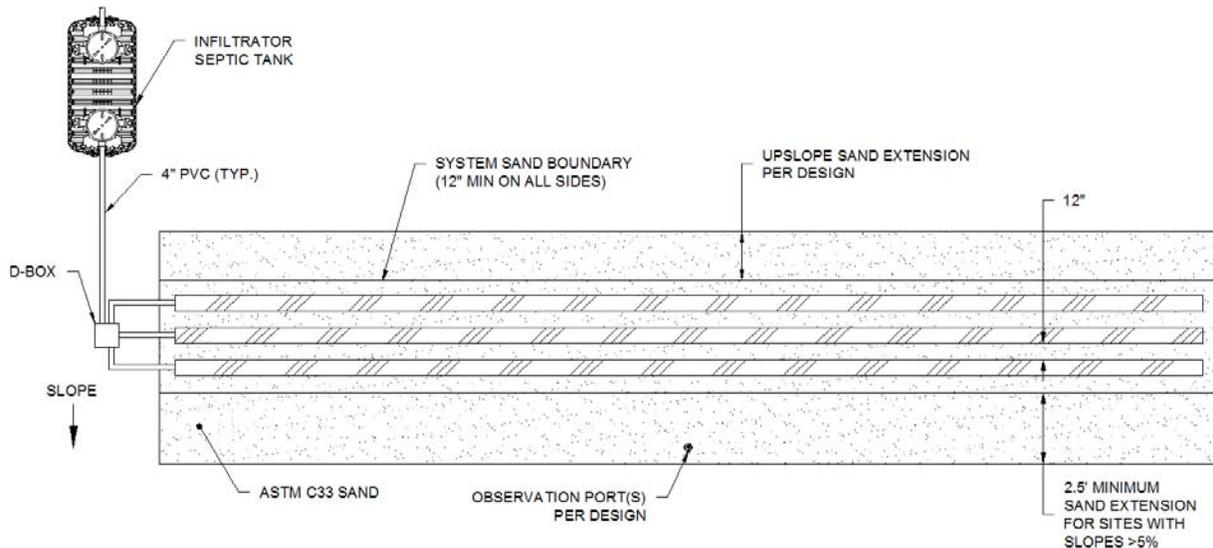
1. Number and length of conduits per design.
2. Venting is not required but is optional at the discretion of the designer.
3. Pumping is not required unless gravity flow cannot be achieved.
4. If the infiltrative surface of the Infiltrator ATL System bed must be elevated to achieve minimum vertical separation requirements, the area between the original grade and the Infiltrator ATL system sand shall be comprised of additional ASTM C33 sand.
5. Observation ports are optional, per engineer design.
6. The ATL System is intended for use in non-traffic applications.

