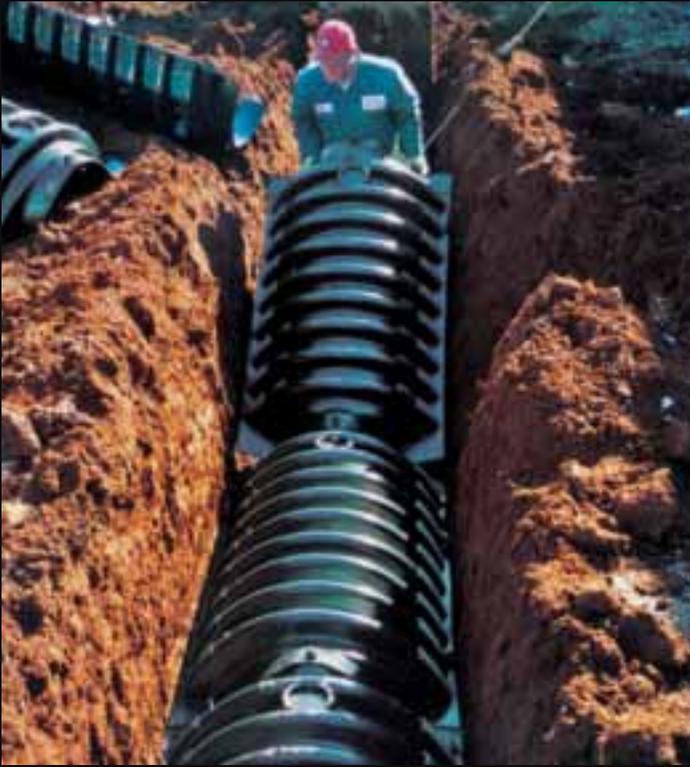


On-Site Septic Systems



Providing solutions for all on-site septic design and installation needs.

