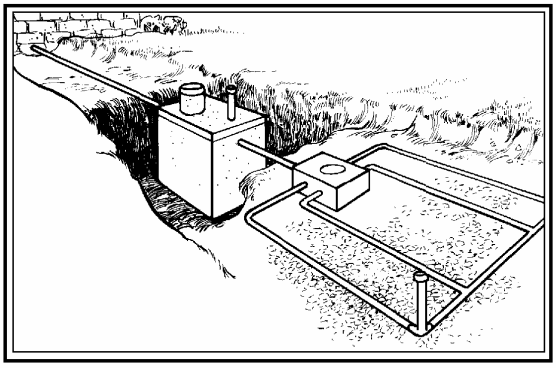
This OLDS HOUSE

Managing Your On-lot Disposal System (OLDS) for Homeowners



Prepared by

York County Conservation District

In Partnership with

Penn State Cooperative Extension

Conservation ♦ Stewardship ♦ Education

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PREFACE

With country living, comes responsibility...

Chances are that you have chosen to live in the country because you cherish the peace and quiet, the wide open spaces, and the beauty of nature. However, with this enjoyment and independence often comes responsibility. Most drinking water supply and sewage disposal in rural areas of York County is done on-lot. As a property owner, you are responsible for maintaining your drinking water well and septic systems. Understanding how they are built, work and how to keep them operating effectively and efficiently is good for your family's health, your household budget, and the environment. Replacing these systems can be expensive.

What you can do for failing septic systems...

If you own one of the thousands of septic systems in this county, someday you may have problems with it. Effluent (wastewater from the septic tank) may back up into your plumbing or pond on your lawn. Besides being unsightly, a nuisance, and the cause of health problems, failing systems are often difficult and costly to fix. This booklet describes two proven methods that may be effective in restoring failing septic systems: 1) water conservation and 2) absorption-area resting. While the initial cost of either method may be slightly greater than the cost of reconstructing a system, both methods have benefits that will, in the long run, save money.

A note about terminology

This publication is a collection of information from various sources. As a result, a variety of terms may be used to mean the same thing. For example, all the drains in your house are connected to a tank. Traditionally called a septic tank, it is also called a treatment tank. A septic system and an on-lot disposal system (OLDS) both refer to the collection of parts that is used to treat and release wastewater within your property. A glossary of terms used is provided at the end of this publication.

ACKNOWLEDGEMENTS

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1. We All Live Downstream

The Chesapeake Bay -- the largest estuary in the U.S. -- is an incredibly complex ecosystem that includes important habitats and food webs. The Bay itself, its rivers, wetlands, trees and land all provide homes, protection or food for complex groups of species. Fish of all types and sizes either live in the Bay and its tributaries or they use the waters as they migrate along the East Coast. Young crabs hide from predators in underwater grasses, while oysters filter water as they feed on plankton. The intertwined combinations of relationships are countless.

Water Quality

All living things need water. In the Chesapeake Bay region, waterways support more than 3,000 species of plants and animals. Healthy water contains a balanced amount of nutrients and normal fluctuations in salinity and temperature. It also has plenty of oxygen and little sediment so that underwater living resources can breathe or receive enough sunlight to grow. Monitoring the changes to the Bay's waterways is important, and the data that is collected can help scientists make determinations about water quality.

Water quality factors:

- *Nutrients* are essential for plants and animals, but too much can cause harmful effects.
- *Sediments* can cloud the water which can hamper the growth of aquatic plants.
- *Water temperature* affects when animals and plants feed, reproduce, and migrate.
- *Salinity* greatly determines where plants and animals live within the Bay.
- *Dissolved oxygen* is essential for animals living within the Bay.
- *Chemical contaminants* can affect the growth, survival and reproducibility of benthic organisms.

Land and People

More than 64,000 square-miles of land drains into creeks, streams, rivers and, eventually, the Chesapeake Bay. The Bay watershed includes all types of land uses, from intensely urban areas, spread out suburban development and diverse agricultural practices. Human activities on the land within the Bay watershed affects the quality of the Chesapeake's water.

There are countless opportunities to improve local waterways and the Chesapeake Bay by improving the way we use the land.

Watersheds

A watershed is the total land area that drains water into a given river, lake, estuary or other body of water. A watershed can be quite large (figure 1. the Chesapeake Bay watershed) or small (e.g., the watershed of a local stream).

Figure 1. Chesapeake Bay Watershed

The Chesapeake Bay watershed, stretches across six states - New York, Pennsylvania, Maryland, Delaware, Virginia and West Virginia - and the District of Columbia. Threading through the Bay watershed are several "subwatersheds," smaller systems that drain into the streams and rivers that flow into the Chesapeake.

What's the Problem?

To survive, the Chesapeake Bay and its rivers must endure an array of assaults from air, water and land. The watershed's worst problem is nutrient pollution, which is caused by the overabundance of the nutrients, nitrogen and phosphorus. Other problems are related to toxic chemicals, air pollution and landscape changes, along with sedimentation and the over-harvesting of living resources.

What Are Nutrients?

Nutrients, like nitrogen and phosphorus, occur naturally in water, soil and air. Just as the nitrogen and phosphorus in fertilizer aids the growth of agricultural crops, both nutrients are vital to the growth of plants within the Bay and rivers.

How are nitrogen and phosphorous used in the ecosystem?

Nitrogen is essential to the production of plant and animal tissue. It is used primarily by plants and animals to synthesize protein. Nitrogen enters the ecosystem in several chemical forms and also occurs in other dissolved or particulate forms, such as tissues of living and dead organisms.

Some bacteria and blue-green algae can extract nitrogen gas from the atmosphere and transform it into organic nitrogen compounds. This process, called nitrogen fixation, cycles nitrogen between organic and inorganic components. Other bacteria release nitrogen gas back into the atmosphere as part of their normal metabolism in a process called denitrification.

Phosphorus is another key nutrient in the Bay's ecosystem. Phosphorus occurs in dissolved organic and inorganic forms, often attached to particles of sediment. This nutrient is a vital component in the process of converting sunlight into usable energy forms for the production of food and fiber. It is also essential to cellular growth and reproduction for organisms such as phytoplankton and bacteria. Phosphates, the inorganic form are preferred, but organisms will use other forms of phosphorus when phosphates are unavailable.

