


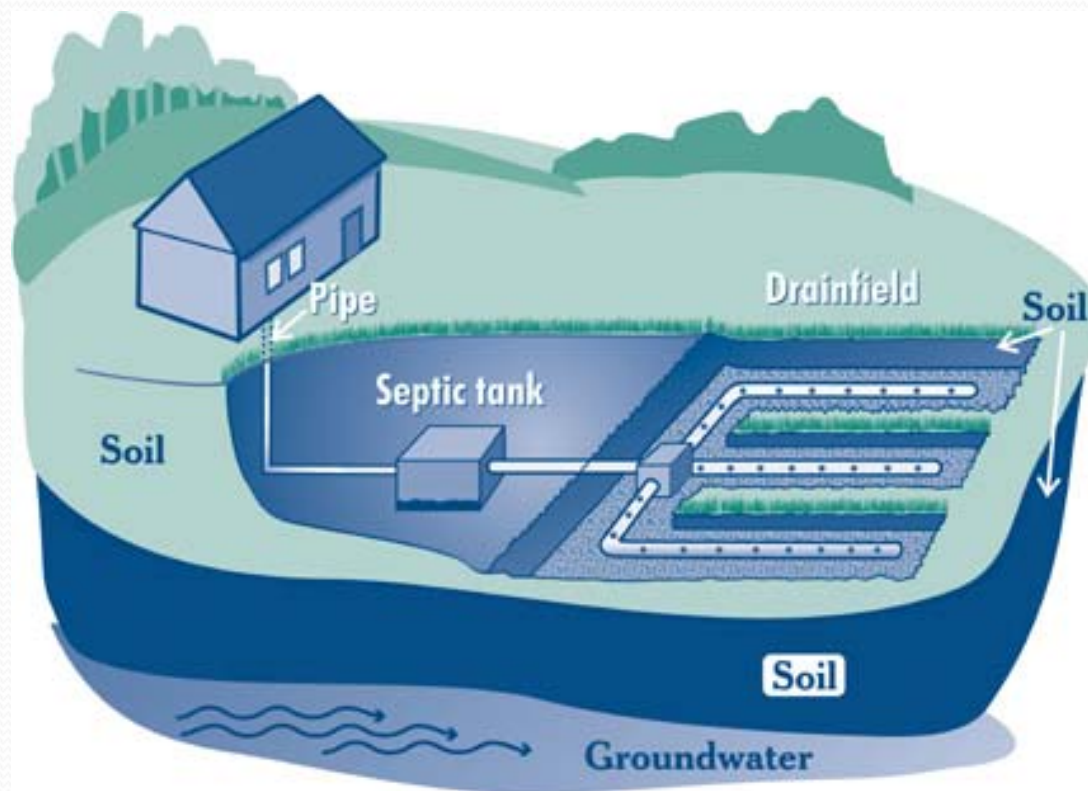
Septic Management Plan

Warren County Health Department



Approximately **HALF** of Warren
County's **109,000** residents use
Individual Subsurface Sewage Disposal
Systems (ISSDS)