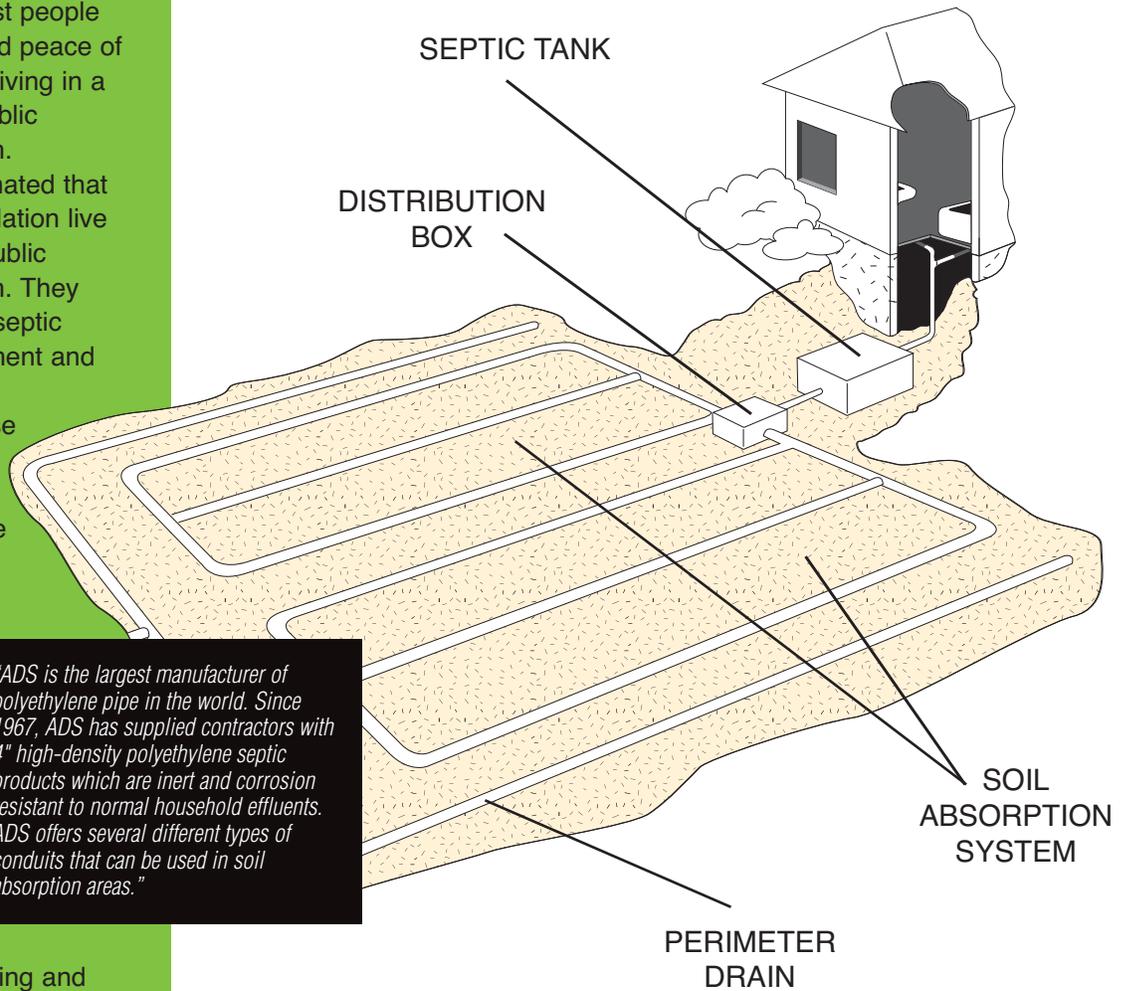
On-Site Septic Systems

In the U.S. today, most people enjoy the comforts and peace of mind that come from living in a house served by a public sanitary sewer system.

However, it is estimated that 25% of the U.S. population live without access to a public sanitary sewer system. They depend upon on-site septic systems for the treatment and disposal of household sewage. Many of these systems consist of a septic tank and a soil absorption area where the effluent is leached into the soil.

A common component of all soil absorption lines and/or fields is a type of conduit that distributes the effluent throughout the soil. The soil has the function of absorbing and treating effluent. If the soil absorption system is designed properly, i.e. there is adequate soil absorption area for the flow of effluent created by the household, then the leach field will function indefinitely with little maintenance.

"ADS is the largest manufacturer of polyethylene pipe in the world. Since 1967, ADS has supplied contractors with 4" high-density polyethylene septic products which are inert and corrosion resistant to normal household effluents. ADS offers several different types of conduits that can be used in soil absorption areas."



Commonly referred-to specifications in designing Septic Leach Fields:

ASTM D 5829 – Standard Practice for Surface Site Characterization for On-Site Septic Systems.

ASTM D 5921 – Standard Practice for Subsurface Site Characterization of Test Pits for On-Site Septic Systems.

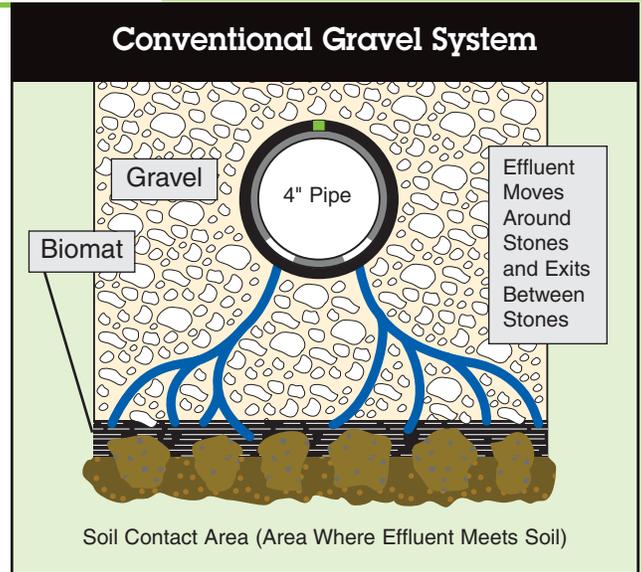
ASTM F 481 – Standard Practice for Installation of Thermoplastic Pipe and Corrugated Pipe in Septic Tank Leach Fields.