In the presence of oxygen, high concentrations of phosphates in the water will combine with suspended particles. These particles eventually settle to the Bay bottom and are temporarily removed from the cycling process. Phosphates often become long-term constituents of the bottom sediments. Phosphorus compounds in the Bay generally occur in greater concentrations in less saline areas, such as the upper part of the Bay and tributaries. Overall, phosphorus concentrations vary more in the summer than winter

How can nutrients become pollutants to the Bay and its rivers?

Although nutrients are essential to all plant life within the Bay, an excess of these same nutrients can be harmful. This is called "nutrient pollution".

Nutrients have always existed in the Bay, but not at the present excessive concentrations. When the Bay was surrounded primarily by forest and wetlands, very little nitrogen and phosphorus ran off the land into the water. Most of it was absorbed or held in place by the natural vegetation. Today, much of the forests and wetlands has been replaced by farms, cities, and suburbs. As the use of the land has changed and the watershed's population has grown, the amount of nutrients entering the Bay's water has increased tremendously.

Excess amounts of phosphorus and nitrogen cause rapid growth of phytoplankton, creating dense populations, or blooms. These blooms become so dense that they reduce the amount of sunlight available to submerged aquatic vegetation (SAV). Without suffice light, plants cannot photosynthesize and produce the food they need to survive. The loss of sunlight can kill the grasses. Algae may also grow directly on the surface of SAV. Unconsumed algae will ultimately sink and be decomposed by bacteria in a process that depletes bottom waters of oxygen. Like humans, most aquatic species require oxygen. When oxygen in deep water is depleted, fish and other species will die unless they move to other areas of suitable habitat.

What are the Sources of Nutrients?

The main causes of the Bay's poor water quality and aquatic habitat loss are elevated levels of two nutrients, nitrogen and phosphorous. These nutrients occur naturally in soil, animal waste, plant material, and even the atmosphere. In addition to these natural sources, sewage treatment plants, industries, vehicle exhaust, acid rain, and runoff from agricultural, residential and urban areas contribute nutrients to the Chesapeake Bay and its rivers.

Virtually all individuals and industries in the watershed, and some even beyond the watershed, contribute the nutrients that ultimately reach the Bay. In the Bay region, excess nutrients are supplied to the system through two sources: point and nonpoint sources (Figure 2).

Farmland

Urban Landscape

Wastewater Treatment Plant

Figure 2. Common Sources of Pollution

- *Point Source* - A source of pollution that can be attributed to a specific physical location; an identifiable, end of pipe "point". The vast majority of point source discharges for nutrients are from wastewater treatment plants, although some come from industries.
- *Nonpoint Source* - A diffuse source of pollution that cannot be attributed to a clearly identifiable, specific physical location or a defined discharge channel. This includes the nutrients that runoff the ground from any land use - croplands, feedlots, lawns, parking lots, streets, forests, etc. - and enter waterways. It also includes nutrients that enter through air pollution, through the groundwater, or from septic systems.

Recent observations indicate that:

- Nutrients from septic systems are increasing throughout the watershed as development spreads farther into the countryside, beyond the reach of sewer systems.
- Stormwater runoff from urban and suburban areas is increasing as more land is developed.
- Nitrogen from wastewater treatment plants is declining in rivers where biological nutrient removal (BNR) technology is being used. It is increasing in other rivers.
- Phosphorus from sewage treatment plants has declined sharply, in large part because of the phosphate detergent ban.
- Among the major land use categories, urban and suburban lands contribute, per acre, the largest amount of nutrients to the Bay when septic and wastewater treatment plant discharges are factored in.

- Runoff from farms is generally declining as farmers adopt nutrient management and runoff control techniques, and because the overall amount of farmland is declining.

Chesapeake Bay Restoration

In the mid-1970's, U.S. Senator Charles Mathias (R-MD) saw the Bay of his youth in distress and began a fact-finding tour of marine science institutions around the Bay to try to understand the Chesapeake's decline. His efforts eventually resulted in formation of the Chesapeake Bay Program - a multi-jurisdictional partnership that's working successfully to restore and protect the Bay and its resources. Since the Bay Program's inception, the federal and state partners have met many goals and worked toward others in the effort to restore the Bay.

Get Involved

Besides plants, fish, animals and other living resources, humans also are part of the Chesapeake Bay's ecosystem. Although a single individual may think he or she has very little effect on the Bay with more than 15.1 million people living in the Chesapeake Bay watershed, people have a very significant impact on the Chesapeake Bay ecosystem.

So whether you are an on-lot disposal system homeowner, local government official, or realtor, YOU can make a difference.

2. Understanding Your On-Lot Disposal System

What is a septic system?

Septic systems (also called 'on-lot disposal systems' or OLDS) are sewage systems located on the property of the homeowner. They treat and dispose of domestic sewage through natural processes. Liquid waste from a treatment tank percolates through the soil, where it is neutralized and broken down further. Septic system operation and maintenance is the responsibility of the homeowner. In contrast, a centralized sewage system collects and treats sewage from many homes and/or businesses and disposes it off site. Centralized systems often use complex mechanical and chemical treatment methods.

What kind of system do you have?

There are several variations to the standard septic system depending on soil, site and operational conditions. They are:

- Standard trench
- Seepage bed system
- Subsurface sand filter
- Elevated sand mound
- Individual residential spray irrigation system (IRSIS)

How do I obtain a septic system permit?

Anyone who intends to install a septic system with a flow of less than 10,000 gallons per day must obtain a permit using the following generalized process:

1. The lot owner or an agent for the owner applies for a permit through the local agency* Sewage Enforcement Officer (SEO);

2. The SEO for the local agency conducts a soil profile examination and percolation tests to determine site suitability;
3. The lot owner or agent completes the permit application by including a septic system design based upon the results of the site suitability testing;
4. The SEO approves or denies the permit within seven days of receipt of a completed application; and
5. If approved, the SEO issues a permit. Installation of a system may begin. If denied, the SEO notifies the applicant and provides opportunity for an appeal hearing.
6. The SEO may oversee any step of installation and must inspect the completed system before coverage.