Sloped Above-Grade Systems

Cross-Section View



Plan View

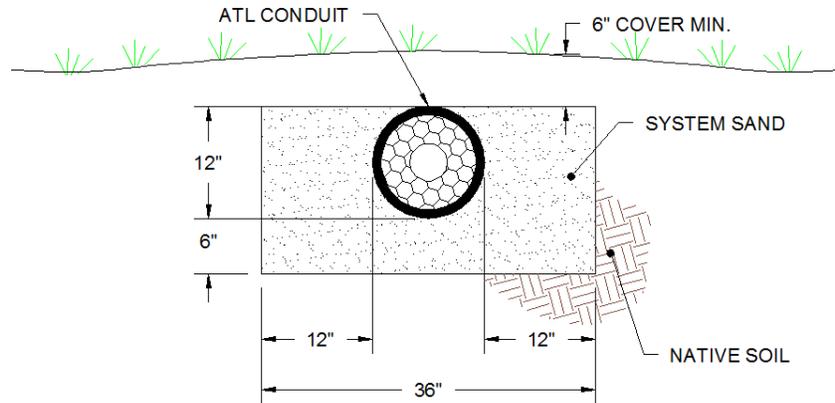


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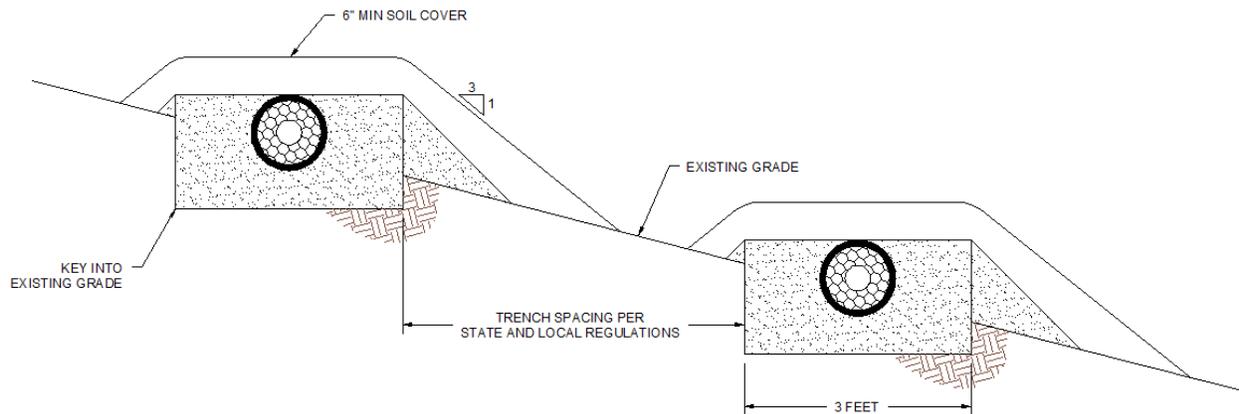
1. Number and length of conduits per design.
2. Venting is not required but is optional at the discretion of the designer.
3. Pumping is not required unless gravity flow cannot be achieved.
4. If the infiltrative surface of the Infiltrator ATL System bed must be elevated to achieve minimum vertical separation requirements, the area between the original grade and the Infiltrator ATL system sand shall be comprised of additional ASTM C33 sand.
5. Observation ports are optional, per engineer design.
6. The ATL System is intended for use in non-traffic applications.

ATL in Trench Configurations

Subsurface Cross-Section View



Shallow, Sloped Cross-Section View



NOTES:

1. Number and length of conduits per design.
2. When using ATL conduits in trench configurations, the total trench bottom area must be greater than or equal to the minimum basal area required, based on soil loading rates (Table 4, page 11 in this manual). ATL conduits must extend to within one foot of each end of each trench, which may result in a system with more than the minimum amount of conduit required.
3. ATL edge-to-edge trench spacing must comply with all applicable state and local regulations for absorption trench spacing.
4. Venting is not required but is optional at the discretion of the designer.
5. Pumping is not required unless gravity flow cannot be achieved.
6. Observation ports are optional, per engineer design.
7. The ATL System is intended for use in non-traffic applications.

Designing the Infiltrator ATL System is a four-step process.

1. *Determine Infiltrator ATL conduit length.*
2. *Design the system sand configuration.*
3. *Calculate the minimum basal area.*
4. *Make area adjustments, as necessary.*

Step 1: Determine Infiltrator ATL Conduit Length

The minimum length of Infiltrator ATL conduit per bedroom is 70 feet. Determine the minimum length of Infiltrator ATL conduit from Table 2 based on the number of bedrooms.

Number of Bedrooms	Design Flow (gpd)	Minimum Infiltrator ATL Length (ft)
2	300	140
3	450	210
4	600	280
5	750	350
Each Additional	150	70

Table 2: Minimum required Infiltrator ATL conduit length

Step 2: Design the System Sand Configuration

Use Table 3 to determine the minimum system sand footprint using the minimum length of Infiltrator ATL conduit as determined from Table 2 and the number of rows into which the total length of conduit will be divided. The following requirements must be met for design of the system sand:

- The system should be designed as long and narrow as site conditions allow. Therefore, the number of rows of Infiltrator ATL conduit should be minimized.
- The maximum length of ATL conduit rows is 100 feet, therefore, where the row-specific length dimensions exceeds 100 feet in Table 2, the system shall be divided as follows:
 - Center-feed configurations are recommended, with effluent distributed from the center area between the ATL conduit rows.
 - Where a center-feed configuration is not used, the system shall be split into multiple sand beds with proportional loading between beds based on effluent flow distribution.