**There are two basic types of soil absorption systems:
Gravel and Gravel-less.**

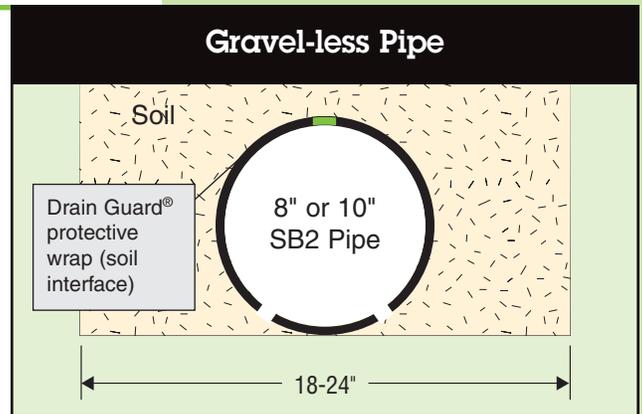


According to the EPA, the gravel in a conventional pipe and gravel system performs three basic functions: 1) its void spaces provide storage capacity for the effluent; 2) it protects the infiltrative surface area of the soil; 3) it supports the excavation. The gravel does not digest, treat or eliminate the effluent.

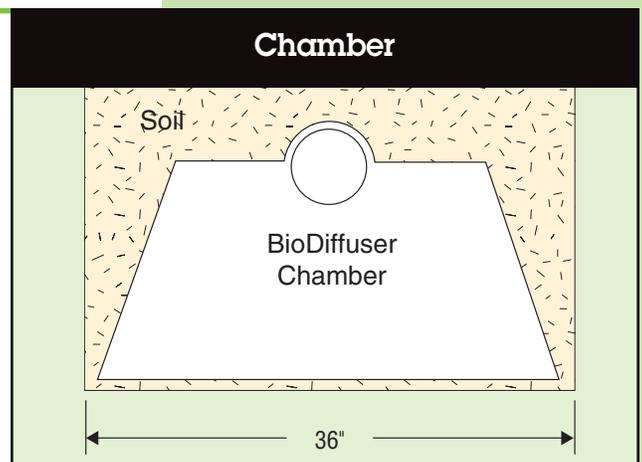
Problems inherent in the use of gravel in a soil absorption system include compaction of the infiltrative surface during installation; fines, which reduce the effectiveness of the infiltrative surface, and "masking", where the effluent cannot enter the soil at points where the rock is in contact with it.



The second basic type of soil absorption system is the gravel-less system. This system incorporates larger pipe or other structures in the soil absorption system.



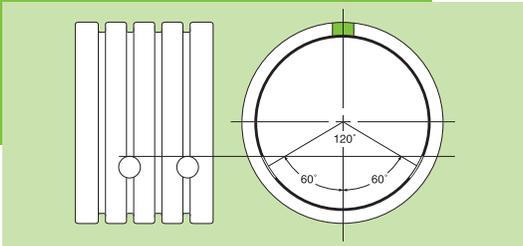
Gravel-less systems include SB2® pipe, Multi-pipe systems, GEO-flow pipe and HDPE leaching chambers. These are the most commonly used conduits in gravel-less systems.



SB2® Pipe for On-Site Wastewater Disposal

During the 1970's, a building boom in Texas made gravel very scarce. Septic installers could not obtain gravel for their systems, and when they did, the quality was below many health department standards. Two professional sanitarians in Texas, John Scroff and John Barnes, developed the SB2 gravel-less pipe to address this need.

The keys to the excellent performance of SB2 pipe are the size of the pipe and the location of the drain holes. The outside diameters of the 8" and 10" SB2 pipe provide the equivalent of 2 and 3 square feet, respectively, of soil absorption area per linear foot. The location of the drain holes, 60° off the bottom center line, provides additional sludge storage capacity, which increases retention time.



Locating holes 60° off bottom center line creates additional sludge storage space.