What is an SEO and what are his/her duties?

Certified Sewage Enforcement Officers (SEOs) working for local governing bodies handle the septic system permitting process. This includes the review of soil profiles (deep probes) and percolation tests and the issuance of permits.

How does a septic system function?

Sewage, both human waste and water used for bathing and washing, flows to the septic tank. Here, primary treatment of the sewage takes place. The heaviest matter falls to the bottom of the tank forming sludge. Lighter matter (scum) floats on top of the liquid (effluent). Sludge and scum must be pumped out regularly.

Septic tank effluent then flows to a distribution box or a solid header in gravity flow systems (see Figure 3.A) or to a pump tank in pressurized systems (see Figure 3.B).

In both types of systems, the septic tank effluent is then directed to an absorption area constructed of pipe placed within a layer of gravel, and percolates through the soil for additional treatment. The soil neutralizes many of the contents of the wastewater and converts other contents to different forms.

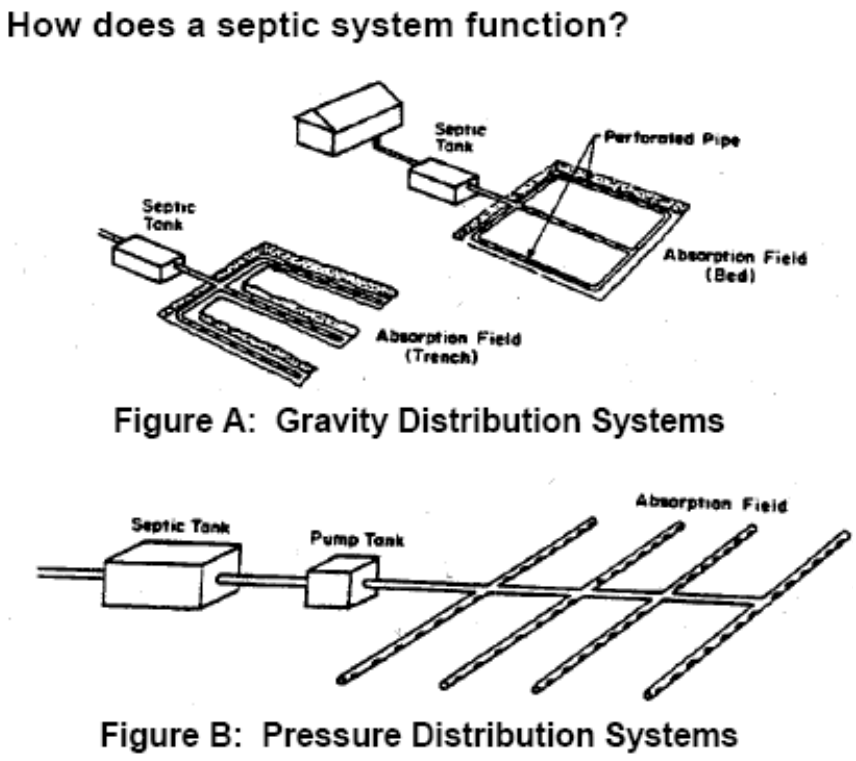

Figure 3. Gravity and Pressure Flow Systems

How often must my septic tank be pumped?

Up to 50 percent of the solids retained in the tank decompose; the remainder accumulates in the tank. A septic tank should be pumped out at least every three to five years or according to your local sewage management program, which may require more frequent pumping. Below, table 1 shows typical septic tank sizes.

Under current Pennsylvania law, a 900-gallon septic tank must be used for a home with three bedrooms or fewer (table 2). If six people reside in a three-bedroom house, the tank should be pumped every year. If the same system serves a family of two, the tank would be pumped every 5 years. Systems installed before 1971 may have septic tanks smaller than 900 gallons. These tanks may need to be pumped more than once a year.

Table 1. Probable Septic Tank Size

Probable Septic Tank Size	
Bed Rooms	Tank Size (gallons)
1	900
2	900
3	900
4	1,250
5	1,400
6	1,550

Note: Septic tanks predating these regulations may be smaller.

Table 2. Recommended Septic Tank Pumping Frequency

Recommended Septic Tank Pumping Frequency						
Tank Size (gallons)	Number of Occupants					
	1	2	3	4	5	6
	Pump out intervals (years)					
500	5	3	2	1	1	1
750	5	4	3	2	1	1
900	5	5	3	2	1	1
1,000	5	5	4	3	2	2
1,250	5	5	5	3	3	2
1,500	5	5	5	4	3	3

Source: Small Flows Clearing House

Where can I obtain more information on septic related questions?

For more information on onlot sewage disposal systems, contact your local SEO or the DEP regional office serving your county.

3. Why Should My Municipality Manage On-lot Systems?

Most municipalities have areas that can never be physically or cost-effectively served by public sewer facilities. Areas may contain suitable soils but have scattered malfunctioning on-lot treatment systems that can cause public health and other hazards. Malfunctioning individual on-lot systems will also often be found in areas that have poor soils and/or small lot sizes. It may become impossible to repair or replace these systems on an individual lot-by-lot basis. If your municipality is faced with this latter situation, you can assess your options for using community on-lot systems to meet your long-term needs. In any case, repairing on-lot systems as they malfunction typically will not solve the problem permanently until regular management and maintenance of on-lot systems is established to help keep the problems that lead to malfunctions from recurring.

Are there indications of a septic system in trouble?

Yes. There are many indicators of a malfunctioning septic system. Some indicators can be very obvious to the property owner while others may require more careful observation. The indicators may include:

- Toilet runs sluggishly;
- Sewer odors in the house and/or drinking water;
- Sponginess around septic tank, distribution box, dosing tank or absorption area;
- Surfacing raw sewage;
- Dosing pump runs constantly or not at all;
- Dosing tank alarm light is on; and/or
- Backup of sewage into laundry tubs or other fixtures.

  However, a septic system may be malfunctioning before any of the above signs or symptoms are present.

What can property owners do to prevent septic system malfunctions?

