



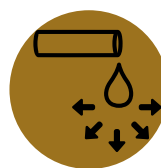
# Factsheet: BSFs

## Bottomless Sand Filters (BSFs)

A drainfield option for advanced wastewater treatment systems on properties with difficult soils, shallow water tables, small lot sizes and other constraints

Bottomless Sand Filters (BSFs) are a special type of drainfield (also called a leachfield or soil treatment or absorption area) that can only be used if there is an advanced wastewater treatment system before it. Compared to conventional drainfields, BSFs are much smaller, which is only possible because the advanced-treated wastewater entering the BSF has fewer contaminants than wastewater leaving a conventional septic tank. BSFs are common in coastal or waterfront areas, as well as in inland regions with tricky soils, small lots, and/or shallow water tables or bedrock.

Bottomless sand filters were developed by a consortium of state and municipal regulators, wastewater contractors and Cooperative Extension staff at the University of Rhode Island



Designed to **disperse wastewater** to the soil **after** it has received **advanced treatment**. A typical BSF **extends 6-24"** above the ground surface



A smaller **alternative** to other drainfield options **for sites with challenging conditions and/or constraints**



Can be used for **both residential and commercial** applications, as long as there is good (advanced) pre-treatment of wastewater



During construction, **material quality** is very **important**. Once a **BSF** is **in use**, it **requires annual maintenance**



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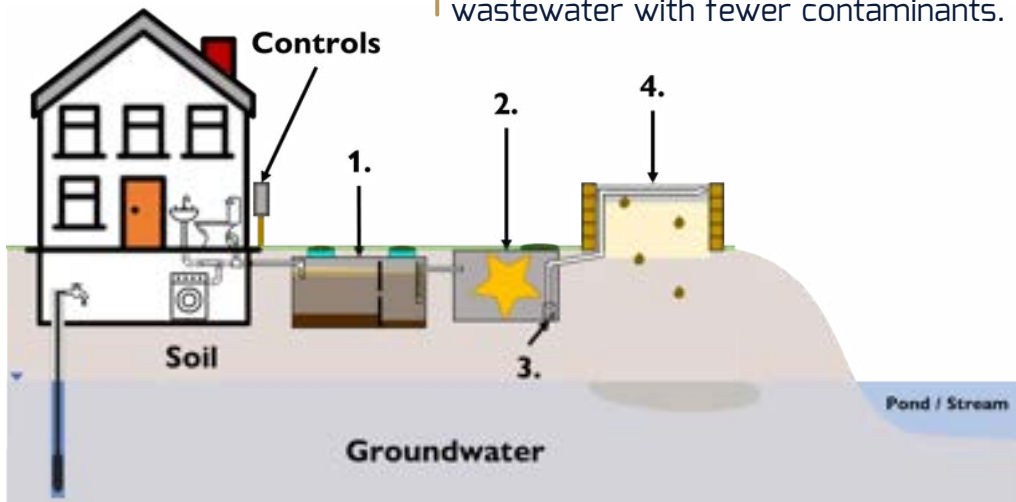
# How BSFs work

1. A primary treatment zone (or tank) allows solids to settle out of the wastewater from the house.

2. In another zone or in a separate tank (as pictured here), specialized conditions enable microbes to provide advanced treatment to the wastewater. This results in wastewater with fewer contaminants.

3. A pump (which may be in an additional, smaller tank) moves advanced-treated wastewater to perforated pipes embedded in the surface layer of gravel in the BSF. Wastewater spraying from these pipes is only about 3-4" beneath the surface of the BSF!

4. Wastewater then trickles into a specialized sand layer in the BSF, and then is dispersed to the native soil below. The BSF can be mostly above-ground as shown here, or partially buried with only a few timbers showing.



## How to take care of a BSF

### ✓ DO'S

- ✓ **Ensure your advanced treatment system and BSF are maintained at least annually.** The pipes inside the BSF need periodic cleaning (typically covered by advanced wastewater treatment system service contracts)
- ✓ **Keep trees and shrubs away from your BSF** - roots growing into a BSF can cause major problems



### ✗ DON'TS

- ✗ Drive over the BSF
- ✗ Store or place items on a BSF
- ✗ Allow children or pets to play on or dig in the BSF
- ✗ Use a BSF as a patio or grilling area
- ✗ Obstruct the BSF's surface
- ✗ Use a BSF or any system component as a footing or structural support

### In flood-prone areas:



- Concrete BSF walls are an excellent choice in areas that experience flooding. Concrete is less likely to break apart during a storm, and outlasts pressure-treated timbers
- Have your service provider check your BSF after a flood or significant storm event to ensure nothing has been damaged