

# Country Living

*A Guide for Homeowners*



PENNSTATE



COLLEGE OF AGRICULTURAL SCIENCES



## WITH PEACE AND QUIET COMES RESPONSIBILITY



**M**any people choose to live in the country because they cherish the peace and quiet, the wide open spaces, and the beauty of nature. However, with this enjoyment and independence comes responsibility.

This publication introduces issues about which people living in or considering a move to the country should be aware. It provides a starting point for investigating these issues, and a resource list at the back suggests sources for more information. Being informed and having realistic expectations about country living will help you enjoy your life in the country.

Most drinking water supply and sewage disposal in rural areas of Pennsylvania occur on your residential land parcel. As the property owner, you are responsible for maintaining your on-lot drinking water and septic systems. Understanding how these systems work and how to keep them operating efficiently is critical for your family's health. It is also important to your household's budget because replacing these systems is expensive. This publication covers the basics of private drinking water supply, on-lot wastewater disposal, and the authorities and workings of township government. We assume that your house already has a working drinking water supply system and a septic system or that you will

soon purchase a house with these systems already in place.\*

In rural areas many household utilities and other services typically provided by local government in urban and suburban areas are instead handled by individual property owners or are contracted by the property owner. This publication will help you understand the basics about how government and utilities and other services work in rural areas

This publication also discusses the changing face of Pennsylvania's countryside and relationships with and expectations of other land users. You may want to investigate how land use may change in your area so that you can choose a property that best meets your needs now and in the future. You might find out, for instance, that the farm down the road is slated for a new subdivision, that an oil or gas well is planned for neighboring land, or that nearby timber land will soon be harvested.

In choosing a property, it is important to know what you want to do with the land now and in the future. For example, property suited for wildlife viewing has different qualities than property suited for a recreational horse farm. To learn more about what you should look for in a property depending on your interests, see the resource list at the end of this publication.

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\*If you need a new water or septic system, either because you are building a new house or your old system needs to be replaced, you should contact Pennsylvania's Department of Environmental Protection (DEP) or the Penn State Cooperative Extension office in your county (check the blue [government services] pages in the phone book) for information on the various systems and which is best suited to your area or plot of land.



by the water supply owner. A first step would be to contact DEP and ask them to investigate the water quantity problem. Pre-drilling flow data collected for you by a professional water well contractor or consultant would be important in helping you prove that the water quantity problem was caused by oil or gas drilling.

The public policies described here with respect to interactions between oil and gas and water well quality and quantity may be reevaluated as drilling continues. Refer to the Penn State Water Resources Extension publication *Gas Well Drilling and Your Private Water Supply* for more information (see the resource list at the end of this publication).

To safeguard the quality of your well water, you should ensure that a number of precautions (see sidebar, next page) are or were taken during construction. If you find that your well does not have the safety features described below, you should talk to a professional about revamping the well, especially if you have water quantity or quality problems.

You should keep records of well yield, diameter, depth, length of grouting, etc., for your own information and for future owners of your home (Figure 2). Much of this information is contained in a “well completion report” or “well log” from the original well driller. If you have this report, keep it in a safe place and make sure to pass it along to any future buyer of your home. If you do not have a copy of the well log, contact the drilling company because they may have a copy on file.

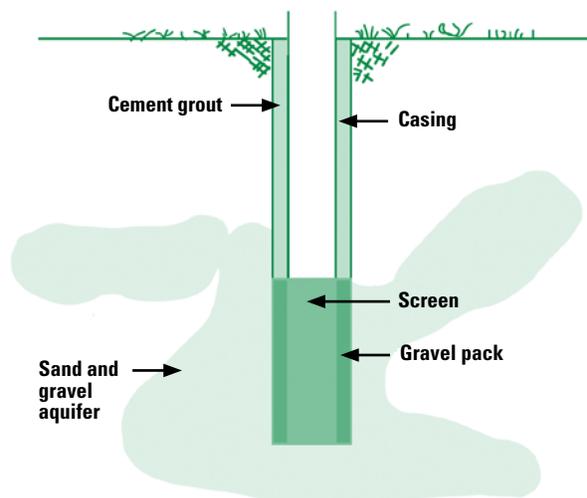
Make sure to keep careful records of quantity and quality measures to provide a baseline against which to compare future changes. Any unusual noise or vibration while the pump or motor is running or upon starting or stopping, or a sudden decrease in water pressure, could indicate that well maintenance is required. Routine maintenance is necessary on all equipment to prolong its life beyond the expected 10 to 15 years.

### Protecting Well Water Quality through Proper Construction

A properly installed well should

- be lined with a quality steel or plastic casing down into the local bedrock;
- have a casing extending at least 8 inches above the ground so that surface water can never contaminate your well through the top hole;
- have a pitless adapter connected to the water service line from the home to the well casing below the frost line in the soil;
- have a cementlike grouting around the outside of the well casing, usually for the entire length of the casing;
- have been disinfected using a shock-chlorination procedure in the final stages of construction.

**Figure 2. Well components.** Source: A. R. Jarrett, *Before You Drill a Well* (University Park: The Pennsylvania State University, n.d.)



### Spring Water

A spring is a place where groundwater discharges to the land surface. Springs can present more challenging contamination and maintenance issues than wells because springs emerge from shallow groundwater that is more affected by surface activities. Be sure that the spring to be used for drinking water discharges all year long, not just in the wettest seasons. Spring water nearly always requires disinfection before use because it is often subject to surface bacterial contamination from surface water, insects, and animals. Past well surveys in Pennsylvania have shown that about 75 percent of springs contain bacteria at levels that public health officials consider unsafe. The decision to disinfect water lies with the homeowner, but most people who find out that their spring water contains unsafe levels of bacteria install disinfection equipment to kill bacteria.

