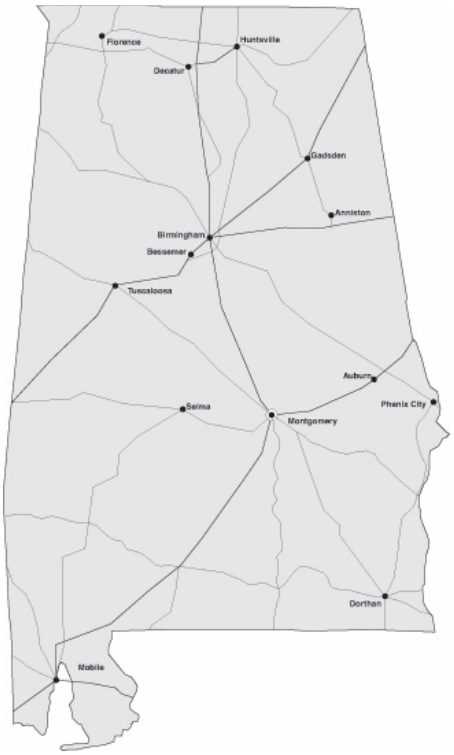
Infiltrator Water Technologies
Part of ADS

# Design and Installation Manual for the Infiltrator ATL System in Alabama




| Infiltrator ATL System in Alabama | |
|---|---|
| INTRODUCTION | 2 |
| ALABAMA-SPECIFIC INFORMATION | 3 |
| SYSTEM CONFIGURATIONS | 6 |
| SYSTEM DESIGN | 11 |
| SYSTEM DESIGN EXAMPLES | 15 |
| INFORMATION FOR SYSTEM OWNERS | 18 |
| INSTALLATION INSTRUCTIONS | 20 |
| INSTALLER CHECKLIST | 23 |
| WARRANTY | 24 |

The purpose of this manual is to provide the minimum specifications for design and installation of the Infiltrator ATL (Advanced Treatment Leachfield) System in Alabama. All local ordinances, requirements, and procedures must be followed where applicable. 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 Alabama Department of Public Health, Chapter 420-3-1, Onsite Sewage Treatment and Disposal Rules.

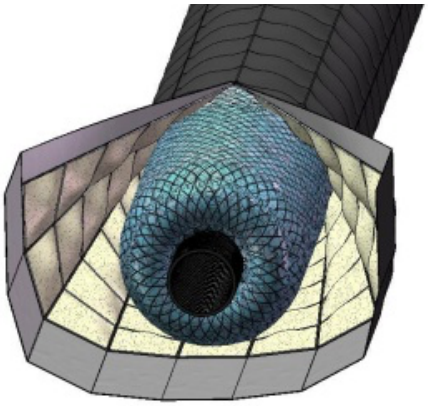
**For more detailed design and installation information, please contact Infiltrator Systems at 1-800-221-4436.**

Alabama

## 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.

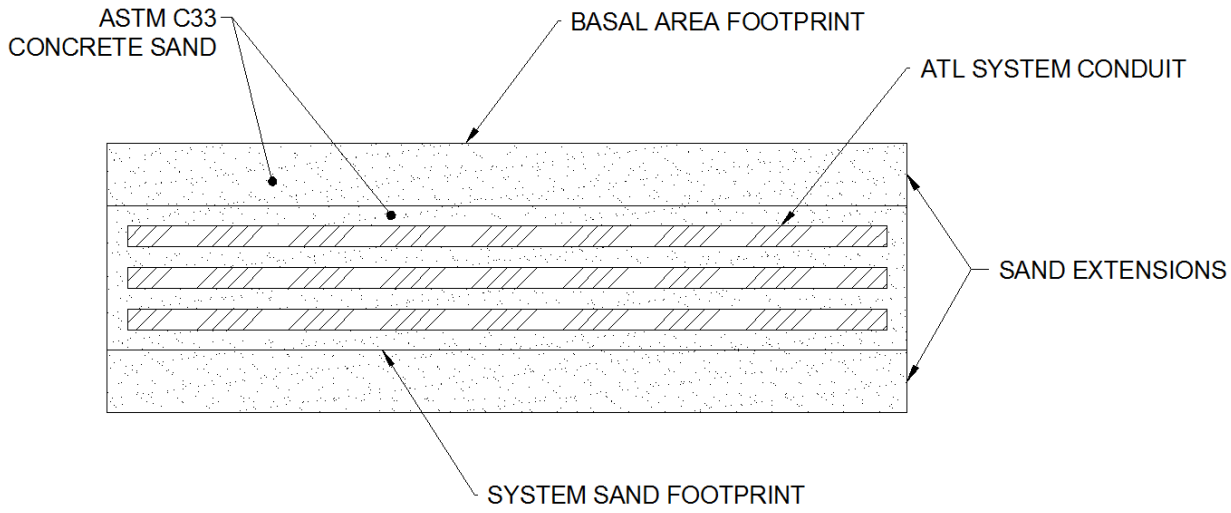


**ATL System Conduit**

## Infiltrator ATL System Definitions

"System sand" is the term used to describe the coarse sand material that surrounds the Infiltrator ATL System (ATL System) conduits. Infiltrator requires that only material which meets ASTM C33 specifications is allowed for use with the ATL System in Alabama.

In this document, the "system sand footprint" refers to the surface onto which the ATL System conduits are placed and the 12 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 is approved for use in the State of Alabama as an advanced treatment system by the Alabama Department of Public Health (ADPH) in accordance with Chapter 420-3-1, Onsite Sewage Treatment and Disposal Rules (the Rules). Testing in accordance with NSF/ANSI Standard 40 has determined that the ATL System is capable of treating domestic strength wastewater to Class I (secondary treatment) levels. This approval allows for design and installation of the ATL System in the State of Alabama in accordance with the specifications and instructions in this manual and the ADPH product permit. If design, installation, operation, or maintenance specifications are not specifically addressed in this manual, relevant requirements in the Rules shall be applicable.

**Permitting Requirements**

An Application for A Permit To Install (Repair) Small Flow Onsite Sewage Disposal System (CEP-2) shall be submitted to the Local County Health Department and must be in compliance with all other applicable onsite sewage rules.

**Engineered Designs**

The ATL System may be designed by an engineer as per Section .35 of the Rules. When applicable, all aspects of section 420-3-1-.35 shall be followed.

**Minimum ATL Conduit Lengths**

The minimum design length of ATL conduit in residential applications is 70 feet per bedroom. In commercial applications, 1 linear foot of ATL conduit shall be required for every 2 gallons of design flow per day (Minimum L = Q/2, where L is length and Q design flow per day in gallons).

A minimum of 140 linear feet of ATL conduit is required for any system.

**Sloped Systems**

Sites with slopes greater than 5% shall be considered sloped sites. In these applications, the 6-inch basal sand layer must be extended a minimum of 2.5 feet on the downslope side. Maximum slope on a site is 33%.

