Infiltrator Water Technologies
Part of ADS

Design and Installation Manual for the Infiltrator ATL System in New York

The purpose of this manual is to provide the minimum specifications for design and installation of the Infiltrator ATL System in New York. 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 10 NYCRR, Department of Health, Chapter II, Part 75*, Appendix 75-A Wastewater Treatment Standards – Individual Household Systems* and other state/local regulations, as applicable.

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

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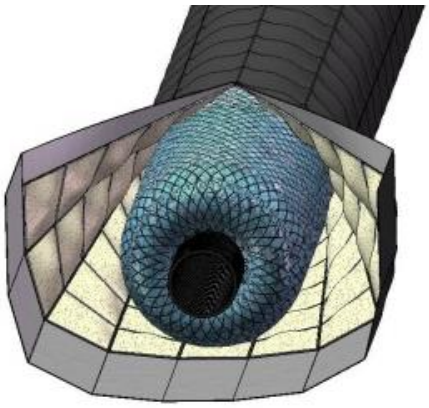
New York

The Infiltrator ATL System

The Infiltrator ATL System (ATL System) is a patent-pending, proprietary system consisting of six components. Upon entering the ATL System, 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.

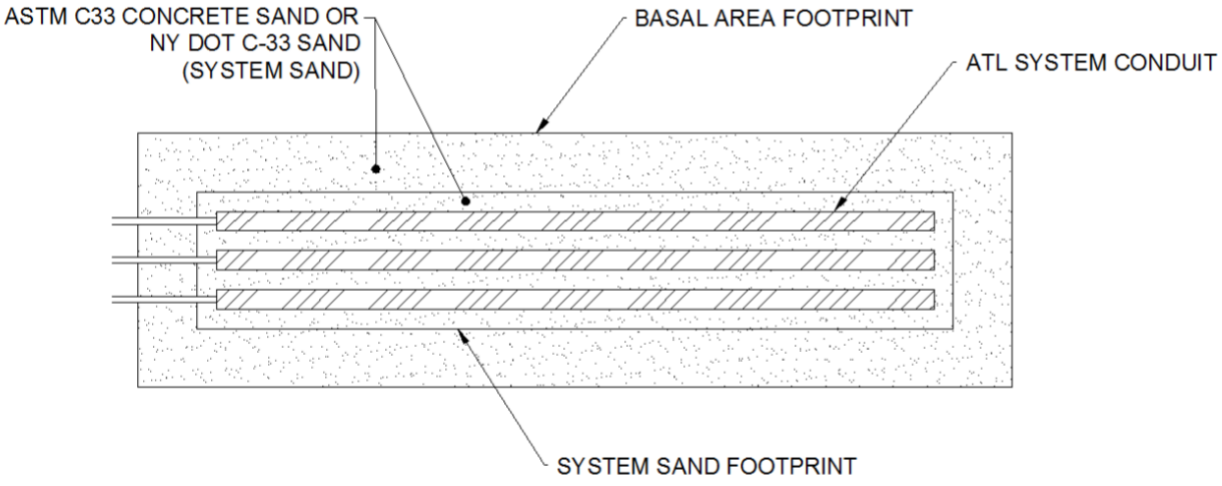


System Sand

"System sand" is the term used to describe the coarse sand material that surrounds the ATL System conduits. Acceptable material for use as system sand includes:

- material which meets ASTM C33 concrete sand specifications; or
- material which meets NY DOT C-33 sand specifications.

In this document, the "system sand footprint" refers to the surface onto which the ATL System conduits are placed and the 6 inches of component sand around the conduits. 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 New York

The ATL System is approved by the New York Department of Health for use in the State of New York in a number of applications in accordance with *Appendix 75-A Wastewater Treatment Standards – Individual Household Systems* (Appendix 75-A). Testing in accordance with NSF/ANSI Standard 40 has determined that the ATL System is capable of treating domestic strength wastewater to Class I levels. This treatment capability, as well as its geometry and storage capability, allow for design and installation of the ATL System in the State of New York as:

- a gravelless absorption system, in accordance with Appendix 75-A.8(c)(3)(ii);
- a gravelless geotextile sand filter, in accordance with Appendix 75-A.8(c)(3)(iii);
- a shallow absorption trench system, in accordance with Appendix 75-A.8(e);
- an absorption bed system, in accordance with Appendix 75-A.8(g);
- a raised system, in accordance with Appendix 75-A.9(b); and
- a mound system, in accordance with Appendix 75-A.9(c).

This Manual addresses each of these applications individually.

If design, installation, operation, or maintenance specifications are not specifically addressed in this manual, relevant requirements in 10 NYCRR, Department of Health, Chapter II, Part 75; Appendix 75-A, and all state and local requirements shall be applicable.