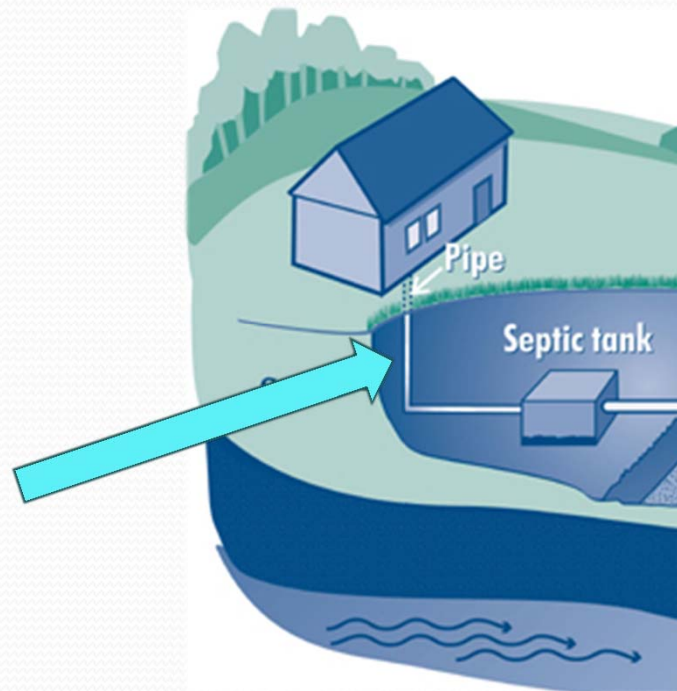
Septic Structure and Function



<http://www.nachi.org/septic systems.htm>

Pipe

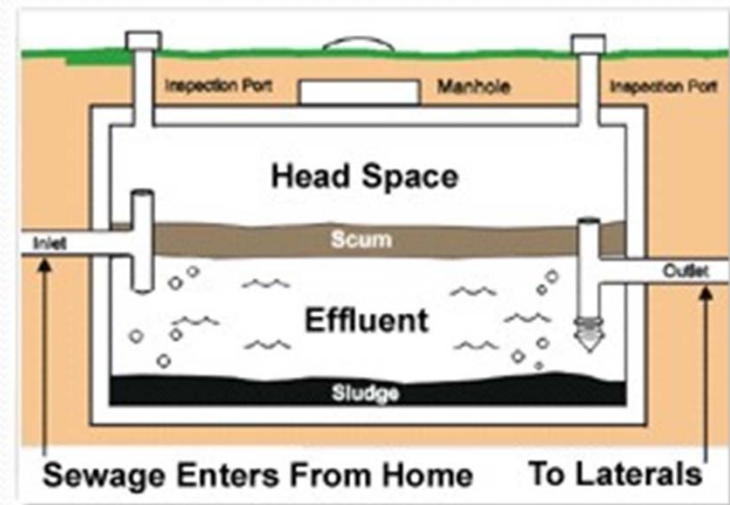
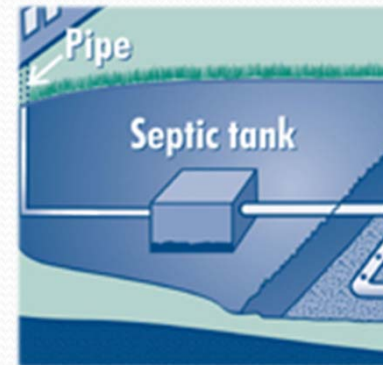
Wastewater exits through a pipe, called a building sewer, and enters the septic tank.



<http://www.nachi.org/septicsystems.htm>

Septic Tank

- **Structure:**
 - A tank—made of concrete, fiberglass, or plastic)
 - Baffles (tees)—located at the inlet and outlet
- **Function:**
 - It separates solid and liquid waste.
 - It promotes breakdown of contaminants. Microorganisms that naturally occur in water perform this breakdown.
 - Baffles ensure proper flow patterns.



http://www.state.nj.us/dep/dwq/owm_home.htm

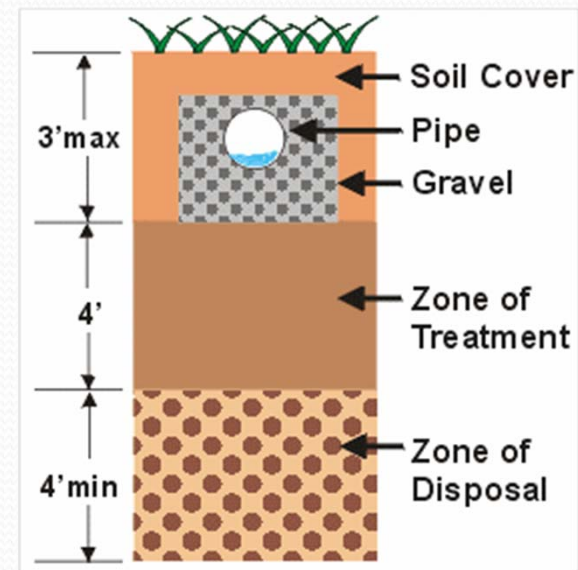
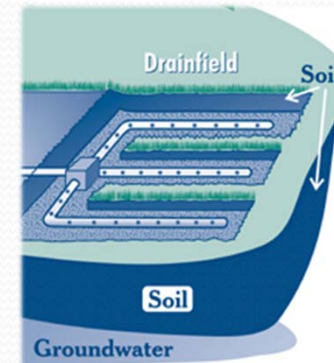
Drainfield