Additional information

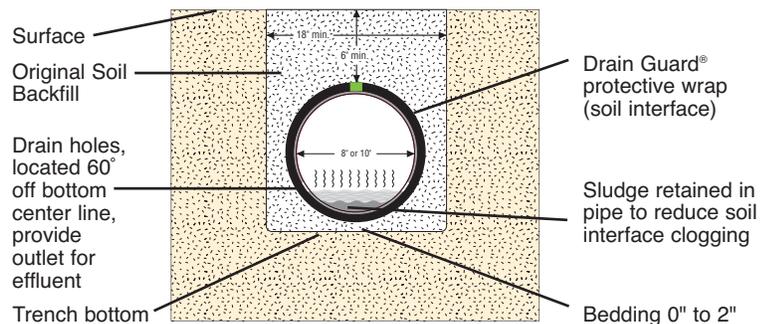
1. ADS Product Note 3.111 "SB2® Installation Guide"
2. ADS Product Note 3.102 "ADS Drain Guard and Sock"
3. "Evaluation of SB2® Wastewater Disposal Systems in Montgomery County, Texas", Carlile and Osborne, 1981
4. ASTM F 405 "Standard Specification for Corrugated Polyethylene (PE) Pipe and Fittings"
5. ASTM F667 "Standard Specification for Large Diameter Corrugated Polyethylene Pipe and Fittings"
6. ASTM D 2321 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications"

Drain Guard® Protective Wrap

SEPTIC SOLUTIONS

- ✓ **Contour flexibility**
- ✓ **Gravel-less**
- ✓ **Equal Distribution**

Drain Guard® is a spun-bonded nylon wrap that is overlapped and sonically welded. It provides an excellent soil interface for passage of effluent into the soil. The valleys of the corrugations function as additional storage capacity, since the fabric bridges the corrugations and allows for the free movement of the effluent out and around the pipe.



Recommended trench width for the SB2 gravel-less drainfield is 18"-24". Tight soils may require a 24" wide trench to insure proper backfill around the bottom and sides of the SB2.

GEO-flow® pipe — More efficient than conventional On-Site treatment systems

The ADS GEO-flow system is dramatically more efficient than a conventional on-site wastewater system because its unique patented* design promotes an oxygen-rich environment for increased biomat activity.

Unique Three-Stage System

1. ADS Corrugated HDPE Pipe helps cool the effluent as it passes through, aiding in the separation of foods, oils and greases from wastewater. The pipe provides additional treatment of solids which may escape the septic tank.
2. Symmetrical polypropylene grid creates a substrate for bacterial activity and assists to distribute effluent around the circumference of the pipe.
3. The special geotextile wrapping creates an additional layer for biomat activity, while utilizing capillary action to wick effluent into the surrounding soil.

GEO-flow's lightweight design, and the fact that it's gravel-less, allow it to be delivered to and installed in areas where conventional pipe-and-gravel systems would be difficult to use.

* Patent #4909665



More flexible than traditional systems

Smaller Footprint and More Flexibility than Traditional Pipe-and-Gravel Systems

Because of its unique design and efficiency, many local Health Departments allow a smaller system footprint for GEO-flow than for conventional systems.* That means lower costs for both the installer and the property owner.

And the flexibility of GEO-flow Pipe allows it to be used in sloping and/or undulating terrain where conventional systems are especially difficult to install.

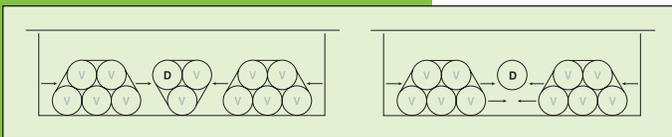
*Check your local Health Department for requirements in your area.



Multi-Pipe

6-Pipe, 9-Pipe, 11-Pipe, and 13-Pipe Systems

Available in configurations from 6 to 13 pipes, Multi-Pipe units allow for exceptional soil contact without the use of gravel. The patented Multi-Pipe units function as a trickle filter, dispersing effluent into the voids in and around the specially-banded ADS pipe. This pipe is engineered with holes and slots, allowing it to collect and disperse the effluent as it passes over the corrugations in the pipe. ADS Multi-Pipe Systems are available for use in both residential and commercial applications. Contact your local Health Department or County Sanitarian for information on which sizes meet your state & local requirements.



Pipe Placement: The distribution pipe (D) disperses the effluent into the void pipe (V) in and around the specially banded units.

