

A New Concept in Wastewater Treatment and Disposal

As we enter the twenty first century, onsite wastewater treatment and disposal will become more prevalent as more and more homes and businesses are built in suburban areas without central sewers. Existing conventional septic systems relying on soil for treatment will continue to fail and need to be repaired or replaced.

We have developed an alternative to conventional site built septic systems, aerobic treatment units, and wetland systems. Our system is a complete, pre-engineered, pre-packaged treatment and disposal system. It consists of a septic tank with effluent filter for primary treatment and solids separation, a packaged recirculating, multi-layer media filter for advanced treatment (patent pending), and final disposal using subsurface drip irrigation, gravel or gravelless absorption fields, or surface discharge if permitted by regulatory agencies.

Our treatment system is very effective for reducing organic and bacteriological contaminants from septic tank effluent. It can also convert most nitrogen to a nitrate form, thus maximizing the potential for plant uptake when the effluent is discharged into the root zone.

Our system offers many benefits over other systems, such as:

- ❖ A simple to install, pre-engineered, pre-packaged wastewater treatment and disposal system.
- ❖ Low operation and maintenance costs.
- ❖ Odor free, natural treatment system requiring no chemicals.
- ❖ Simple system using one or two small pumps. No blowers or other mechanical equipment required.
- ❖ Two year warranty with extended service contracts available.
- ❖ Reduced disposal field size in most jurisdictions due to the high quality effluent. Prevents disposal system failures due to hydraulic overloading and biomat formation.
- ❖ Built in storage capacity to handle peak and diurnal flows with no change in effluent quality.
- ❖ An innovative design which allows the media filter to be continually dosed even when there is no flow from the residence or business. This keeps the biological treatment system operational during vacation or shut down periods.
- ❖ More uniform high-quality effluent than package aerobic treatment systems and constructed wetlands.
- ❖ No need to depend entirely on soil for treating wastewater. Treated effluent can be used for irrigation and tree farming.
- ❖ Simple, quick retrofit for existing failed or malfunctioning systems.
- ❖ Includes digital microprocessor control system with alarms and remote monitoring capability.

Earthtek Environmental Systems, Inc.