Minimum Length of ATL Conduit (ft)	Minimum system sand dimensions and area					
	2 Conduit Rows		3 Conduit Rows		4 Conduit Rows	
	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)
140	5' x 72'	360	7' x 52'	364	9' x 37'	333
210	5' x 107'	535	7' x 72'	504	9' x 57'	513
280	5' x 142'	710	7' x 97'	679	9' x 72'	648
350	5' x 177'	885	7' x 122'	854	9' x 92'	828

Table 3: Minimum system sand dimensions and area

NOTE: ATL conduits are manufactured in lengths of 5 and 10 feet. All values in Table 3 have been rounded to the nearest 5-foot increments, plus the foot of sand on each end of the ATL conduit row.

Step 3: Calculate the Minimum Basal Area

Using common practice and in accordance with the Sewage Handling and Disposal Regulations (12 VAC 5-610) and Alternative Onsite Sewage System Regulations (12 VAC 5-613), determine the percolation rate for the soil on the site. With this percolation rate, determine the minimum required basal area using Table 4.

Percolation Rate (MPI)	Soil Loading Rate (gpd/sf)	Minimum basal area (sf)			
		3 Bedrooms	4 Bedrooms	5 Bedrooms	Each Add'l Bedroom
5	1.80	250	333	417	83
10	1.67	269	359	449	90
15	1.52	296	395	493	99
20	1.40	321	429	536	107
25	1.30	346	462	577	115
30	1.15	391	522	652	130
35	1.05	429	571	714	143
40	0.95	474	632	789	158
45	0.85	529	706	882	176
50	0.75	600	800	1000	200
55	0.70	643	857	1071	214
60	0.65	692	923	1154	231
65	0.60	750	1000	1250	250
70	0.54	833	1111	1389	278
75	0.50	900	1200	1500	300
80	0.45	1000	1333	1667	333
85	0.40	1125	1500	1875	375
90	0.35	1286	1714	2143	429
95	0.32	1406	1875	2344	469
100	0.30	1500	2000	2500	500
105	0.27	1667	2222	2778	556
110	0.25	1800	2400	3000	600
115	0.22	2045	2727	3409	682
120	0.19	2368	3158	3947	789

Table 4: Minimum basal area

Step 4: Make area adjustments, as necessary.

The minimum areas determined in Steps 2 and 3 cannot be reduced. These areas must be maintained to ensure adequate area for placement of the Infiltrator ATL System conduits and infiltration of treated effluent into the native soil.

Area adjustments are necessary as follows:

- If the minimum basal area determined using Table 4 (Step 3) is smaller than the area of the system sand footprint determined using Table 3 (Step 2), no adjustments are necessary.
- If the minimum basal area determined using Table 4 (Step 3) is larger than the area of the system sand footprint determined using Table 3 (Step 2), the system sand footprint must be increased.

In most instances, the width of the system sand component is widened to increase the system sand footprint. When making adjustments to the width of the system sand footprint:

- In level system applications, additional width shall be evenly divided on each side of the Infiltrator ATL System;
- In sloped system applications, additional width shall be entirely placed on the downslope side of the Infiltrator ATL System. Minimum sand extension lengths are outlined in Table 1.

NOTE: *The length of the bed area may be altered, but only by extending the Infiltrator ATL System conduits. Infiltrator ATL conduits are manufactured in lengths of 5 and 10 feet.*

SYSTEM DESIGN EXAMPLE

The following sample system design calculations are intended to illustrate the method for designing an Infiltrator ATL System. The sample system design calculations are provided in the step-by-step format described in the System Design section of the document.

Step 1: Determine Infiltrator ATL Conduit Length

Assuming construction of an Infiltrator ATL System for a 4-bedroom home, the minimum length of Infiltrator ATL conduit is 280 ft, per Table 2.

Number of Bedrooms	Design Flow (gpd)	Minimum Infiltrator ATL Length (ft)
2	300	140
3	450	210
4	600	280
5	750	350
Each Additional	150	70

Table 2: Minimum required Infiltrator ATL conduit length

Step 2: Design the System Sand Configuration

Table 3 is used to determine the minimum system sand footprint dimensions using the 280-foot minimum length of Infiltrator ATL conduit determined in Step 1. Per Table 3 below, for a 280-foot conduit length, the following configurations could be used, as allowed per site conditions.