**Horizontal and Vertical Separation Distances**

Horizontal separation distances shall comply with all state and local regulations where applicable, and are measured from the edge of the system sand, inclusive of any sand extensions.

Vertical separation distances shall comply with all state and local regulations where applicable, and are measured from the bottom of the 6-inch basal system sand layer. The minimum separation distance from the bottom of the system sand to seasonal high water or an impervious layer shall be 12 inches. System plans shall specify the elevations of the bottom of the 6-inch basal area, to ensure that the system installation meets minimum vertical separation from any limiting condition.

**Multiple Bed Systems**

If site conditions prevent design and installation of a single ATL System bed along the contour, the ATL System may be installed in multiple bed configurations, with the following conditions:

- each bed must run along the length of any contour;
- each bed must receive equal flows (zoning); and
- each bed must meet all other requirements of the Rules.

Multiple beds are required in soils with percolation rates greater than 60 minutes per inch and/or if daily design flow exceeds 900 gallons per day.

**Pump-to-Gravity Distribution**

The ATL System can accommodate all methods of effluent distribution.

If pump-to-gravity distribution is preferred, the pump dosing cycle shall:

- include a volume no greater than one gallon times the total length of ATL conduit; and
- occur at a minimum of 4 times a day.

Demand dosing is recommended.

**Tapering**

In elevated system applications, side-slope tapering shall be as follows:

- in level system applications, a minimum of 2:1 on all sides; and
- in sloped system applications, a minimum of 3:1 on the downslope, and 2:1 on the other three sides.

An ATL System is considered to be elevated when any aspect of the system, including final cover material, is above the natural ground surface.

**Large Flow, Mound, Controlled Fill and Shallow System Requirements**

The ATL System is approved for use in the following applications:

- large flow, in accordance with Section .16; and
- shallow systems, in accordance with Section .68.

The design, permitting, and installation of the ATL System in each of these applications shall in be accordance with the Rules.

**Observation Ports**

ADPH approval of the ATL System requires that each system (or each bed in a system comprised of more than one bed) shall include an observation port (see page 24 for installation instructions).

**Fill and Cover Materials**

System sand shall be used to raise the elevation of the ATL System to meet minimum vertical separation requirements. System sand or approved native soil shall be used to create side slopes in elevated system applications.

The Infiltrator ATL System is approved for use in Alabama with a minimum of 6 inches of cover material (after settling).

At a minimum, the final 4 inches of cover material shall be comprised of topsoil and properly crowned. Topsoil is earth material, including the native soil, which is capable of sustaining plant growth. Topsoil should be seeded or covered with mulch immediately following installation to prevent erosion.

**System Configurations**

The ATL System can be designed for use on level or sloped sites, and in below-natural-ground and elevated systems that are designed for non-traffic applications.

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

- a minimum of 6 inches of system sand below the ATL conduit rows;
- a minimum of 12 inches of system sand adjacent to each ATL conduit row;
- a minimum 12-inch system sand extension on both ends of the ATL conduit rows; and
- a minimum 2.5-foot sand extension on the downslope side on sites with greater than 5% slope.

There is no minimum requirement for system sand on top of the ATL conduit rows.

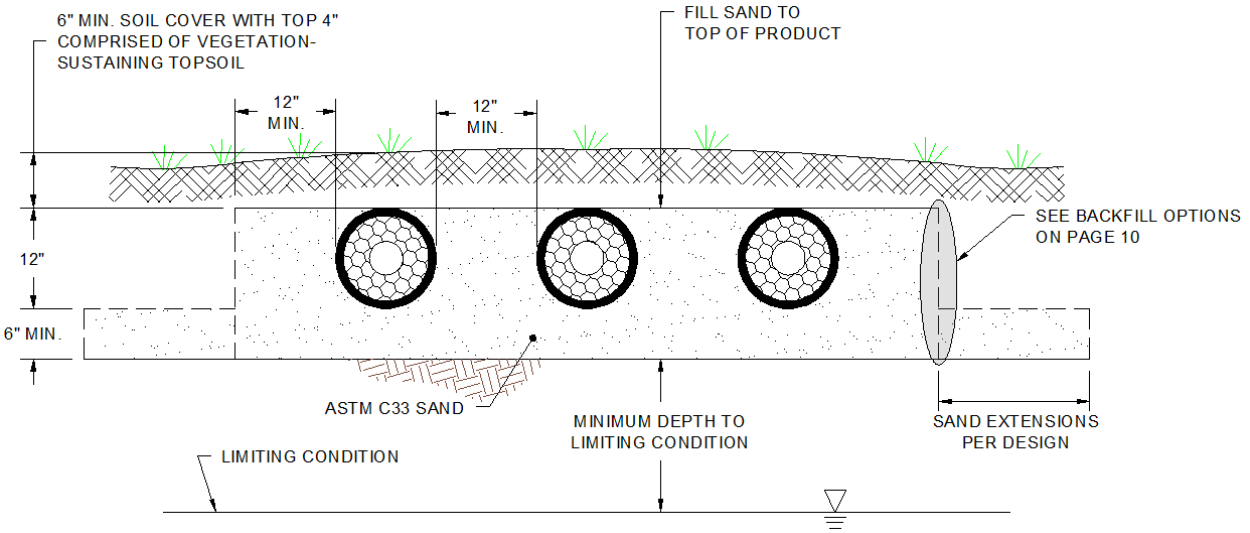
**Distribution Boxes (D-boxes)**

D-boxes are recommended in gravity applications (as shown in the drawings on pages 7 & 8) when equal effluent distribution is desired within a single disposal field, or when multiple beds are specified.

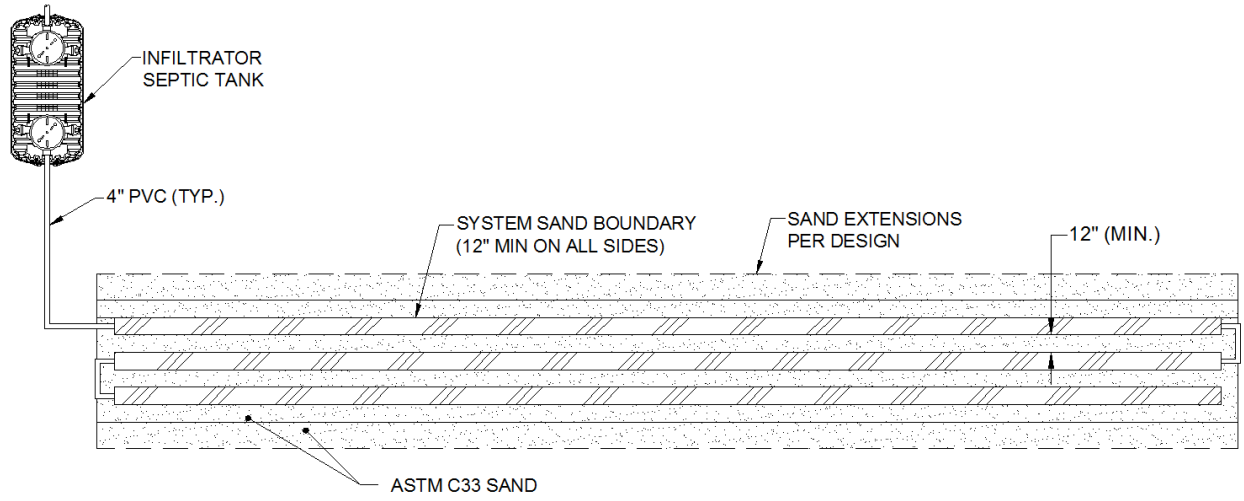
Serial distribution is allowed. In serial distribution applications, use of raised connections is recommended (see page 24 for details).