Siting - Slope Restrictions

Appendix 75-A establishes restrictions on the amount of slope a site may have in order to accommodate an onsite wastewater disposal system. The amount of allowable slope varies, based upon system type;. Table 1 details these restrictions. A Specific Waiver, in accordance with Appendix 75-A.11, may be issued to allow for design and installation of the ATL Systems on sites with slopes that exceed these restrictions.

System Type	Maximum Slope on Site
Trench	15%
Alternative System	15%
Mound	12%
Absorption Bed	8%

Table 1: Maximum allowable slope according to system type

Recommended Daily Design Flow

Subsection A.3 of Appendix 75-A details the minimum daily flows to be used for the design of individual household systems.

The minimum daily design flow for the ATL System in New York is 300 gallons per day. The ATL is approved for use in residential applications up to a maximum daily design flow of 1,000 gallons per day.

Maximum Length of Individual ATL Conduit Rows

Appendix 75-A of NYCRR10 Section 75 establishes a 60-foot length limit on individual disposal field lines, regardless of the media type. A Specific Waiver, in accordance with Appendix 75-A.11, may be issued to design and install the ATL System at individual conduit row lengths greater than 60 feet.

Horizontal and Vertical Separation Distances

Horizontal separation distances shall be measured as follows:

- in below-grade system applications, from the outside aspect of the system sand; and
- in above-grade system applications, from the edge of the system sand tapers.

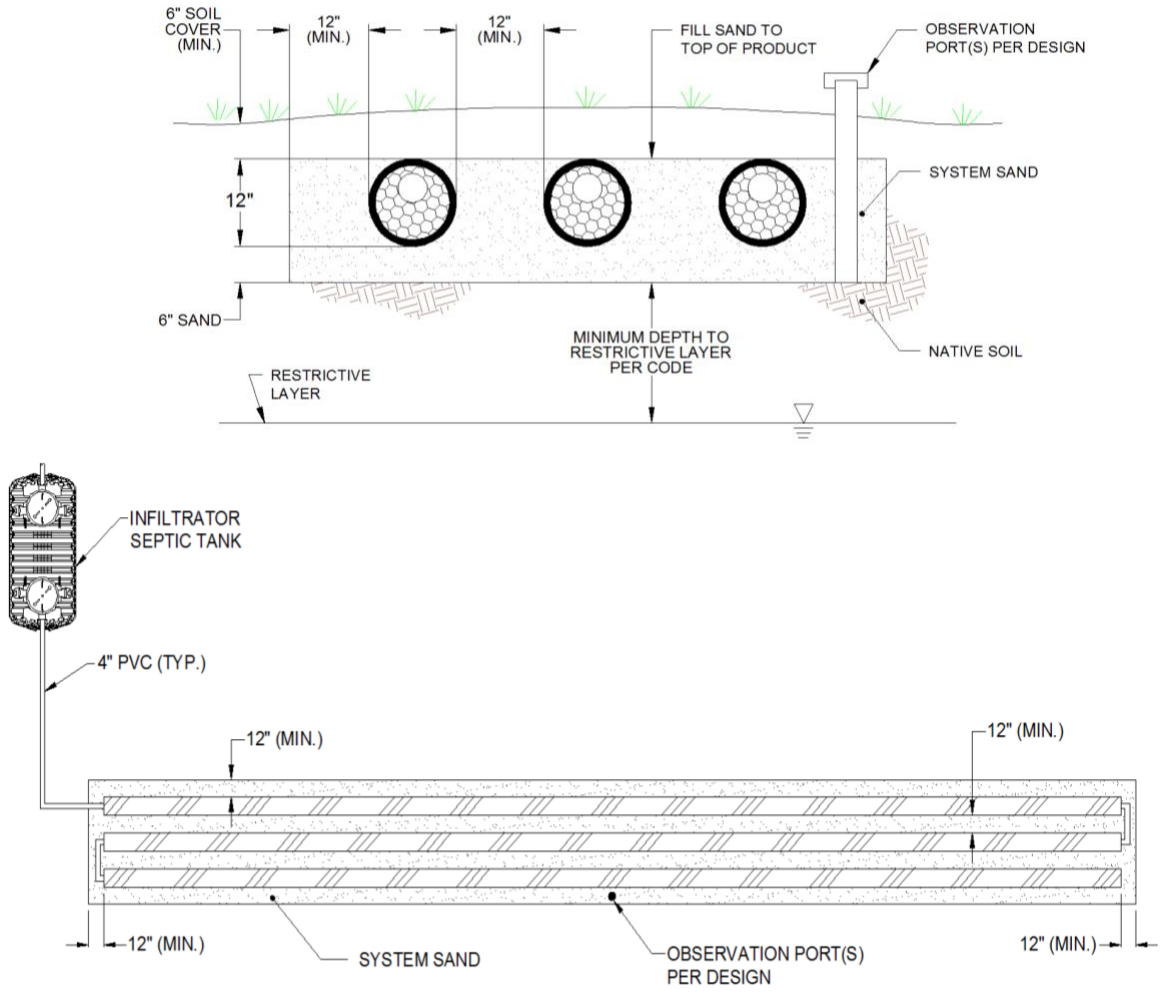
Vertical separation distances shall be measured from the bottom of the requisite six-inch layer of system sand.