### Protecting Spring Water Quality

- **Make certain there are no contamination sources, such as septic tanks, dog kennels, or barnyards, uphill of your spring.**
- **Landscape the area so that all surface water is diverted away from the spring box.**
- **If your spring water becomes muddy after a rain storm, surface water is supplying a substantial part of the flow; therefore, it is probably best not to drink this water. Such a spring is also quite likely to dry up in the summer months.**
- **Make sure plumbing bringing water from the spring is enclosed in a vault that is protected from entry by animals and insects.**
- **Have your water tested frequently—at least annually—for bacteria.**

### WATER QUALITY: TESTING FOR BACTERIAL CONTAMINATION

Your well or spring is your family's private drinking water system. Your health and that of your family depends on the initiative you take to have the water analyzed and treated, if necessary. About 40 percent of the private water wells and springs in Pennsylvania that have been tested have at least one health-based water quality problem, but only about 20 percent of these homeowners are aware of their water quality problem because only half of Pennsylvania wells and springs have ever been properly tested. An annual test for coliform bacteria is the absolute minimum recommended testing; a test every six months is preferred. Waterborne organisms can cause gastrointestinal illnesses such as giardiasis. Although most coliform bacteria will not cause illness, they suggest the presence of other potentially pathogenic organisms such as fecal coliform and giardia, which may all be present in human or animal waste. Saturated soil with large pore spaces, such as coarse sand, may not adequately filter pathogens out of surface water.

The Federal Safe Drinking Water Act of 1972 and subsequent amendments established a process for the U.S. Environmental Protection Agency (EPA) to develop water quality standards for public water supply facilities. The primary standards are set for health reasons, and the secondary standards pertain only to aesthetic issues with drinking water. Although water quality of private systems is not regulated, the public water supply standards can serve as a reference to check the relative quality of your water. Check with your local extension office or the yellow pages of your phone book for certified water quality testing laboratories in your area. You can get Web-based information about laboratories and interpreting your water quality analysis report from several extension fact sheets listed at the end of this publication. See also [water.cas.psu.edu](http://water.cas.psu.edu) and click on "Drinking Water."

### MORE ABOUT WATER QUALITY TESTING

At least every three years you should have your water supply tested for additional water quality parameters, including pH and total dissolved solids. Water with a pH less than 7.0 or with very low or very high total dissolved solids may be corrosive to metallic pipes. If analysis of your water reveals these characteristics and your pipes are copper, you should consider a follow-up water test for corrosivity. You should also collect a sample after allowing water to sit in the pipes overnight and have it tested for lead and copper to measure the possible by-products of corrosive water. If your pipes are made of galvanized iron, test for zinc and cadmium. Water analysis reports typically include information about acceptable levels of the various measures. See the resource list at the end of this publication if you need additional help interpreting your water analysis report. Call your regional DEP office or the extension office in your county if you still have questions.

#### Water Quality Watch List

**Be alert for sudden changes in your water's**

- **color;**
- **taste;**
- **smell.**

#### What to Do

**If you notice a sudden change in your water quality, check the resource list at the end of this publication for more information about water testing. DEP or your county extension office may be helpful in determining the possible causes and developing a plan for water testing. This consultation can save you money by helping you identify the tests that will provide the most information for the least cost. Accurate records of system specifications, maintenance, testing, and repair can also help pinpoint problems.**

Various land uses, such as gas drilling, mining, agriculture, roads, and housing developments, can all affect groundwater quality. If you suspect that land use changes around your house have affected the quality or quantity of water from your well, check the resource list at the end of this publication for more information about water testing. You may need to consult DEP or the extension office in your county to determine which water tests may be necessary to properly document any changes in your water quality. For example, if pesticides are used or stored nearby, it is a good idea to conduct periodic screenings for these pollutants. If pollutants are found, your local extension educator can help you decide how to correct the problem and develop a schedule for more frequent testing until the problem is solved.

Water quality testing for some contaminants can be expensive. A scan that detects the presence of any pesticide but does not specify which one is significantly less expensive than a test to determine the exact pesticide in the water. Surveys of water wells in Pennsylvania generally find that only a few percent have detectable amounts of pesticide and less than 1 percent has pesticide levels above the health-based drinking water standards. However, many pesticides are carcinogens and therefore should receive immediate attention if they are found in drinking water supplies. Pesticide materials should be stored, mixed, loaded, and cleaned up outside the recharge area of your well. In the event of an accidental spill or application too close to a well, the water from that well should be tested or treated for the pesticide involved.

Check the water supply location (cistern, well, or springhouse) for construction defects and patterns of surface water flow if a water sample tests positive for bacterial contamination. Correct any obvious problems, divert all surface water from the area around the water source, shock chlorinate the

system, and retest the water after two weeks. If the problem has not been solved, you should set up a continuous disinfection system. See the resource list at end of this publication for more details.

## DISINFECTION

If bacterial contamination is the only problem with the water supply, it probably makes sense to disinfect the present system. If your water test shows high concentrations of suspended solids or if the water is occasionally muddy, it should be filtered before disinfection.

### Drinking Water Disinfection Options

- chlorine
- iodine (only in certain cases)
- ultraviolet light

As with any major purchase, you should do some investigating and be sure to have a basic understanding of the potential solutions to your water quality problem before you call a water treatment vendor. Understanding the system will also help you maintain the equipment and get the most value for your money.

Many water treatment companies sell disinfection equipment that will adequately treat bacterial contamination. This equipment may not, however, kill some viruses and giardia cysts—these pathogens may require additional specialized disinfection treatment. For more information on disinfection of these pathogens, contact a water equipment dealer or DEP or see the resource list at the end of this publication.

