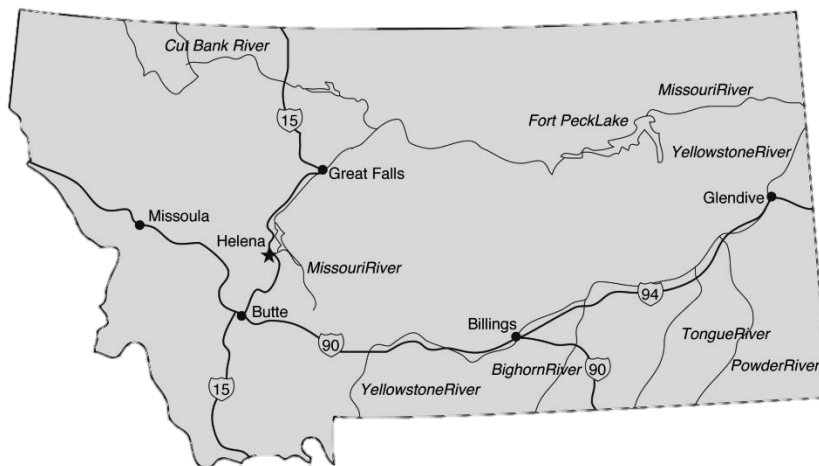


# Design and Installation Manual for the Infiltrator ATL™ System in Montana



The purpose of this manual is to provide the minimum specifications for design and installation of the Infiltrator ATL (Advanced Treatment Leachfield) System in Montana. 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 Montana Standards for Subsurface Wastewater Treatment Systems, Circular DEQ 4, and state/local regulations, as applicable.

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

## Infiltrator ATL System in Montana

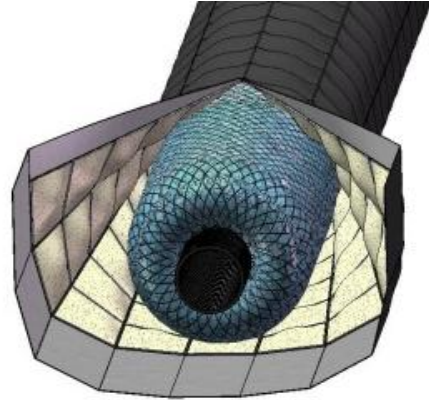
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# Montana

### 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.

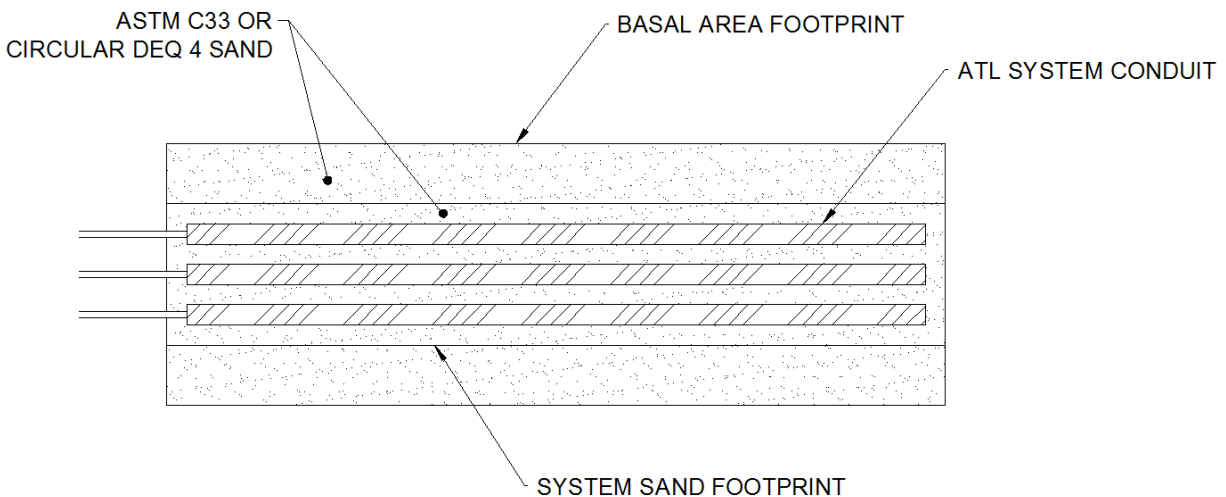


### System Sand

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

- material which meets ASTM C33 concrete sand specifications; or
- sand as described in section 6.7.3.4.(B) of the Montana Standards for Subsurface Wastewater Treatment Systems, Circular DEQ 4 (Circular DEQ 4).

In this document, the “system sand footprint” refers to the surface onto which the Infiltrator 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.



The ATL System has been reviewed by the State of Montana Department of Environmental Quality for use as an advanced treatment system in accordance with Circular DEQ 4. Infiltrator ATL System use as described in this manual is based upon system testing in accordance with NSF/ANSI Standard 40, which has determined that the ATL System is capable of treating domestic strength wastewater to Class I (secondary treatment) levels. If design, installation, operation, or maintenance specifications are not specifically addressed in this manual, relevant requirements in Circular DEQ 4 shall be applicable.

### **Infiltrator ATL System Design and Circular DEQ 4**

The Infiltrator ATL System may be designed for use in both absorption trench and bed applications. All design criteria detailed in Circular DEQ 4 shall be applicable to the Infiltrator ATL System, with the exception of the following:

Section 6.1.3.3.: There is no minimum absorption trench wall separation distance for the Infiltrator ATL System. ATL conduit rows must be separated with at least 12 inches of system sand, and the center-to-center spacing of the outermost ATL conduit rows shall be no greater than 14 feet.