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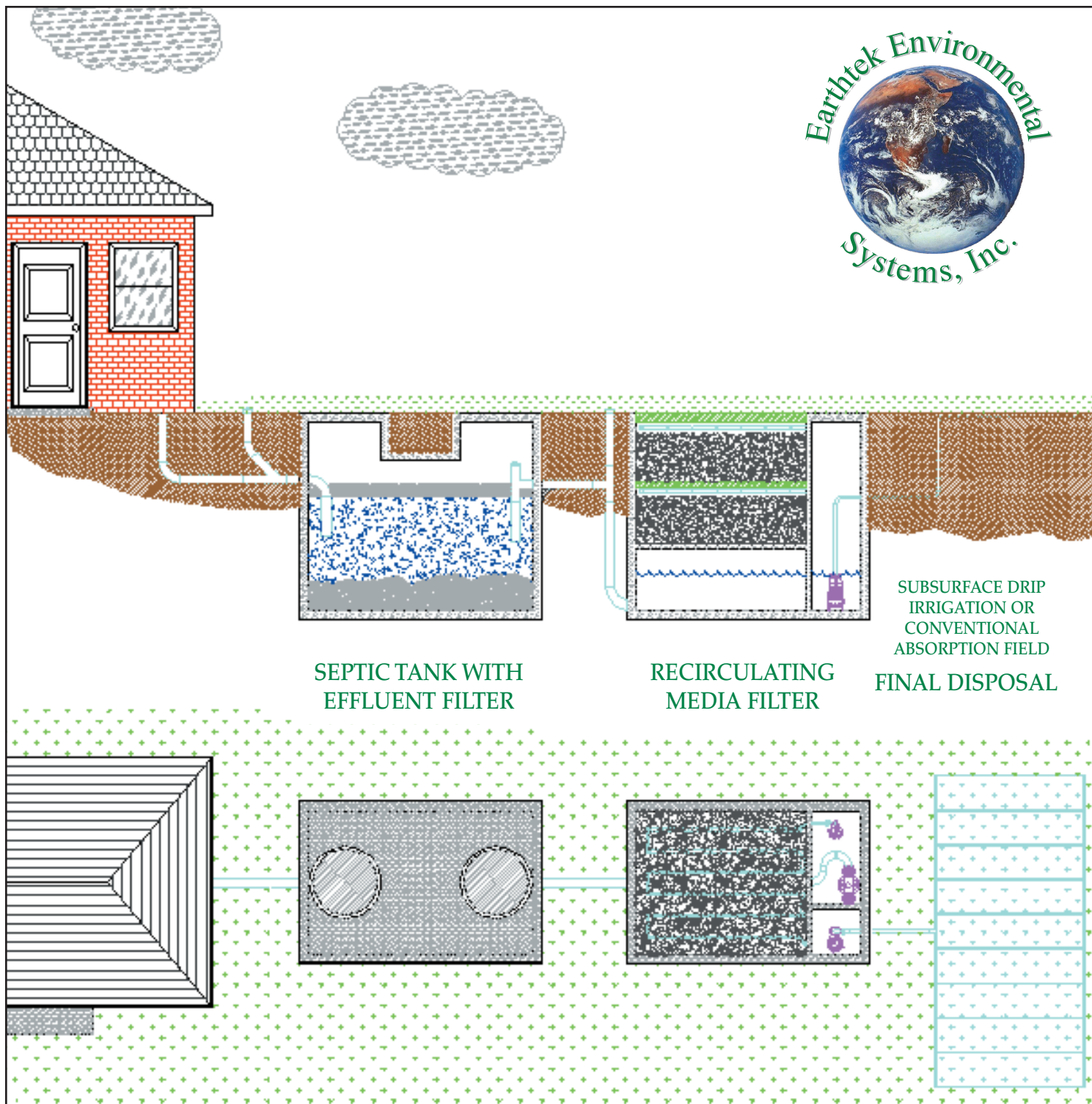
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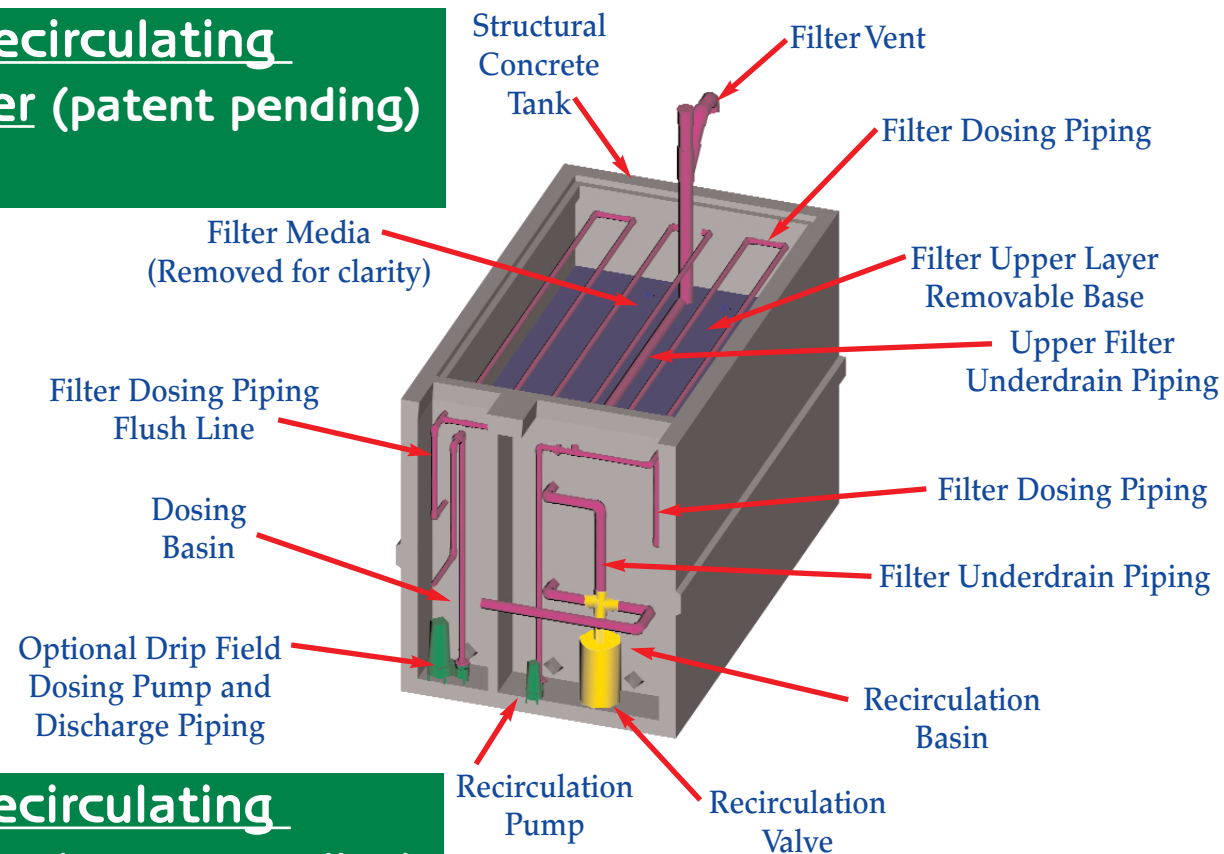
System Description

Earthtek Environmental Systems, Inc. has developed a complete package wastewater treatment system for homes and businesses. Wastewater flows from the building to a conventional septic tank for primary treatment. Settled and skimmed wastewater flows from the septic tank through an effluent filter to a recirculating media filter (patent pending).