Minimum Cover Requirements

The ATL System requires no system sand on top of the ATL conduit rows. A minimum of four-inches of material that is capable of sustaining plant growth shall be installed on top of the ATL System in all applications.

System Configurations

The Infiltrator ATL System can be designed for use on level, sloped, subsurface, and above-ground sites.

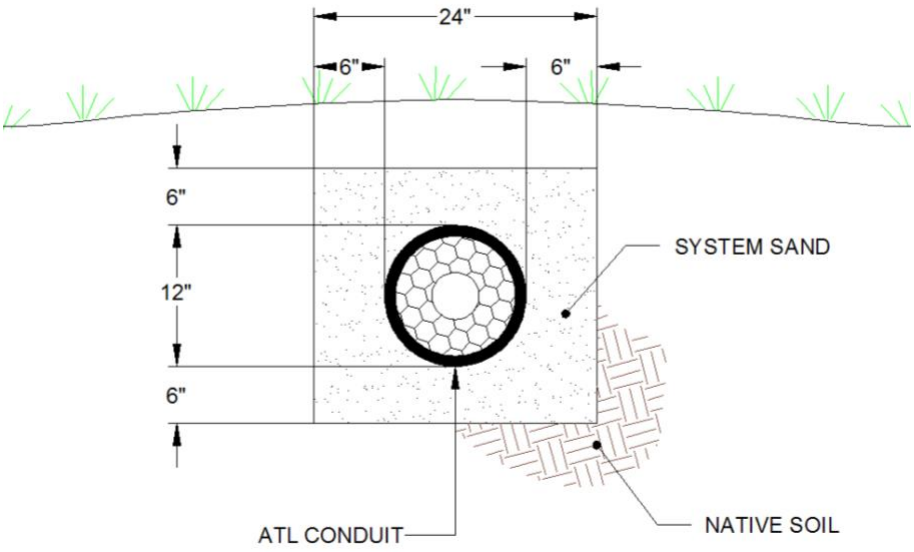


Approved ATL System Configurations

<u>Gravelless media-wrapped corrugated pipe sand-lined system</u>

The ATL System may be designed and installed in gravelless media-wrapped corrugated pipe sand-lined system applications in accordance with Appendix 75-A.8(c)(3)(ii). The design and installation of the ATL System in these applications includes the following:

- use of a 24-inch-wide trench, with 6 inches of system sand below, adjacent to, and on top of the ATL conduit; and
- allowance for a 25% reduction in the total absorption trench length as listed in Table 4A or as calculated from Table 4B.



Shallow absorption trench system and Cut and fill system

As an approved gravelless media-wrapped corrugated pipe sand-lined system, the ATL System may be designed and installed in shallow absorption trench system applications in accordance with Appendix 75-A.8(e), and cut and fill system applications in accordance with Appendix 75-A.8(f). In both applications the conditions cited above (24-inch wide trench and 25% absorption trench length reduction) may be applied to the ATL System design. The requirement for the use of aggregate is waived.

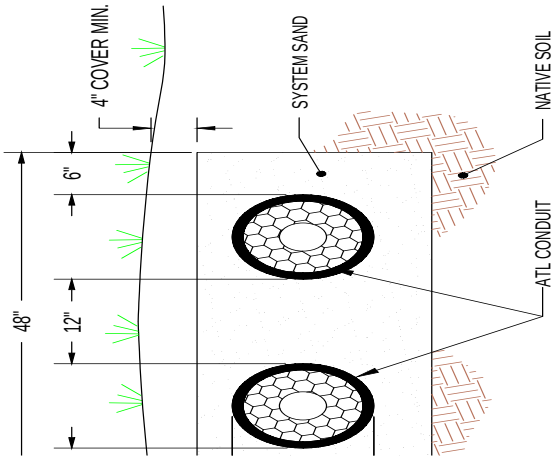
Raised system and Mound system

As an approved gravelless media-wrapped corrugated pipe sand-lined system, the ATL System may be designed and installed in raised system applications in accordance with Appendix 75-A.9(b), and mound system applications in accordance with Appendix 75-A.9(c). In these applications the 25% absorption trench length reduction is not applicable to the ATL System design. The requirement for the use of aggregate is waived.

