Conventional Systems

Gravity Drain Fields

Gravity drain fields work by letting gravity drain the effluent from the septic tank into a series of trenches. This means that a gravity drain field area must be below the draining level of the septic tank. If this is not the case then a pump tank is necessary and is called a pump to gravity system.

In conventional gravity systems the drain field consists of a network of gravel-less chambers or 4 inch diameter perforated pipes laid in gravel-filled trenches (3 feet wide) in natural undisturbed soil. The bottom of the trench needs to be 3 feet above any restrictive layer (vertical separation), such as hard pan or water table. The soil between the bottom of the trench and the hard pan or water table (soil filter) is used in the final treatment and disposal of the septic tank effluent.

The soil below the chambers/drain rock filters effluent as it passes through the pore spaces. Chemical and biological processes treat the effluent as it percolates down through the soil. The treatment process cleans the effluent before it reaches the groundwater. This works best when the soil is somewhat dry, permeable, contains adequate amounts of oxygen and there is enough soil depth to complete the cleaning process.

The length of the drain field depends on the estimated daily waste water flow and the soil conditions. The number of bedrooms and soil type determines the total number of square feet of drain field area that is needed.

Gravity systems require the least amount of maintenance, but require the greatest soil depth in order to provide adequate treatment of effluent.

Gravity septic system need to be inspected at least once every three years.

Soil requirements: At least 36-inches of a soil filter (vertical separation) from the bottom of the trench to the restrictive layer, typically 5to 6ft of undisturbed soil top to bottom.

This is a conventional gravity system with chambered trenches.
The green lid you can see at the bottom of the picture is the access to the d-box.

This is a conventional, gravity type drain field trench with drain rock. The drain rock is about 6 inches deep under the 4” diameter perforated drain-pipe. Prior to cover, an additional 6 inches of drain rock will cover the pipe.

Filter fabric will cover the drain rock then the native soil will be used for final cover. The total trench varies from system to system but in this case it is 18 inches.

This is a typical D-Box. The d-box splits the flow coming from the septic tank into each of the lateral (drain field) trenches.

D-box on a slope with three drain field trenches.