### Chlorination

The addition of chlorine to water is a common method of disinfection. The water must have ample contact time with the chlorine to ensure disinfection. Often a pipe coil or holding tank is installed for this purpose. Chlorina-

tion leaves a small residual concentration of chlorine in the water so recontamination will not occur after disinfection. Consequently, the water may have a chlorine taste and smell that some people might find objectionable. The water can be run through a granular-activated carbon filter to remove the residual chlorine.

### Iodination

Another substance used for disinfection is iodine. Its use is not recommended for long periods because iodine can influence the workings of the thyroid gland. Therefore, iodination is an option for places such as vacation homes and hunting camps. However, it can be difficult to achieve disinfection while not adversely affecting the water's taste. Like chlorine, iodine disinfection provides continuous protection of the water.

### Ultraviolet Light

The most popular choice for disinfection of private water supplies is ultraviolet (UV) light. Because this method of disinfection does not leave a residual disinfectant in the water, recontamination can occur after initial disinfection and before consumption. Therefore, the light should be on continuously and a solenoid valve should be installed to prevent flow through the unit during a power failure. These units treat all water entering the house. Bulbs must be replaced about once a year.

## POLLUTION PREVENTION

As the guardian of your drinking water, you should do the following to protect the quality of your water and that of your neighbors:

- Perform routine maintenance on your well.
- Maintain a 50- to 100-foot well or spring protection area around your water supply. Prohibit the use of pesticides, fertilizers, and herbicides in this area. Do not store chemicals

in this area, and keep animals out of the protection area.

- Safely and responsibly dispose of hazardous and toxic wastes, including used motor oil, paints, and household chemicals. This means not dumping them on the ground or in a stream, with your regular trash, or in the toilet or drain. Some communities have an annual household hazardous waste day when residents can bring these items to a centralized location and a local government agency or other organization disposes of them safely. If your community does not already sponsor such a collection, perhaps you could encourage your neighbors to request one or volunteer to organize it. If this is not possible, call DEP or a solid waste management company to find out how you can safely dispose of the waste.

## AN ALTERNATIVE DRINKING WATER SUPPLY SYSTEM

If potable water cannot be obtained from a well or spring on your rural property, there is another option: the rainwater cistern. Roof-catchment cisterns collect rainwater falling on the roof of your house or barn. The water is then stored in a holding tank for use as needed. Water collected in a rainwater cistern requires disinfection and other water treatment before it is suitable for use.

## SEPTIC SYSTEMS

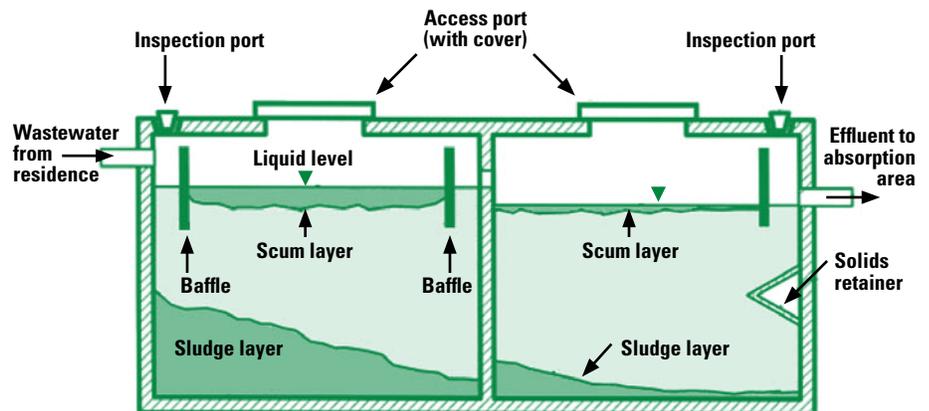
In urban and many suburban areas houses are connected to a sewer and homeowners don't have to worry about where the water goes after they flush the toilet. In the country your responsibility for wastewater may not end with the flush. If your house is not hooked to a sewer, the wastewater your family generates flows literally into your own backyard. Septic system problems can cause sewage to surface in your yard or produce sewage odors in your house. A poorly maintained system could also contaminate a neighbor's drinking water supply or your own.

On-lot wastewater treatment regulations for Pennsylvania are set forth in the Sewage Facilities Act (Act 537) and its 1994 amendment, Act 149. Some basic on-lot systems routinely permitted for residential use include standard trench, absorption bed system, subsurface sand filter, and elevated sand mound. These standard systems cost approximately \$4,000 to \$20,000 when installed in new construction, depending on the system specifications, site features, and your area. Replacing a malfunctioning system will be more expensive. The local sewage enforcement officer, a certified official responsible for permitting the installation of on-lot wastewater disposal systems in one or several town-

ships, can be a valuable source of information about system designs. This officer is responsible for permitting installations and repairs. Contact your local municipality for information on reaching your local sewage enforcement officer or see [www.dep.state.pa.us/cgi\\_apps/seo](http://www.dep.state.pa.us/cgi_apps/seo).

Wastewater treatment systems generally have three components: a septic tank, a distribution system (a gravity-fed mechanism or a dosing pump, which releases a specified amount of wastewater at preset intervals), and an absorption bed. The septic tank is the initial repository of wastewater from the house. It is a watertight, decay-resistant chamber usually made of concrete or plastic that keeps solids from entering and clogging the absorption bed (Figure 3). To allow adequate settling of solids, liquid must remain in the tank for at least 24 hours. Bacteria slowly break down the solids to about 50 percent of the original volume. Clarified liquid discharges to the distribution system and then to the absorption bed, where clarified wastewater is absorbed into the surrounding soil for further purification. A septic system should be located downslope from a drinking water well or spring, and, ideally, the septic tank should be located upslope of the absorption bed to avoid the use of a pump.