- 2 conduits wide – 5 ft wide x 142 ft long (710 sf)
- 3 conduits wide – 7 ft wide x 97 ft long (679 sf)
- 4 conduits wide – 9 ft wide x 72 ft long (648 sf)

Minimum Length of ATL Conduit (ft)	Minimum system sand dimensions and area					
	2 Conduit Rows		3 Conduit Rows		4 Conduit Rows	
	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)
140	5' x 72'	360	7' x 52'	364	9' x 37'	333
210	5' x 107'	535	7' x 72'	504	9' x 57'	513
280	5' x 142'	710	7' x 97'	679	9' x 72'	648
350	5' x 177'	885	7' x 122'	854	9' x 92'	828

Table 3: Minimum system sand dimensions and area

SYSTEM DESIGN EXAMPLE

Step 3: Calculate the Minimum Basal Area

The soil loading rate shall be determined based upon the percolation rate on the site.

- For a percolation rate of 20 mpi, the minimum basal area per Table 4 is 429 sf.
- For a percolation rate of 50 mpi, the minimum basal area per Table 4 is 800 sf.

Percolation Rate (MPI)	Soil Loading Rate (gpd/sf)	Minimum basal area (sf)			
		3 Bedrooms	4 Bedrooms	5 Bedrooms	Each Add'l Bedroom
5	1.80	250	333	417	83
10	1.67	269	359	449	90
15	1.52	296	375	493	99
20	1.40	321	429	536	107
25	1.30	346	452	577	115
30	1.15	391	522	652	130
35	1.05	429	571	714	143
40	0.95	474	632	789	158
45	0.85	529	706	882	176
50	0.75	600	800	1000	200
55	0.70	643	857	1071	214
60	0.65	692	923	1154	231
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100	0.30	1500	2000	2500	500
105	0.27	1667	2222	2778	556
110	0.25	1800	2400	3000	600
115	0.22	2045	2727	3409	682
120	0.19	2368	3158	3947	789

Table 4: Minimum basal area

Step 4: Make area adjustments, as necessary.

Using the system parameters from Step 3, the need for area adjustments is assessed in Step 4. This evaluation includes comparing the size of the basal area from Table 4 to the area of the system sand footprint determined using Table 3 to determine if the system sand footprint must be widened to account for the width of the basal area.

SYSTEM DESIGN EXAMPLE

Subsurface or Above-Ground System – Level Site

- Percolation rate of 20 mpi and minimum basal area 429 sf

Where site conditions allow the use of 3 Infiltrator ATL conduits wide in the system, the minimum length would be 97 ft and the minimum width would be 7 ft, for a system sand footprint of 679 sf. Since the 429 sf minimum basal area is smaller than the 679 sf system sand footprint, no adjustment to the size of the system sand footprint is necessary.

Subsurface System or Above-Ground System – Level Site

- Percolation rate of 50 mpi and minimum basal area 800 sf

Where site conditions allow the use of 3 Infiltrator ATL conduits wide in the system, the minimum length would be 97 ft and the minimum width would be 7 ft, for a system sand footprint of 679 sf. Since the 800-sf minimum basal area is larger than the 679-sf system sand footprint, an adjustment to the size of the system sand footprint is necessary.

- *Divide the basal area by the length of the system sand.* $800 \text{ ft}^2 \div 97 \text{ ft} = 8.25 \text{ ft}$
- *Subtract the original system footprint width from the above adjusted system sand footprint width.* $8.25 \text{ ft} - 7 \text{ ft} = 1.25 \text{ ft}$
- *Divide the additional required width by 2 to determine the sand extension to add to each side of the system sand footprint width.* $1.25 \text{ ft} \div 2 = 0.625 \text{ ft}$
- *The system sand width must be widened by 1.25 feet, by adding 0.625 feet (7.5") of system sand to each side, resulting in a total width of 8.25 ft.* $8.25 \text{ ft} \times 97 \text{ ft} = 800.25 \text{ ft}^2$

Above-Ground System – Sloped Site

- Percolation rate of 50 mpi and minimum basal area 800 sf

Per the specifications in Table 1 (page 4), a minimum 2.5-foot sand extension is required for all above-ground sloped sites. Where site conditions allow the use of 3 Infiltrator ATL conduits wide in the system, the minimum length would be 97 ft and the minimum width would be 7 ft plus the 2.5 ft extension (total 9.5 ft wide), for a system sand footprint of 921.5 sf. Since the 800 sf minimum basal area is smaller than the 921.5 sf system sand footprint, no adjustment to the size of the system sand footprint is necessary.