Gravelless geotextile sand filter

The ATL System may be designed and installed in gravelless geotextile sand filter applications in accordance with Appendix 75-A.8(c)(3)(iii). The design and installation of the ATL System in these applications includes the following:

- use of a 4-foot wide trench, with 6-inches of system sand on the bottom;
- use of two ATL conduit rows, with 6-inches of system sand on each side of the ATL conduit (12-inches of system sand between the two ATL conduit rows); and 3-inches of system sand on top.
- 6-inches of system sand on both ends of each ATL conduit row; and
- allowance of 6 square feet of absorption area per linear foot of trench.



Absorption bed system

The ATL System may be designed and installed in absorption bed system applications in accordance with Appendix 75-A.8(g). The design and installation of the ATL System in these applications includes the following:

- use of either pressure distribution or dosing is allowed;
- requirements for the use of aggregate are waived;
- minimum of 70 linear feet of ATL conduit per bedroom;
- sizing in new construction applications is 1-to-1 with conventional pipe and aggregate; and
- sizing in replacement system applications includes allowance for 40% reduction in basal absorption area required. See Table 7 on page 16.

Gravelless Geotextile Sand Filter Design

- Trench system design is allowed in soils with percolation rates up to 60 mpi.
- Maximum length of trenches is 61 feet. Longer lengths may be allowed with the use of a Specific Waiver, in accordance with Appendix 75-A.11.
- Minimum daily design flow is 300 gallons per day.

Designing the Infiltrator ATL System in a gravelless geotextile sand filter application is a six-step process.

1. *Determine the daily design flow.*
2. *Determine the minimum total trench length required.*
3. *Calculate the number of trenches needed.*
4. *Design the gravelless geotextile sand filter configuration to fit the site.*
5. *Calculate amount of ATL conduit required.*
6. *Cross-check to ensure that amount of ATL conduit in the design meets minimum manufacturer's requirements. Make adjustments as necessary.*

Step 1: Determine the daily design flow.

Appendix 75-A.3 allows for design flow rates of 110, 130, and 150 gallons per bedroom per day, depending on the fixtures utilized in the residence. Use Appendix 75-A.3 to determine the system's daily design flow.

Step 2: Determine the minimum total trench length required.

Referencing Table 2, determine the minimum total trench length required based upon the daily design flow and the percolation rate on the site.

Minimum Total Trench Length Required (ft)								
Daily Design Flow (gpd)	Percolation Rate (mpi)							
	1-5	6-7	8-10	11-15	16-20	21-30	31-45	45-60
220	31	37	41	46	53	61	73	82
260	36	43	48	54	62	72	87	97
300	42	50	56	63	71	83	100	111
330	46	55	61	69	79	92	110	122
390	54	65	72	81	93	108	130	144
440	61	73	82	92	105	122	147	163
450	63	75	83	94	107	125	150	167
520	72	87	97	108	125	144	173	193
550	77	92	102	115	131	153	183	204
600	83	100	111	125	143	167	200	222
650	90	108	120	135	155	181	217	241
660	92	110	122	136	157	183	220	145
750	104	125	139	156	179	208	250	278
770	107	129	143	161	183	214	257	286
780	108	130	144	163	186	217	260	289
900	125	150	167	188	214	250	300	333

Table 2: Minimum total trench length required

Step 3: Calculate the number of trenches needed.

If no Specific Waiver has been issued, divide the total trench length required by 60, and round up to the nearest whole number. If a Specific Waiver has been issued siting the number of trenches, move to Step 4 using this number.

Step 4: Design the gravelless geotextile sand filter configuration to fit the site.

Make any adjustments to the trench lengths as determined in Steps 2 and 3 to (1) maximize the calculated length of the trenches and (2) meet any site constraints. If no specific site constraints exist, divide the minimum total trench length determined in Step 2 by the number of trenches determined in Step 3 and round up to the nearest whole number.

Step 5: Calculate amount of ATL conduit required.

Based upon the number and length of trenches (Steps 3 and 4), calculate the amount of ATL conduit required for the design by utilizing the following equation:

Total length of ATL conduit required =
final individual trench length x 2 rows per trench x number of trenches

Step 6: Cross-check to ensure that the designed amount of ATL conduit in the system meets the minimum manufacturer's requirements. Make adjustments as necessary.

The minimum total length of ATL conduit required by the manufacturer is provided in Tables 3, 4, and 5. If the minimum lengths required in Tables 3-5 are not met, the individual trench lengths must be extended to meet these requirements.