**Figure 3. Cross-section of septic tank.** Source: A. R. Jarrett, *Septic Tank Pumping (University Park: The Pennsylvania State University, 2004)*



**Septic Tank Pumping**

Because solids accumulate in the tank, a licensed operator must pump it out every two to five years, which will cost about \$200. At each pumping the operator should also check and clean the distribution box or pump tank, check the condition of the tank and the baffles that keep solids and scum from entering the distribution lines, and replace worn parts. If solids build up in the tank for too long, they may eventually overflow into the absorption bed and clog the system. The frequency of pumping depends on the size of the tank, the volume of wastewater produced, and the amount of solids in the water. Using a garbage disposal increases the frequency of pumping because of the added organic material from food waste. Additives that claim to eliminate the need for tank pumping do not work and should be avoided.

Wastewater disposal systems are sized based on the number of bedrooms in a house. Pennsylvania’s Sewage Facilities Act requires at least a 900-gallon tank for a house with three or fewer bedrooms (Table 1). The capacity of the tank should be increased by 100 gallons for each additional

bedroom. Generally, the indicated frequency will vary with the volume of solids (+20 percent for high volume, –20 percent for low volume).

If you do not know the size of your tank, arrange to have the tank pumped and inspected and ask the operator to assess its size, age, and condition. Newer tanks have two chambers, and both should be pumped. Pumpers should work through the large access lid(s) and not through the baffle inspection ports so they can remove all the solids accumulated in the tank.

**Effluent Distribution and Absorption**

The absorption bed accomplishes the actual cleansing of the effluent, or clarified water, discharged from the septic tank. State regulations dictate the minimum amount of soil between the distribution pipes and the water table below. State law also requires a range of percolation rates, a measure of soil drainage capacity, to allow the installation of this kind of conventional system. A properly maintained and operating absorption bed will promote the movement of treated wastewater into the ground and should not result in soggy ground areas on the surface.

When the absorption bed lies downslope from the septic tank and the soil’s percolation rate is good, the distribution system generally works by gravity and is therefore more dependable than a pump. A pipe carries effluent from the tank to the distribution box, from which effluent is spread evenly around the absorption field through perforated pipes. Distribution is usually accomplished by a pump tank when the absorption bed is uphill from the septic tank or in soils with slow percolation rates.

On steep slopes a trench system—a network of perforated pipes placed in trenches that follow the contours of the lot—may spread effluent through the absorption field.

**Sand Mound Systems**

Because of the soil drainage capacity, the elevation and slope of the land, and the depth to bedrock or the water table, certain areas of Pennsylvania are not suited for conventional wastewater treatment systems such as those described above. In these areas sand mound systems are often used. The elevated sand mound is a constructed embankment of sandy fill material placed on the natural soil surface. State regulations dictate allowable percent slopes and distances from wells, springs, streams, and property lines with these systems.

Use of elevated sand mounds on slopes of 8 to 12 percent is increasingly common, and DEP now lists this technology as another type of conventional system, rather than as an alternate system requiring more permits and paperwork. Use of elevated sand mounds on slopes of 12 to 15 percent is currently classified as an alternate system. More information is available from your local sewage enforcement officer or the DEP Web site ([www.depweb.state.pa.us](http://www.depweb.state.pa.us)), keyword “sewage.”

Most mound systems use a pump to deliver wastewater to the absorption

**Table 1. Estimated septic tank pumping frequencies in years** (for year-round residences).

Tank size (gal)	Household size (number of people)							
	1	2	3	4	5	6	7	8
	<i>Years between pumping</i>							
500*	5.8	2.6	1.5	1.0	0.7	0.4	0.3	0.2
750*	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6
900	11.0	5.2	3.3	2.3	1.7	1.3	1.0	0.8
1,000	12.4	5.9	3.7	2.6	2.0	1.5	1.2	1.0
1,250	15.6	7.5	4.8	3.4	2.6	2.0	1.7	1.4
1,500	18.9	9.1	5.9	4.2	3.3	2.6	2.1	1.8
1,750	22.1	10.7	6.9	5.0	3.9	3.1	2.6	2.2
2,000	25.4	12.4	8.0	5.9	4.5	3.7	3.1	2.6

\*Below the minimum size allowed in Pennsylvania.  
 Source: Adapted from A. R. Jarrett, *Septic Tank Pumping* (University Park: The Pennsylvania State University, 2004)

field at intervals, allowing the mound to dry between applications and prevent clogging. The pump tank should be large enough to hold at least one day's sewage flow from the house in case of system failure. The tank must be pumped every three to five years. For more information on mound systems, see the resource list at the end of this publication.

### **Spray Irrigation**

DEP now permits the use of individual residential spray irrigation systems (IRSIS) as conventional year-round wastewater disposal systems. This technology enables a homeowner to spray pretreated household effluent on forestland, grass, or agricultural land. Each system must include an initial treatment unit for breakdown of solids, an intermittent sand filter to clarify the effluent, a chlorine disinfection unit to kill harmful bacteria, and a spray field. Just as with the other types of systems, DEP has requirements for lot slope and size, depth to bedrock, and so forth.

A spray irrigation system may cost \$30,000–40,000 to install in some areas of the state. For more information contact your local sewage enforcement officer.