INFORMATION FOR SYSTEM OWNERS

Approval of the Infiltrator ATL System includes all of the operating requirements of sections 100-150 of the Alternative Onsite Sewage System Regulations (12 VAC 5-613). Unless specifically referenced in this manual, the requirements for operating and maintaining the Infiltrator ATL System as described in the Alternative Onsite Sewage System Regulations (12 VAC 5-613) shall be met.

Section 170 of 12 VAC 5-613 Requirements:

Page 20 includes a form that the system designer must complete prior to delivery of this manual to the property owner. This form includes information on:

- treatment unit capacity;
- installation depth;
- pump operating conditions (if applicable);
- a dimensioned site layout;
- daily design flow; and
- other information deemed necessary or appropriate by the designer.

System Use and Abuse

Your Infiltrator ATL System is intended for use with residential-strength wastewater within the design daily flow volume. To ensure long-term function of your system:

- Keep daily wastewater flow within design parameters
 - Your data plate includes the daily design flow for your Infiltrator ATL System.
 - Do not connect the rainwater management system to, and direct water from the rainwater management system away from, the Infiltrator ATL System.
- Introduce only normal residential wastewater into the system
 - Solvents, paint, pharmaceuticals, aggressive cleaning products, and non-biodegradable items should not enter the Infiltrator ATL system.
 - Solids, such as but not limited to, cigarette butts, diapers, feminine hygiene products, cat litter, and paper towels should not be introduced into the Infiltrator ATL system.
- Maintain leak-free household plumbing fixtures, such as faucets and toilets.
- Do not utilize a garbage grinder.
- The ATL System is intended for use in non-traffic applications.

Operation and Maintenance

Your Infiltrator ATL System has no specific operating instructions. Proper use of the system as noted above is the primary operating concern.

Maintenance of the Infiltrator ATL System includes the following:

- If the septic tank has an effluent filter, it should be cleaned by maintenance provider on an annual basis.

INFORMATION FOR SYSTEM OWNERS

- The septic tank should be pumped on a regular basis and, if concrete, checked for leaks and cracks. The interval for septic tank pumping varies depending upon use. Check with a licensed system operator or your local health department for the appropriate pumping interval.
- If present, the alarm system should be tested annually by the homeowner to ensure that it is functional if one is included in the system.

If at any time you have concerns about the use, operation, or maintenance of your Infiltrator ATL System, contact the Infiltrator Water Technologies, LLC Technical Department.

System Start-up

There are no specific requirements for placing the Infiltrator ATL System into service. The property owner should, after use has been initiated, test the alarm to ensure it is functional if one is included in the system.

Intermittent Use

The Infiltrator ATL System is designed for intermittent use, and requires no special attention if it is to be placed out of use for extended periods of time.

Trouble Shooting

In the event that any of the following indicators arise, contact a licensed system operator.

- Wastewater back-up into the dwelling
- Persistent septic odor
- Unusually wet area atop and/or around the system
- “Ponding” of effluent on the lawn
- “Breakout” of effluent along the side of a slope

INFORMATION FOR SYSTEM OWNERS

Approval of the Infiltrator ATL System does not include several of the operating requirements of sections 100-150 of the Alternative Onsite Sewage System Regulations (12 VAC 5-613). Unless specifically referenced in this manual, the requirements for servicing the Infiltrator ATL System as described in the Alternative Onsite Sewage System Regulations (12 VAC 5-613) shall be met.

Repair

A licensed system operator shall be contacted when there are indications of malfunction with the Infiltrator ATL System. When visiting the site, the authorized representative shall, at a minimum, do the following:

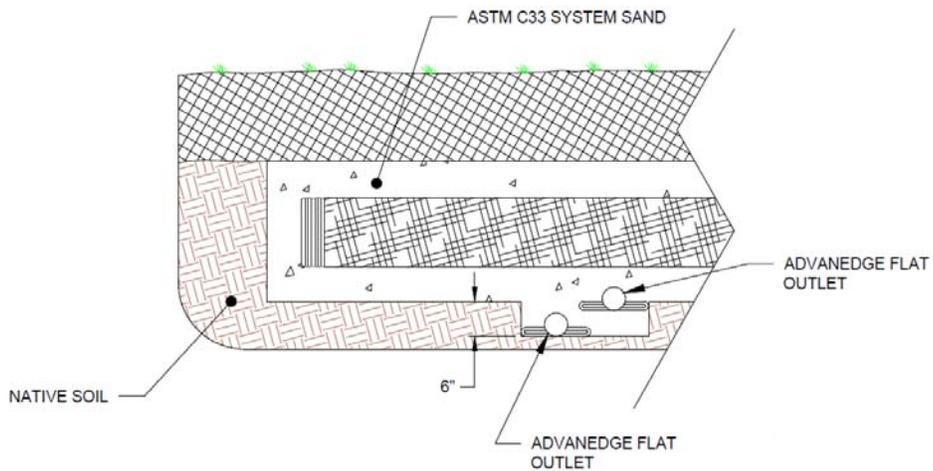
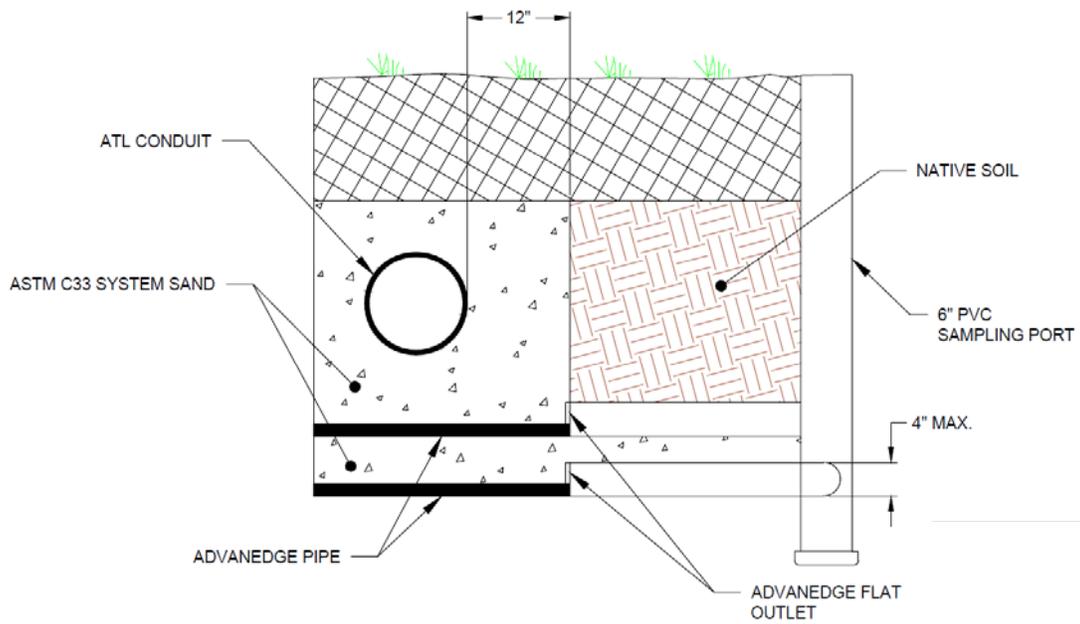
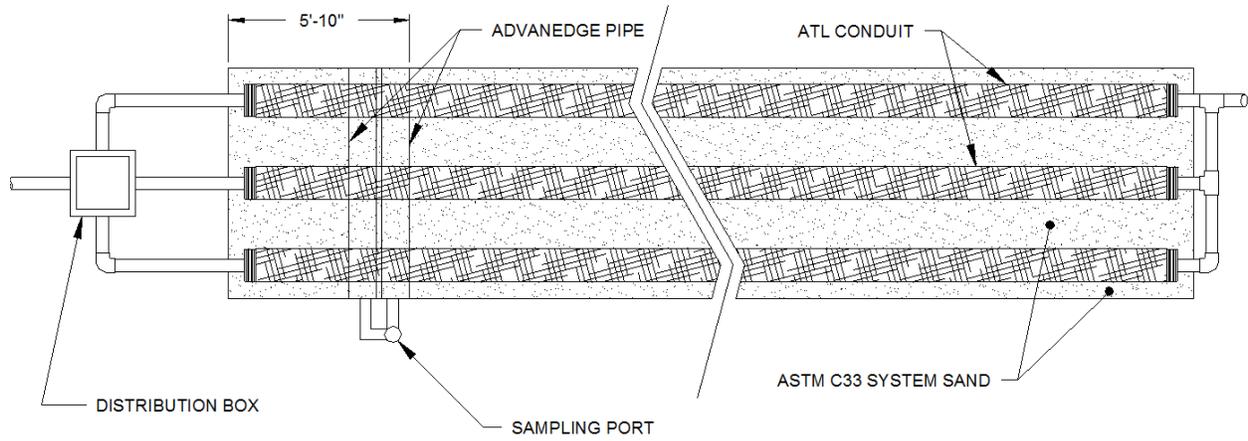
- Assess the present condition of the Infiltrator ATL System, and the surrounding area
- Research the history of use, including:
 - water volume use
 - contaminants
- Evaluate site for groundwater intrusion
- Inspect septic tank
- Inspect the Infiltrator ATL System conduit lines
- Check faucet and toilet function

