Western Plains
PUBLIC HEALTH
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Serving: Grant, Mercer, Morton, Oliver, Sioux, Kidder & Emmons Counties

HOMEOWNER OSTS INSTALLATION GUIDELINES AND RULES

INSTALLATION GUIDELINES:

Please review Western Plains Public Health Septic Code prior to installation and familiarize yourself with the requirements in the code.

https://www.westernplainsph.org/environmental-health/onsite-septic-system-program

An environmental health practitioner will visit your property before installation to determine the best area to place the septic system. We will also inspect upon completion prior to covering the system with soil.

Contact Western Plains Public Health Office to schedule an inspection of the completed system prior to back filling-at least 24 - 48 hours in advance.

Lana Schmidt 701-426-1600 Emily Pearson 701-255-4942

Do not landscape or move native soil from septic system location. The natural lay of the land is what you will work with, fill soil is not recommended. Do not drive over the area excessively.

Use only approved materials:

ADS HDPE

INFILTRATOR

PRINSCO BIODIFFUSER

NORWESCO

SCHEDULE 40 PIPE FOR HEADERS AND INLET AND OUTLET PIPES TO AND FROM TANKS

TANKS

STRUCTURAL MATERIALS

MONARCH

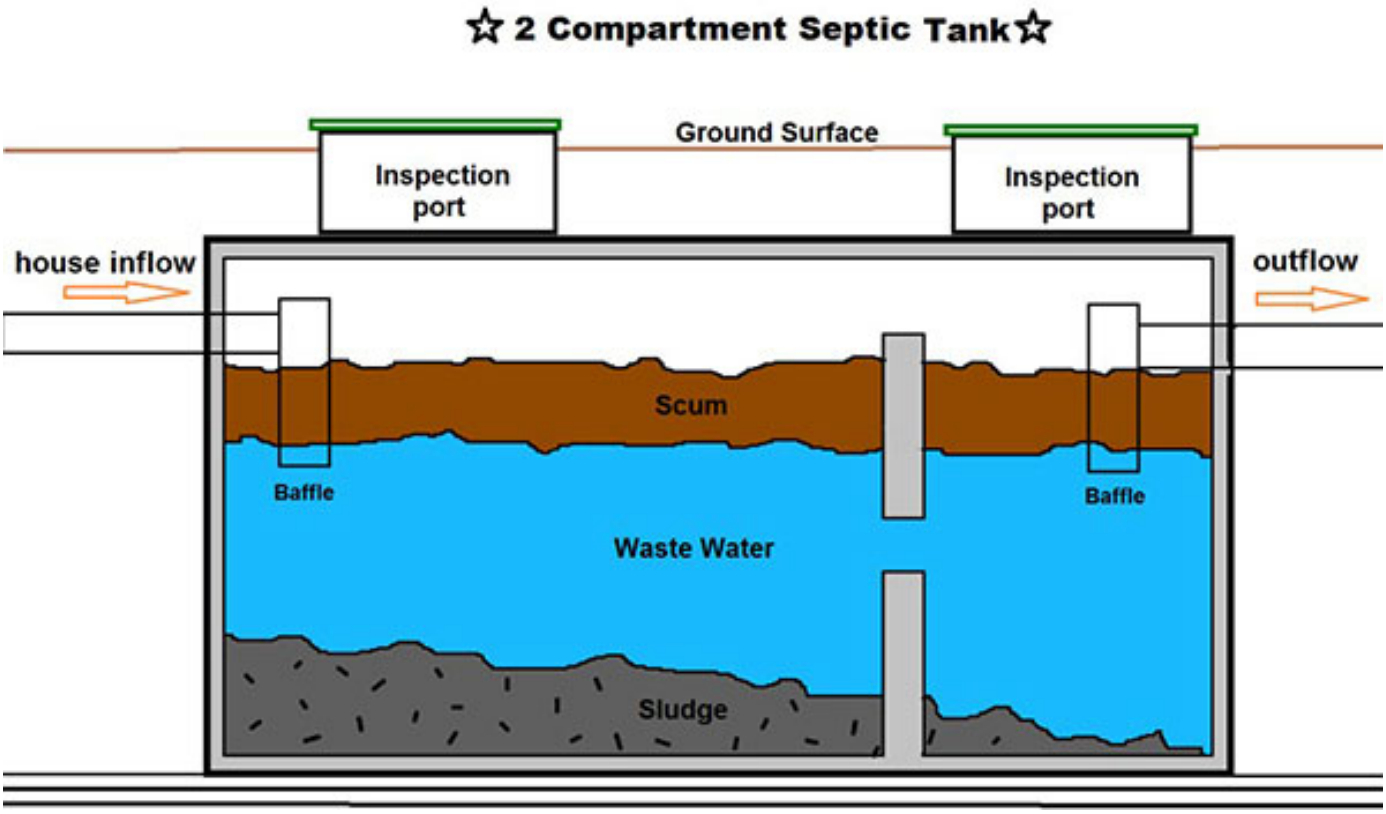
INFILTRATOR

NORWESCO

Other brands/names are available-please contact us with different distributor information and questions.