Appendix 75-A dictates that all trench lengths must be equal, and the minimum daily design flow for any ATL System is 300 gallons.

Number of Bedrooms	Daily Design Flow (gpd)	Minimum Length of ATL Conduit (ft)
2	220	100
3	330	150
4	440	200
5	550	250
6	660	300
Each Additional	110	50

Table 3: Infiltrator ATL System minimum ATL conduit length at 110 gallons per bedroom

Number of Bedrooms	Daily Design Flow (gpd)	Minimum Length of ATL Conduit (ft)
2	260	120
3	390	180
4	520	240
5	650	300
6	800	360
Each Additional	130	60

Table 4: Infiltrator ATL System minimum ATL conduit length at 130 gallons per bedroom

Number of Bedrooms	Daily Design Flow(gpd)	Minimum Length of ATL Conduit (ft)
2	300	140
3	450	210
4	600	280
5	750	350
6	900	420
Each Additional	150	70

Table 5: Infiltrator ATL System minimum ATL conduit length at 150 gallons per bedroom

Gravelless Geotextile Sand Filter Trench System Design Example

The following sample system design calculations are intended to illustrate the methodology for designing an Infiltrator ATL System in a gravelless geotextile sand filter application. The sample system design calculations are provided in the step-by-step format described above.

Sample system specifications:

- 3-bedroom home
- 110 gallons per bedroom
- Level site
- Percolation rate of 22 mpi

Step 1: Determine the daily design flow.

From the specifications above, the daily design flow is 330 gallons per day.

Step 2: Determine the minimum total trench length required.

From the specifications above, the percolation rate on the site is 22 mpi. Referencing Table 2, the minimum total trench length is 92 linear feet.

Minimum Total Trench Length Required (ft)								
Daily Design Flow (gpd)	**Percolation Rate (mpi)**							
	1-5	**6-7**	**8-10**	**11-15**	**16-20**	**21-30**	**31-45**	**45-60**
220	31	37	41	46	53	61	73	82
260	36	43	48	54	62	72	87	97
300	42	50	56	63	71	83	100	111
330	46	55	61	69	79	**92**	110	122
390	54	65	72	81	93	108	130	144
440	61	73	82	92	105	122	147	163
450	63	75	83	94	107	125	150	167
520	72	87	97	108	125	144	173	193
550	77	92	102	115	131	153	183	204
600	83	100	111	125	143	167	200	222
650	90	108	120	135	155	181	217	241
660	92	110	122	136	157	183	220	145
750	104	125	139	156	179	208	250	278
770	107	129	143	161	183	214	257	286
780	108	130	144	163	186	217	260	289
900	125	150	167	188	214	250	300	333

Table 2: Minimum total trench length required

Step 3: Calculate the number of trenches needed.

Divide the total trench length required by 60, and round up to the nearest whole number. As shown below, with a total trench length of 92, the minimum number of trenches needed is 2.

92 ÷ 60 = 1.53
Rounding up to the nearest whole number = 2

Note: Appendix 75-A limits individual row lengths to 60 feet. Longer lengths may be allowed with the use of a Specific Waiver in accordance with Appendix 75-A.11.

Step 4: Design the gravelless geotextile sand filter configuration to fit the site.

Divide the minimum total trench length determined in Step 2 (92 feet) by the number of trenches determined in Step 3 (2) and round up to the nearest whole number.

92 ft ÷ 2 trenches = 46 ft/trench
Rounding up to the nearest whole number = 46 ft/trench

Note: ATL conduit is manufactured in 10-foot lengths. The ATL conduit bundles can be cut to the specified length – in this instance, 6 feet – or each trench length can be extended from 46 to 50 feet for ease of installation.

Step 5: Calculate amount of ATL conduit required.

Based upon the number and length of trenches (Steps 3 and 4), calculate the amount of ATL conduit required for the design by utilizing the following equation. In this case, 184 feet of ATL conduit is required.

Total length of ATL conduit required =
46 ft x 2 rows per trench x 2 trenches = 184 ft of ATL conduit

Step 6: Cross-check to ensure that the minimum amount of ATL conduit in the system as designed meets minimum manufacturer's requirements. Make adjustments as necessary.

For a 3-bedroom home and daily design flow of 110 gpd per bedroom, use Table 3 to determine the manufacturer's minimum length of ATL conduit. In this case, the manufacturer requires a minimum of 150 linear feet of ATL conduit.

Given that the system design includes the use of 184 linear feet of ATL conduit, no adjustments are necessary.