Structure:

- Distribution box and laterals
- Soil—containing microbes and two zones, a zone of treatment and a zone of disposal

• Function:

- Partially treated wastewater is pushed out of the septic tank when new wastewater enters the septic tank
- Wastewater is uniformly spread out by the **distribution box** and **laterals** and, thus, enters the **drainfield**
- Microbes in the **soil** (typically on top of the zone of treatment) digest bacteria, viruses, and nutrients
- Wastewater enters the ground in the zone of disposal



Alternative Septic Systems

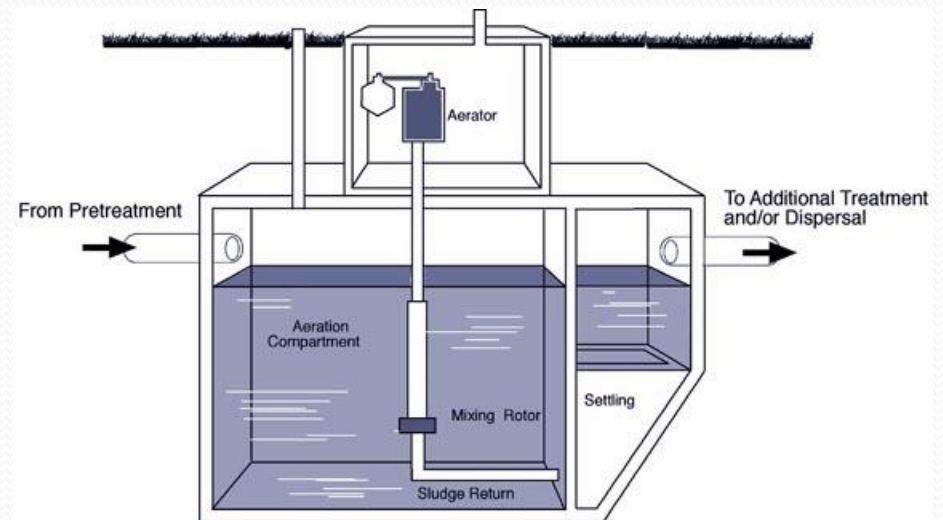


Alternative Septic Systems

- Alternative systems have advanced water treatment and disposal options and are case-specific.
- There are three types:
 - Aerobic Treatment System
 - Peat Biofilter
 - Drip Dispersal

Aerobic Treatment System

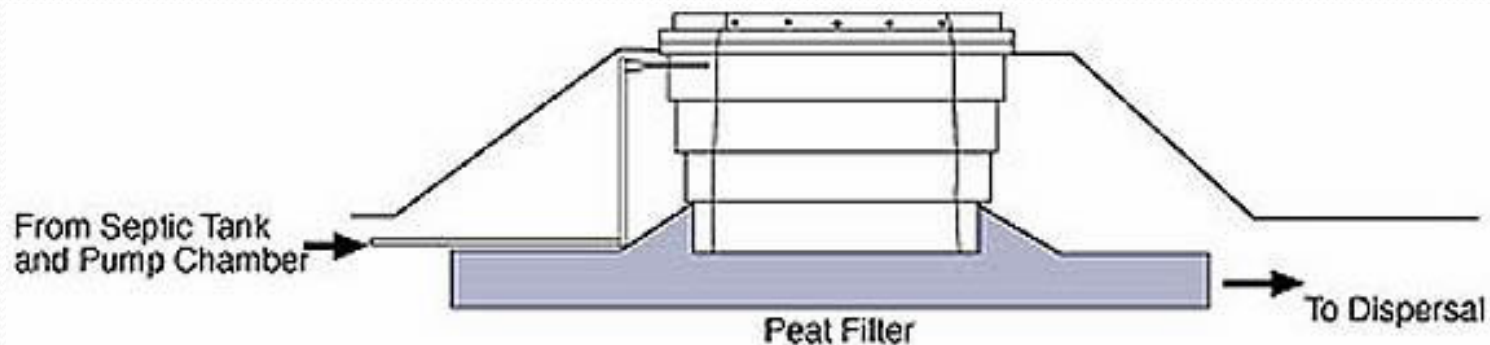
- The system is designed to treat wastewater using microorganisms.
- The microorganisms oxidize and decompose organic compounds in the presence of oxygen.
- Types of Aerobic Treatment Systems include the following:
 - Fixed Activated Sludge Treatment
 - Fixed Film Trickling Filter
 - Packed Bed Filters
 - Sequencing Batch Reactors (SBR)
 - Submerged Attached Growth Bioreactors (SAGB)