### **On-Lot Wastewater Disposal Regulations**

**The Pennsylvania Sewage Facilities Act (Act 537) requires local governments to administer a permitting system for the installation of on-lot sewage disposal systems. A certified sewage enforcement officer (SEO) is responsible for evaluating permits in one or several townships on the basis of lot slope and soil characteristics. The SEO may offer advice on which type of system would work best based on a site's conditions. This person must inspect the completed system before it is covered with soil. Repairing or replacing a septic system requires a permit from the local SEO. Routine maintenance such as tank pumping and distribution pipe flushing can be done without a permit.**

**Some townships have created septic system maintenance regulations that require all residents to have their septic tanks pumped every three years, for example. These regulations are designed to protect local groundwater and surface water from being contaminated by a poorly maintained septic system. Remember that if a septic system is poorly maintained, it may affect your drinking water supply and your neighbors'.**

**DEP is a good place to get more information on all aspects of septic systems. Your local sewage enforcement officer or the extension educator in your county will also be able to give you valuable advice.**

### **System Failure**

Hydraulic overload is the most common cause of system failure. It occurs when more wastewater is delivered to the soil absorption system than can be adequately disposed of in a given time (e.g., if the absorption bed is too small, if water is allowed to flow over the land surface of the absorption area, if the seasonal high groundwater table was not accurately located, or if water use in the home is above average [ $>62$  gallons per person per day]). An undersized septic tank or a tank that is past due for pumping can also cause failure. In the latter case solids are allowed to pass into the absorption bed and clog the soil pores. Additional people living in the house and new water-using appliances can also stress a septic system beyond its limits.

### **Warning Signs of Septic System Inadequacy or Failure**

- **Sewage backs up into the household plumbing.**
- **Untreated sewage emerges at the land surface.**
- **Untreated sewage leaches into groundwater.**
- **The ground above the absorption area is very spongy.**
- **Sewage odor is noticeable in the house or well water.**
- **Dosing tank alarm light is on.**
- **Dosing pump runs constantly or not at all.**

Specially designed dyes or chemical tracers can be used to confirm a suspected system failure. A qualified technician adds dye to the system and watches for its reappearance. Check the yellow pages of the phone book for a wastewater disposal company or an environmental consulting firm or search the Internet for companies in your area.

Be aware that the typical homeowner's insurance policy does not

cover septic system equipment or any damage to the house caused by system failure. In most cases you would need to request “backup of sewer and drain coverage” for an additional charge, and this still would not cover the system equipment. If you are concerned about these issues, contact your insurance agent for your coverage, options, and costs.

*Solutions for system failure.* Two possible solutions exist for system failure: (1) the use of water conservation devices on all fixtures and (2) absorption area resting. Water conservation devices reduce the amount of water flowing into the system, allowing the absorption bed to adequately cleanse the remaining water. Absorption area resting involves constructing an alternate trench system for distribution of wastewater. The two absorption beds are used alternately to allow the resting bed time to dry out and thoroughly drain of wastewater. For more information, refer to the resource list at the end of this publication.

The Pennsylvania Infrastructure Investment Authority (PENNVEST) sponsors the On-Lot Sewage Disposal Fund, a loan program that helps homeowners rehabilitate, improve, repair, or replace existing septic systems. The loans carry a yearly interest rate of only 1 percent and are available to qualified homeowners in areas without sewers. For more information, see [www.pennvest.state.pa.us/pennvest/cwp/browse.asp?A=4](http://www.pennvest.state.pa.us/pennvest/cwp/browse.asp?A=4) or contact PENNVEST at 877-787-8137.

*Avoiding system failure.* Routine maintenance on your septic system will pay off in the long run. As with your car, it is much less expensive to maintain a system in working order than to install a new system or perform major renovations on an inadequate system.

### Measures to Prolong Septic System Life

- **Use water conservatively.**
- **Install water conservation devices on your faucets, toilets, and showers before problems arise with the septic system.**
- **Install a front-loading washer instead of a top-loading model to use about half as much laundry water.**
- **Have your septic tank inspected and pumped every three to five years.**
- **Refrain from using chemicals to clean your tank. Harsh chemicals can kill the essential bacteria working in the tank to decompose solid material. Without these bacteria, your tank will need to be pumped twice as often.**
- **Avoid disposal of substances such as bleach, pesticides, heavily sudsing laundry detergent, oil, grease, antifreeze, and paints down the drain or in the toilet.**
- **Avoid disposal of bulky solids in the drain or toilet.**
- **Refrain from using a garbage disposal, which can shorten the time between pumpings of the system because of the increased load of solids to be broken down in the tank.**
- **Divert runoff from gutters, driveways, and roads from the septic system absorption bed.**
- **Keep heavy vehicles, equipment, and livestock away from the septic system area.**
- **Refrain from planting trees and shrubs over or near the septic system because roots can grow into pipes and clog the system.**
- **Keep in a safe place accurate records of your system's location, construction, specifications, maintenance, repairs, and pumping.**

## LOCAL GOVERNMENT IN RURAL AREAS

The Commonwealth of Pennsylvania has a decentralized system of government that includes municipalities (townships, boroughs, and cities) and counties. Most municipalities in Pennsylvania's rural areas are townships of the second class. A board of supervisors, usually three elected officials, governs the township. Other officials are elected or appointed by the board of supervisors. Some townships have one or more “authorities.” An authority can buy, build, improve, maintain, and operate facilities that provide a service, such as sewage and drinking water treatment. An authority can also borrow money and issue bonds to finance special projects.

At the local level, public school districts are entirely independent from county and municipal governments. They are run by elected members of the school board who are authorized to hire personnel, operate school buildings, buy supplies, and levy taxes and issue bonds for school-related expenses.

## LAND USE

Townships govern land use through a system of permits, zoning laws, subdivision regulations, and other local ordinances. The state gives townships and counties the power to regulate land use, as specified in the Municipalities Planning Code. When both the township and the county have their own land use regulation, the Municipalities Planning Code says that the township regulation overrules the county regulation. Townships' powers are limited by the code as well as by other specific laws passed by the state legislature, such as the Nutrient and Odor Management Act of 2005. In addition, the courts may redefine townships' powers through their decisions about specific cases.

Most townships require building permits for new homes and structures. An appointed planning commission

aids township supervisors with land use decisions. The planning commission develops recommendations for the arrangement of certain land uses within the township to allow for maximum health and safety of residents while still achieving the objectives of the community. Planning helps ensure orderly development of facilities and safe traffic patterns.

