



Soil Facts

Septic System Owner's Guide

If you use a septic system, or if you are buying a home with a septic system, this owner's guide can help you be sure that your septic system is used and maintained properly. This folder also provides a place to record and keep important information, such as a copy of your permit, a sketch of your system, maintenance records, and other fact sheets.

Know the Ins and Outs of Your System

What type of system do you have?

Many different kinds of septic systems are used in North Carolina, but most of the nearly 2 million systems in use throughout the state are slight modifications of the conventional septic system. This system has a septic tank and a drainfield with gravel-filled trenches (usually two to six trenches). Since the mid to late 1990s, however, the traditional gravel aggregate trenches used in the past have given way to newer gravel-less trench designs.

These gravel-less trench designs rely on alternative materials in place of the gravel. The most common gravel-less trenches now used include either long, narrow, tunnel-shaped chambers in the trenches or gravel substitutes such as expanded polystyrene aggregate.

Other alternative trench materials that are also being used extensively in some parts of the state include large diameter pipes and permeable concrete panel block trench materials. In addition, since about 2003, some gravel-less septic system trenches use bundles of plastic pipes or other materials such as recycled rubber tires (chopped into

chips or pieces to meet specific size requirements) to replace the gravel aggregate.

Cooperative Extension Service publication *AG-439-13, Septic Systems and Their Maintenance*, describes the conventional system, simple modifications of it, and important maintenance needs.

Other more sophisticated types of on-site systems used for the last 20 to 25 years include systems with pumps, mechanical pretreatment units, or biofilters. These technologies are now being used in numerous new housing developments or to replace or repair failing septic systems at homes and businesses. Systems using these new technologies require a higher level of maintenance than the more traditional conventional septic systems.

For this reason, state rules have specific maintenance requirements for a number of these more sophisticated technologies. Often, homeowners will be required by state sewage rules to hire a state-certified operator to regularly inspect and maintain the system. In addition, state rules also require the health department to inspect these systems on a periodic basis.

Your local health department can tell you what type of system you have and what the

Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. North Carolina State University and North Carolina A&T State University commit themselves to positive action to secure equal opportunity regardless of race, color, creed, national origin, religion, sex, age, or disability. In addition, the two Universities welcome all persons without regard to sexual orientation. North Carolina State University, North Carolina A&T State University, U.S. Department of Agriculture, and local governments cooperating.

- Where are the tank and drainfield located (they may not be at the same location or even on the same lot)?
- When was the tank last pumped?
- How frequently has it been pumped?
- How often has the “effluent filter” in the septic tank been cleaned (these effluent filters are required on systems installed since 1999).
- Have there been signs of possible failure?
- Where is a copy of the permit and records showing how well (or poorly) the system has been maintained?
- Have there been additions made to the house that would necessitate increasing the size of the system?
- Has the system ever been repaired, and if so, when, and by whom?

If the house has just been built, ask the septic system contractor to provide you an “as built” diagram that may show details not on the permit. If the house has a system with a pump, ask the contractor and health department to provide details concerning the initial pump setup.

Proper care of your septic system requires day-to-day management as well as periodic maintenance and repairs.

Day-to-Day Management

Don't use too much water.

- The drainfield does not have unlimited capacity.
- Typical daily water use is 50 gallons per person.
- The soil drainfield usually has a maximum daily design capacity of 120 gallons per bedroom, even for short periods of time.
- Overloads can occur seasonally, daily, or on the weekend.
- Water conservation will extend the life of your system.
- Repair dripping faucets and toilets.

Limit disposal to sewage.

- Don't use your septic tank as a trash can for cigarette butts, tissues, sanitary napkins, cotton swabs, cat box litter, coffee grounds, or disposable diapers.
- Restrict the use of your garbage disposal. These add quite a lot of extra solids.
- Don't pour grease or cooking oil down the drain.
- Don't poison your system with harmful chemicals such as solvents, oils, paints, thinners, discarded medications, disinfectants, pesticides, poisons, and other substances.
- Save money. Commercial septic tank additives are usually not necessary.