****The information included in the following photos are in reference to gravity flow systems only. The need for a pressurized system, mound system or pumping chamber is strongly recommended to be installed by a licensed installer.**

The tank should be water tight either concrete or plastic and contain at least 1-18” manhole for accessibility and pumping -the cover should be secured with screws, locks or weight. An inlet and outlet side inspection port 4” should be installed as well.



Pipe from the home to the tank and from the tank to the header must be 1% slope (1” drop per 8’) and be schedule 40 type pipe

On a level surface the header must be level. The header may be installed in several different methods.

Distribution box may be used and should be level:

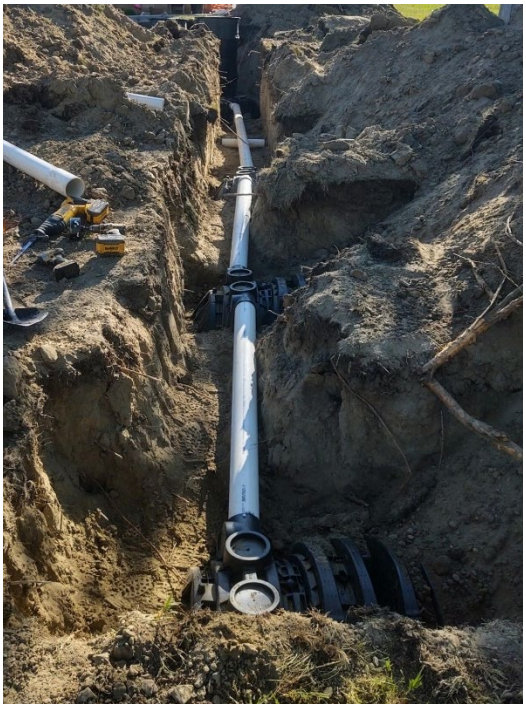
Distribution Box

Distributes the effluent from the septic tank evenly to the absorption field or seepage pits. It is important that each trench or pit receive an equal amount of flow. This prevents overloading of one part of the system.

On areas where slope is an issue Drop Boxes are an option:

Distributes the effluent from the septic tank to an absorption field located on slopes.

The pipe into the drop box must come in at the highest port and out at a lower port. Shoulder ports from one trench to another is an option:



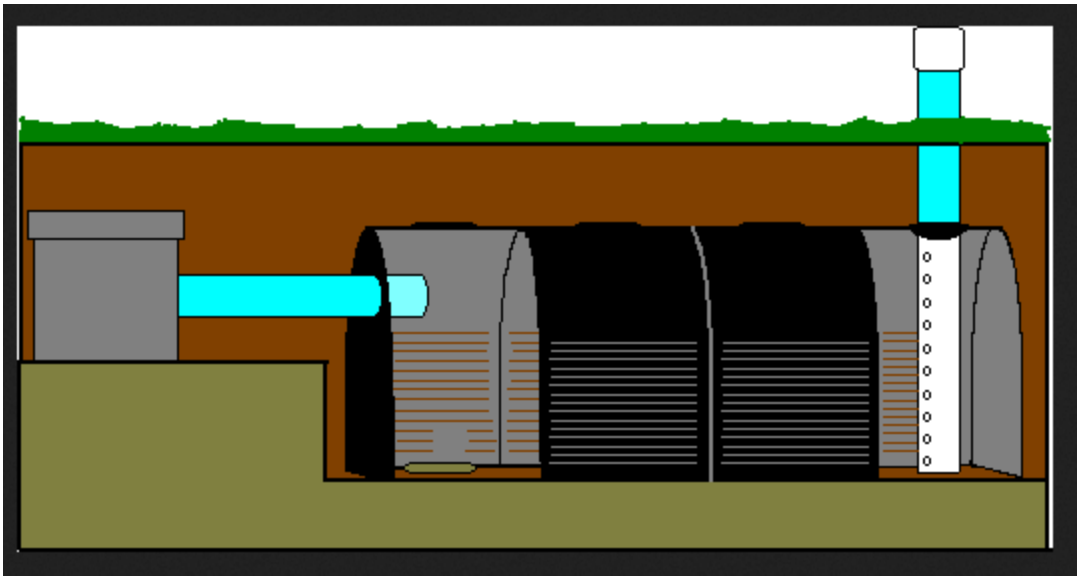
Manifold Distribution using 90°, WYE and TEE fittings is an option as well:

Trenches are to be no deeper than 48” to the bottom with at least 12” of soil over the top.

Trenches should be dug to support chamber width and no more than 36 inches wide.

Trenches must be at least 6’ on center apart.

Trenches should be level and no more than 110’ in length and have inspection ports (4 inches in diameter) installed at the end to verify functionality of the system. The inspection ports can be level with the ground but must be covered with a cap.



Backfilling the system is recommended without driving over the trenches-mound the dirt slightly over each chamber to account for settling. A track skid steer may be utilized for back filling, but no hard tire equipment which could damage the chambers.

Other Helpful setbacks:

Table IV Minimum Setback Distances

Feature	Sewage tanks, holding tank (feet)	Soil treatment area and distribution device (feet)
Well < 100 feet deep	100	100
Well > 100 feet deep	50	50
Any other water supply well or buried water suction pipe	50	50
Buried pipe distributing water under pressure	10	10
Surface Water bodies –from ordinary high water mark	100	100
Buildings	10	20
Property lines	10	10

Contact Western Plains Public Health Office to schedule an inspection of the completed system prior to back filling-at least 24 hours in advance.

The following are guidelines to aid septic system owners to help increase the longevity of their system.

(Information shared from: https://www.meyersenv.com/about-septic-systems/)

OSTS-ONSITE TREATMENT SYSTEM

How Your System Works:

Home septic systems consist of two principle components: a septic tank where solid waste is stored and an absorption area where wastewater is treated.

Bathroom, kitchen and laundry waste drains through a pipe (house sewer) into your septic tank where it separates out into three layers:

1. Solids settle to the bottom and, through the action of anaerobic bacteria, decompose to form a sludge.
2. Insoluble greases and oils, which are lighter than water, form a floating surface layer of scum.
3. The wastewater that remains after solids and scum have separated out forms a middle layer.

The anaerobic decomposition that occurs in the septic tank is very incomplete. Septic tanks must be routinely pumped (usually every 2 to 3 years) to remove accumulation of bottom sludge and surface scum. Fortunately, however, home septic systems are designed to treat the separated wastewater much more thoroughly. Beyond the septic tank, your septic system consists of a delivery means for distributing wastewater beneath the ground surface where it will undergo further decomposition through the action of aerobic bacteria present in the soil.

Wastewater leaves your septic tank through an outlet baffle. These baffles help ensure that wastewater flowing to the absorption area is relatively free of scum and solids which could seriously shorten the working life of your system by clogging leach lines and blocking trench walls.