Number of Bedrooms	Daily Design Flow (gpd)	Minimum Length of ATL Conduit (ft)
2	220	100
3	330	**150**
4	440	200
5	550	250
6	660	300
Each Additional	110	50

Table 3: Infiltrator ATL System minimum ATL conduit length at 110 gallons per bedroom

Bed Design

- Bed system design is allowed in soils with percolation rates up to 30 mpi for new construction, and up to 120 mpi for replacement systems.
- Maximum length of trenches is 61 feet. Longer lengths may be allowed with the use of a Specific Waiver in accordance with Appendix 75-A.11.
- Minimum daily design flow is 300 gallons per day.

Designing the Infiltrator ATL System in a bed system application for new construction is a six-step process.

1. *Determine the daily design flow.*
2. *Determine the minimum total sand bed area required.*
3. *Calculate the minimum total length of ATL conduit required.*
4. *Design the bed configuration to fit the site.*
5. *Calculate width of bed as designed.*
6. *Calculate sand bed area as designed to determine if minimum total system sand bed area requirement (Step 2) has been met. Extend design bed width if necessary.*

Step 1: Determine the daily design flow.

Appendix 75-A.3 allows for design flow rates of 110, 130, and 150 gallons per bedroom per day, depending on the fixtures utilized in the residence. Use Appendix 75-A.3 to determine the system's daily design flow.

The daily design flow can be calculated using the following equation:

Daily Design Flow = Design Flow Rate x Number of Bedrooms

Step 2: Determine the minimum total system sand bed area required.

Referencing Table 6, determine the minimum total system sand bed area required based upon the daily design flow and the percolation rate on the site.

Minimum Total System Sand Bed Area Required (sf) – New Construction						
Daily Design Flow (gpd)	**Percolation Rate (mpi)**					
	1-5	**6-7**	**8-10**	**11-15**	**16-20**	**21-30**
220	232	275	314	367	400	489
260	289	325	371	433	473	578
300	316	375	429	500	546	667
330	347	413	471	550	600	733
390	411	488	557	650	709	867
440	463	550	629	733	800	978
450	474	563	643	750	818	1000
520	547	650	743	867	946	1156
550	579	688	786	917	1000	1222
600	632	750	786	1000	1091	1333
650	684	813	929	1083	1182	1467
660	695	825	943	1100	1200	1467
750	790	938	1071	1250	1364	1667
780	821	975	1114	1300	1419	1733
900	947	1125	1286	1500	1637	2000

Table 6: Minimum total system sand bed area required – new system

Minimum Total System Sand Bed Area Required (sf) – Replacement System											
Daily Design Flow (gpd)	**Percolation Rate (mpi)**										
	1-5	**6-7**	**8-10**	**11-15**	**16-20**	**21-30**	**31-45**	**46-60**	**61-80**	**81-100**	**101-120**
220	139	165	188	220	257	293	328	379	440	524	667
260	165	195	222	260	283	347	388	448	520	619	788
300	190	226	256	300	326	400	448	517	600	714	909
330	209	248	282	330	357	440	493	569	660	786	1,000
390	247	293	333	390	424	520	582	672	780	929	1,182
440	278	330	376	440	478	587	657	759	880	1,048	1,333
450	285	338	393	450	489	600	672	776	900	1,071	1,364
520	329	391	444	520	565	693	776	897	1,040	1,238	1,758
550	348	414	470	550	598	733	821	948	1,100	1,310	1,667
600	380	451	513	600	652	800	896	1,034	1,200	1,429	1,818
650	411	489	555	650	707	867	970	1,121	1,300	1,548	1,970
660	418	496	564	660	717	880	985	1,138	1,320	1,571	2,000
750	475	564	641	750	815	1,000	1,119	1,293	1,500	1,786	2,273
780	494	586	667	780	848	1,040	1,164	1,345	1,560	1,857	2,364
900	570	677	769	900	978	1,200	1,343	1,552	1,800	2,143	2,727

Table 7: Minimum total system sand bed area required – replacement system

Step 3: Calculate the minimum total length of ATL conduit required.

Referencing Table 8, determine the minimum total length of ATL conduit required.

Number of Bedrooms	Minimum Length of ATL Conduit (ft)
2	140
3	210
4	280
5	350
6	420

Table 8: Minimum total length of ATL conduit required

Step 4: Design the bed configuration to fit the site.

Select the appropriate ATL conduit row length and number of rows to meet the minimum total length of ATL conduit requirements (Step 3) and any site constraints. Long and narrow bed configurations are preferred.