Protect the system from physical damage (site maintenance).

- Keep the soil over the drainfield covered with vegetation to prevent soil erosion.
- Don't drive vehicles over the system.
- Avoid construction over the system and repair area.
- Maintain the natural shape of the land immediately downslope of the system, and protect this area from excavation (cutting and filling).
- Don't cover the tank or drainfield with asphalt or concrete.

Dispose of all wastewater in an approved system.

- Don't put in a separate pipe to carry wash waters to a side ditch or the woods. This is illegal.

Periodic Maintenance and Repair

Home and yard (site maintenance):

- Protect and maintain the site of your septic tank and drainfield.
- Cut down and remove trees that like wet conditions. This includes

willows, elms, sweetgums, and some maples.

- Landscape the yard to divert surface waters away from the tank and drainfield.
- Be sure that the water from the roof, gutters, and foundation drains does not flow over the system.
- If your system is at the base of a slope, then consider installing a french drain to divert underground waters.
- Maintain drainage ditches, subsurface tiles, and drainage outlets so that water can flow freely from them.

Septic tank:

- Install risers over the tank if it is buried 6 inches or deeper. They provide easy access for measuring and pumping solids as well as cleaning the effluent filter.
- Measure how quickly sludge and scum accumulate in the tank. Have your professional pumper record this information.
- Have solids pumped out of the tank as needed. Most septic tanks have two compartments; get both pumped.
- Cooperative Extension Service publication *AG-439-13, Septic Systems and Their Maintenance*, contains more information on pumping frequency.
- Don't wait until your drainfield fails to have your tank pumped. By then, the drainfield may be ruined. With septic systems, an ounce of prevention is worth a ton of cure!

Regulations and precautions:

- Hire a state-certified subsurface system operator for any system with a pump. One will be required by law for low pressure pipe (LPP) systems installed or repaired after July 1, 1992, any subsurface drip irrigation systems, aerobic treatment units (ATUs), peat biofilters, sand biofilters, textile

Preventative Maintenance Record			
Date	Work Done	Firm	Cost

Your Septic System Pumper
Name
Address
Phone

Your Septic System Installer
Name
Address
Phone
Date System Installed

Signs of Possible Septic System Problems

- Sewage backing up into your toilets, tubs, or sinks.
- Slowly draining fixtures, particularly after it has rained.
- The smell of raw sewage accompanied by soggy soil or sewage discharged over the ground or in nearby ditches or woods.
- Note: pump systems sewage may come to the ground surface when the pump is turned on and then disappear after the pump turns off. This is still a system failure and must be repaired.
- An alarm flashing (red light) or beeping in the house or in the yard indicating a pump is not working properly or that the water level in a pump tank is too high and close to failure.
- An increase in infections or illnesses associated with swimming in lakes or rivers next to the system.

biofilters, and other complex systems.

- A list of state-certified subsurface system operators can be obtained from the N.C. Water Pollution Control System Certification Commission at (919) 733-0026.
- Be sure the pump and electrical components continue working properly between scheduled maintenance visits.
- Sewage contains germs that can cause diseases. Never enter a septic tank. Toxic and explosive gases in the tank present a hazard. Old tanks may collapse. Electrical controls present a shock and spark hazard. Secure the septic tank lid so that children cannot open it.
- Don't attempt to repair a failing system yourself. Get a repair permit and hire an experienced contractor.

For more information about septic systems, contact your county Extension agent or local health department.

Prepared by

Michael T. Hoover, *Extension Soil Science Specialist, Department of Soil Science, North Carolina State University*

Appreciation is extended to Tom Konsler (Orange County Health Department), Deanna Osmond, Mitch Woodward, and Grace Lawrence (North Carolina Cooperative Extension) for peer review of the document and to Janet Young for graphic design, layout, and editing.

20,000 copies of this public document were printed at a cost of \$ or \$ each.

© 2004 North Carolina State University

Published by

NORTH CAROLINA COOPERATIVE EXTENSION