Section 6.1.3.4.: For the purposes of sizing, the maximum ATL absorption trench width shall be 48 inches.

Section 6.1.4.3.: Infiltrator ATL System design does not include a requirement for a separate subsurface absorption replacement area.

### **Infiltrator ATL System Siting**

The Infiltrator ATL System shall be designed and installed only on sites which provide a minimum of 12 inches of natural, unsaturated soil. If any part of the Infiltrator ATL System extends above original grade, the system requires tapering. Tapering on all sides shall have a minimum 2:1 slope; however, in sloped system applications the downslope side shall be tapered at a minimum 3:1 slope.

### **Sloped Sites**

The Infiltrator ATL System may be designed and installed on sites with slopes up to 33%. When designed and installed on a sloped site, a 2.5-foot-long, 6-inch-deep sand extension must be added to the downslope side of the system sand footprint. A site is considered to be sloped if the natural grade is greater than 5%.

### **Fill material**

Fill material may be used to raise the elevation of the Infiltrator ATL System to meet vertical separation distance requirements, and to construct side slope tapering. Acceptable fill material shall be bank run sand which meets the requirements of Circular DEQ 4.

In lieu of fill material, native soil may be used to construct side slope tapers where applicable.

### Horizontal Separation Distances

Horizontal setback distances are measured from the outer aspect of the Infiltrator ATL conduit.

### Vertical Separation Distances

Vertical separation distances are measured from the bottom of the 6-inch deep basal area footprint system sand.

### Dosing

When pumps are used to supply effluent from the septic tank to the Infiltrator ATL System, effluent shall be pumped to a distribution box and gravity fed to the Infiltrator ATL System from that point.

The dosing volume shall be at the discretion of the designer. If in need of guidance then ISI recommends a maximum of 1/3 of the daily design flow, to a maximum of a half-gallon per linear foot of ATL conduit, whichever is less.

### Cover

Minimum cover material for the Infiltrator ATL System shall be 6" and shall be comprised of material which is capable of sustaining plant growth.

### Minimum Sand Requirements

The Infiltrator ATL System can be designed for use in all applications as described in Circular DEQ 4. The following system sand dimensions are required for all Infiltrator ATL System configurations:

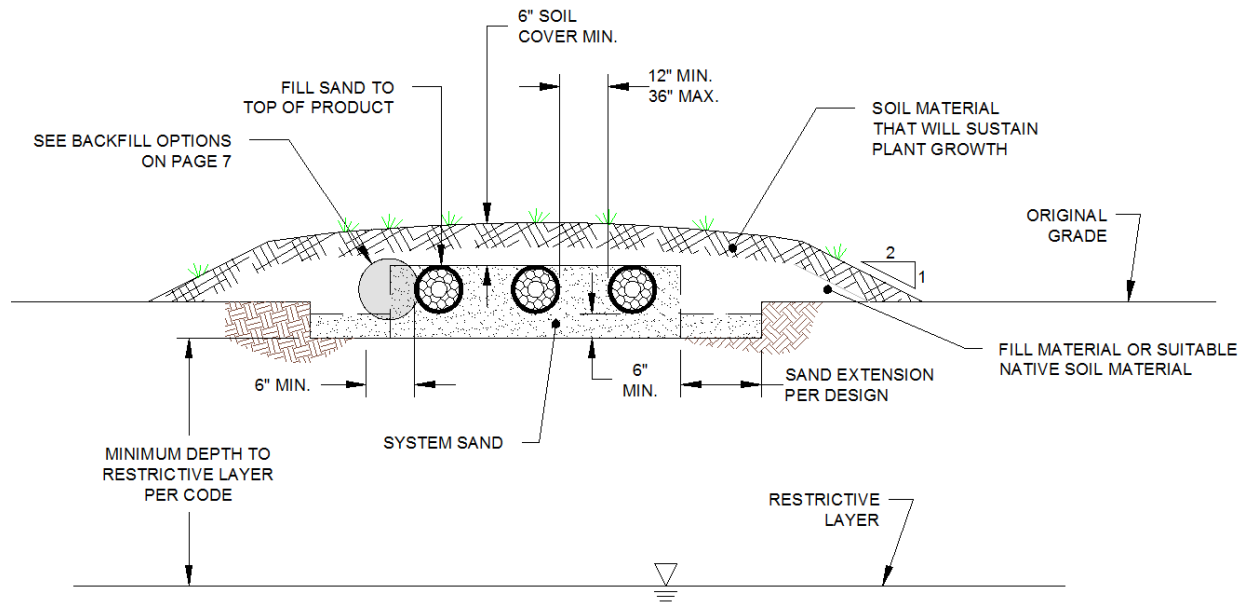
- a minimum of 6 inches of system sand below the Infiltrator ATL conduit rows;
- between 12 and 36 inches of system sand between adjacent Infiltrator ATL conduit rows;
- a 6-inch system sand extension on both sides and ends of the Infiltrator ATL conduit rows;
- a minimum 2.5-foot sand extension on the downslope side on sites with greater than 5% slope;
- and
- no system sand on top of the Infiltrator ATL conduit rows.