Additional information

1. ASTM F 405 "Standard Specification for Corrugated Polyethylene (PE) Pipe and Fittings"
2. Product Note 3.131 "Installation Guidelines for Multi-Pipe"
3. ASTM D 2321 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications"
4. ASTM F 481 "Standard Practice for Installation of Thermoplastic Pipe and Corrugated Pipe in Septic Tank Leach Fields"

- ✓ **Shallow Installation**
- ✓ **Gravel-less**
- ✓ **Maximized Storage**
- ✓ **Optimized Bottom Absorption**
- ✓ **Superior Infiltration Area**

Mound



Trench



Bed



BioDiffuser™ Plastic Leaching Chambers



BioDiffuser™ Leachfield Chamber

ARC™ 36 BioDiffuser Leachfield Chambers

ARC septic leaching chambers can help you save labor, time on the job, and materials without sacrificing performance. Its sturdy design and lightweight plastic construction combine maximized infiltrative surface area and storage capacity with an improved structural design to handle most any conventional leach field system challenge. This allows for increased effluent dispersal performance and improved structural integrity. The ARC design features:

- An integral 20° articulating joint for contoured applications.
- Universal inlet/outlet end cap.
- Convenient five-foot lengths are light weight and easy handling.
- 34.5" width ready for installation into a 3' wide trench.
- Inspection vent ports on every unit with easy-to-remove knockouts.
- True corrugated chamber design for increased loadbearing.



	ARC 36	ARC 36 HC
ADS Product #	3613BD	3616BD
Length	63"	63"
Repeat Length	60"	60"
Overall Width	34.5"	34.5"
Sidewall Height	7.13"	10.75"
Overall Height	13"	16"
Capacity	8.04 cu ft (60.14 gal)	10.7 cu ft (80.04 gal)
Weight	16 lbs	17 lbs
Pallet Qty	60 chambers	60 chambers
Van (Box Trailer) Quantity	25 pallets	25 pallets
Flatbed Quantity	22 pallets	22 pallets

Standard and High Capacity Chambers

The BioDiffuser plastic leaching chamber is a gravel-less alternative for on-site septic leachfield systems. The BioDiffuser chambers provide maximum infiltrative surface area while allowing effluent to flow in all directions. This is achieved by combining the traditional, open bottom with a series of louvers along the sides. The louvers are designed to allow effluent to pass into the backfill while preventing the backfill from migrating into the chamber. BioDiffuser chambers are constructed of high density polyethylene which is inert to sewage.

All BioDiffuser chambers can withstand H-10 loads when installed with properly graded and compacted soils. A minimum of 12" of cover is required for H-10 loads. 14" BioDiffuser chambers can handle H-20 loads if installed in certain conditions. Please refer to ADS publication "Product Note 3.121, BioDiffuser Chamber Installation Guidelines," for details.



The lightweight units, available in 11", 14" and 16" heights, are easy to handle. Their standard 75" (6.25') length and 34" width make installation into a 3' trench quick and easy.

SEPTIC SOLUTIONS

- ✓ **Compact Package**
- ✓ **Gravel-less**
- ✓ **Reduction in Area**
- ✓ **Maximized Bottom Absorption**

Standard and High Capacity Chambers

Chambers	Standard 11" H-10	High Capacity 14" H-20	High Capacity 16" H-10
ADS Product #	1100BD	1400BD	1600BD
Length	76"	76"	76"
Repeat Length	75"	75"	75"
Overall Width	34"	34"	34"
Sidewall Height	6.35"	9.68"	11.17"
Overall Height	11"	14"	16"
Capacity, ft ³ , (gal)	9.21 (68.42)	11.91 (89.13)	13.58 (101.63)
Weight, lbs.	27	37	35
Pallet Qty	27 pcs	38 pcs	45 pcs
Flatbed Qty*	39 pallets	21 pallets	21 pallets

* Endcaps may reduce truckload quantity

SEPTIC SOLUTIONS

- ✓ **Compact Package**
- ✓ **Gravel-less**
- ✓ **Trench Width Reduction**
- ✓ **Optimized Sidewall Absorption**

Narrow Chambers

The Bio 2 and Bio 3 chambers are designed for applications where narrow trench installations are the preferred method of effluent disposal. These two chambers incorporate high louvered sidewalls in order to maximize open sidewall infiltrative surface area.