# Level Below-Natural-Ground Systems

## Cross-Section View




## Plan View

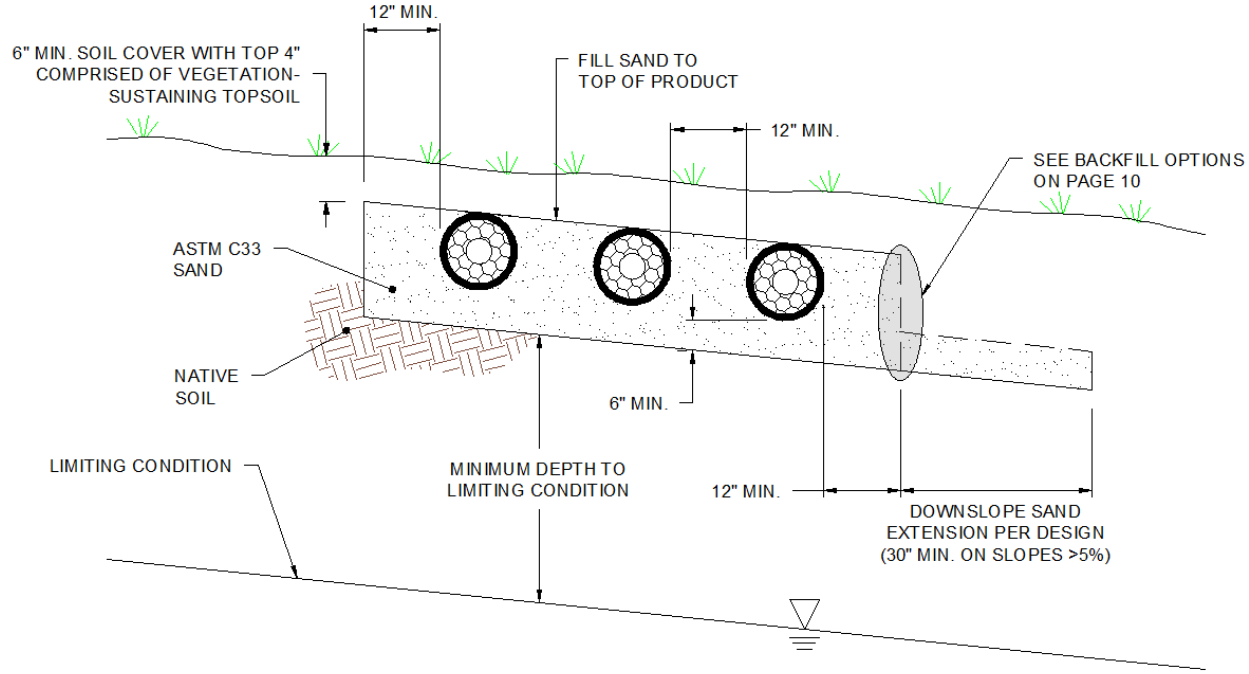



**NOTES:**

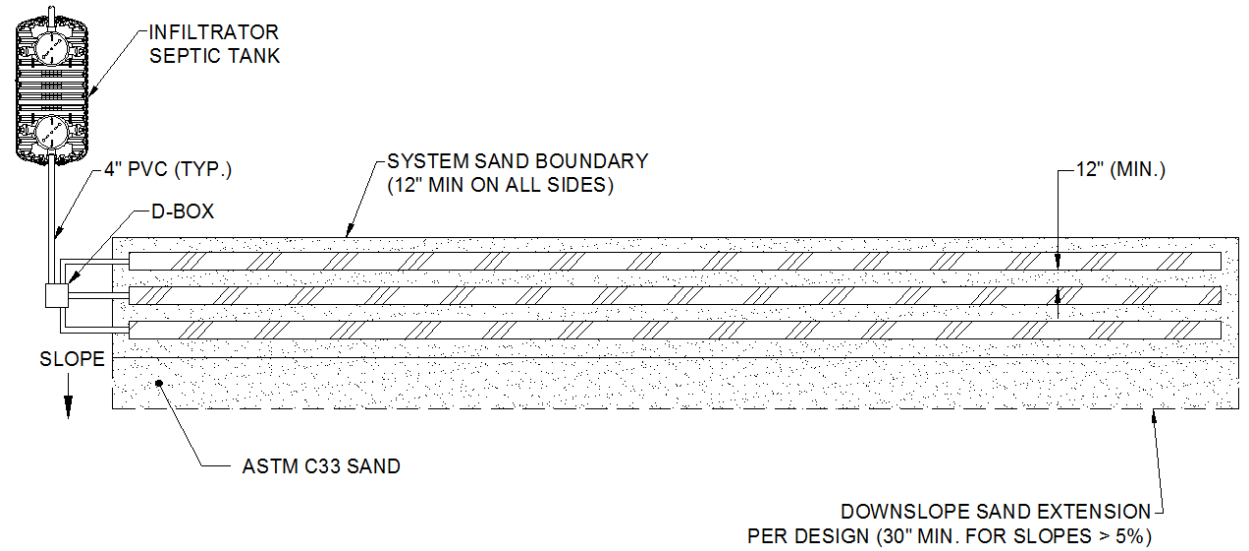
1. Number and length of conduits per design.
2. Venting is not required but is optional at the discretion of the system designer.
3. Pumping is not required unless gravity flow cannot be achieved.
4. An ATL System is considered to be below-natural-ground when all aspects of the system, including final cover material, are entirely below the natural ground surface.
5. Serial distribution shown. System may also be served by parallel (d-box) distribution.
6. The ATL System is intended for use in non-traffic applications.