County governments also have a planning commission or agency that typically works closely with township, borough, and city governments. Where municipalities do not have their own regulations the county typically provides the land use planning regulations.

The zoning board establishes building requirements for present and future land use in the township. The board may set requirements such as minimum lot size, maximum building height, and use of certain districts for residences, industry, or commercial purposes. Different requirements may exist for different districts. When there are disputes about zoning, the Zoning Hearing Board hears appeals of the prescribed regulations.

Before you purchase a rural property you may want to investigate how the local landscape may change in the future. Go to the local municipal office and ask to see the area's planning maps. What land uses are allowed around the property? Are there current or proposed plans for growth? Is the area seeing an increase in oil and gas exploration and drilling? Could farms be subdivided in the future? If so, you might want to ask the landowner about future plans. Are some areas protected by farmland preservation or open space protection techniques? Talk to potential neighbors and local business owners. Is the area gaining or losing population? How is agriculture changing in the area, and what are the main agricultural products? Which local industries are expanding and which are declining? By informing yourself up front you can factor probable future changes into your decision

and choose a property that best meets your needs. Some changes in neighboring land use could affect the value of your property, either positively or negatively, as well as your peace and quiet.

## **LOCAL ORDINANCES**

Local ordinances may exist to regulate the following issues. Check with your township office and your county planning office.

### **Road Maintenance**

The township government is responsible for maintaining township roads, including snow removal. The Commonwealth maintains state roads. County governments in Pennsylvania typically play only a limited role in road maintenance, being responsible only for some bridges.

### **Burning Garbage and Other Waste**

Some townships allow burning of household refuse and/or yard waste any time, others permit it on specific days, and still others may not allow it at all.

### **Lawn Maintenance**

Some local governments have policies concerning lawn maintenance. These regulations may require you to cut your grass if it exceeds a predetermined height or if it looks unkempt.

### **Animal Control**

The township may have regulations requiring that dogs be leashed at all times or other related rules. Some townships regulate the density and type of animals that may be kept.

### **Nuisances**

Township governments have the authority to prohibit nuisances, including dumping, storage of abandoned automobiles, and offensive manufacturing or business. Under the nuisance power, the board of supervisors may

remove any structure considered dangerous, whether on public or private land. In addition to the previously mentioned powers, the supervisors are authorized to control fireworks, parks, parking, septic systems and sewers, fire prevention, street names, sanitation, public safety, and junkyards.

In agricultural areas, municipalities are not permitted to pass nuisance or other laws that interfere with the operation of "normal" farm operations. The basic legal concepts for these protections were established in Pennsylvania's 1984 Right-to-Farm law. Subsequent state laws, especially Act 38 of 2005 (see further discussion of this law, the Nutrient and Odor Management Act, page 14), have further established farmers' abilities to undertake normal agricultural practices.

## **HOMEOWNERS' ASSOCIATIONS**

Many newer neighborhoods are governed by homeowners' associations. These groups can draft and enforce requirements pertaining to grass height, noise, garbage disposal, burning, use of yards, and outside home decorations, among other things. Your home purchase documents will indicate whether any such requirements are in force for your property.

Some homeowners' associations manage storm water by providing detention basins that collect water and let it slowly evaporate or infiltrate into the ground. These structures reduce the likelihood of damage due to flooding. Structures should never be placed in storm water collection areas.

Many homeowners' associations charge a membership fee to cover administrative costs. Most associations are run by resident volunteers.

## **GARBAGE COLLECTION**

In most rural areas of the state the township does not provide garbage pickup. Each household is responsible for contracting with a private trash

hauler. You should expect to spend about \$300 per year on these services. Contact your township office for names of reputable, licensed haulers in your area or look in the yellow pages of the phone book. Do not bury trash or appliances on your land. Doing so can contaminate area drinking water supplies, including your own. In some areas rural recycling options may be limited or nonexistent. Contact your township or county government to find out what services are available.

## EMERGENCY SERVICES

Municipalities provide police services in more populated rural areas. State police generally patrol in areas where the population is so dispersed and small that a township force is not feasible. Be sure that your cell phone or Internet phone service is 911 compatible before you find yourself in an emergency.

Volunteer fire companies provide fire protection in most rural areas. You can expect to receive periodic solicitations from these groups because they typically receive only a small percentage of their operating budget from local governments and tax revenues. Remember that they rely heavily on contributions from residents to survive. They also depend on volunteers to staff the company for emergency responses. Most volunteer companies need and heartily welcome new volunteers.

## OTHER UTILITIES

Be aware that modern conveniences, such as reliable cell phone coverage, high-speed Internet, and cable television, may not be available in some rural areas. Ask before you buy if these things are important to you.

## WILDLIFE

Many urban dwellers love to see wildlife when they visit the countryside, but much of Pennsylvania has an overabundance of deer, some kinds of waterfowl, and some other small animals and birds. Therefore, it's best

to refrain from feeding wildlife, except songbirds. Your neighbors may not appreciate the animals, and you also may come to dread their frequent visits to your flower beds and vegetable gardens. Large animals such as deer often cause traffic accidents, and deer also figure in the life cycle of the tick that causes Lyme disease.

## YOUR FARMING NEIGHBORS

Farms account for about 20 percent of Pennsylvania's land use. Some of the state's most productive agricultural land is located where housing development pressure from urban areas is strong. Farming regions are attractive for development because of the scenic beauty of open fields and grazing animals and the generally flat landscapes and suitable soils. Farms are businesses, however, and they sometimes do not live up to the images many people have of agriculture. The fields that some people consider scenery are open because the farmer plants, grazes, or mows them every year as part of the production cycle. Those grazing animals sometimes get out of fences, and they all produce manure that may have odors, may attract flies, and can degrade water supplies if not properly managed. Farm operations are often dusty and noisy, and during planting and harvest season machinery may be running at all hours of the day and night.

