



# Clean Waters

## *Starting in Your Home and Yard*

### *Caring for Your Septic System*

*Clean Waters is a collaboration of the Connecticut Sea Grant Extension Program and the University of Connecticut Cooperative Extension System's NEMO Project, educating individuals about the impacts of everyday activities on water quality and simple techniques that help protect water resources from the home well to Long Island Sound.*

When you flush your toilet, or pour something down your drain, do you know where it goes? If your home is not on a municipal or community system, your wastewater probably goes into an on-site sewage disposal system, commonly called a septic system. A septic system is designed to collect, treat and dispose of wastewater on site so that it can percolate into the ground without clogging the soil or contaminating ground or surface waters.

In Connecticut, nearly 40% of homes use some form of on-site sewage disposal system to treat and dispose of household wastewater. When properly sited, designed, installed and maintained, a septic system can be a cost-effective method of wastewater treatment. However, since wastewater disposal is something most of us don't spend much time thinking about, many systems are out of date, not functioning properly, or clearly failing.

Domestic wastewater contains several kinds of pollutants. The major pollutant is the pathogens (disease-causing microorganisms) like the bacteria and viruses that cause dysentery, hepatitis, and typhoid fever. Fortunately, soil and soil bacteria can effectively remove most pathogens from wastewater treated by a properly functioning septic system.

When nutrients such as nitrogen and phosphorus are discharged from septic systems into the groundwater, they can contaminate drinking water supplies, and also represent a potentially important nonpoint source of pollution to ponds, streams, and estuaries such as Long Island Sound. In freshwater systems, phosphorus causes excessive aquatic weed growth that can limit the uses of ponds and lakes. In the Sound, excess nitrogen fuels massive algal blooms, which in turn die, using up oxygen as they decompose.

The improper use of septic systems has been

shown to contribute to contamination of groundwater by toxic chemicals. Contaminants that may enter groundwater through septic systems include heavy metals and toxic chemicals from small commercial establishments, toxic household products, and organic chemicals typically found in septic tank cleaning products.

#### How Does A Septic System Operate?

Most systems have two main components: the septic tank and the leach field. A distribution box is often found between these two components to distribute wastewater to all parts of the leach field.

The septic tank receives the wastewater and provides a site for the solids to separate and settle and for some decomposition of solids and contaminants to occur. Heavy solids settle to the bottom of the tank forming a layer of sludge. Lighter solids, like grease, float to the top forming a layer of scum. The wastewater in the middle is pushed out into the leach field as more wastewater moves into the tank. Solids need time to settle to prevent them from being pushed out into the leach field and they also need to be periodically pumped from the tank. A properly sized tank will hold 2-3 days worth of wastewater to allow for proper settling. A two-chambered tank allows for more complete settling of solids because there is less turbulence in the second chamber, resulting in cleaner water leaving the tank.

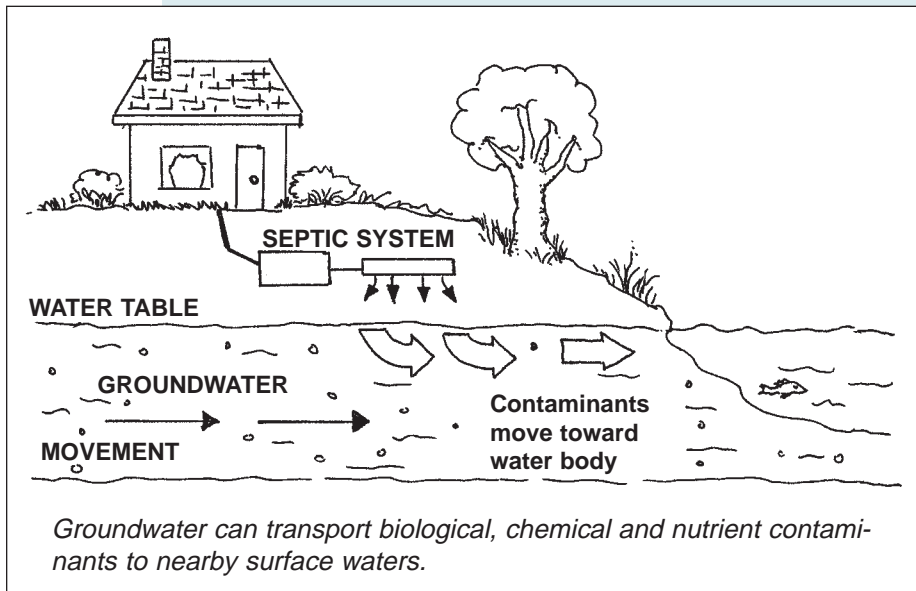
The leach field consists of trenches or a bed, often lined with gravel or coarse sand, and is buried one to three feet below the surface of the ground.