- No gravel means greater storage volume, no damage to soil from heavy equipment and no concerns about "dirty" gravel.
- Open bottom eliminates masking or shadow effect caused by gravel.
- Louver openings optimize infiltrative surface area and prevent soil infiltration along the side walls.

Narrow Chambers

Chambers	Narrow Bio 2 15" x 12" x 87" H-10	Narrow Bio 3 22" x 12" x 87" H-10
ADS Product #	1500BD	2200BD
Length	87"	87"
Repeat Length	86"	86"
Overall Width	15"	22"
Sidewall Height	9.03"	9.03"
Overall Height	12"	12"
Capacity, ft ³ (gal)	4.99 (37.34)	8.45 (63.17)
Weight, lbs.	19	28
Pallet Quantity	90 pcs	70 pcs
Flatbed Qty*	14 pallets	14 pallets

* Endcaps may reduce truckload quantity.



Chamber Accessories

- ✓ **Contour Trenching**
- ✓ **Chamber Extension**
- ✓ **Varying Trench Direction**

BioDiffuser Angle Chamber



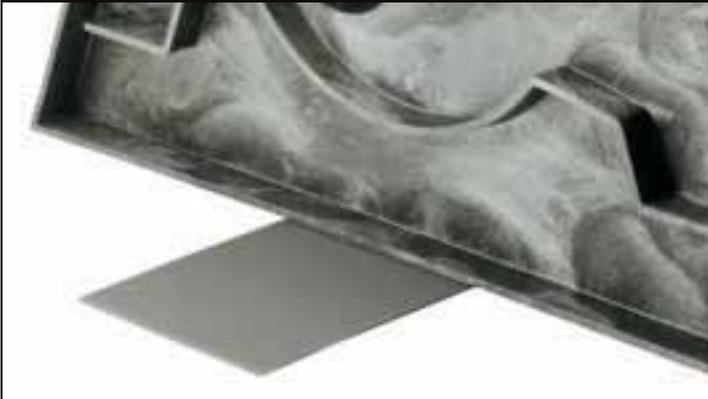
- Accommodates 0° to 22° angles
- Universal left or right turns
- One-foot standard chamber extension
- Available for standard and narrow chambers

Universal End Caps



- One style fits both ends
- Easy to assemble
- No screws required
- Easy knockout holes

Optional Splash Plates



- 6" x 8"
- 150 mil plastic splash plates

Additional information

1. Product Note 3.121 BioDiffuser™ Chamber Installation
2. ASTM D 2412 "Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel Plate Loading"
3. "Wastewater Infiltration from Chamber and Gravel Systems", Tyler, Milner & Converse, 1991
4. "Performance of Conventional and Alternative Waste Systems Under Controlled Waste Loadings", Carlile and Messick, 1982
5. "Chamber Leachfield Systems", R. May, Journal of Environmental Health, Vol. 53, No. 5, 1991

BioDiffuser Angle Chambers (0-22 Degree Oscillating Left-Right Swivel Joint)

Chambers	Standard Angle Section	Bio 2 & 3 Angle Section	HC Angle Section
ADS Product #	1122BD	1522BD	1622 BD
0°-22° Angle	Left or right	Left or right	Left or right
Pieces per box	45	45	45
Weight	3.5 lbs. each	2 lbs. each	8 lbs. each

ADS 3000 TripleWall® Pipe

- ✓ *Conventional*
- ✓ *Beam Strength*
- ✓ *Equal Distribution*

STRONG

ADS TripleWall HDPE pipe WILL NOT CRACK or flatten under typical loads.

DURABLE

HDPE has unmatched corrosion and abrasion resistance.

Superior joint, injection-molded HDPE

coupling is spin-welded to the pipe.

- Standard 5/8" leach hole perforations.
- 10' lengths with one spin-welded coupling.
- 3" & 4" Diameters, Perforated or Solid
- 90 pieces per pallet.

ADS TripleWall pipe is used for septic leach fields, perimeter drains and foundation drains.