# SYSTEM CONFIGURATIONS

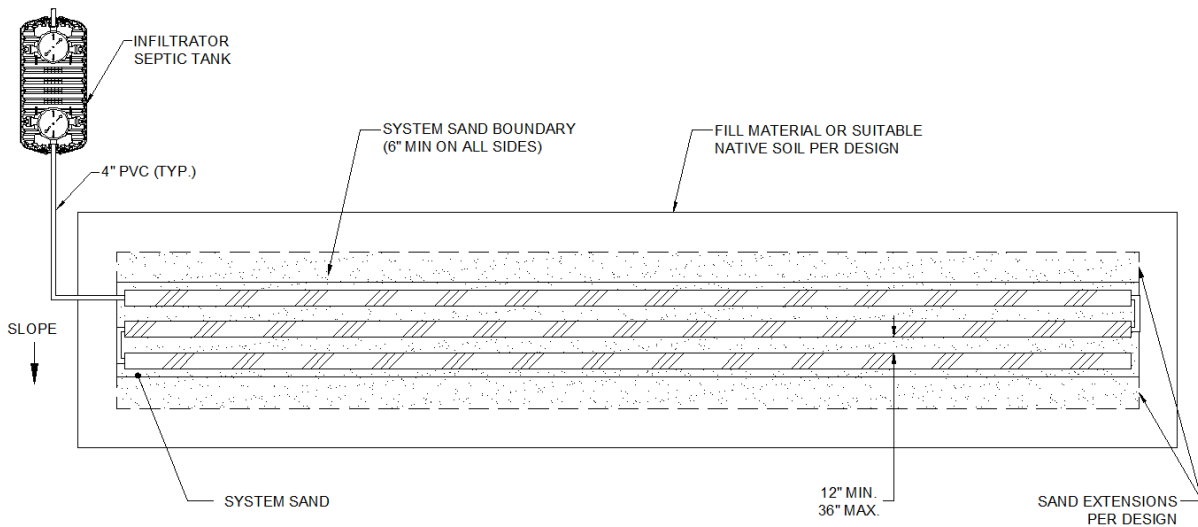
## Level Systems

(≤5% slope)

### Cross-Section View



### Plan View



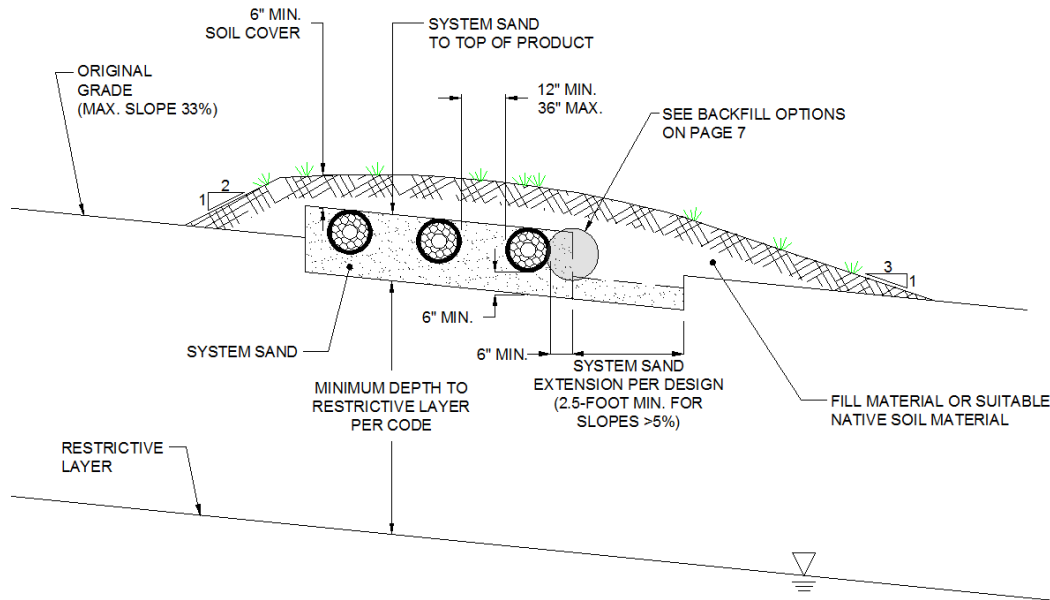
### NOTES:

1. Number and length of conduit rows per design.
2. Serial distribution shown, but system may be served by distribution box or manifold to provide parallel distribution.
3. Pumping is not required unless gravity flow cannot be achieved.

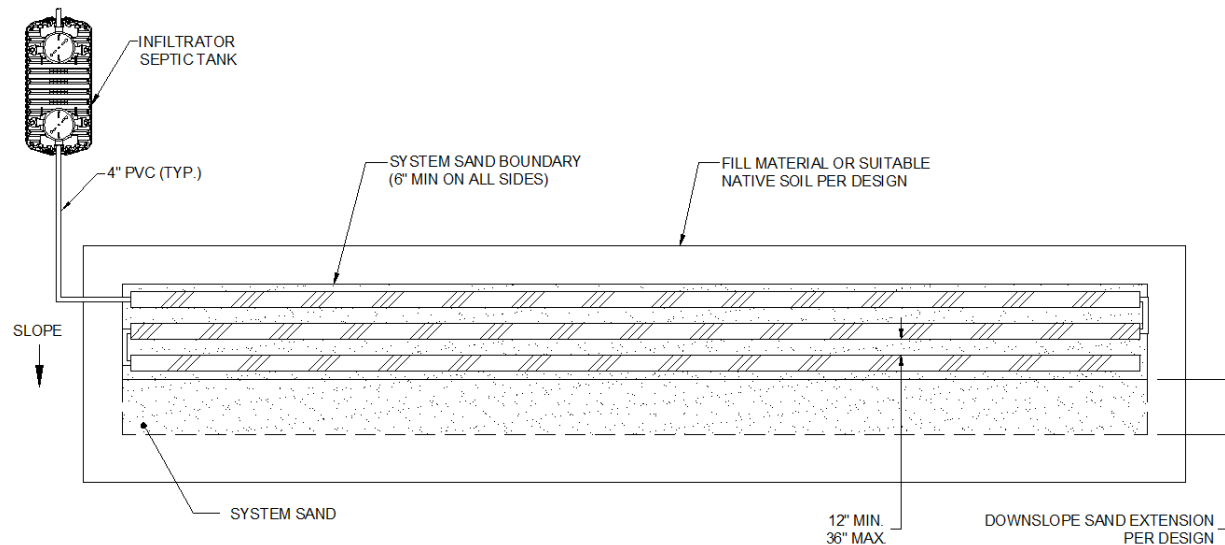
## Sloped Systems

(>5% slope)