Perforated pipes or drain tiles run through the trenches. Wastewater trickles from the perforat-

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water entering the system, the less turbulence and better settling that will occur. For example, decrease the amount of water going into the tank by spreading out water-using activities (like laundry) during the course of the week. Install low-flow shower-heads, use a “toilet tummy” or a half-gallon milk jug filled with water in the toilet tank and encourage short showers in the household.

Lastly, protect the leach field. Avoid compacting the soil or crushing the pipes. Don't let heavy vehicles or animals cross

the leach field; don't place heavy objects like swimming pools or storage sheds over the field. Also, avoid planting trees within the leach field as the roots can cause damage to the system. Grass is the best thing to grow over the leach field.

Maintenance means inspection and pumping of the tank. An inspection should include checking sludge and scum levels as well as checking baffles to be sure that they have not been damaged.

### Care and Maintenance of the System

Proper siting, design and installation are all critical to the proper functioning and long life of a septic system. The owner/user of that system plays an equally important role. Using preventive practices, maintaining the system and watching for signs of failure are key.

Preventive practices include (a) improving the quality of wastewater; (b) reducing the amount of wastewater, and (c) protecting the leach field. Simply put, use care in what you put into the system. It was designed for one purpose and one purpose only...to treat wastewater exiting the home.

Do not use the wastewater disposal system as a wastebasket, household chemical disposal site, or use unnecessary additives in your system. Also, the use of a garbage disposal further taxes the system. IF you use a garbage disposal, your septic tank should be pumped more frequently.

Conserve water where possible. The less

Tank pumping is needed to remove the solids that cannot be broken down by bacteria and which should not enter the leach field. Frequency of pumping will depend upon the number of members in the household as well as the tank size. The state of Connecticut Department of Public Health recommends pumping every 3-5 years. Some towns in Connecticut require routine pumping. Keep maintenance records, using something like the attached record-keeping chart, to avoid the “out of sight, out of mind” problem.

A failing system can result in the spread of disease from improperly treated wastewater/ sewage. You should be able to recognize the signs of a failed system and be prepared to act to correct problems. If you experience sewage backup in drains or toilets, slowly draining sinks, tubs and toilets, foul odors, repeated intestinal illnesses in household members, standing waste-

water or soggy areas on the ground above or near the septic system, or excessive growth of lush, green plants over the leach field even during dry weather, your septic system is probably failing.

### Use of Additives

There are several types of septic system additives available. Generally, additives are marketed to: digest or "liquify/gasify" the solids in a septic tank; rejuvenate stressed bacterial populations in the tank; and/or increase "settleability" of solids in the tank. Though some of the products may do what they suggest, the necessity of such additives is not proven. Others, though harmless to the system, are ineffective. Others still may actually prove damaging, particularly to the leach field and the soils.

In Connecticut, the State Department of Public Health does not recommend the use of additives. The U.S. Environmental Protection Agency also does not recommend the use of these products.

If you have questions about the location of your septic system, contact your local health department. Also, be sure to maintain records of location, pumping, maintenance or repair should you decide to sell your property. A savvy buyer will want to have confidence in the status of your home's septic system.

Use the record sheet on the back page to keep track of your septic system's location and maintenance.