Additional information

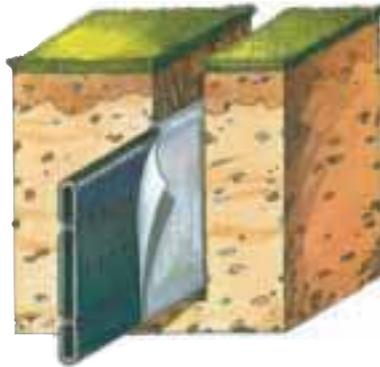
1. ASTM D 2412 "Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading"
2. ASTM F 481 "Standard Practice for Installation of Thermoplastic Pipe and Corrugated Pipe in Septic Tank Leach Fields"



Curtain Drains

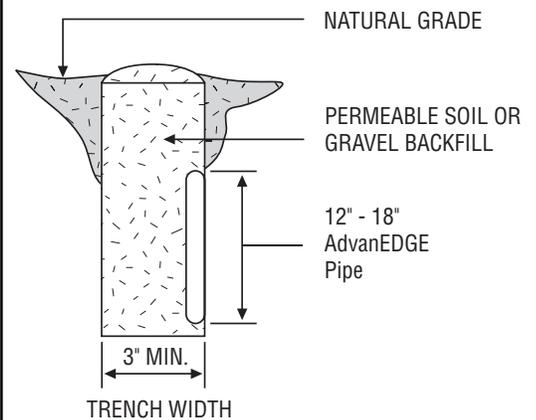
High water tables can cause flooding of the soil absorption septic system. Perimeter drains, also called curtain drains, are installed to prevent water seepage into the leach field area.

AdvanEDGE® pipe is panel-shaped, offered in 12" and 18" heights, and in coils up to 400 ft. The primary benefit of its panel design is quick drainage response after introduction of water, making it ideal for time-critical applications as opposed to 4" and gravel trench drains.

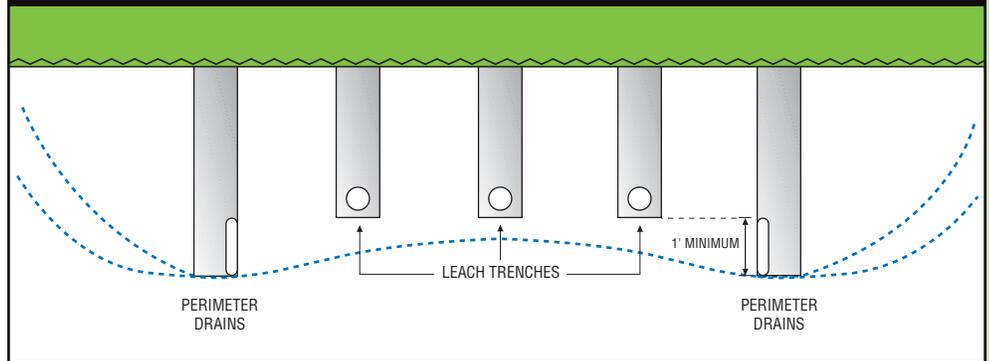


The AdvanEDGE pipe's increased contact area allows faster drainage than conventional pipe.

AdvanEDGE Pipe Perimeter Drain



Water Table Drainage In Septic Systems



SEPTIC SOLUTIONS

✓ **Anticipated High Water Tables**

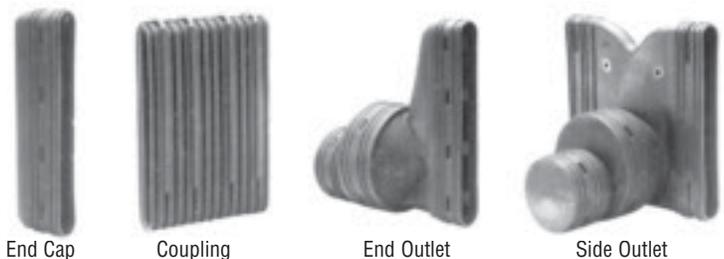
✓ **Sloped Sites**

Additional information

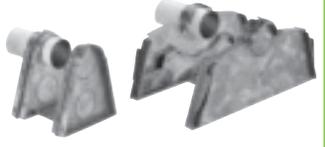
1. Product Note 3.110 "Specification for AdvanEDGE Pipe"
2. ASTM F 481 "Standard Practice for Installation of Thermoplastic Pipe and Corrugated Pipe in Septic Tank Leach Fields"

AdvanEDGE Couplings

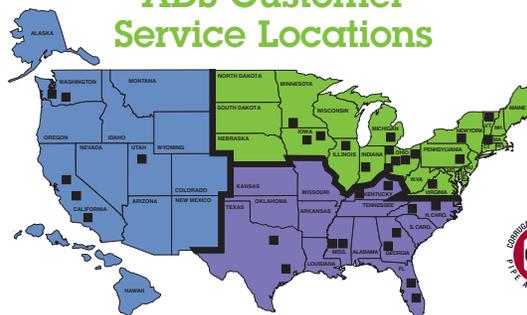
(Fittings for AdvanEDGE Laid Flat are also available.)