From the septic tank, wastewater flows to the distribution box, drop box or header . This box distributes wastewater through header pipes to gravel-less trenches with leaching chambers. (alternative wastewater treatment is available but the leaching chambers are the most popular for our area)

In the typical absorption field, each length of leaching chamber is set in its own individual trench. With no trench length exceeding 110'. This results in an absorption field consisting of a series of parallel trenches that are about 18" to 48" deep. Because the aerobic bacteria that decompose waste thrive mostly in this upper area of soil, this type of system provides the most thorough treatment of wastewater. It also helps protect ground water from possible contamination by affording the greatest possible separation distance between trench bottom and the water table. Occasionally, however, space limitations may require different approaches. If soil and ground water conditions permit, mound systems or pressurized at grade systems are an option.

All absorption areas, regardless of type, are subject to the same aging processes. In every case, a biomat forms in the trenches. Initially this biomat aids wastewater treatment by straining out pathogenic bacteria. But as more bacteria and waste add to the biomat, the trench become more impervious to the passage of wastewater. Siltation and soil compaction can further slow the absorption rate. Eventually, wastewater might either back up into the house drainage plumbing or seep out onto the ground surface.

With constant usage, this aging process is inevitable. Usually, however, moderate maintenance can prevent premature failure.

SEPTIC DO'S

Do have your septic tanks pumped out every two to three years by a Department of Health licensed waste hauler.

Under-sized tanks in older systems may require more frequent pumping. Failure to periodically pump your septic tank can result in a carryover of solids into your absorption field. If solids clog leach lines and block trench walls, you probably will have to abandon your existing absorption field and install a new one elsewhere in your yard. Such repairs are inconvenient and may far exceed the cost of the original system.

Do have your septic tank inspected for cracks and leaks, broken lines and damaged baffles or tees each time you have it pumped out.

If your tank outlet is equipped with a filter, this should also be cleaned or replaced with each tank cleaning.

Do limit water consumption.

Spread laundry washing over the entire week and set your washing machine at the proper setting for a given load so as not to waste water. Limit the length of showers. Use water-saving toilet, shower and faucet fixtures.

Do repair leaking toilets and dripping faucets immediately!

If ignored over a period of time, seemly insignificant leaks and drips can shorten the working life of your septic system.

Do maintain a ground cover of grass over your absorption field.

Grass prevents soil erosion and promotes the evapotranspiration of moisture from the soil.

Do watch for trouble signs such as a soggy or flooded absorption field and/or the odor of sewage.

Wastewater on the ground surface is a violation of public sanitary codes and signals the need for immediate repairs. Keep children and pets away from areas of standing wastewater. Household wastes contain pathogens and toxins.

Do plan ahead!

Remember that the addition of a new bedroom, water-using appliance (especially a garbage disposal) or spa may increase the demand on your septic system. The rapid draining of a spa, whirlpool or hot tub can interfere with the waste separation process in your septic tank and cause a carryover of solids into your absorption field. A drain pump or valve should limit the draining of these units to no more than five gallons per minute.

SEPTIC DON'TS

Do not use septic tank additives.

Biological additives are not needed and chemical additives can cause solids to carry over and clog the absorption system.

Do not attempt to pump out, enter your septic tank or dispose of its contents yourself!

Only licensed, qualified persons should attempt these tasks. Due to the danger of toxic gases, an empty septic tank should be entered only by properly equipped, trained personnel.

Do not flush relatively non-degradable materials into the septic tank.

This includes things such as plastics, personal/diaper wipes, paper (other than toilet paper), rags, sanitary napkins, condoms, disposable diapers, coffee grounds, cat box litter, cigarette/cigar butts or cooking fats/oils

Do not discharge products such as oil, gasoline, antifreeze, kerosene, turpentine, paint, pesticides, herbicides or concentrated acids or bases into the septic tank.

Such products alter septic tank chemistry, kill off bacteria necessary for waste decomposition and contaminate groundwater.

Do not pump sump pit groundwater or furnace humidifier water into your septic system.

This is not wastewater and does not require treatment. Discharge it away from the absorption field area.

Do not discharge laundry water into a sump pit.

Laundry water is wastewater and requires treatment.

Do not allow roof gutter downspouts or surface water to drain into the absorption field.

Do not backwash swimming pool filters into the absorption field area.

Do not drive heavy vehicles or equipment or allow animals over the absorption field.

These will compact the soil and displace or damage leach lines, distribution boxes and drop boxes.