### Cross-Section View



### Plan View

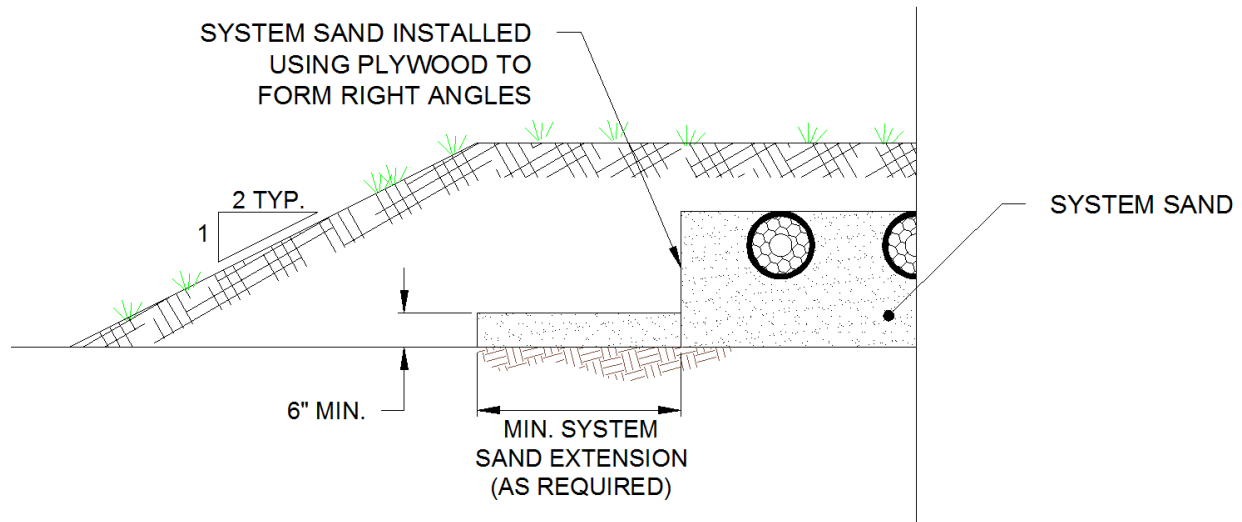


### NOTES:

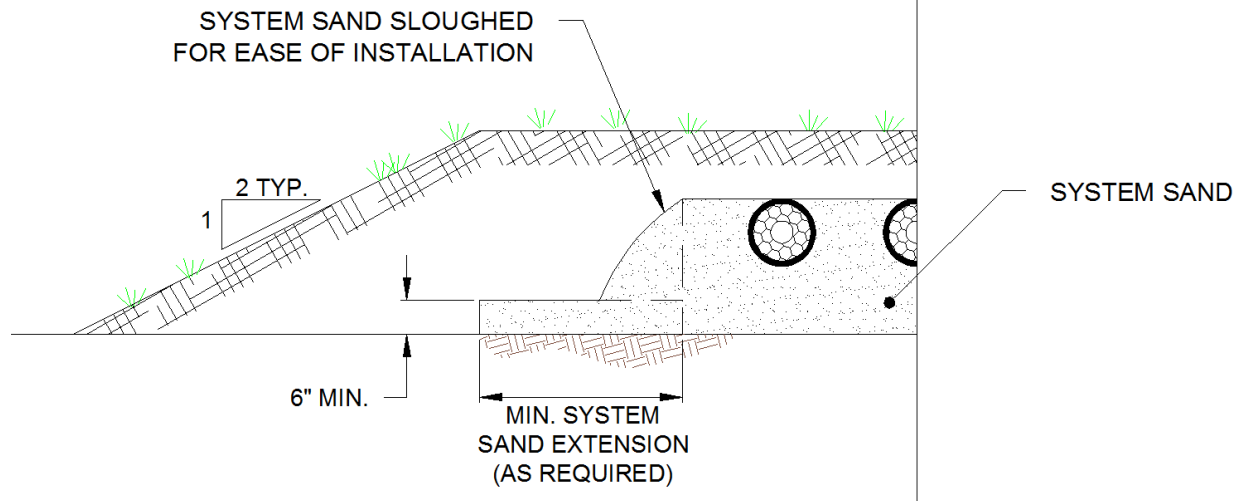
1. Number and length of conduit rows per design.
2. The minimum downslope sand extension is 2.5 feet for sites with slopes greater than 5%.
3. Pumping is not required unless gravity flow cannot be achieved.