Upon completion of the site visit, the system operator should contact the Infiltrator Water Technologies, LLC Technical Department with his or her report.

Sampling

Approval of the Infiltrator ATL System includes, and section 100 of the Alternative Onsite Sewage System Regulations (12 VAC 5-613) require, intermittent sampling and testing of treated effluent exiting the ATL System. Treated effluent shall be collected from the bottom of the system sand layer by means of an acceptable collection and sampling system. An example of an acceptable collection and sampling system is provided below. Collection shall be undertaken by a qualified licensed operator and testing shall be undertaken by a certified laboratory. Proof of custody shall be maintained.

INFORMATION FOR SYSTEM OPERATORS



Before You Begin

These installation instructions are for the Infiltrator ATL System in Virginia. Infiltrator ATL Systems may only be installed according to this manual, the latest version of the Sewage Handling and Disposal Regulations (12 VAC 5-610) and/or Alternative Onsite Sewage System Regulations (12 VAC 5-613), and local health department requirements.

If unsure of the installation requirements for a site, contact your local health department. If unsure of the use of the Infiltrator ATL System, contact Infiltrator Water Technologies, LLC. The soil and site evaluation and the design of the onsite system must be reviewed, and a construction permit obtained from the local health department before installation.

Materials and Equipment Needed

- | | |
|--|--|
| <input type="checkbox"/> Infiltrator ATL System conduits | <input type="checkbox"/> Shovel and rake |
| <input type="checkbox"/> System sand | <input type="checkbox"/> 4-inch inspection port and cap |
| <input type="checkbox"/> PVC pipe and couplings | <input type="checkbox"/> Endcaps |
| <input type="checkbox"/> Backhoe | <input type="checkbox"/> Infiltrator ATL System conduit internal pipe couplers |
| <input type="checkbox"/> Laser, transit or level | <input type="checkbox"/> Tape measure |

Common practices shall apply to the installation of the Infiltrator ATL System. These include, but are not limited to:

- avoid soil compaction on the infiltrative surface area, including all areas downslope of a sloped system;
- use a tracked vehicle for material installation;
- avoid installation during wet periods; and
- install the Infiltrator ATL System conduit and system sand on the same day that the system footprint is excavated/exposed.

Excavating and Preparing the Site

NOTE: *The Infiltrator ATL System may not be installed during periods when the soil is sufficiently wet to exceed its plastic limit, as this causes machinery to smear the soil.*

1. Stake out the locations of tank(s), pipes, conduit rows, and corners of the system to be tilled/excavated, per engineer design. Set the elevations as shown on the approved plan. [Note: The proper elevation of solid PVC header line going to each Infiltrator ATL conduit row should be determined to ensure compliance with the required system bottom depth as shown on the approved permit. This height may vary dependent on system height and configuration used.]

2. Install sedimentation and erosion control measures.

NOTE: *The installation of temporary drainage swales/berms (surface diversions) may be necessary to protect the site during rainfall events.*

3. Excavate the bed area or till the ground as per the design.

INSTALLATION INSTRUCTIONS

4. Rake the bed bottom and sides (when applicable) if smearing has occurred during excavation. Remove large stones and protruding roots.

NOTE: *Smearing does not occur in sandy soils, so raking is not necessary. In fine textured soils (silts and clays), avoid walking on the excavation bottom to prevent compaction and loss of soil structure.*

5. Verify that the bed area is at the proper slope from side-to-side and from end-to-end using a level, transit, or laser.
6. Excavate and install collection component of sampling system if included in system design.