## Sloped Below-Natural-Ground Systems

### Cross-Section View




### Plan View



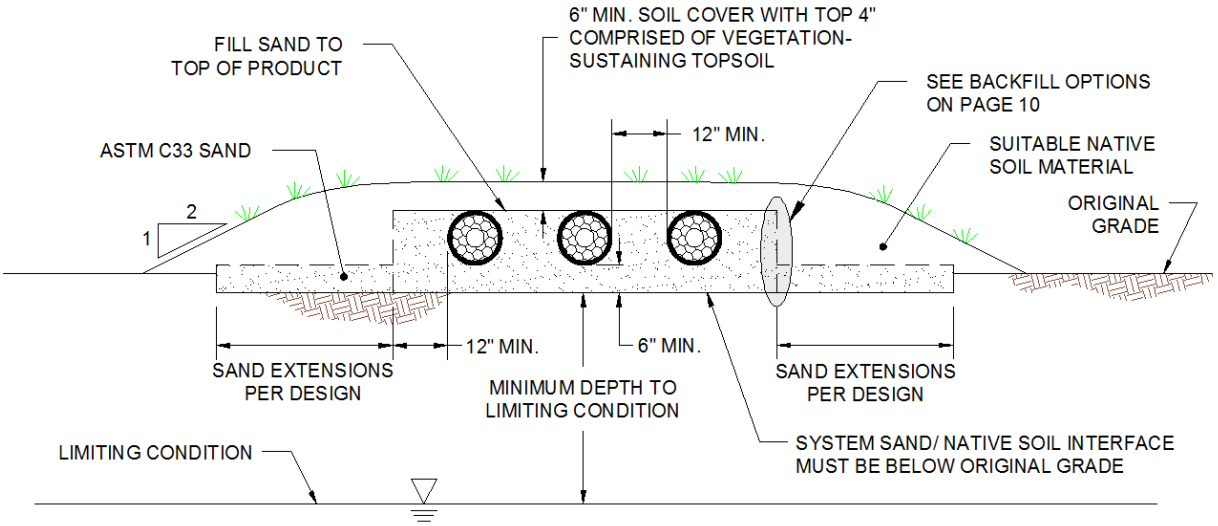

**NOTES:**

1. A site is considered to be “sloped” when the natural grade is greater than 5%.
2. An ATL System is considered to be below-natural-ground when all aspects of the system, including final cover material, are entirely below the natural ground surface.
3. Number and length of conduits per design.
4. Venting is not required but is optional at the discretion of the system designer.
5. Pumping is not required unless gravity flow cannot be achieved.
6. D-box distribution shown. System may also be served by serial distribution.

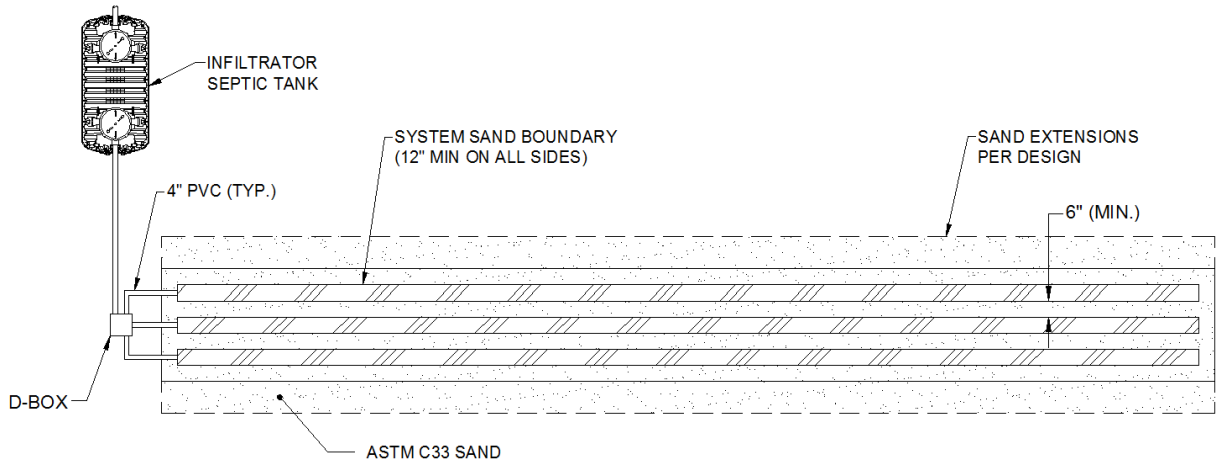
7. The ATL System is intended for use in non-traffic applications.