## Backfilling Options

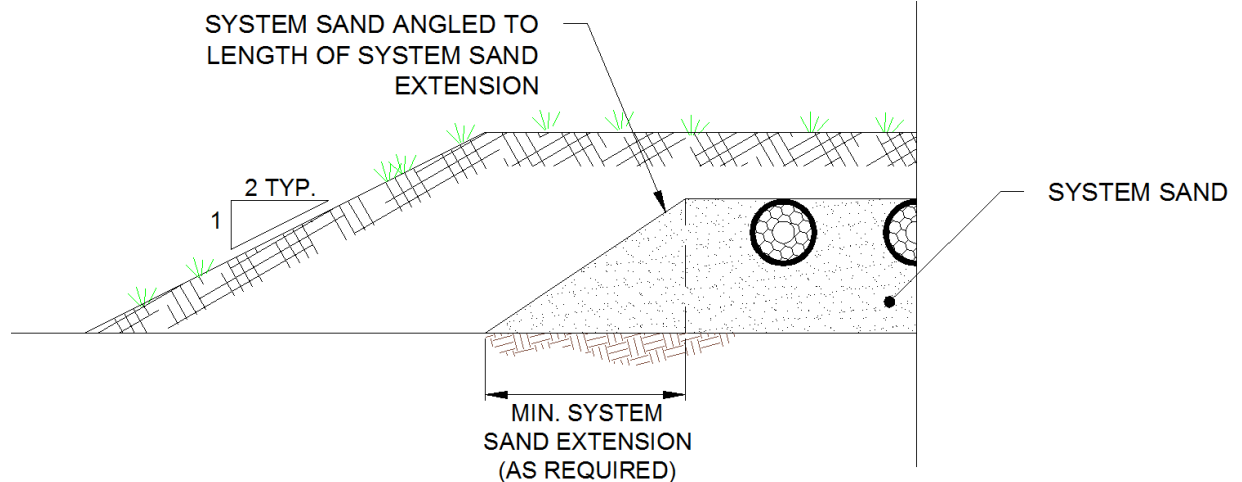
### Option 1



### Option 2



### Option 3



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

1. *Determine the minimum total Infiltrator ATL conduit length*
2. *Design the system sand configuration*
3. *Determine the appropriate application rate*
4. *Determine the minimum basal area footprint*
5. *Make area adjustments, as necessary*

**Step 1: Determine the minimum total Infiltrator ATL conduit length**

Determine the minimum length of Infiltrator ATL conduit from Table 1, based on the percolation rate.

Percolation Rate (mpi)	Minimum Length of ATL per Bedroom (ft)
1-15	50
16-30	60
31-40	70
41-50	
51-60	
61-120	

**Table 1:** Minimum required Infiltrator ATL conduit length

**Step 2: Design the system sand configuration**

Use Table 2 to determine the minimum system sand footprint using the minimum total length of Infiltrator ATL conduit as determined from Table 1 and the number of rows into which the total length of conduit will be divided.

Minimum Length of ATL Conduit (ft)	Minimum System Sand Dimensions and Area							
	2 Conduit Rows		3 Conduit Rows		4 Conduit Rows		5 Conduit Rows	
	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)
100	4' x 51'	204	6' x 35'	210	8' x 26'	208	10' x 21'	210
120	4' x 61'	244	6' x 41'	246	8' x 31'	248	10' x 25'	250
140	4' x 71'	284	6' x 48'	288	8' x 36'	288	10' x 29'	290
150	4' x 76'	304	6' x 51'	306	8' x 39'	312	10' x 31'	310
180	4' x 91'	364	6' x 61'	366	8' x 46'	368	10' x 37'	370
200	NA*	NA	6' x 68'	408	8' x 51'	408	10' x 41'	410
210	NA*	NA	6' x 71'	426	8' x 54'	432	10' x 43'	430
240	NA*	NA	6' x 81'	486	8' x 61'	488	10' x 49'	490
250	NA*	NA	6' x 85'	510	8' x 64'	512	10' x 51'	510
280	NA*	NA	6' x 95'	570	8' x 71'	568	10' x 57'	570
300	NA*	NA	NA*	NA	8' x 76'	608	10' x 61'	610
350	NA*	NA	NA*	NA	8' x 89'	712	10' x 71'	710

**Table 2:** Minimum system sand dimensions and area

*\*Configurations exceed the maximum conduit length of 100 feet per row*



## SYSTEM DESIGN

**NOTE:** The Infiltrator ATL System conduit rows must be extended to within 6 inches of each end of the bed. ATL conduits may be cut to meet these minimum requirements or extended to the nearest ten-foot length for ease of installation.

### Step 3: Determine the appropriate application rate

Following the soil and site evaluation practices described in Circular DEQ 4, use Table 3 to determine the appropriate application rate.

Texture	Percolation Rate (mpi)	ATL System Application Rate (gpd/ft <sup>2</sup> )
Gravelly sand, or very coarse sand	<3	1.6
Loamy sand, coarse sand	3 - 5	1.6
Medium sand, sandy loam	6 - 9	1.2
Fine sandy loam, loam, silt loam	10 - 15	1.0
Very fine sand, sandy clay loam	16 - 30	0.8
Clay loam, silty clay loam	31 - 50	0.6
Sandy clay, clay, or silty clay	51 - 79	0.266
Clays, silts, silty clays (Soil is reported throughout the soil profile)(Use EVTA BED)	80 - 120	0.2
Clays or silts, pan evaporation rates do not allow for EVTA use	>120	Not Permitted

**Table 3:** Soil hydraulic loading rates for the ATL System

### Step 4: Determine the minimum basal area footprint

Determine the minimum required basal area footprint using the application rate (determined in Step 3) and Table 4.

Application Rate (gpd/sf)	Minimum Basal Area (sf)				
	2 Bedroom (225 gal)	3 Bedroom (300 gal)	4 Bedroom (350 gal)	5 Bedroom (400 gal)	Each Add'l (50 gal)
1.6	141	188	219	250	32
1.2	188	250	292	334	42
1.0	225	300	350	400	50
0.8	282	375	438	500	63
0.6	375	500	584	667	84
0.266	846	1,128	1,316	1,504	188
0.2	1,125	1,500	1,750	2,000	250

**Table 4:** Minimum basal area footprint for the ATL System

### ***Step 5: Make area adjustments, as necessary***

The minimum areas determined in Steps 2 and 4 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 footprint determined in Step 4 is smaller than the area of the system sand footprint determined in Step 3, no adjustments are necessary.
- If the minimum basal area footprint determined in Step 4 is larger than the area of the system sand footprint determined in Step 3, the system footprint must be increased to meet the minimum requirements determined in Step 4.