The best way to live peacefully with your farming neighbors is to befriend them. Get to know the workings of their farms and why they do what they do. Some activities, such as plowing, can be noisy but can be done only within a limited time frame or the entire year's crop may suffer. Remember that the farmer is not doing things to annoy you—everything done on the farm has a specific purpose.

You can also help maintain neighborly relations with the farmers around you by respecting their land and teaching your children and animals to do the same. Respect "no trespassing" signs and fences and follow

leash laws. Although farmland may look like a park, it is private property and you should not be on it unless the owner has specifically given you the right to use the land. Respect farmers' property rights as much as you expect them to respect your rights. Farm vehicles often travel slowly on rural roads. Be patient, safe, and respectful in attempting to pass these vehicles.

Agriculture has become more consolidated, resulting in larger operations, and technologies have changed. This is particularly true for poultry and hog farms, where animal densities have increased because of the changes in technologies and markets for these commodities. Many farms have expanded to remain economically viable. Market pressures have caused many farms to specialize in one or two products. Be prepared for change and attempt to understand it.

As agriculture changes, the countryside changes. Farmers may build new agricultural buildings to meet the needs of their changed operations. New houses or other land uses could be constructed if a farm is sold, or a farm may change its operation. Try to become familiar with trends in your community before you purchase property. A little investigation up front can save you a lot of headache down the road. When changes do occur, respect the landowners' rights just as you expect them to respect your rights.

Septage, the liquid and solid material pumped from septic tanks in individual homes, is sometimes disposed of by surface application or subsurface injection on agricultural fields. The septage is treated before application to reduce odors and disease-causing organisms. DEP requires haulers and landowners to have permits for inland application of septage. Land application of septage produces minimal threat to human health when done on a suitable site with properly treated septage and incorporation of the material into the farming operation. Strict regulations exclude some crops from septage application. If you're

concerned about land application of septage in your area, check with your county extension office or conservation district (see [www.pacd.org/districts/directory.htm](http://www.pacd.org/districts/directory.htm)).

## FARM MANURE MANAGEMENT

Pennsylvania has enacted nutrient management laws to protect the quality of the state's surface water and groundwater, the Chesapeake Bay, and other bodies of water. The legislation is designed to minimize the negative environmental impacts of nutrients from land application of manure. Excess nutrients in manure washing off farm fields into streams and rivers can deplete the water of oxygen, cause excessive algae growth, and ruin valuable fish habitats.

The newest law, Pennsylvania's Nutrient and Odor Management Act (Act 38), took effect in July 2005. The Clean Streams Law still applies to all farms using manure. The State Conservation Commission developed and implements the act's regulations, but administration can be delegated to county conservation districts.

Concentrated animal operations (CAOs) must comply with Act 38 by developing and maintaining a nutrient management plan. CAOs have more than 2,000 pounds of animals for each acre of cropland. About 5 to 10 percent of Pennsylvania's farms qualify as CAOs and must have a nutrient management plan. Other farms are encouraged to develop and use nutrient management plans to help ensure stream water quality and good neighbor relations. Manure applications should be made in accordance with the amount of nitrogen and phosphorus required by the next crop. These values are determined via calculations made after analyzing the nutrients in the manure and in the soil before application. Applications greatly in excess of crop needs are discouraged for the sake of water quality protection.

For more details on CAO determination and the specifics of Act 38, see *Agronomy Facts 40: Nutrient Management Legislation in Pennsylvania, Questions and Answers about the "ACRE" Program*, and the Penn State Dickinson School of Law agricultural law publications (see the resource list at the end of this publication for more information on these sources). You can also contact your local extension office or conservation district office or the State Conservation Commission ([www.agriculture.state.pa.us/agriculture/cwp/view.asp?q=127144](http://www.agriculture.state.pa.us/agriculture/cwp/view.asp?q=127144)) for more information on Act 38 or nutrient management in general.

Act 38 does not address odors from land application of manure. The State Conservation Commission recently finalized new regulations to address odors from animal housing and manure storage facilities that took effect February 27, 2009. Check with the Pennsylvania Department of Agriculture ([www.agriculture.state.pa.us](http://www.agriculture.state.pa.us)) for more information. If a farming neighbor uses land application of manure, you could ask to be alerted beforehand. Remember that the best way to maintain friendly relations with farmers and other neighbors is through open, two-way communication.

## ENVIRONMENTALLY SENSITIVE LANDS

Special care should be taken in environmentally sensitive lands such as floodplains, wetlands, riparian or stream areas, storm water retention basins, and steep slopes. Land uses here are often limited by regulation or practicality. Check with your county conservation district before making any alterations in these areas. Conservation districts offer technical, financial, and educational help to local land users in natural resources conservation. They can be great sources of information about many land- and water-related questions.

## SAFETY

You may consider buying a tractor to take care of your large yard, or you may already own such equipment. Be sure to obtain and follow operating and safety instructions when using this equipment. Children are especially at risk around tractors. Never allow a child to ride with you on a lawn mower or tractor while it is in use. Always wear safety belts and be sure to purchase a model with roll bars, especially if your land is hilly. When operating these machines, give the task your full attention.

Remember that the nearest hospital or emergency services provider may be quite far away. Emergency personnel may have a difficult time finding your house if you live in an especially remote area. It is a good idea to tape directions to your house next to the phone. That way, in an emergency even a visitor can give accurate directions to emergency personnel.

## FOR MORE INFORMATION—RESOURCE LIST

The Penn State Cooperative Extension office in your county is an excellent place to go for more information on the topics covered in this publication. County extension offices have a large collection of literature dealing with almost any problem residents may have, and the staff can steer you in the right direction to get more information.