To accomplish this, use the following equations:

Number of ATL Conduit Rows = Minimum Total Length of ATL Conduit ÷ 60
Round up to the nearest whole number

Length of ATL Conduit Rows = Minimum Total Length of ATL Conduit ÷ Number of ATL Conduit Rows
Round up to the nearest whole number

Total Length of ATL Conduit Provided = Number of ATL Conduit Rows x Length of ATL Conduit Rows

Note: Appendix 75-A limits individual row lengths to 60 feet. Longer lengths may be allowed with the use of a Specific Waiver in accordance with Appendix 75-A.11.

Step 5: Calculate width of bed as designed.

Based upon the number of ATL conduit rows and the length of each conduit row (Step 4), calculate the design bed width by utilizing the following information:

- each ATL conduit row is 1-foot wide;
- the system sand between each conduit row will be a minimum of 1-foot wide; and
- the system sand on the outside aspect of each ATL conduit row with no conduit row adjacent to it will be 1-foot.

With this in mind, the minimum width is calculated using the following formula:

Minimum Bed Width = 1+ (2 x Number of ATL rows)

Step 6: Calculate sand bed area as designed to determine if minimum total system sand bed area requirement has been met. Extend design bed width if necessary.

The sand bed area as designed (ATL conduit row length from Step 4 and sand bed width from Step 5) must equal the minimum sand bed area required (Step 2). If it does not, then the design bed width must be extended to meet the minimum bed area requirements.

The design bed area is calculated using the following equation:

Design Bed Area = (Design Conduit Row Length + 1) x (Design Bed Width)

Note: Length of individual ATL conduit rows as calculated in Step 4 must be extended by 1-foot to account for the 6-inch sand extensions on each end of all ATL conduit rows.

Sample Bed System Design Calculations – New Construction

The following sample system design calculations are intended to illustrate the methodology for designing an Infiltrator ATL System in a bed system application for new construction. The sample system design calculations are provided in the step-by-step format described above.

Sample system specifications:

- 3-bedroom home, new construction
- 110 gallons per bedroom
- Level site
- Percolation rate of 22 mpi

Step 1: Determine the daily design flow.

Appendix 75-A.3 allows for design flow rates of 110, 130, and 150 gallons per bedroom per day, depending on the fixtures utilized in the residence. The specified design flow rate is 110 gallons per day per bedroom, and the number of bedrooms is 3. Therefore, the daily design flow is 330 gpd.

Step 2: Determine the minimum total system sand bed area required

Referencing Table 6, the minimum total system sand bed area required based upon the daily design flow of 330 gpd and the percolation rate of 22 mpi is 733 square feet.

Minimum Total System Sand Bed Area Required (sf)						
Daily Design Flow (gpd)	**Percolation Rate (mpi)**					
	1-5	**6-7**	**8-10**	**11-15**	**16-20**	**21-30**
220	232	275	314	367	400	489
260	289	325	371	433	473	578
300	316	375	429	500	546	667
330	347	413	471	550	600	**733**
390	411	488	557	650	709	867
440	463	550	629	733	800	978
450	474	563	643	750	818	1000
520	547	650	743	867	946	1156
550	579	688	786	917	1000	1222
600	632	750	786	1000	1091	1333
650	684	813	929	1083	1182	1467
660	695	825	943	1100	1200	1467
750	790	938	1071	1250	1364	1667
780	821	975	1114	1300	1419	1733
900	947	1125	1286	1500	1637	2000

Table 6: Minimum total system sand bed area required – new system

Step 3: Calculate the minimum total length of ATL conduit required

Referencing Table 7 (below), the minimum total length of ATL conduit required is 210 linear feet.

Number of Bedrooms	Minimum Length of ATL Conduit (ft)
2	140
3	**210**
4	280
5	350
6	420

Table 8: Minimum total length of ATL conduit required

Step 4: Design the bed configuration to fit the site

Divide the minimum total length of ATL conduit required (210 linear feet) by 60, and round up to the nearest whole number.

Number of ATL Conduit Rows = Minimum Total Length of ATL Conduit ÷ 60
Number of ATL Conduit Rows = 210 linear feet ÷ 60 feet per row = 3.5 rows
*Round up to **4 rows***

Length of ATL Conduit Rows = Minimum Total Length of ATL Conduit ÷ Number of ATL Conduit Rows
Length of ATL Conduit Rows = 210 linear feet ÷ 4 rows = 52.5 linear feet per row
*Round up to **53 feet per row***

Total Length of ATL Conduit Provided = Number of ATL Conduit Rows x Length of ATL Conduit Rows
*Total Length of ATL Conduit Provided = 53 linear feet per row X 4 rows = **212 linear feet of ATL conduit***

Step 5: Calculate width of bed as designed

Calculate the design bed width using the following equation:

Design Bed Width = 1+ (2 x Number of ATL rows)
*Design Bed Width = 1 + (2 x 4) = 1 + (8) = **9 feet***

Step 6: Calculate sand bed area as designed to determine if minimum total system sand bed area requirement (Step 2) has been met. Extend design bed width if necessary.