### ***NOTE:***

1. *If the site includes a slope greater than 5%, a 2.5-foot-wide sand extension must be added to the downslope side of the system. This additional area is included in the basal area calculations.*
2. *In most instances, the width of the system is extended to increase the basal area footprint.*

## DESIGN EXAMPLE

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

### Example I:

Sample system specifications:

- 4-bedroom home
- Sandy clay loam with 25 minute percolation rate
- Level site

### Step 1: Determine the minimum total Infiltrator ATL conduit length

Based on the sample system specifications and Table 1, the minimum total Infiltrator ATL conduit length is 60 feet per bedroom, or 240 linear feet total.

Percolation Rate (mpi)	Minimum Length of ATL per Bedroom (ft)
1-15	50
<b>16-30</b>	<b>60</b>
31-40	70
41-50	
51-60	
61-120	

**Table 1:** Minimum required Infiltrator ATL conduit length

### Step 2: Design the system sand configuration

Per Table 2, a 240-foot conduit length can be arranged in the following configurations:

- 3 conduits wide – 6 ft wide x 81 ft long (486 sf)
- 4 conduits wide – 8 ft wide x 61 ft long (488 sf)
- 5 conduits wide – 10 ft wide x 49 ft long (490 sf)

Minimum Length of ATL Conduit (ft)	Minimum System Sand Dimensions and Area							
	2 Conduit Rows		3 Conduit Rows		4 Conduit Rows		5 Conduit Rows	
	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)
100	4' x 51'	204	6' x 35'	210	8' x 26'	208	10' x 21'	210
120	4' x 61'	244	6' x 41'	246	8' x 31'	248	10' x 25'	250
140	4' x 71'	284	6' x 48'	288	8' x 36'	288	10' x 29'	290
150	4' x 76'	304	6' x 51'	306	8' x 39'	312	10' x 31'	310
180	4' x 91'	364	6' x 61'	366	8' x 46'	368	10' x 37'	370
200	NA*	NA	6' x 68'	408	8' x 51'	408	10' x 41'	410
210	NA*	NA	6' x 71'	426	8' x 54'	432	10' x 43'	430
<b>240</b>	<b>NA*</b>	<b>NA</b>	<b>6' x 81'</b>	<b>486</b>	<b>8' x 61'</b>	<b>488</b>	<b>10' x 49'</b>	<b>490</b>
250	NA*	NA	6' x 85'	510	8' x 64'	512	10' x 51'	510

**Table 2:** Minimum system sand dimensions and area

## DESIGN EXAMPLE

**NOTE:** The Infiltrator ATL System conduit rows must be extended to within 6 inches of each end of the bed. ATL conduits may be cut to meet these minimum requirements or extended to the nearest ten-foot length for ease of installation.

### Step 3: Determine the appropriate application rate

Based on the sample system soil specifications and Table 3, the application rate is 0.8 gpd/ft<sup>2</sup>.

Texture	Percolation Rate (mpi)	ATL System Application Rate (gpd/ft <sup>2</sup> )
Gravelly sand, or very coarse sand	<3	1.6
Loamy sand, coarse sand	3 - 5	1.6
Medium sand, sandy loam	6 - 9	1.2
Fine sandy loam, loam, silt loam	10 - 15	1.0
<b>Very fine sand, sandy clay loam</b>	<b>16 - 30</b>	<b>0.8</b>
Clay loam, silty clay loam	31 - 50	0.6
Sandy clay, clay, or silty clay	51 - 79	0.266
Clays, silts, silty clays (Soil is reported throughout the soil profile)(Use EVTA BED)	80 - 120	0.2
Clays or silts, pan evaporation rates do not allow for EVTA use	>120	Not Permitted

**Table 3:** Soil hydraulic loading rates for the ATL System

### Step 4: Determine the minimum basal area footprint

Referencing Table 4 and using the application rate of 0.8 gpd/ft<sup>2</sup> as determined in Step 3, the minimum basal area is 438 sf.

Application Rate (gpd/sf)	Minimum Basal Area (sf)				
	2 Bedroom (225 gal)	3 Bedroom (300 gal)	4 Bedroom (350 gal)	5 Bedroom (400 gal)	Each Add'l (50 gal)
1.6	141	188	219	250	32
1.2	188	250	292	334	42
1.0	225	300	350	400	50
<b>0.8</b>	282	375	<b>438</b>	500	63
0.6	375	500	584	667	84
0.266	846	1,128	1,316	1,504	188
0.2	1,125	1,500	1,750	2,000	250

**Table 4:** Minimum basal area footprint for the ATL System

### Step 5: Make area adjustments, as necessary.

Using the system parameters from Steps 2 and 4, the need for basal area footprint adjustments is assessed in Step 5. This evaluation includes comparing the size of the basal area footprint from Table 4