Properly designed and installed sewage disposal systems function better and longer with proper maintenance. Most of the following recommended maintenance activities are simple and inexpensive for the property owner to implement:

- Conserve water and reduce wastewater flow into the septic tank;
- Have the septic tank pumped at least every three-five years, depending on tank size and household size;
- Avoid putting harsh chemicals in the septic system;
- Do not use the toilet to dispose of bulky, slowly decomposing wastes;
- Divert run-off from downspouts, sump pumps, and paved surfaces away from septic tank and sewage disposal area;
- Keep heavy vehicles, equipment and livestock away from the septic system;
- Do not plant trees and shrubs over or close to the septic system; and,
- Do not place structures, swimming pools, vehicles, etc., over drainage area.

Where and how should septic system malfunctions be reported?

Complaints about malfunctioning septic systems should be reported directly to the local agency, SEO or the local government officials (township, borough or city officials) with jurisdiction in the municipality where the malfunction exists. Depending on each municipality's rules and procedures, complaints may have to be made in writing. Complaints received by DEP's service representatives will be directed to the appropriate local agency and/or SEO.

What should happen once a complaint is received?

When a certified SEO or local official receives a complaint, the local government should take certain steps, including:

- Local official may issue a letter notifying the property owner of the alleged malfunction and allowing for voluntary compliance if a malfunction exists. Some local agencies bypass this step and first require the certified SEO to conduct an initial site investigation to document the conditions. If there is a malfunction, the SEO will try to determine the causes of the malfunction and to decide the extent of the repair needed to correct the problem. Corrective action may be as simple as requiring a septic tank to be cleaned or as complex as installing a new system at a new location.
- Local agency issues a Notice of Violation to the responsible property owner requiring the submission of a sewage permit application for the proper system repair. The local agency can often persuade the responsible property owner to take appropriate corrective action. If the responsible property owner fails to voluntarily take proper corrective action, the local agency and SEO should take appropriate legal actions, generally with the assistance of the municipal solicitor.
- SEO issues the responsible property owner a permit to repair or replace the malfunctioning system after any necessary site testing has been done and an acceptable system design has been submitted.
- Responsible property owner begins the repair/replacement activities as approved by the permit. Heavy rains or frozen soils could delay the repair/replacement activities until conditions improve.

What should the person making a complaint expect from the local agency and SEO?

The local agency or SEO should acknowledge a complaint and investigate serious complaints in a timely fashion. Normally, the SEO should contact the owner of the alleged malfunction within one week of receiving the complaint. An actual site visit, if necessary, should be scheduled promptly.

The person making the complaint should not expect a final resolution of a serious malfunction to occur "overnight." The various steps to resolving a serious malfunction take time; investigating the site, testing soils, processing the sewage permit application, designing the repair system and conducting the repair. Also, the timing of the field activities is dependent on the weather.

If legal action is required by the local agency to get the responsible property owner to resolve the serious malfunction, additional delays can be expected. Complainants need to give their local officials time to do the job.

Phosphate Detergent Ban

Act 31, the Phosphate Detergent Act, was signed into law on July 5, 1989. This law primarily bans phosphates from household laundry detergents and non-health care related commercial laundry operations.

Controlling the Impact of Nitrogen on Drinking Water

The Environmental Protection Agency's drinking water regulations define the concentrations and chemical characteristic parameters that are harmful to public health. These regulations state that water containing nitrate nitrogen levels in excess of 10 ppm should not be used for drinking water. Further, nitrite nitrogen may not exceed 1 ppm. This regulation, when linked with the language of the Clean Streams Law which defines pollution in part as contamination that renders waters harmful to public health, thereby provides the basis for requiring hydro geologic studies.

The Act 537 planning process can be used to require site specific testing and hydrologic studies to determine the extent of groundwater contamination expected from subsurface systems. Such studies can also identify existing and potential water supplies that will be affected by nitrate nitrogen levels in excess of 10 ppm. The Act 537 Plan can require that the methods of preventing use of this water for drinking water purposes be evaluated. A method can be chosen and implemented, as part of the plan, to prevent creation of a public health hazard.

4. About Hunting Cabins and Recreational Homes

I want to build a hunting cabin with indoor plumbing or add indoor plumbing to my existing cabin. Since it will only be used a short time each year, can I use a holding tank?

It is a fact that over time and changing ownership many seasonal facilities like hunting cabins and vacation cottages evolve into year-round residences. With this evolution in mind, even seasonal sites must demonstrate capability of supporting a sewage system able to serve a full time residence. Therefore, sufficient site suitability testing, such as percolation and soils probe tests must be conducted to identify and protect a location suitable for the installation of an on-lot sewage disposal system to service a structure with indoor plumbing. In this way, seasonal use cottages and even hunting cabins are prepared for long-term residential use. Modern regulations do not provide for long-term holding tank service to residential type structures. Even interim use of a holding tank for a cabin is allowed only if the municipality's official sewage facilities plan (Act 537 Official Plan) schedules a short-term replacement of the holding tank with a permanent long-term facility such as a public sewer line. Generally speaking, cabins without indoor plumbing rely on privies for sanitary facilities, while cabins with indoor plumbing utilize on-site septic systems, not holding tanks.

I am thinking about buying a cottage for seasonal use that currently has an old privy. With what I have just read about holding tanks, what should I be concerned with as I investigate this property?

The greatest concern would be purchasing a property that has no future method of sewage disposal. The greatest protection against such a problem is to become informed about the property. Ask the seller about the sewage facilities planning status of the property. It should have received planning approval from the local municipality and DEP or predate this requirement (prior to May 15, 1972). Ask about sewage disposal permit status and site suitability testing. Ask for copies of any permits issued and for soil test reports. Discuss the property's potential for sewage disposal with the Sewage Enforcement Officer employed by the municipality where the property is

located. Privy standards have changed over the years, and an examination of the privy's construction can reveal much information. Modern privies are built above a watertight vault, while substandard privies use a pit dug in the ground. The combination of a privy and a pressurized water system (within the structure) is not allowed in modern regulations and is a situation that should cause a prospective buyer to ask questions about waste disposal. Do not make the mistake of assuming that upgrading a privy to a holding tank is an available option. Pit privies are routinely upgraded to vault privies, not holding tanks. Conversion to holding tanks use is rarely an acceptable alternative.