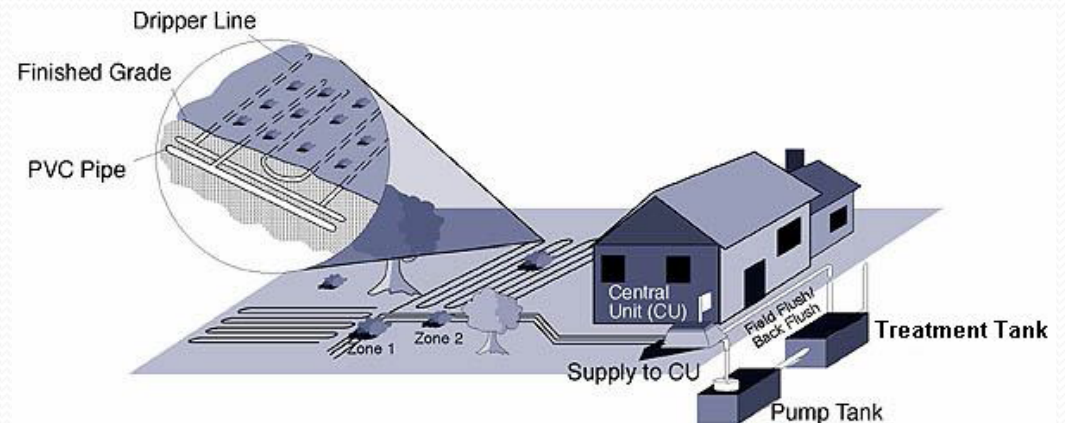
http://www.state.nj.us/dep/dwq/pdf/NJ_Aerobic_Guidance_01_o8.pdf

Peat Biofilter System

- Partially treated septic tank effluent passes through a peat biofilter unit consisting of sphagnum peat moss or peat fiber.
- Aerobic microorganisms degrade the waste constituents, as waste water is briefly absorbed into the peat medium.
- Peat medium has a large surface area and contains void space, which allows for air movement and exposes the wastewater to oxygen.



Drip Dispersal System



- Dripperline:
 - It is inserted directly into the soil without any other media.
 - It is flexible tubing with uniformly spaced drip emitters.
- Drip emitters: They distribute wastewater throughout the day in small, uniform volumes as it passes through small holes in the tubing.
- Pumps: They fill and pressurize the dripperline to ensure uniform dispersal.
- Integrated controller: It activates the pumps to supply the dripperline with water at appropriate intervals of time and volume.

Septic Maintenance



A Note on Maintenance

Regarding all **repairs** (and location, design, construction, installation, and operation) to septic systems that discharge less than 2,000 gallons of wastewater per day:

- They are subject to the Standards for Individual Subsurface Sewage Disposal Systems (N.J.A.C. 7:9A).
- Residents **NEED A PERMIT** from a local health department.
- Residents **DO NOT** need approval from the DEP, unless told otherwise by a local health department . (Residents only need approval if local authorities deny a project based on N.J.A.C. 7:9A).