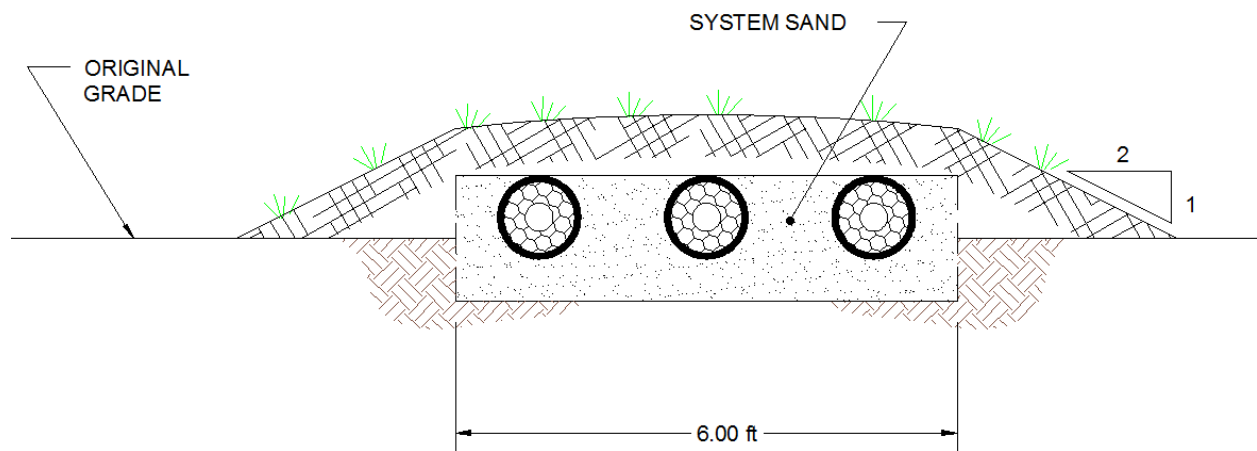
## DESIGN EXAMPLE

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to the area of the system sand footprint determined using Table 2 to determine if an area adjustment is required.

- Soil loading rate of 0.8 gpd/sf and minimum basal area of 438 sf

Since the site is level, no minimum downslope sand extension is required. Therefore, where site conditions allow the use of 3 Infiltrator ATL conduits wide in the system, the minimum length would be 81 ft and the minimum width would be 6 ft, for a system sand footprint of 486 sf. Since the 438-sf minimum basal area footprint is smaller than the 486-sf system sand footprint, no area adjustment is necessary.



## DESIGN EXAMPLE

### Example II:

Sample system specifications:

- 3-bedroom home
- Sandy clay with 65 minute percolation rate
- Sloped site

### Step 1: Determine the minimum total Infiltrator ATL conduit length

Based on the sample system specifications and Table 1, the minimum total Infiltrator ATL conduit length is 70 feet per bedroom, or 210 linear feet total.

Percolation Rate (mpi)	Minimum Length of ATL per Bedroom (ft)
1-15	50
16-30	60
31-40	70
41-50	
51-60	
<b>61-120</b>	

Table 1: Minimum required Infiltrator ATL conduit length

### Step 2: Design the system sand configuration

Per Table 2, a 210-foot conduit length can be arranged in the following configurations:

- 3 conduits wide – 6 ft wide x 71 ft long (426 sf)
- 4 conduits wide – 8 ft wide x 54 ft long (432 sf)
- 5 conduits wide – 10 ft wide x 43 ft long (430 sf)

Minimum Length of ATL Conduit (ft)	Minimum System Sand Dimensions and Area							
	2 Conduit Rows		3 Conduit Rows		4 Conduit Rows		5 Conduit Rows	
	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)	Dimensions (W x L)	Area (sf)
100	4' x 51'	204	6' x 35'	210	8' x 26'	208	10' x 21'	210
120	4' x 61'	244	6' x 41'	246	8' x 31'	248	10' x 25'	250
140	4' x 71'	284	6' x 48'	288	8' x 36'	288	10' x 29'	290
150	4' x 76'	304	6' x 51'	306	8' x 39'	312	10' x 31'	310
180	4' x 91'	364	6' x 61'	366	8' x 46'	368	10' x 37'	370
200	NA*	NA	6' x 68'	408	8' x 51'	408	10' x 41'	410
<b>210</b>	<b>NA*</b>	<b>NA</b>	<b>6' x 71'</b>	<b>426</b>	<b>8' x 54'</b>	<b>432</b>	<b>10' x 43'</b>	<b>430</b>
240	NA*	NA	6' x 81'	486	8' x 61'	488	10' x 49'	490
250	NA*	NA	6' x 85'	510	8' x 64'	512	10' x 51'	510
280	NA*	NA	6' x 95'	570	8' x 71'	568	10' x 57'	570
300	NA*	NA	NA*	NA	8' x 76'	608	10' x 61'	610
350	NA*	NA	NA*	NA	8' x 89'	712	10' x 71'	710

Table 2: Minimum system sand dimensions and area

## DESIGN EXAMPLE

### Step 3: Determine the appropriate application rate

Based on the sample system soil specifications and Table 3, the application rate is 0.266 gpd/ft<sup>2</sup>.

Texture	Percolation Rate (mpi)	ATL System Application Rate (gpd/ft <sup>2</sup> )
Gravelly sand, or very coarse sand	<3	1.6
Loamy sand, coarse sand	3 - 5	1.6
Medium sand, sandy loam	6 - 9	1.2
Fine sandy loam, loam, silt loam	10 - 15	1.0
Very fine sand, sandy clay loam	16 - 30	0.8
Clay loam, silty clay loam	31 - 50	0.6
<b>Sandy clay, clay, or silty clay</b>	<b>51 - 79</b>	<b>0.266</b>
Clays, silts, silty clays (Soil is reported throughout the soil profile)(Use EVTA BED)	80 - 120	0.2
Clays or silts, pan evaporation rates do not allow for EVTA use	>120	Not Permitted

**Table 3:** Soil hydraulic loading rates for the ATL System

### Step 4: Determine the minimum basal area footprint

Referencing Table 4 and using the application rate of 0.266 gpd/ft<sup>2</sup> as determined in Step 3, the minimum basal area footprint is 1,128 sf.