5. Understanding the Importance of Soils in Siting an On-lot System

Why is having a properly functioning on lot system important?

Groundwater is the primary source of drinking water in areas served by individual and community wells; therefore, keeping the groundwater free of contamination is very important. Water that carries sewage from a household or business to an onlot sewage disposal system (sometimes called a septic system) will eventually re-enter this same groundwater (figure 4). On-lot systems, when properly designed, operated and maintained, will treat this wastewater so that it may safely be used again. On-lot systems that are not functioning properly do not treat sewage to a level that is safe and can discharge improperly treated sewage to the surface of the ground and/or to groundwater. Improperly treated sewage carries bacteria and viruses known to cause many human diseases, such as gastroenteritis, diarrhea and dysentery.

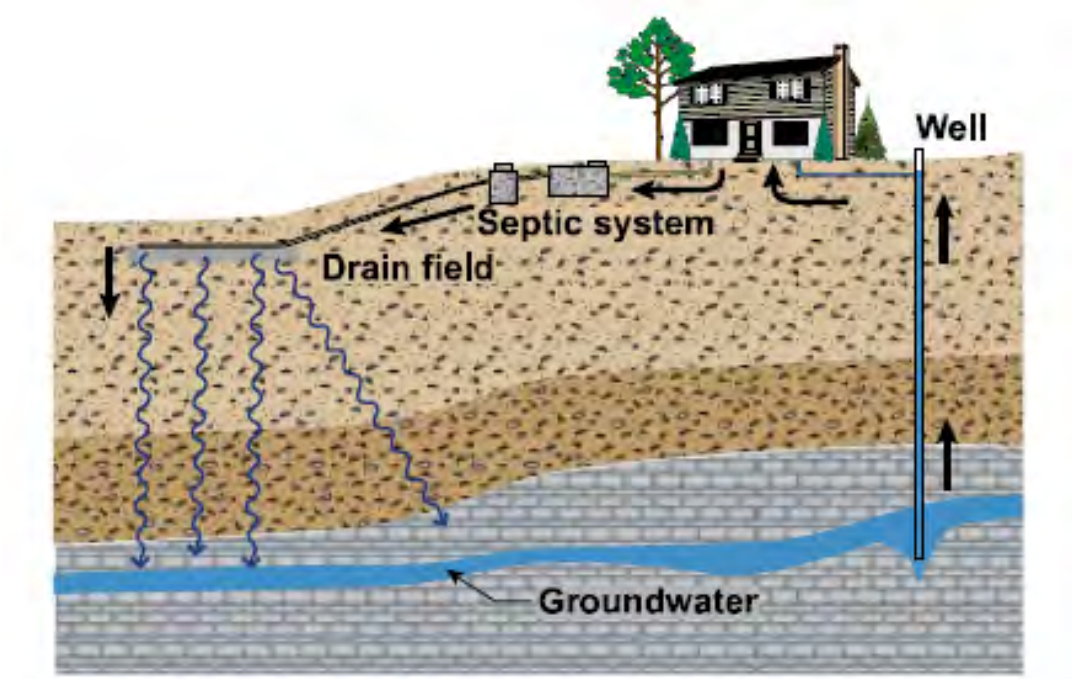

Figure 4. On-Lot Disposal System and Groundwater Flow

How does an onlot system treat sewage?

The sewage from household plumbing first enters a treatment tank (figure 5), where primary treatment occurs. The heavier solid matter settles to the bottom of the tank, where microorganisms feed on and break down the waste. Lighter fats, oils and greases float to the top of the tank, forming a scum layer. Wastewater leaving the treatment tank is cleaner, but still contains disease causing bacteria and viruses, as well as other contaminants, which must be further treated before reaching groundwater or other water supplies.

From the treatment tank, the partially-treated sewage passes through a distribution system of piping and into a bed of gravel (aggregate). The sewage flows over the gravel and then into the underlying soil. In a properly sited onlot system, further treatment is provided by this soil. The soils are the most important part of your onlot system because they provide a treatment barrier between untreated sewage and water supplies.

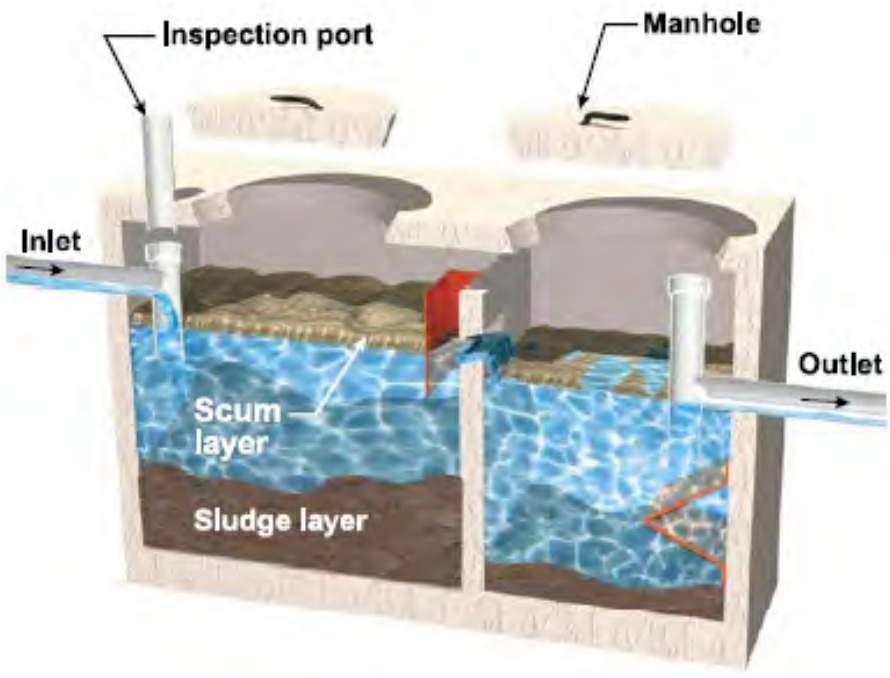

Figure 5. Treatment Tank

What soil conditions are needed to treat sewage?