Maintenance Methods

Use and Maintain Effluent Filters

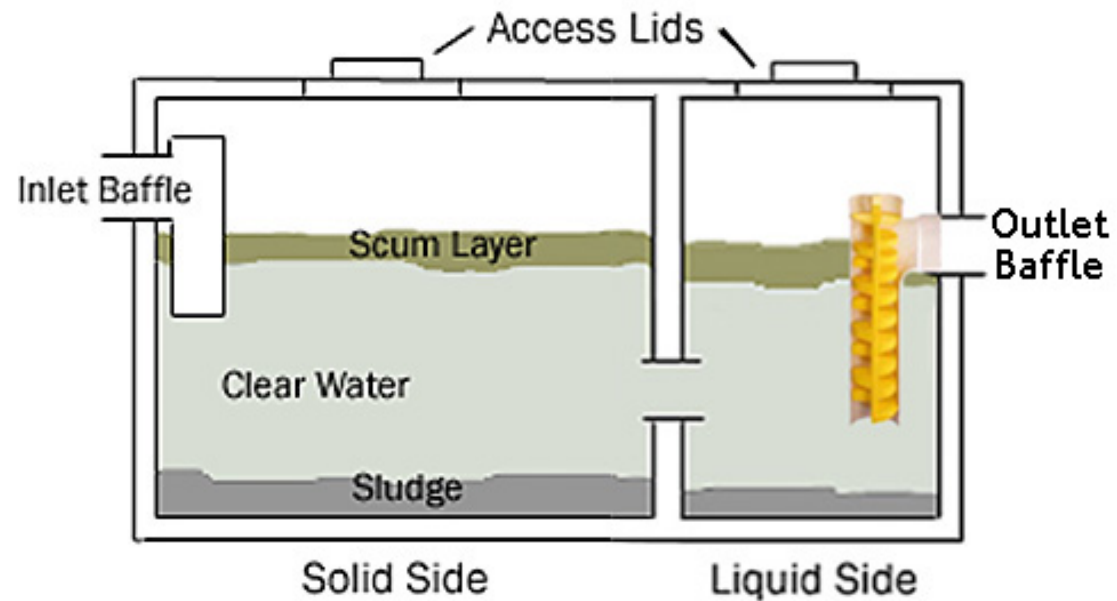
- Effluent filters prevent drainfield clogging by stopping scum and sludge from entering the drainfield
- The filter may clog. Signs of clogging include slower drainage or flushing of household fixtures
- To prevent clogging, maintain by rinsing them annually

Effluent Filters



Bottom Left: effluent filter example

Below: effluent filter inserted into a septic system





Maintenance Methods

Use Water Efficiently

- Wasted water entering the septic system can harm the system's operation and lead to failure.
- Water should be used efficiently to prevent overloading the septic system.



Use Water Efficiently

High-Efficiency Toilets

- They reduce water use from 1.6 to 3.5-5 gallons per use compare to older toilets.
- Older toilets can be made more efficient:
 - Insert a plastic container with small rocks inside the toilet tank
 - This saves around half a gallon of water per flush



Use Water Efficiently

Faucet Aerators and High-Efficiency Showerheads

- These reduce water use.
- Faucet aerators in particular reduce the amount of water entering the septic system.



Use Water Efficiently

Water Fixtures

- Leaks in toilet reservoirs and sinks add to the amount of water entering the septic system.
- Check for leaks in toilet reservoirs and faucets.



Use Water Efficiently

Washing Machines

- The following methods will reduce the amount of water used for laundry, allow the drainfield to properly treat all wastewater, and help prevent flooding in the drainfield.
- Select an appropriate load size for your laundry or run only full loads of laundry.
- Avoid doing several loads of laundry at one time; spread out laundry washing over the week.
- Avoid doing laundry when people are using the shower or dishwasher.