# Level Elevated Systems

## Cross-Section View




## Plan View

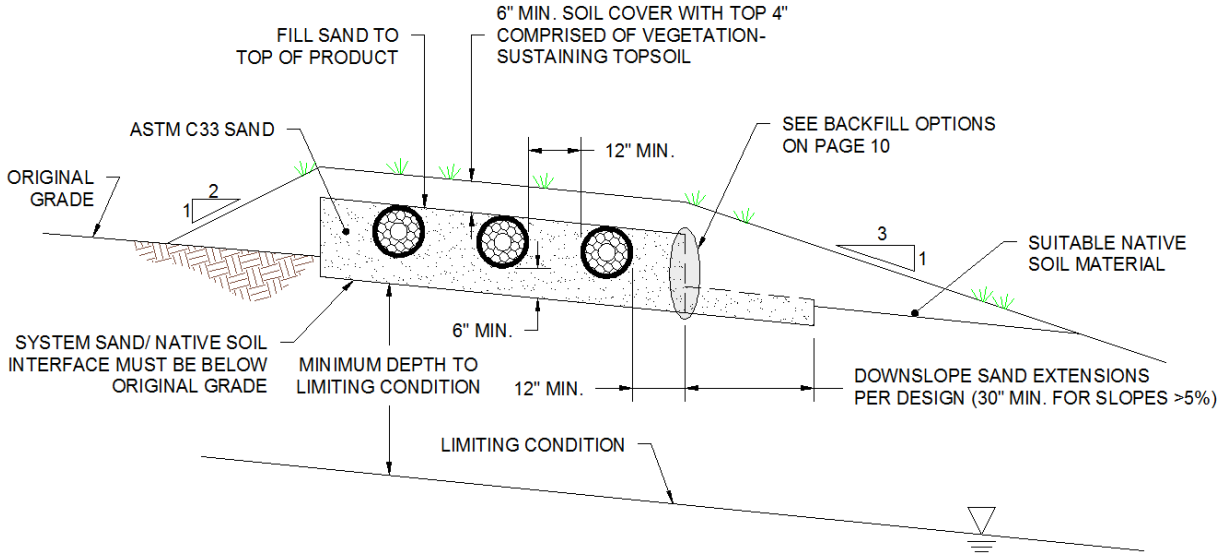



**NOTES:**

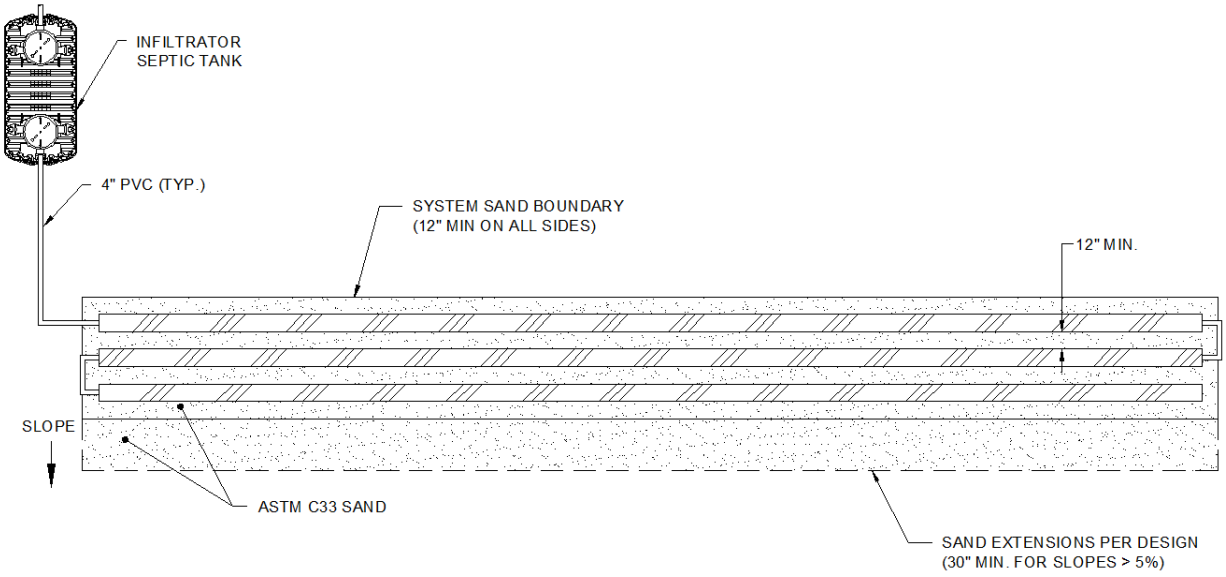
1. An ATL System is considered to be elevated if any aspect of the system, including final cover material, is above existing grade.
2. Number and length of conduits per design.
3. Venting is not required but is optional at the discretion of the system designer.
4. Pumping is not required unless gravity flow cannot be achieved.
5. 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 system sand.
6. D-box distribution shown. System may also be served by serial distribution.
7. The ATL System is intended for use in non-traffic applications.

# Sloped Elevated Systems

## Cross-Section View




## Plan View

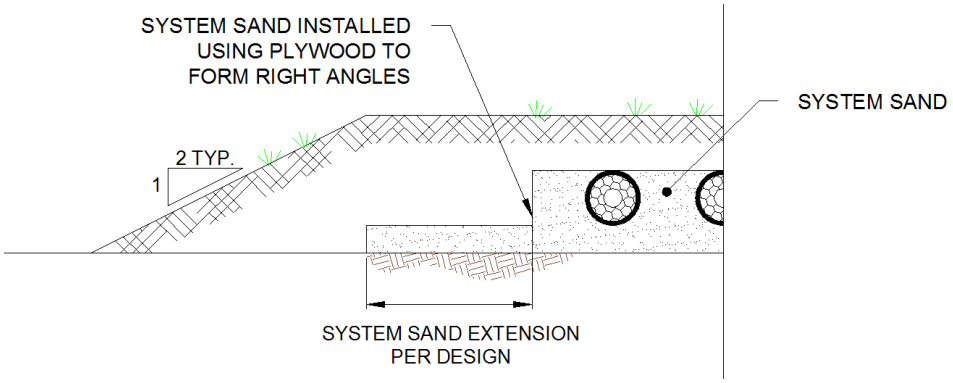



**NOTES:**

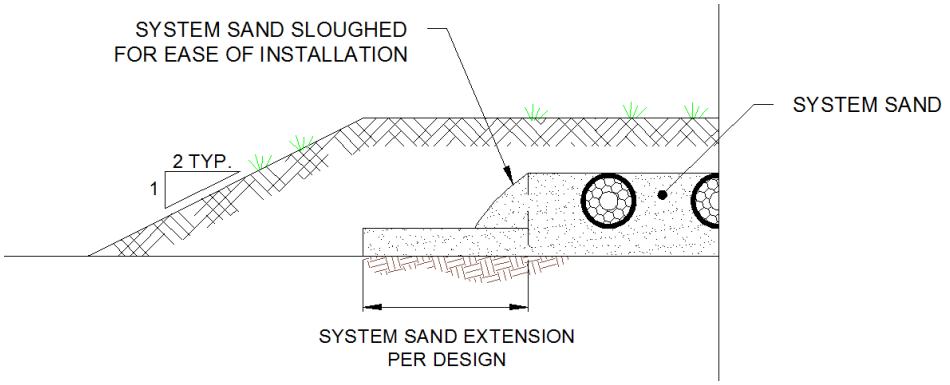
1. An ATL System is elevated if any aspect of the system, including final soil cover, is above existing grade.
2. A site is to considered “sloped” when the natural grade is greater than 5%.
3. Number and length of conduits per design.
4. Venting is not required but is optional at the discretion of the system designer.
5. Pumping is not required unless gravity flow cannot be achieved.
6. 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 system sand.
7. Serial distribution shown. System may also be served by parallel (d-box) distribution.
8. The ATL System is intended for use in non-traffic applications.

## Backfilling Options

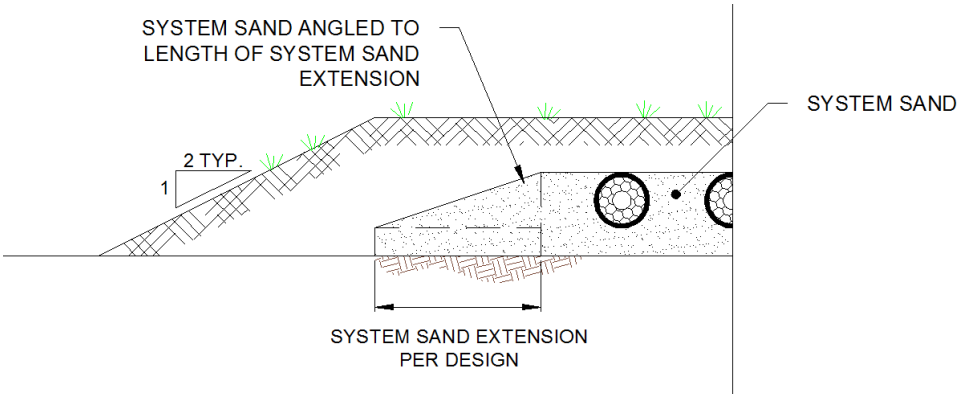
### Option 1




### Option 2




### Option 3



## System Design Process

Designing the ATL System in Alabama is a six-step process.

