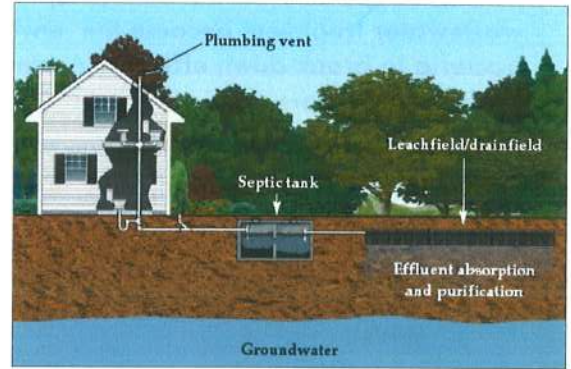


Installing a Septic System

A septic system provides onsite wastewater treatment in many areas of Fremont County. A septic system has two components, a septic tank and leach field, which work together to process and purify household waste, known as effluent. An improperly functioning septic system can be costly and can pose serious threats to health and safety.

There are three factors to consider before installing your septic system:

- Proper Planning & Design
- Proper Installation
- Regular Maintenance

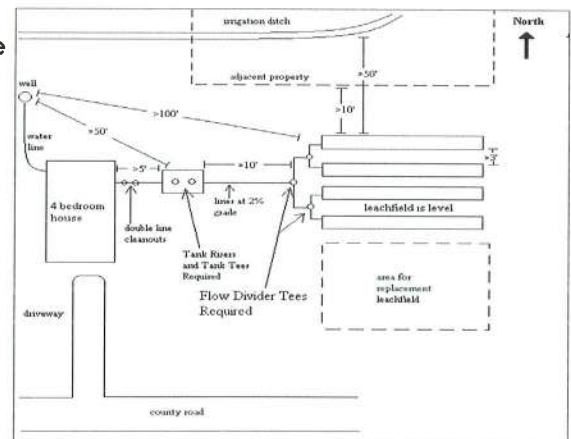


Typical septic system layout (top) & site plan (bottom)

PROPER PLANNING & DESIGN:

A site evaluation including the installer and county personnel is essential for locating your septic system and identifying any potential site limitations. Arranging the site evaluation prior to any new construction will help educate you as to local and state regulations as well as proper installation and maintenance practices which may prevent system failure.

A site evaluation may include a backhoe cut to reveal soil type (special considerations for certain soil types may apply). The backhoe cut will also reveal any potential groundwater concerns. Remember to locate your system as far from traffic areas as possible.



Plan the layout for your home site, well and septic system with the following minimum distance requirements in mind:

| <u>Distance From</u> | <u>To Septic Tank</u> | <u>To Leach field</u> |
|---|------------------------------|------------------------------|
| Wells (including neighboring wells) | 50' | 100' |
| Open waterway (including streams, lakes or ditches) | 50' | 50' |
| Potable water line | 25' | 25' |
| Building foundation (without foundation drain) | 5' | 10' |
| Building foundation (with foundation drain) | 5' | 25' |
| Break in slope greater than 15% | 15' | 15' |
| Property line | 10' | 10' |
| Septic tank | n/a | 10' |

Be sure to choose a site where the bottom of the leach field is at least 4 feet from the seasonal high groundwater level. The leach field should also be located at least 4 feet from any bedrock, shale or other impermeable soil layer. If this is not possible please notify the Planning Department.

PROPER INSTALLATION

Utilizing effective installation practices is extra insurance against septic system failure. Upon inspection, county personnel will evaluate the system and will consider the following:

Depth of system: Elevation must be carefully planned for building sewer lines: all solid pipe must have a minimum slope of 1/4" per foot (2%) for a 4" pipe. Leach field depth is another important factor in wastewater treatment because the environment must remain shallow enough to allow aerobic (air breathing) bacteria to break down effluent. A minimum of 12" cover with a maximum depth of 48" is recommended for leach chambers.

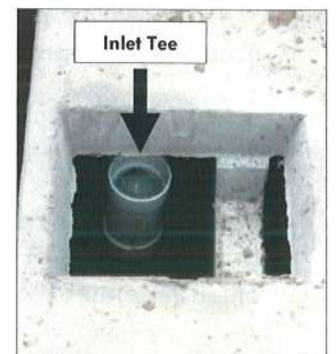
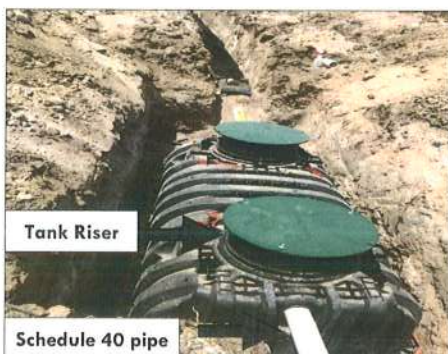
Some factors which affect elevation include:

- installing a basement,
- topography,
- over-excavation, and,
- installing plumbing under the foundation footing (*this may cause the sewer line to collapse as structures settle*).