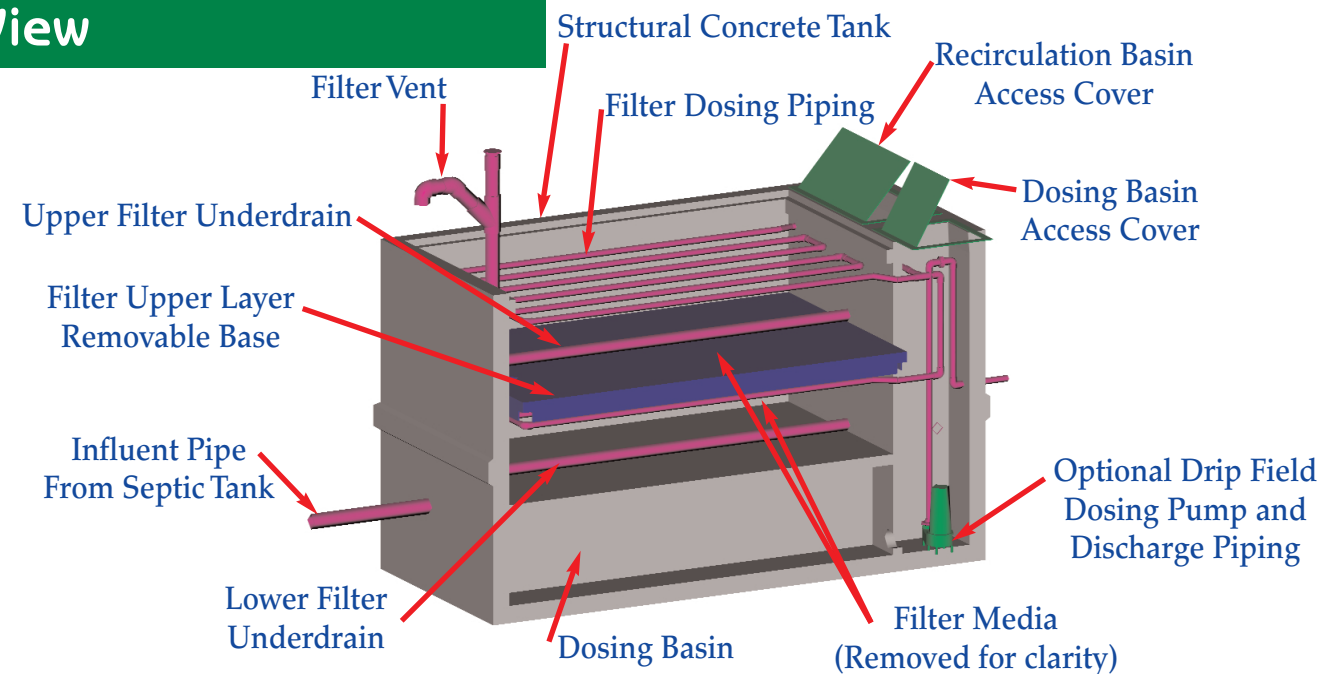
Septic tank effluent enters the filter in a recirculation basin in the bottom of the tank. The water in the recirculation basin is time dosed onto multi-layer filter beds. As the water trickles through the bed it is treated through a combination of physical, chemical and aerobic biological processes. The filtrate is collected in an underdrain and flows back to the recirculation basin. A digital control system time doses the filter and provides alarms for filter plugging, pump failure, and high water level.

When the level of water in the recirculation basin reaches a predetermined elevation, filtered effluent is bypassed to a separate integral dosing basin. The treated effluent can be disposed of by soil or surface discharge, as permitted by regulatory agencies. An optional submersible pump in the dosing basin will time dose the treated effluent to a subsurface drip irrigation system or conventional soil absorption field.

Modular Recirculating Media Filter (patent pending) End View



Modular Recirculating Media Filter (patent pending) Side View



Recirculation Media Filter Effluent Results Treating Domestic Wastewater

Parameter	Avg. Influent	Avg. Effluent	% Removal
BOD (mg/L)	206.9	7.2	96.5
TSS (mg/L)	141.7	5.5	96.2
Ammonia (mg N/L)	26.9	2.4	91.2
Nitrate (mg N/L)	1.5	15.8	-
Total Phosphorus (mg P/L)	5.5	2.5	54.5
Fecal Coliform (colonies/100mL)	6.7*10 ⁵	1.4*10 ⁴	97.9