1. *Determine the minimum total ATL conduit length*
2. *Determine the appropriate soil infiltration loading rate and length-to-width ratio*
3. *Determine the minimum basal area*
4. *Calculate the minimum basal length*
5. *Design the system sand configuration*
6. *Design the basal area footprint*

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

The minimum length of ATL conduit per bedroom is 70 feet. Determine the minimum total length of ATL conduit from Table 1, based on the number of bedrooms.

***Step 2: Determine the appropriate soil infiltration loading rate and length-to-width ratio***

Using the soil characteristics determined through the site and soil evaluation, use Table 2 to determine the appropriate soil infiltration loading rate and minimum system sand bed length-to-width ratio.

***Step 3: Determine the minimum basal area***

Determine the minimum required basal area using the soil infiltration loading rate (determined in Step 2) and Table 3.

***Step 4: Calculate the minimum basal length***

Use the minimum length-to-width ratio (determined in Step 2) and the minimum basal area (determined in Step 3) to calculate the minimum basal length, using the following equation.

$$Minimum\ Basal\ Length = \sqrt{Length\ to\ Width\ Ratio \times Minimum\ Basal\ Area}$$

***Step 5: Design the system sand configuration***

Use Table 4 to determine the minimum system sand footprint using the minimum total length of ATL conduit (determined in Step 1) and minimum basal length (calculated in Step 4). The following requirements must be met for design of the system sand footprint:

- The system shall be designed as long and narrow as site conditions allow. Therefore, the number of rows of ATL conduit shall be minimized.
- Multiple bed systems: where site conditions or other considerations require multiple beds, the row-specific length dimensions in Table 2 may be divided as follows:
    - Center-fed 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.

***Step 6: Design the basal area footprint***

The minimum areas determined in Steps 3 and 5 cannot be reduced. These areas must be maintained to ensure adequate area for placement of the Infiltrator ATL System conduit rows and infiltration of partially treated effluent into the native soil.

Sand extensions are necessary as follows:

- If the minimum basal area footprint determined using Table 3 is smaller than the area of the system sand footprint determined using Table 5, no sand extensions are necessary.
- If the minimum basal area footprint determined using Table 3 is larger than the area of the system sand footprint determined using Table 5, sand extensions* must be added to meet the minimum basal area requirements. When adding sand extensions:
    - 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.

***NOTE:** The length of the bed area may be altered, but only by extending the ATL System conduit rows. This method may be preferred over increasing the width of the system on certain sites, due to limiting site constrictions.*

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

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

| Percolation Rate (mpi) | Soil Group USDA Textures | Soil Infiltration Loading Rate (gpd/sf) | Minimum Linear Loading<br><br>Minimum System Sand Bed Length-to-Width Ratio |
|---|---|---|---|
| 1-5 | **Group I** Sand, Loamy Sand | 1.800 | 2 |
| 6-10 | | 1.670 | |
| 11-15 | | 1.520 | |
| 16-20 | **Group II** Sandy Loam, Loam | 1.400 | 3 |
| 21-25 | | 1.270 | |
| 26-30 | | 1.130 | |
| 31-35 | **Group III** Sandy Clay Loam, Silty Loam, Silty Clay Loam, Clay Loam | 1.050 | |
| 36-40 | | 0.960 | |
| 41-45 | | 0.870 | |
| 46-50 | | 0.714 | 6 |
| 51-55 | | 0.714 | |
| 56-60 | | 0.714 | |
| 61-65 | **Group IVa** Sandy Clay, Silty Clay, Clay | 0.536 | |
| 66-70 | | 0.507 | |
| 71-75 | | 0.481 | |
| 76-80 | | 0.457 | |
| 81-85 | | 0.436 | |
| 86-90 | | 0.417 | |
| 91-240 | **Group IVb** High Shrink-Swell Clay, Poorly Structured Soil | Group IVb soils follow AL Regulation Appendix A, Table 3 sizing | 9 |

**Table 2:** Soil infiltration loading rates

| Soil Infiltration Loading Rate (gpd/sf) | Minimum Basal Area (sf) | | | |
|---|---|---|---|---|
| | 3 Bedrooms | 4 Bedrooms | 5 Bedrooms | Each Add'l Bedroom |
| 1.800 | 250 | 334 | 417 | 84 |
| 1.670 | 270 | 360 | 450 | 90 |
| 1.520 | 297 | 395 | 494 | 99 |
| 1.400 | 322 | 429 | 536 | 108 |
| 1.270 | 355 | 473 | 591 | 119 |
| 1.130 | 399 | 531 | 664 | 133 |
| 1.050 | 429 | 572 | 715 | 143 |
| 0.960 | 469 | 625 | 782 | 157 |
| 0.870 | 518 | 690 | 863 | 173 |
| 0.714 | 631 | 841 | 1,051 | 211 |
| 0.536 | 840 | 1,120 | 1,400 | 280 |
| 0.507 | 888 | 1,184 | 1,480 | 296 |
| 0.481 | 936 | 1,248 | 1,560 | 312 |
| 0.457 | 985 | 1,313 | 1,642 | 329 |
| 0.436 | 1,033 | 1,377 | 1,721 | 345 |
| 0.417 | 1,080 | 1,439 | 1,799 | 360 |

**Table 3:** Minimum basal area

| Minimum Length of ATL Conduit (ft) | Minimum system sand dimensions and area | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 conduit row | | 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) | Dimensions (W' x L') | Area (sf) |
| 140 | 3 x 142* | 426 | 5 x 72 | 360 | 7 x 52 | 364 | 9 x 42 | 378 |
| 210 | 3 x 212* | 636 | 5 x 112* | 560 | 7 x 72 | 504 | 9 x 62 | 558 |
| 280 | 3 x 282* | 846 | 5 x 142* | 710 | 7 x 102 | 714 | 9 x 72 | 648 |
| 350 | 3 x 352* | 1,056 | 5 x 182* | 910 | 7 x 122* | 854 | 9 x 92 | 828 |

**Table 4:** Minimum system sand dimensions and area

**Any system with a length greater than 100 ft must be center-fed.*

***NOTES:***

1. *ATL conduits are manufactured in lengths of ten feet. The dimensions shown above round the conduit length to the nearest 10-foot segment.*
2. *The ATL System conduit rows must be extended to within 12 inches of each end of the bed. The dimensions above include 12 inches of sand on each end of the conduit row.*
3. *Minimum width of the system sand footprint, as determined in Step 2, shall not be decreased when making adjustments as detailed in Step 5 (below), even if the minimum width results in total square footage of sand area greater than the calculated minimum.*

## Example I – Level Site (Slopes 5% or Less)

Assume the following baseline specifications:

- 4-bedroom home
- 3% slope on site
- Percolation rate of 40 mpi

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

Per Table 1, a 4-bedroom home calls for a minimum total of 280 linear feet of ATL conduit.