About four feet of suitable soil is needed under the gravel layer to treat sewage (figure 6). Good soil for sewage treatment is relatively free of rock and not saturated with water. The soil structure must allow the liquid waste to pass through at a suitable rate. The waste must pass slowly enough to allow the microorganisms time to feed on the harmful material, yet fast enough to dispose of the amount of liquid waste entering the absorption area. While soils rich in clay treat sewage most effectively, the fine pores of many of these soils slow the downward movement or percolation of sewage, which may cause backups to the surface of the ground. Soils rich in sand allow rapid percolation to dispose of sewage but do not hold the sewage long enough to treat it adequately before it reaches groundwater. Treatment continues in the soil until rock or soil saturated with liquid is encountered. Rock allows sewage to move quickly into groundwater without proper treatment. Saturated soils do not provide the aerobic (oxygen rich) conditions needed by microorganisms to treat sewage.

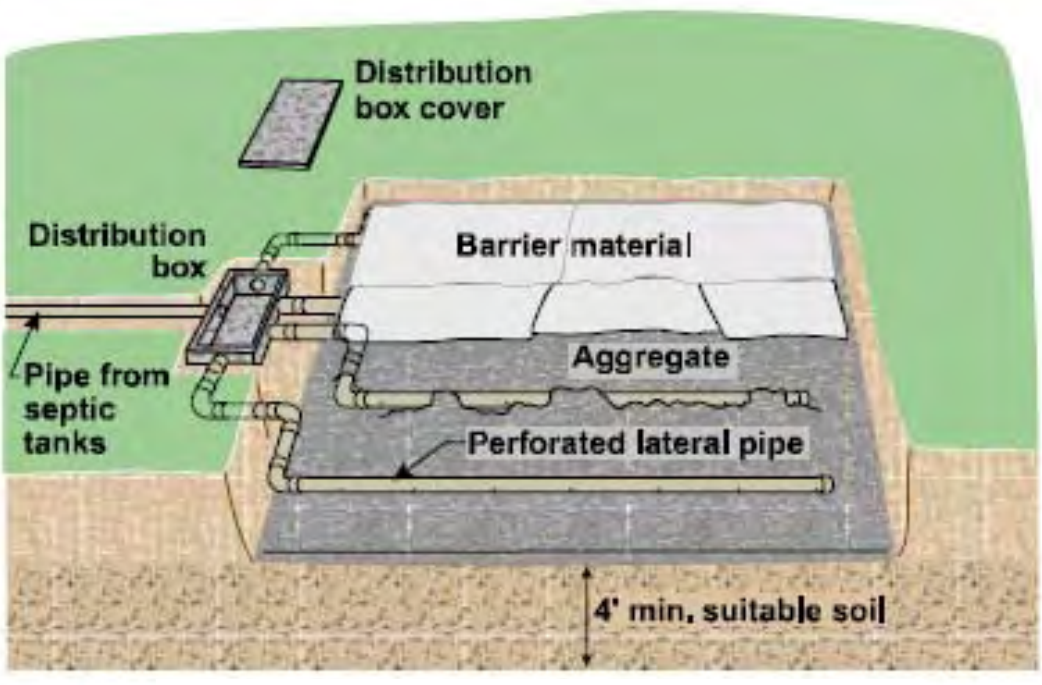

Figure 6. Soil Absorption Area

Partially treated sewage reaching either rock or saturated soils will enter the water supply. Any contaminants or disease-producing organisms present in the sewage will be in the glass of water you drink from your polluted well. Viruses can survive in groundwater in excess of one year.

I understand the need for an elevated sand mound for my lot but don't like the idea of a big mound in the middle of my yard. Can it be blended into the landscape?

Yes, if possible, the system should be located in a position that will make it easy to blend into the landscape. Fill soils may be used to blend the system into the landscape after installation, as long as care is taken not to damage the system or compact the soils around the system. Elevated sand mound systems (figure 7), however, are never 'cut' into a hillside.

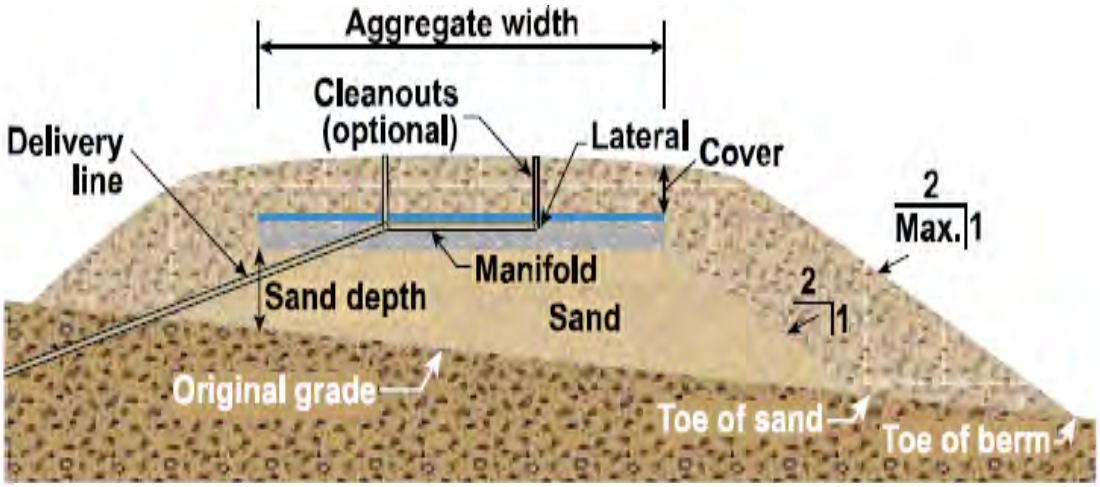

Figure 7. Typical Elevated Sand Mound System

6. Continuing Operation and Maintenance

Once the on-lot system is installed, the homeowner becomes responsible for following proper operating and maintenance procedures to prevent malfunctions and ensure long-term use of the system. See DEP's "On-lot System Operations and Maintenance (Homeowner's Guide)" available on the DEP website for additional information.