ADS Fittings, Parts and Accessories

Split Coupling  3" - 311 8" - 811 4" - 411 10" - 1011 5" - 511 12" - 1211 6" - 611	Snap Tee  3" - 321 5" - 525 4" - 421 6" - 626	Blind Tee  3" - 341 5" - 541 8" - 841 4" - 441 6" - 641 10" - 1045	Multiple Tee  664 - 6" to 3, 4, 5 or 6" 844 - 8" to 4, 5, 6 or 8" 1044 - 10" to 6, 8 or 10"	Multiple Cross Tee  654 - 6" to 4, 5 or 6"	Tap Tee  3" 350 4" 450 4" LONGTAP 410
Downspout Adapter  3" - 364 (3.25 x 2.5) 4" - 464 (3.25 x 2.5) 4" - 465 (4.25 x 3) 4" - 466 (2.56 x 2.56) RAINGO 6" - 664 (4 x 6 x 6)	Septic Tee No. 494  4" straight end fits ADS adapter 463 for ADS Plastic Pipe	Septic Tee No. 495  Adapts to cast iron	Septic Tee No. 496  Adapts to clay	Septic Vented Elbow No. 497 	Split End Cap  3" - 331 12" - 1267 4" - 431 15" - 1567 5" - 531 18" - 1867 6" - 631 24" - 2467 8" - 831
Septic Tank Adapter  4" - 463	Offset Adaptor (SB2)  839 - 8" without gasket 840 - 8" with gasket 940 - Gasket 1039 - 10" without gasket 1040 - 10" with gasket	45° Wye  3" - 322 6" - 622 4" - 422 8" - 822 5" - 522	Distribution Boxes  1369 - Regular 1370 - Hillside		Snap Coupling  3" - 312 6" - 612 4" - 412 8" - 812 5" - 512 10" - 1012
Internal Coupler  3" - 315 6" - 615 4" - 415 8" - 815 5" - 515 10" - 1015	90° Elbow  3" - 390 4" - 490	Clay Adapter  3" - 362 6" - 662 4" - 462 8" - 862 5" - 562	4" Sewer and Drain Adapter  4" - 467	AdvanEDGE Pipe  Available in 12" and 18" heights	Non-Perforated Pipe  3" - 351 10" - 1051 4" - 451 12" - 1251 5" - 551 15" - 1551 6" - 651 18" - 1851 8" - 851 24" - 2451
Septic System Leach Field Pipe (1/2" to 3/4" dia. hole)  4" - 402 - 100' Coil or 250' Coil 4" - 405 - White 250' Coil	SB2 Gravel-less Leach Bed Pipe  Filter wrapped, 1/2" holes, 8" and 10" diam. 20' lengths.	Geo Flow  0491-AA 0492-AA	ADS TripleWall Septic Drain Pipe  352 - 3" x 10', perforated 355 - 3" x 10', solid 462 - 4" x 10', perforated 465 - 4" x 10', solid	Septic Fabric  2600 or 2700 Series	Multi-Pipe  MPS- 6 MPS- 9 MPS-11 MPS-13
ARC Chamber  3613BD 3616BD	Standard Chamber  1100 BD 34" wide x 11" high 1400 BD 34" wide x 14" high - HC 1600 BD 34" wide x 16" high - HC	Narrow Chamber  2200 BD 22" wide x 12" high 1500 BD 15" wide x 12" high	BioDiffuser Angle Section  1122BD 1522BD 1622BD	Chamber Ends Caps  1501BD, 2201BD 1101 BD, 1401BD, 1601BD	Speed Leveler  0010SL

ADS Customer Service Locations



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