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

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

***Step 2: Determine the appropriate soil infiltration loading rate and length-to-width ratio***

Based on the sample system specifications and Table 2, the soil infiltration loading rate would be 0.96 gpd/sf and the length-to-width ratio would be 3.

| Percolation Rate (mpi) | Soil Group USDA Textures | Soil Infiltration Loading Rate (gpd/sf) | Minimum Linear Loading<br><br>Minimum System Sand Bed Length-to-width Ratio |
|---|---|---|---|
| 1-5 | **Group I** Sand, Loamy Sand | 1.80 | 2 |
| 6-10 | | 1.67 | |
| 11-15 | | 1.52 | |
| 16-20 | **Group II** Sandy Loam, Loam | 1.40 | |
| 21-25 | | 1.27 | |
| 26-30 | | 1.13 | |
| 31-35 | **Group III** Sandy Clay Loam, Silty Loam, Silty Clay Loam, Clay Loam | 1.05 | **3** |
| **36-40** | | **0.96** | |
| 41-45 | | 0.87 | |

**Table 2 (modified):** Soil infiltration loading rates

***Step 3: Determine the minimum basal area***

Referencing Table 3 and using a 4-bedroom home and a soil infiltration loading rate of 0.96 gpd/sf (determined in Step 3), the minimum basal area is 625 sf.

| Soil Infiltration Loading Rate (gpd/sf) | Minimum Basal Area (sf) | | | |
|---|---|---|---|---|
| | 3 Bedrooms | 4 Bedrooms | 5 Bedrooms | Each Add'l Bedroom |
| 1.80 | 250 | 334 | 417 | 84 |
| 1.67 | 270 | 360 | 450 | 90 |
| 1.52 | 297 | 395 | 494 | 99 |
| 1.40 | 322 | 429 | 536 | 108 |
| 1.27 | 355 | 473 | 591 | 119 |
| 1.13 | 399 | 531 | 664 | 133 |
| 1.05 | 429 | 572 | 715 | 143 |
| **0.96** | 469 | **625** | 782 | 157 |
| 0.87 | 518 | 690 | 863 | 173 |

**Table 3 (modified):** Minimum basal area

***Step 4: Calculate the minimum basal length***

Using the minimum length-to-width ratio of 3 and the minimum basal area of 625 sf, the minimum basal length is calculated using the following equation.

$$Minimum\ Basal\ Length = \sqrt{Length\ to\ Width\ Ratio \times Minimum\ Basal\ Area}$$

$$Minimum\ Basal\ Length = \sqrt{3 \times 625} = 44\ ft$$

***Step 5: Design the system sand configuration***

Per Table 4, for a 280-foot conduit length, the following configurations could be used, as allowed per site conditions and the minimum basal length of 44 ft:

- 1 conduit row – 3 ft wide x 282* ft long (846 sf)
- 2 conduit rows – 5 ft wide x 142* ft long (710 sf)
- 3 conduit rows – 7 ft wide x 102 ft long x (714 sf)
- 4 conduit rows – 9 ft wide x 72 ft long x (648 sf)

| Minimum Length of ATL Conduit (ft) | Minimum system sand dimensions and area | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 conduit row | | 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) | Dimensions (W' x L') | Area (sf) |
| 140 | 3 x 142* | 426 | 5 x 72 | 360 | 7 x 52 | 364 | 9 x 42 | 378 |
| 210 | 3 x 212* | 636 | 5 x 112* | 560 | 7 x 72 | 504 | 9 x 62 | 558 |
| **280** | **3 x 282*** | **846** | **5 x 142*** | **710** | **7 x 102** | **714** | **9 x 72** | **648** |
| 350 | 3 x 352* | 1,056 | 5 x 182* | 910 | 7 x 122* | 854 | 9 x 92 | 828 |

**Table 4:** Minimum system sand dimensions and area

**Any system with a length greater than 100 ft must be center-fed.*

***Step 6: Design the basal area footprint***

Where site conditions require the use of 3 ATL conduit rows in the system, the minimum width of the system is 7 ft and the minimum length is 102 ft, for a system sand footprint of 714 sf. Since the minimum required 625-sf basal area is smaller than the 714-sf system sand footprint, the addition of sand extensions is not required.

## Example II – Sloped Site (Slopes Greater than 5%)

Assume the following baseline specifications:

- 4-bedroom home
- 12% slope on site
- Percolation rate of 75 mpi

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

From Table 1, based on a system design for 4 bedrooms, the minimum total ATL conduit length required is 280 feet.

***Step 2: Determine the appropriate soil infiltration loading rate and length-to-width ratio***

Referencing Table 2, the soil infiltration loading rate would be 0.481 gpd/sf and the length-to-width ratio would be 6.

***Step 3: Determine the minimum basal area***

Referencing Table 3 and using the soil infiltration loading rate of 0.481 gpd/sf determined in Step 3, the minimum basal area is 1,248 sf.

***Step 4: Calculate the minimum basal length***

Using the minimum length-to-width ratio of 6 and the minimum basal area of 1,248 sf, the minimum basal length is calculated using the following equation.

$$Minimum\ Basal\ Length = \sqrt{Length\ to\ Width\ Ratio \times Minimum\ Basal\ Area}$$

$$Minimum\ Basal\ Length = \sqrt{6 \times 1{,}248\ sf} = 87\ ft$$

***Step 5: Design the system sand configuration***

Per Table 4, for a 280-foot conduit length and minimum basal length of 87 ft, the following configurations can be used, as allowed per site conditions:

- 1 conduit row wide – 3 ft wide x 282 ft long* (846 sf)
- 2 conduit rows wide – 5 ft wide x 142 ft long* (710 sf)
- 3 conduit rows wide – 7 ft wide x 102 ft long (714 sf)

***Step 6: Design the basal area footprint***

Where site conditions allow the use of 2 ATL conduit rows in the system, the minimum width of the system is 5 ft and the length is 142 ft, for a system sand footprint of 710 sf. Since the minimum required 1,248-sf basal area is larger than the 710-sf system sand footprint, the addition of sand extensions is required. Minimum sand extensions are calculated as follows:

- *Divide the minimum basal area by the length of the system sand footprint as determined in Step 5.* — 1,248 sf ÷ 142 ft = 8.79 ft
- *Subtract the original system sand footprint width from the above adjusted system sand footprint width.* — 8.79 ft - 5 ft = 3.79 ft (3 ft 10 in)
- *The system sand width must be widened by 3.79 feet (3 ft 10 in). Because this is a sloped site, the entire 3-ft 10-in extension must be added to the downslope side, resulting in a total basal area footprint width of 8.34 feet.* — 8.79 ft x 142 ft = 1,248 sf

***NOTE:*** *The system length is greater than 100 ft, so the system must be center-fed.*

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 Rules, and the following:

**System Use and Abuse**

Your 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 ATL System.
    - Direct water from the rainwater management system away from the ATL System.
- Introduce only normal residential wastewater into the system.
    - Solvents, paint, pharmaceuticals, aggressive cleaning products, and non-biodegradable items should not enter the 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 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. Therefore,
    - Do not allow heavy equipment or vehicles to drive over the system.
    - Install protections to prevent exposure of the system to inadvertent heavy equipment or vehicular loading.
    - Do not build structures on top of the system.