Other agencies that may provide helpful information include your county conservation district ([www.pacd.org/districts/directory.htm](http://www.pacd.org/districts/directory.htm)), Pennsylvania DEP ([www.depweb.state.pa.us](http://www.depweb.state.pa.us)), the Natural Resources Conservation Service ([www.nrcs.usda.gov](http://www.nrcs.usda.gov)) of the U.S. Department of Agriculture ([www.usda.gov](http://www.usda.gov)), and your county planning commission.

Below are some publications available through Penn State's College of Agricultural Sciences. These will give you more details about many of the topics discussed here. Most are avail-

able for free over the Internet. Single hard copies of most publications are available for free within Pennsylvania unless otherwise noted. They can be obtained by contacting:

PUBLICATIONS DISTRIBUTION CENTER  
112 AGRICULTURAL ADMINISTRATION BUILDING  
UNIVERSITY PARK, PA 16802  
Telephone: 814-865-6713  
Fax: 814-863-5560  
E-mail: AgPubsDist@psu.edu

### Drinking Water and Pond Management

The College of Agricultural Sciences Water Resources Extension program has a host of publications, videos, and other resources on drinking water, pond management, and other water resource issues available at [water.cas.psu.edu](http://water.cas.psu.edu).

*Gas Well Drilling and Your Private Water Supply:* [resources.cas.psu.edu/WaterResources/pdfs/gasdrilling.pdf](http://resources.cas.psu.edu/WaterResources/pdfs/gasdrilling.pdf)

*Drinking Water Testing Program Brochure:* [pubs.cas.psu.edu/FreePubs/pdfs/UP020.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/UP020.pdf)

*Water Facts #10: Testing Your Drinking Water:* [pubs.cas.psu.edu/FreePubs/pdfs/XH0023.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/XH0023.pdf)

*Water Tests: What Do the Numbers Mean?* [pubs.cas.psu.edu/FreePubs/pdfs/AGRS90.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/AGRS90.pdf)

*Lead in Drinking Water:* [pubs.cas.psu.edu/FreePubs/pdfs/EC416.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/EC416.pdf)

Pennsylvania Master Well Owner Network: [mwon.cas.psu.edu](http://mwon.cas.psu.edu)

A network of trained volunteers dedicated to promoting the proper construction and maintenance of private water systems in Pennsylvania and throughout the Mid-Atlantic region. This Web site includes several brochures for well owners on best management practices and drilling new wells in Pennsylvania.

Pennsylvania Department of Environmental Protection drinking water information: [www.depweb.state.pa.us](http://www.depweb.state.pa.us) (choose "water topics," "drinking water")

### On-Lot Wastewater Treatment Systems

*A Lexicon for Alternate On-Site Wastewater Treatment Systems:* [pubs.cas.psu.edu/FreePubs/pdfs/F170.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/F170.pdf)

Fact sheet series from Penn State Agricultural and Biological Engineering: [www.abe.psu.edu/extension/factsheets/f/onlotsewageindex.htm](http://www.abe.psu.edu/extension/factsheets/f/onlotsewageindex.htm)

Pennsylvania Department of Environmental Protection on-lot sewage disposal information: [www.depweb.state.pa.us](http://www.depweb.state.pa.us) (choose "water topics," "wastewater")

### Nutrient Management

*Agronomy Facts 40: Nutrient Management Legislation in Pennsylvania:* [pubs.cas.psu.edu/FreePubs/pdfs/UC111.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/UC111.pdf)

The College of Agricultural Sciences Water Resources Extension program has several publications dealing with land application of sewage sludge available at [pubs.cas.psu.edu/Publications.asp](http://pubs.cas.psu.edu/Publications.asp) see ("Waste, Sewage, Manure, and Compost" at the bottom of the page).

Pennsylvania Nutrient Management Program: [panutrientmgmt.cas.psu.edu/default.htm](http://panutrientmgmt.cas.psu.edu/default.htm)

Nutrient and Water Policy Update: [nutrientwaterpolicy.aers.psu.edu](http://nutrientwaterpolicy.aers.psu.edu)

Penn State Dickinson School of Law, Pennsylvania Act 38: [www.dsl.psu.edu/centers/agpubs/Pennsylvania\\_Act\\_38.cfm](http://www.dsl.psu.edu/centers/agpubs/Pennsylvania_Act_38.cfm)

*Questions and Answers about the "ACRE" Program (Act 38 of 2005, Bill 1646):* [nutrientwaterpolicy.aers.psu.edu/Documents/Q&A\\_ACRE.pdf](http://nutrientwaterpolicy.aers.psu.edu/Documents/Q&A_ACRE.pdf)

### Agricultural Alternatives

The College of Agricultural Sciences has dozens of publications addressing the production of various agricultural commodities available at [pubs.cas.psu.edu/Publications.asp](http://pubs.cas.psu.edu/Publications.asp) (see "Agricultural Alternatives").

### Farming Basics, Trends in Pennsylvania Agriculture, and Pennsylvania Agricultural Statistics

*The Joy of Farm Watching: A Roadside Guide to Pennsylvania Agriculture* (includes maps of farm types by county, etc.): [pubs.cas.psu.edu/FreePubs/pdfs/UE010.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/UE010.pdf)

*Finding the Common Ground: Understanding Your Community's Agriculture:* [pubs.cas.psu.edu/FreePubs/pdfs/UA317.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/UA317.pdf)

Pennsylvania Farm Bureau, with links to U.S. Department of Agriculture and Pennsylvania Department of Agriculture statistics: [www.pfb.com/resources/ag-information/ag-facts.htm](http://www.pfb.com/resources/ag-information/ag-facts.htm)

Pennsylvania State Data Center: [pasdc.hbg.psu.edu](http://pasdc.hbg.psu.edu)

Penn State Dickinson School of Law: [www.dsl.psu.edu/centers/agpubs.cfm](http://www.dsl.psu.edu/centers/agpubs.cfm)

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