7. Understanding DEP's Role

DEP's primary role in the on-lot permit program is to provide financial assistance and oversight to local agencies, train SEOs and help local agencies carry out their permitting and enforcement responsibilities.

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GLOSSARY

You may come across the following words and terms in reference to on-lot disposal systems (septic systems), either in this document or elsewhere.

Absorption area—A component of an individual or community sewage system where liquid from a treatment tank seeps into the soil; it consists of an aggregate-filled area containing piping for the distribution of liquid and the soil or sand/soil combination located beneath the aggregate.

Act—The Pennsylvania Sewage Facilities Act (35 P. S. § § 750.1—750.20).

Aggregate—Coarse material manufactured from stone, gravel or slag, having Type B characteristics as described in Department of Transportation specifications, Form 408, section 703.3, Table B and uniform size and grading equivalent to American Association of State Highway and Transportation Officials No. 57, as described in Form 408, section 703.3, 2 Table C.

Agricultural areas—Areas used primarily for the production of crops and where the soil is without vegetative cover during certain periods of the year.

Alternate sewage system—a method of demonstrated onlot sewage treatment and disposal not described in this part.

Bonded disposal system—an individual sewage system located on a single lot serving a single family residence, where soil mottling is within 20 inches of the mineral soil surface, the installation, operation and replacement of which is guaranteed by the property owner.

Building sewer—Piping carrying liquid wastes from a building to the treatment tank or holding tank.

Buried sand filter—a system of piping, sand media, aggregate and collection piping in a buried liner used for the intermittent filtration and biochemical treatment of sewage.

Clean Streams Law—the Clean Streams Law (35 P. S. § § 691.1—691.1001).

Conventional sewage system—a system employing the use of demonstrated onlot sewage treatment and disposal technology in a manner specifically recognized by this chapter. The term does not include alternate or experimental sewage systems.

Dosing pump—the pump housed in a dosing tank which provides a measured volume of sewage effluent to the pressurized distribution system in an absorption area.

Experimental sewage system—a method of onlot sewage treatment and disposal not described in this title which is proposed for the purpose of testing and observation.

Filter tank—the tank housing the piping and sand of the free access sand filter.

Forested areas—Areas where the predominant vegetative cover is comprised of trees with a closed canopy.

Free access sand filter—an accessible system of tanks, dose piping, sand media, aggregate and collection piping used for the intermittent filtration and biochemical treatment of sewage.

Geotextile—Material consisting of mesh polypropylene, polyester, nylon or similar material, used to prevent migration of fine aggregate into coarser aggregate.

Grassed area—an area where the predominant vegetative cover is comprised of grasses, bushes or trees not forming a closed canopy.

Individual residential spray irrigation system—An individual sewage system which serves a single dwelling and which treats and disposes of sewage using a system of piping, treatment tanks and soil renovation through spray irrigation.

Individual sewage system—A system of piping, tanks or other facilities serving a single lot and

collecting and disposing of sewage in whole or in part into the soil or into waters of this Commonwealth or by means of conveyance to another site for final disposal.

Industrial waste—A liquid, gaseous, radioactive, solid or other substance, which is not sewage, resulting from manufacturing or industry or other plant or works and mine drainage, silt, coal mine solids, rock, debris, dirt and clay from coal mines, coal collieries, breakers or other coal processing operations. The term includes substances whether or not generally characterized as waste.

Lift pump—a submersible pump used to convey effluent to the sand filter and from the sand filter to the chlorine/retention tank.

Municipality—A city, incorporated town, township, borough or home rule municipality other than a county.

NSF—National Sanitation Foundation.

Official plan—A comprehensive plan for the provision of adequate sewage systems adopted by a municipality possessing authority over the provision of the systems and submitted to and approved by the Department as provided by the act and Chapter 71 (relating to administration of sewage facilities program).

Person—The term includes an individual; association; public or private corporation for-profit or not-for-profit; partnership; firm; trust; estate; department; board; bureau or agency of the United States or the Commonwealth; political subdivision; municipality; district; authority; or other legal entity which is recognized by law as the subject of rights and duties. The term includes the members of an association, partnership or firm and the officers of a local agency or municipal, public or private corporation for-profit or not-for-profit.

Qualified registered professional engineer—a person registered to practice engineering in this Commonwealth who has experience in the characterization, classification, mapping and interpretation of soils as they relate to the function of onlot sewage disposal systems.

Qualified registered professional geologist—a person registered to practice geology in this Commonwealth who has experience in the characterization, classification, mapping and interpretation of soils as they relate to the function of onlot sewage disposal systems.

Qualified soil scientist—A person certified as a sewage enforcement officer and who has documented 2 years' experience in the characterization, classification, mapping and interpretation of soils as they relate to the function of onlot sewage disposal systems and either a Bachelor of Science Degree in soils science from an accredited college or university or certification by the American Registry of Certified Professionals in Agronomy, Crops and Soils.

Retaining tank—a watertight receptacle which receives and retains sewage and is designed and constructed to facilitate ultimate disposal of the sewage at another site. The term includes the following:

(i) Chemical toilet. A permanent or portable nonflushing toilet using chemical treatment in the retaining tank for odor control.

(ii) Holding tank. A tank, whether permanent or temporary, to which sewage is conveyed by a water-carrying system.

(iii) Privy. A tank designed to receive sewage where water under pressure is not available.

(iv) Incinerating toilet. A device capable of reducing waste materials to ashes.

(v) Composting toilet. A device for holding and processing human and organic kitchen waste employing the process of biological degradation through the action of microorganisms to produce a stable, humus-like material.

(vi) Recycling toilet. A device in which the flushing medium is restored to a condition suitable for reuse in flushing.

Sewage—A substance that contains the waste products or excrement or other discharge from the bodies of human beings or animals; a substance harmful to the public health, to animal or aquatic life or to the use of water for domestic water supply or for recreation; or a substance which constitutes pollution under The Clean Streams Law.

Sewage enforcement officer (SEO)—An official of the local agency who reviews permit applications and sewage facilities planning modules and issues permits as authorized by the act and conducts the investigations and inspections that are necessary to implement the act and regulations thereunder.