**Operation and Maintenance**

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

Maintenance of the 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, or more frequently as conditions require.
- 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 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 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
- “Ponding” of effluent on the lawn
- “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 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 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 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 or an authorized Infiltrator representative with his or her report.

## Before You Begin

These installation instructions are for the ATL System in Alabama. ATL Systems may only be installed according to this manual, the latest versions of the Rules, the ADPH permit, and local health department requirements where applicable.

If unsure of the installation requirements for a site, contact ADPH or your local health department. If unsure of the use of the 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**

- 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 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 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 the design. Set the elevations as shown on the approved plan. [Note: The proper elevation of solid PVC header line going to each 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. For below-natural-ground system applications:

   (a) Excavate the bed area or till the ground as per the design.

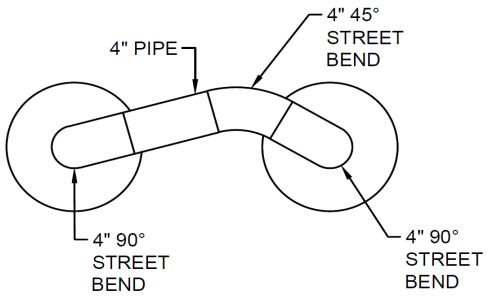
(b) Rake the bed bottom and sides (when applicable) if smearing has occurred during excavation. Remove large stones and protruding roots.

***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.*

4. For elevated system applications:
   (a) All vegetation shall be cut close to the ground and removed from the site. Stumps, roots, sod, topsoil and boulders shall not be removed.
   (b) Installation shall take place from the upslope side, and contact with the basal infiltrative surface area and downslope side of the system should be avoided, where applicable.
   (c) The basal infiltrative surface of the system shall be prepared according to site conditions to maximize the infiltrative capacity of the soil surface.
   (d) Any scarification of the basal infiltrative surface shall be conducted along the contour, where applicable.
   (e) Sand may be incorporated into the basal infiltrative area during the preparation process, and may be placed along the entire basal infiltrative surface area to prevent damage from precipitation or foot traffic.
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.

## Installing the System

1. Install the system sand basal layer over the entire ATL System basal area footprint as per design. System sand should be leveled and stabilized prior to introduction of the ATL conduit. Installer should retain records verifying that system sand meets ASTM C33 requirements.
2. Remove plastic stretch wrap from ATL conduits.
3. Place 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 ATL conduits end-to-end to create rows of the required length.
4. ATL conduit shall be installed level. A laser level or transit is recommended to ensure proper alignment.
5. ATL conduit rows shall be:
   - installed level end-to-end;
   - be installed parallel to any contours; and
   - be separated by a minimum of 12 inches of system sand.
6. In serial distribution applications, use of a raised connection is required. One example of a raised connection is shown below.
7. Install a cap on the end of each ATL conduit row that is not connected with piping.




8. Once the 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 ATL conduit rows. System sand shall also be installed on each side and at each end of the backfilled ATL conduit rows, per the design. This additional system sand shall be stabilized.

## Installing Observation/Monitoring Ports

Observation or monitoring ports are required in each ATL System design.

1. Cut a 4-inch Schedule 40 or SDR 35 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

1. The ATL System was tested, and is approved for use in Alabama, with a minimum of 4 inches of topsoil after settling.
2. Material placed around the system sand and atop the ATL conduit may be additional system sand or material which meets the requirements of the Rules. However, the final 4 inches placed atop or adjacent to the ATL System shall be comprised of material that will sustain plant growth.
3. Backfill the bed by pushing material over the 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.
4. After the system is covered, the site should be seeded or sodded to prevent erosion.
5. The maximum depth of cover over the ATL System is 4 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 ATL System Inspection Form - Alabama

| | |
|---|---|
| **Property Owner** | |
| **Property Address** | |
| **Date of Installation** | |
| **Installation Contractor** | |
| **Date of Inspection** | |
| **Number of Bedrooms/Daily Design Flow (gpd) - Design** | |
| **Actual Number of Bedrooms/Daily Design – At time of inspection** | |
| **History of septic tank pumping** | |

If a commercial system, inspector should create separate report with details on, at a minimum, design daily flow and effluent strength; actual daily flow and effluent strength.

**Inspection Information** (By note on separate document):

**Installation:**

- ☐ Do you have a copy of the ATL System design plan(s)?
- ☐ Does the number of bedrooms in the residence match the design specifications?
- ☐ Is the ATL System in the correct position on the site?
- ☐ Is there at least 6 inches of system sand below the ATL conduit rows?
- ☐ Is the inlet header to ATL conduit row at the correct elevation?
- ☐ Does ATL System sand meet minimum specifications?
- ☐ Has plastic stretch wrap been removed from the ATL conduits?
- ☐ Are the ATL conduit rows level from inlet to outlet?
- ☐ Are ATL conduit rows and the long axis of the sand bed installed parallel to the contour?
- ☐ Are the ATL conduit rows separated by a minimum of 12 inches of system sand?
- ☐ Does installed separation between conduit rows meet the design specifications in the system plans?
- ☐ Is there a minimum of 12 inches of system sand on the outside aspect of the outermost ATL conduit rows?
- ☐ Is there a minimum of 12 inches of system sand extending beyond both ends of the ATL conduit rows?
- ☐ Was the system sand beside and around the ATL conduit rows stabilized prior to installation of cover?
- ☐ Does the depth of the cover material meet the design specifications in the system plans?
- ☐ Is the cover material capable of sustaining plant growth?

**Function:**

- ☐ What is the condition of the septic tank?
- ☐ What is the condition of the ground surface in the area above the ATL System?
- ☐ What is the condition of the ground surface in the area around the outside of the ATL System? Is there any breakout or runoff?
- ☐ Were steps taken to prevent runoff from entering the ATL System?
- ☐ Is there evidence of damage (traffic loading, etc.) to the area above the ATL System?
- ☐ Is there any settling of the cover material atop the ATL System?
- ☐ Note any other pertinent observations.

## Qualified System Inspector Information

| | | |
|---|---|---|
| **Name of System Inspector** | | |
| **Business Address** | | |
| **Contact Information (phone; email)** | | |

## 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 two years 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 two (2) 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.

Infiltrator™
Water Technologies
Part of ADS

P.O. Box 768 • Old Saybrook, CT 06475
800-221-4436