Application Rate (gpd/sf)	Minimum Basal Area (sf)				
	2 Bedroom (225 gal)	3 Bedroom (300 gal)	4 Bedroom (350 gal)	5 Bedroom (400 gal)	Each Add'l (50 gal)
1.6	141	188	219	250	32
1.2	188	250	292	334	42
1.0	225	300	350	400	50
0.8	282	375	438	500	63
0.6	375	500	584	667	84
<b>0.266</b>	846	<b>1,128</b>	1,316	1,504	188
0.2	1,125	1,500	1,750	2,000	250

**Table 4:** Minimum basal area footprint for the ATL System

### Step 5: Make area adjustments, as necessary.

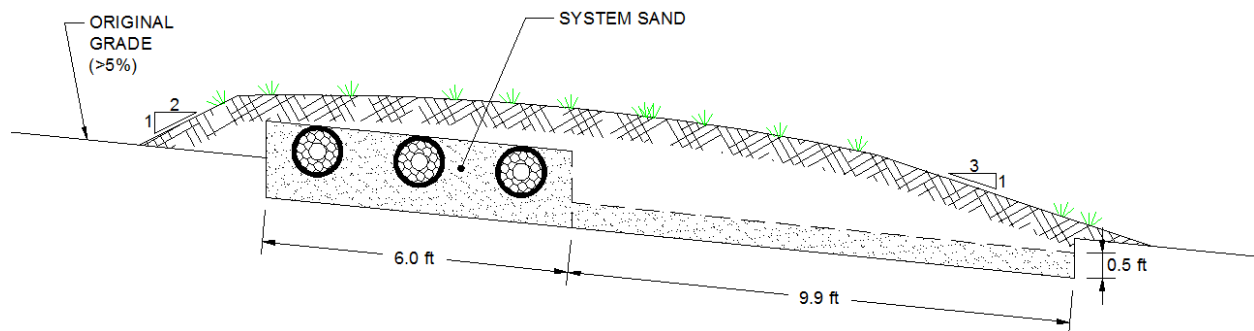
Using the system parameters from Steps 2 and 4, the need for basal area footprint adjustments is assessed in Step 5. This evaluation includes comparing the size of the minimum basal area footprint from Table 4 to the area of the system sand footprint determined using Table 2 to determine if an area adjustment is required.

## DESIGN EXAMPLE

- Soil loading rate of 0.266 gpd/sf and minimum basal area of 1,128 sf

Since the site has a slope greater than 5%, a minimum downslope sand extension of 2.5 ft is required. Therefore, where site conditions allow the use of 3 Infiltrator ATL conduits wide in the system, the minimum length would be 71 ft and the minimum width would be 8.5 ft (6 + 2.5 ft), for a footprint of 603.5 sf. Since the 1,128-sf minimum basal area is greater than the 603.5-sf system sand footprint, an area adjustment is necessary.

- *Divide the basal area by the length of the system sand.*  $1,128 \text{ ft}^2 \div 71 \text{ ft} = 15.9 \text{ ft}$
- *Subtract the original system footprint width from the above adjusted system sand footprint width.*  $15.9 \text{ ft} - 8.5 \text{ ft} = 7.4 \text{ ft}$
- *The system width must be widened by 7.4 feet, by adding an additional 7.4 feet of system sand to the downslope side, resulting in a total downslope sand extension of 9.9 ft and an overall system width of 15.9 ft.*  $7.4 \text{ ft} + 2.5 \text{ ft} + 6 \text{ ft} = 15.9 \text{ ft}$   
 $15.9 \text{ ft} \times 71 \text{ ft} = 1,129 \text{ ft}^2$





## INFORMATION FOR SYSTEM OWNERS

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Basic rules of onsite sewage treatment system use and care apply to the Infiltrator ATL System. System owners shall operate the system in accordance with the procedures and specifications described in the Montana Standards for Subsurface Wastewater Treatment Systems, Circular DEQ 4, all other regional and local regulations, and 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.
- The Infiltrator 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 a qualified 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 Infiltrator 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 qualified 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 qualified onsite wastewater system professional shall be contacted when there are indications of malfunction with the Infiltrator ATL System. When visiting the site, the qualified 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 qualified onsite wastewater system professional should contact the Infiltrator Systems, Inc. Technical Department with his or her report.

### Before You Begin

These installation instructions are for the Infiltrator ATL System in Montana. Infiltrator ATL Systems may only be installed according to this manual, the Montana Standards for Subsurface Wastewater Treatment Systems, Circular DEQ 4, and any other regional and local regulations.

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 Systems, Inc. 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 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.

## INSTALLATION INSTRUCTIONS

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**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 specifications, or sand as described in section 6.7.3.4.(B) of the Montana Standards for Subsurface Wastewater Treatment Systems, Circular DEQ 4.
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..

## INSTALLATION INSTRUCTIONS

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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 in the Montana Standards for Subsurface Wastewater Treatment Systems, Circular DEQ 4, and in compliance with all regional and local ordinances and procedures.*

1. Material placed around the system sand and atop the Infiltrator ATL conduit may be additional system sand, bank run sand which meets the requirements of Circular DEQ 4, or acceptable native soil. 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. The maximum amount of cover over the ATL System in bed configuration is 4 feet. The maximum amount of cover over the ATL System in trench configuration is 8 feet.
4. 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.*

## WARRANTY

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**INFILTRATOR SYSTEMS, INC., ("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®**  
systems inc.

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800-221-4436

November 2014