Installing the System

1. Install the system sand basal layer over the entire Infiltrator ATL System area as per design. System sand should be leveled and stabilized prior to introduction of the Infiltrator ATL conduit. Installer should retain records certifying that system sand meets ASTM C-33 requirements.
2. Remove plastic stretch wrap from Infiltrator ATL conduits.
3. Place Infiltrator ATL conduits on the surface of the system sand in the configuration shown on the system design. Using the provided 4-inch-diameter internal pipe couplings, connect the Infiltrator ATL conduits end-to-end to create rows of the required length.
4. Infiltrator ATL conduit shall be installed level. A laser level or transit is recommended to ensure proper alignment.
5. Infiltrator ATL conduit rows shall be:
 - installed on a level plane with one another;
 - be installed parallel to any contours; and
 - be separated by a minimum of 12 inches of system sand.
6. Install a cap on the end of each Infiltrator ATL conduit row that is not connected with piping.
7. Once the Infiltrator ATL conduit is placed on the surface of the system sand and distribution piping is connected to the conduits per design, additional system sand shall be ladled between and to the top of each of the Infiltrator ATL conduit rows. System sand shall also be installed on each side and at each end of the backfilled Infiltrator ATL conduit rows, per the design. This additional system sand shall be stabilized.

Installing Observation/Monitoring Ports

If observation or monitoring ports are specified in the system design:

1. Cut a 6-inch PVC pipe to the desired length, ensuring the pipe will extend a minimum of 6 inches above final grade.
2. Drill a minimum of ten $\frac{1}{4}$ " to $\frac{1}{2}$ " holes within $\frac{1}{2}$ to 6 inches of the bottom of the pipe, and wrap the bottom end of the pipe in filter fabric..
3. Install the monitoring pipe at the appropriate location, based on site conditions, and ensure the bottom of the pipe is at the bottom of the system sand footprint (at the system sand/native soil interface).
4. Install a removable, water-tight, secure cover cap.

Covering the System

NOTE: Before backfilling, the system shall be inspected and approved by a representative of the local health department, as required by the Sewage Handling and Disposal Regulations (12 VAC 5-610) and/or Alternative Onsite Sewage System Regulations (12 VAC 5-613) and in compliance with local ordinances and procedures.

1. Material placed around the system sand and atop the Infiltrator ATL conduit may be additional system sand or material meeting the Sewage Handling and Disposal Regulations (12VAC5-610) requirements. However, the final 6 inches placed atop or adjacent to the Infiltrator ATL System shall be comprised of material that will sustain plant growth.
2. Backfill the bed by pushing material over the Infiltrator ATL System. It is best to mound several extra inches of soil over the finish grade to allow for settling. This also ensures that runoff is diverted away from the system.

Note: Do not drive over the system while backfilling in sand.

3. After the system is covered, the site should be seeded or sodded to prevent erosion.

NOTE: If the system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the system location so they will not cross it with equipment or vehicles.

VIRGINIA SITE-SPECIFIC DESIGN FORM

Name of Home Owner: _____

System Street Address: _____ City: _____

Treatment Unit Capacity: _____ Daily Design Flow: _____

Date of Installation: _____ Installation Depth: _____

Pump Operating Conditions (if applicable): _____

Additional Information: _____

Site Layout



WARRANTY

INFILTRATOR WATER TECHNOLOGIES, LLC ("Infiltrator")
ATL SYSTEM STANDARD LIMITED WARRANTY

- (a) The structural integrity of the Infiltrator ATL System conduits manufactured by Infiltrator (collectively referred to as "Units"), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator's installation instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date upon which a septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required for the septic system by applicable law, the one (1) year warranty period will begin upon the date that installation of the septic system commences. In order to exercise its warranty rights, Holder must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for those Units determined by Infiltrator to be defective and covered by this Limited Warranty. Infiltrator's liability specifically excludes the cost of removal and/or installation of the Units.
- (b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
- (c) This Limited Warranty shall be void if any part of the ATL System components is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.
- Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator's installation instructions.
- (d) No representative of Infiltrator has the authority to change this Limited Warranty in any manner whatsoever, or to extend this Limited Warranty. No warranty applies to any party other than the original Holder.

The above represents the standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator's corporate headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.



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