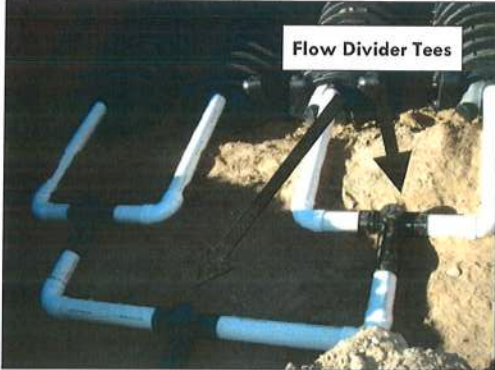
Cleanouts: Cleanouts are a critical component in any properly designed septic system. Cleanouts allow access in the event of a clog or frozen line and should be installed every 100 feet, or at any bend greater than 22 1/2 degrees. Cleanouts should be installed outside the foundation between the structure and the septic tank with the 'sweeps' of each cleanout facing one another to form a "U" shape. This allows access both into the tank and back into the house. Reversing the cleanouts results in a space unreachable with a sewer tape, and may mean digging up the line if a clog occurs.



Septic tank: Tanks should be a minimum 1,000 gallon tank for up to a 4 bedroom home. Five bedrooms and larger require a 1,250 or 1,500 gallon tank. Selecting the appropriate tank allows a 36 hour retention time for solids, grease and water to separate. The tank should contain two compartments and be level (Polyethylene tanks must be filled with water prior to backfilling). Sanitary tees or a baffle is necessary at the inlet and outlet. Tank risers allow access to the tank for inspection/maintenance. Finally, 4" Schedule 40 PVC pipe is required in and out of the tank to undisturbed ground. Both polyethylene and cement tanks are approved, however review your tank with county personnel to ensure it meets Wyoming DEQ standards.



County personnel will size the leach field according to the percolation test results provided by you, an engineer or your contractor. The ability of soil to provide wastewater treatment varies widely across Fremont County, and conducting an accurate perc test is a critical step ensuring your leach field is adequate for your present and future needs. **The leach field trenches or bed should be level, and must not have the 1/4" per foot drop in grade as the sewer pipe.**



*Preferred components for even distribution of effluent:
Flow Divider Tee (left)
and Distribution Box (right)*



In addition to leach field size, leach field layout should be carefully planned to provide equal distribution of effluent among each row. Contact the Planning Department for more information on possible leach field configurations. Furthermore, the manifold, or header, must also be level for even distribution of effluent. The use of flow divider tees or a distribution box can assist with even distribution of effluent, and are encouraged over the use of straight or four-way sanitary tees. The manifold should be set on undisturbed soil to reduce settling.



Straight tees (left) and four-way tees are not recommended because they will not evenly divide effluent entering the leach field.



Finally, if you will be installing the leach chambers, please remember to utilize the top port on the multi-port end caps (see photos). Failing to use the top port results in an effective reduction of 2/3 the original leach field capacity and is likely to lead to an early failure.

INCORRECT: BOTTOM PORT



CORRECT: TOP PORT



EXCAVATION TIPS

Careful excavation will help extend the life of your septic system. Take care to avoid over-excavation which reduces compaction of native soil and increases the chances that components will settle. Also, when backfilling, avoid dropping large rocks or chunks of hard soil on the pipe or chambers and carefully 'bed' the sides of each chamber to avoid movement or collapse (see manufacturer instructions). Finally, remember to 'cap' each row with additional fill to reduce settling. When soil settles in trenches, the depressions may collect water and flood the leach field.

REGULAR MAINTENANCE

Consistently inspecting and maintaining your septic system is the final step in preserving your investment.

- An annual inspection by a licensed contractor can inform you of any potential issues and prevent property damage.
- Pumping your tank every 3 to 5 years will help eliminate solids and grease that accumulate and prevent them from entering the leach field.
- Select water-conserving plumbing fixtures which will reduce the overall wastewater volume entering the system and may prolong the life of your properly-installed system.
- Follow basic household water conservation practices to avoid overloading the septic system.
- Consider using hair traps and sink strainers as sink wastes and hair do not readily break down.
- Installing a water softener or garbage disposal is not recommended with a septic system.
- Use household cleaners, solvents, paints and other chemicals sparingly as these items can suppress the natural bacterial action within the tank. Look for septic-safe labels when shopping for paper products, soaps, cleansers, etc.
- Consider planting sod or perennials over the leach field as roots from trees and shrubs may interfere with proper function.
- Divert other sources of water, like roof drains, foundation drains and sump pumps, away from the septic tank and leach field. Excess water prevents the soil in the drain field working effectively.
- Consider installing an effluent filter at the outlet of the tank. These filters work to trap hair and other solids so that they do not enter the leach field. However, these filters require some additional maintenance on your part as they will need to be rinsed periodically.
- Keep a copy of your septic permit, receipts and maintenance records accessible and updated. These records will be useful in the event of repairs, new construction or a home sale.

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