Maintenance Methods

Watch what you put Down your Drains

- The following can clog and damage septic systems:
 - Dental floss
 - Feminine hygiene products
 - Condoms
 - Diapers
 - Cigarette butts
- The following can destroy biological treatment in septic systems and contaminate surface or groundwater:
 - Chemicals
 - Gasoline oil
 - Pesticides
 - Antifreeze
 - Paint



Maintenance Methods

Care for the Drainfield

- Only plant grass over your drainfield. Any other plant may cause clogging or damage.
- Do not drive or park vehicles over the septic system. They may compact the soil or damage the system.
- Position all rainwater and surface water drainage systems away from the drainfield. This will prevent flooding, which would slow treatment or back up plumbing fixtures.



Maintenance Methods

Avoid Using Harmful Cleaners

- Be aware of contents in septic system cleaners.
- Avoid cleaners with banned substances, which are more than 1% of the following substances:
 - Hallogenated Hydrocarbons (Aliphatic or Aromatic)
 - Any Aromatic Hydrocarbon
 - Any Phenol Derivative
 - Any substance containing Acrolein, Acrylonitrile, or Benzedine



MOST IMPORTANTLY


Septic Systems should be inspected and
pumped every **3 to 5 years**

Significance of Maintenance

Why Maintain Your Septic System?



1. There are Benefits to Inspection and Pumping

- 
- During Inspections,
 - The tank's bottom is checked,
 - The whole tank is checked for leaks,
 - And any necessary repairs are identified.
 - Pumping prevents a build up of scum and sludge layers beyond its maximum safety capacity.



2. Protect Human Health and the Environment



Properly functioning septic systems prevent the **spread of pollutants:**

- Chemicals (nitrogen and phosphorus)
- Disease-causing bacteria and viruses

Improperly functioning septic systems may cause **groundwater contamination**, leading to the following:

- Drinking water contamination
- Contamination in swimming areas
- Ultimately, the spread of disease and infection in humans and animals



Water quality is compromised by failing septic systems.

<http://cfpub2.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=25&minmeasure=3>



3. Maintenance is an Investment

Septic systems are **expensive**:

- **To Repair**


- One-time problems are costly
- Improper maintenance or inadequate repairs may cause reoccurring problems, which compound cost over time

- **To Replace**





Unusable septic systems or ones in disrepair may do the following:

- Lower property value
 - Lead to legal liability—specifically after a real-estate transaction
- 



Works Cited

- “Bureau of Nonpoint Pollution Control: Onsite Wastewater Management.” *New Jersey Department of Environmental Protection Division of Water Quality*. New Jersey Department of Environmental Protection NJDEP, 18 April 2012. Web. June 2012.
- *A Homeowner’s Guide to Septic Systems*. Trenton: New Jersey Department of Environmental Protection. Print.
- Images
 - Slide 3: “Septic Systems.” *InterNACHI*. International Association of Certified Home Inspectors, 2012. Web. 28 June 2012.
 - Slides 5&6: “Bureau of Nonpoint Pollution Control: Onsite Wastewater Management.” *New Jersey Department of Environmental Protection Division of Water Quality*. New Jersey Department of Environmental Protection NJDEP, 18 April 2012. Web. June 2012.
 - Slide 9: “Aerobic Treatment Systems Guidance Document.” *New Jersey Department of Environmental Protection Division of Water Quality*. Bureau of Nonpoint Pollution Control, January 2008. Web. June 2012.
 - Slide 10: “Peat Biofilter Wastewater Treatment Systems Guidance Document.” *New Jersey Department of Environmental Protection Division of Water Quality*. Bureau of Nonpoint Pollution Control, January 2008. Web. June 2012.
 - Slide 11: “Drip Dispersal Wastewater Disposal System Guidance Document.” *New Jersey Department of Environmental Protection Division of Water Quality*. Bureau of Nonpoint Pollution Control, January 2008. Web. June 2012.
 - Slide 15: “Effluent Filters.” *Alpha Omega*. Alpha Omega, n.d. Web. 27 June 2012.
 - Slide 30: “Preventing Septic System Failures.” *EPA United State Environmental Protection Agency*. United States Environmental Protection Agency, 24 May 2006. Web. 27 June 2012.
 - Slide 32: Zirkle, Damon. *Money Sign*. 10 Dec. 2008. *Randomosity*. Web. 27 June 2012.