Sewage facilities—A system of sewage collection, conveyance, treatment and disposal which will prevent the discharge of untreated or inadequately treated sewage or other waste into waters of this Commonwealth or otherwise provide for the safe and sanitary treatment and disposal of sewage or other waste. The term includes:

Individual sewage system—A system of piping, tanks or other facilities serving a single lot and collecting and disposing of sewage in whole or in part into the soil or into waters of this Commonwealth or by means of conveyance to another site for final disposal.

(A) Individual onlot sewage system—An individual sewage system which uses a system of piping, tanks or other facilities for collecting, treating or disposing of sewage into a soil absorption area or spray field or by retention in a retaining tank.

(B) Individual sewerage system—an individual sewage system which uses a method of sewage collection, conveyance, treatment and disposal other than renovation in a soil absorption area, or retention in a retaining tank.

Community sewage system—A sewage facility, whether publicly or privately owned, for the collection of sewage from two or more lots, or two or more equivalent dwelling units and the treatment or disposal, or both, of the sewage on one or more of the lots or at another site.

(A) Community onlot sewage system—A community sewage system which uses a system of piping, tanks or other facilities for collecting, treating and disposing of sewage into a soil absorption area or retaining tank.

(B) Community sewerage system—a publicly or privately owned community sewage system which uses a method of sewage collection, conveyance, treatment and disposal other than renovation in a soil absorption area, or retention in a retaining tank.

Small flow treatment facility—An individual or community sewerage system designed to adequately treat sewage flows not greater than 2,000 gpd for final disposal using a stream discharge or other methods approved by the Department.

Soil horizon—a layer of soil approximately parallel to the soil surface with characteristics produced by soil-forming processes.

Soil mottling (redoximorphic features)—a soil color pattern consisting of patches of different colors or shades of color interspersed with the dominant soil color which results from prolonged saturation of the soil.

Soil profile—the collection of soil horizons, including the natural organic layers on the surface.

Solids retainer—a deflection device at the outlet tee or baffle of a septic tank designed to deflect buoyed solids from escaping the tank.

Spray field—piping, spray heads and ground surface to the outside edges of the wetted perimeter, used for the application and treatment of the sewage effluent in an individual residential spray irrigation system.

Treatment tank—a water-tight tank designed to retain sewage long enough for satisfactory bacterial decomposition of the solids to take place. The term includes the following:

(i) Septic tank—A treatment tank that provides for anaerobic decomposition of sewage prior to its discharge to an absorption area.

(ii) Aerobic sewage treatment tank—a mechanically aerated treatment tank that provides aerobic biochemical stabilization of sewage prior to its discharge to an absorption area.

Undisturbed soil—Soil or soil profile, unaltered by removal or other man-induced changes, except for agricultural activities, that would adversely affect the siting or operation of onlot systems.

Water of this Commonwealth—Rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, ponds, springs and other bodies or channels of conveyance of surface and underground water, or any of their parts, whether natural or artificial within or on the boundaries of this Commonwealth.

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APPENDICES

A. Sewage Enforcement Officers of York County

B. Offices of Pennsylvania Department of Environmental Protection

C. Other Resource Contacts

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APPENDIX A – Sewage Enforcement Officers of York County

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York PA 17402-
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Clark Craumer - SEO#:01588
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WILLIAM FRALIC - SEO#:03603
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Jacobus PA 17407-1010

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RED LION PA 17356-
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GEORGE MAUTE JR - SEO#:03481
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Fawn Grove PA 17321-9653
(717) 382-4881

James Novinger - SEO#:03175
45 Sam Snead Cr
Etters PA 17319-

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Ethan Poe - SEO#:01953
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(717) 843-2119

John Shambaugh - SEO#:01972
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Dillsburg PA 17019
(717) 432-2719

JASON SNYDER - SEO#:03427
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YORK PA 17407-1304
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Delta PA 17314-8605
(717) 873-1610

Timothy Wargo - SEO#:02454
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New Cumberland PA 17070
(717) 770-0100

Robert Whitmore - SEO#:02897
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York PA 17404
(717) 332-1525

Zane Williams - SEO#:02294
2464 Croll School Rd
York PA 17403-
(717) 741-4621

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APPENDIX B – Offices of Pennsylvania Department of Environmental Protection

Department of Environmental Protection

Bureau of Water Supply and Wastewater Management

Division of Wastewater Management

P.O. Box 8774

Harrisburg, PA 17105-8774

(717) 787-8184

South-central Region

909 Elmerton Ave.

Harrisburg, PA 17110

Main Telephone: 717-705-4700

24-Hour Emergency: 1-877-333-1940

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

For more information, visit DEP's website at www.dep.state.pa.us, Keyword: "DEP wastewater."

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APPENDIX C – Other Resource Contacts

Bradley D. Hengst, Sewage Enforcement Officer, Septic System Design & Inspection, 40 Water Street, Jacobus, PA 17407-1010. Phone: (717) 428-1188. Fax: (717) 428-0563

Thomas R. McCarty, Ph.D., Multi-County Agent, Penn State Cooperative Extension, 110 Claremont Road, Carlisle, PA 17013-8802. Phone: (717) 240-6500. Fax: (717) 240-6548. Internet: www.sfr.cas.psu.edu/water

Gary R. Peacock, Watershed Specialist, York County Conservation District, 118 Pleasant Acres Road, York, PA 17402. Phone: (717) 840-7430. Fax: (717) 755-0301. E-mail: yorkccd@yorkccd.org. Internet: www.yorkccd.org.

York County Conservation District

Who are we?

The York County Conservation District is the county government office that handles environmental concerns. The District was founded in 1938 when 554 farmers from 18 townships signed a petition. Since the beginning, the office has been citizen directed. Education has been consistently labeled as a priority area of focus.

The education office officially began in November 1996 although the District has been active in education programs for more than 15 years.

Our Mission

The York County Conservation District commits to being an innovative leader, assisting and educating the public to make the best choices for conserving and preserving our natural resources.

Contact Us

York County Conservation District

118 Pleasant Acres Road

York, PA 17402

Telephone: 717-840-7430

FAX: 717-755-0301

E-mail: yorkccd@yorkccd.org

Web: www.yorkccd.org