Tank size (gals.)	Household Size (number of people)					
	1	2	3	4	5	6
500	5.8	2.6	1.5	1.0	0.7	0.4
750	9.1	4.2	2.6	1.8	1.3	1.0
900	11.0	5.2	3.3	2.3	1.7	1.3
1000	12.4	5.9	3.7	2.6	2.0	1.5
1250	15.6	7.5	4.8	3.4	2.6	2.0
1500	18.9	9.1	5.9	4.2	3.3	2.6
1750	22.1	10.7	6.9	5.0	3.9	3.1
2000	25.4	12.4	8.0	5.9	4.5	3.7
2250	28.6	14.0	9.1	6.7	5.2	4.2
2500	31.9	15.6	10.2	7.5	5.9	4.8

*Estimated septic tank pumping frequencies in years.  
These figures assume there is no garbage disposal unit in use.  
(Source: Pennsylvania State University Cooperative Extension Service)*

#### Sources:

Long Island Sound Study, "The Impact of Septic Systems on the Environment," Fact Sheet #13, September 1991.

The University of Rhode Island Department of Natural Resources Science, "Maintaining Your Septic System", Fact Sheet 88-2, April 1988.

"Small Flows" Newsletter, Spring 1997, Vol. 11, No. 2, 'Septic Tank Additives', page 10.

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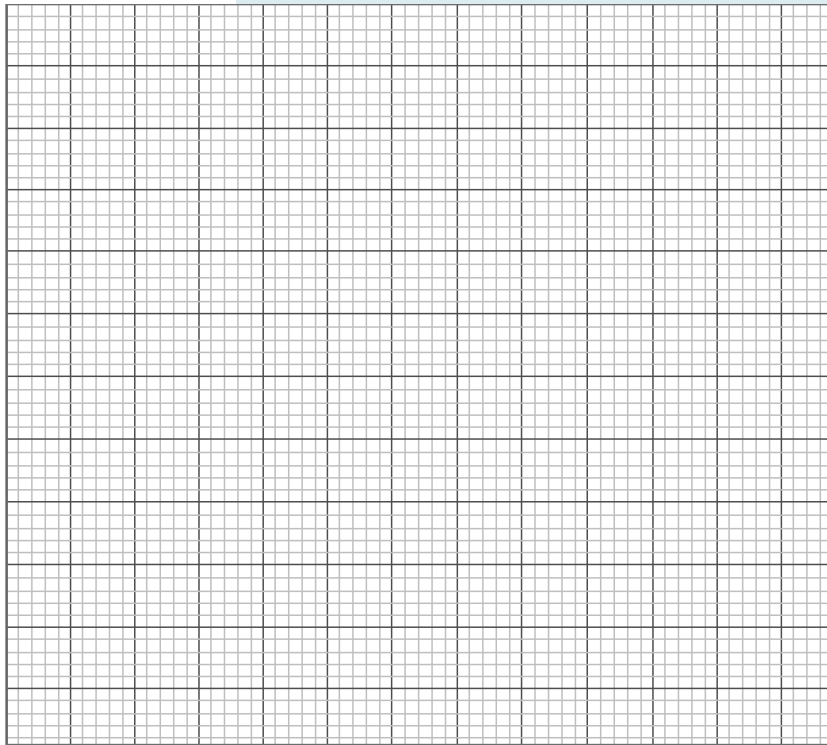


The Connecticut Sea Grant College Program, based at the University of Connecticut, is part of a national network of university-based programs sponsoring coastal and marine-related research, outreach and education.



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# Record Sheet



## Septic System Layout

If you do not have a sketch of your septic system to place in this file, you should fill in the space provided, showing the relative location of your septic system components in relation to your house.

Date	Work Done	Firm	Cost

## Preventive Maintenance Record

Keeping a record of your septic system maintenance experience will help you anticipate when the next cleaning may be needed.

If you should move, leaving a copy of this record will help the new homeowner.

Fact Sheet #3

**Your Septic System Pumper**

Name \_\_\_\_\_

Address \_\_\_\_\_

Date Installed \_\_\_\_\_

Phone \_\_\_\_\_

**Your Septic System Installer**

Name \_\_\_\_\_

Address \_\_\_\_\_

Date Installed \_\_\_\_\_

Phone \_\_\_\_\_