Calculate the design bed area using the following equation:

Design Bed Area = (Design Conduit Row Length + 1) x (Design Bed Width)
Design Bed Area = (53 ft + 1) x (9 ft) = ***486 ft²***

Since the design bed area (486 ft^2) is smaller than the minimum total system sand bed area required (733 ft^2), the bed width as designed must be widened to provide the minimum sand bed area.

Divide the required basal area by the length of the system sand:

733 ft^2 ÷ (53 + 1) ft = 13.6 ft

Subtract the original system sand footprint width from the above adjusted system sand footprint width:

13.6 ft - 9 ft = 4.6 ft

Divide the additional required width by 2 to determine the sand extension to add to each side of the system sand footprint width:

4.6 ft ÷ 2 = 2.3 ft

The system sand width must be widened by 4.6 feet, by adding 2.3 feet of system sand to each side, resulting in a total width of 13.6 ft.

Calculate the modified design system sand bed area to ensure the minimum sand bed area is met.

Design Bed Area = (Design Conduit Row Length + 1) x (Design Bed Width)
Design Bed Area = (53 ft + 1) x (13.6 ft) = ***734 ft²***

Information for System Owners

Basic rules of onsite sewage treatment system use and care apply to the ATL System. System owners shall operate the system in accordance with the procedures and specifications of all state and local regulations, as well as the following:

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
    - Do not connect the rainwater management system to the Infiltrator ATL System.
    - 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.

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 a maintenance provider on an annual basis.
- 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 qualified onsite wastewater system professional 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 Systems, Inc. Technical Department at 1-800-221-4436.

System Start-up

There are no specific requirements for placing the ATL System into service. If the system has an alarm, the property owner should, after system use has been initiated, test the alarm to ensure it is functional.

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 onsite wastewater system professional.

- Wastewater back-up into the dwelling
- Persistent septic odor
- Unusually wet area atop and/or around the system
- "Breakout" of effluent along the side of a slope or other landscape feature

Repair

A licensed onsite wastewater system professional shall be contacted when there are indications of malfunction with the Infiltrator ATL System. When visiting the site, the licensed onsite wastewater system professional should, 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 the site for groundwater intrusion
- Inspect the septic tank
- Inspect the Infiltrator ATL System conduit lines
- Check faucet and toilet function

Upon completion of the site visit, the licensed onsite wastewater system professional should contact the Infiltrator Systems, Inc. Technical Department with his or her report.

Before You Begin

These general installation instructions are for the Infiltrator ATL System in New York. Infiltrator ATL Systems may only be installed according to this manual, Appendix 75-A of NYCRR10 Section 75, and state and local regulations.

If unsure of the installation requirements for a given site, contact your local health department. If unsure of the use of the Infiltrator ATL System, contact Infiltrator Water Technologies. 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

- ☐ Infiltrator ATL System conduits
- ☐ System sand
- ☐ PVC pipe and couplings
- ☐ Backhoe
- ☐ Laser, transit or level
- ☐ Shovel and rake
- ☐ 4-inch inspection port and cap
- ☐ Endcaps
- ☐ Infiltrator ATL System conduit internal pipe couplers
- ☐ 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 trenches or bed area or till the ground, per design.
4. Rake the trench or 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 each trench, or the bed area, is at the proper slope from side-to-side and from end-to-end using a level, transit, or laser.

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 verifying that system sand meets ASTM C33 or NYDOT C-33 sand specifications.
2. Remove plastic stretch wrap from Infiltrator ATL conduits.
3. Place Infiltrator ATL conduits on the surface of the system sand with the white stripe/seam in the 12 o'clock position, arranged 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;
    - be separated by a minimum of 12 inches of system sand; and
    - be installed with the white stripe/seam oriented in the 12 o'clock position.
6. In serial distribution applications, use of an offset adapter is recommended.
7. Install a cap on the end of each Infiltrator ATL conduit row that is not connected with piping.
6. 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 ¼" to ½" holes within ½ 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 in compliance with state and local ordinances and procedures.*

1. Material placed around the system sand and atop the Infiltrator ATL conduit may be additional system sand or material which meets the requirements of Appendix 75-A of NYCRR10 Section 75. However, the final 4 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. Keep a minimum of 12 inches of consolidated cover over the Infiltrator ATL conduits before driving over 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. The maximum depth of cover over the Infiltrator ATL system is 8 feet.

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.*

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.

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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.

Infiltrator™
Water Technologies
Part of ADS
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800-221-4436

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