

## Standard Drainfield

The standard system drainfield consists of a septic tank, distribution box and a drainfield whose trenches are dug into the native soil. For a site to be approved for a standard trenches there must be enough depth of effective soil that meets minimum separation from restrictive layers such as water tables or bedrock. The following is a narrative on the general layout of a standard system, it is not inclusive of all installation standards. Refer to OAR 340 Division 71&73 available on-line at: <http://www.deq.state.or.us/regulations/rules.htm>

### Standard System Layout

To layout a specific drainfield, a copy of the site evaluation field form which contains the following information: the approved area, the length of the trench and the depths of the trenches. A copy of the [Septic Setbacks Table](#) is also needed. Deschutes County Environmental Health(DCEH) recommends an experienced licensed installer submit the plans.

The septic tank should always be near the house (but at least 5 feet away) because the clear effluent from the septic tank is less likely to plug the lines than the unsettled solids coming from the house. The effluent sewer must extend past the septic tank at least five (5) feet to the distribution box, which is placed at the start of the drainfield. **Remember the tank and distribution boxes and header pipe can be outside the approved area as drawn on the site evaluation form, but the drainfield must be in the approval area.** The effluent sewer must have a minimum eight (8) inches of fall, as measured from the top of the tank outlet pipe to the top of the drainfield distribution pipe. The effluent sewer is the only pipe to have any fall in a standard equal distribution system. **All header and perforated pipe is to be laid level.**

### How Does a Standard System Drainfield Work?

The standard system drainfield consists of a septic tank, distribution box and drainfield. This handout is designed to explain the basic workings of the standard system and the basic installation requirements.

The septic tank provides primary treatment of the wastewater, this is done by retaining the wastewater for at least 24 hours, allowing the solids to settle and the scum and oils to rise to the top. Some of these solids will be decomposed in the tank by anaerobic bacteria. The rest will accumulate in the tank. This accumulation **MUST** be pumped out every 3-4 years. Otherwise these solids will start to wash into the drainfield, clogging the soil pores and drainfield gravel and creating the need for costly repairs. For more information on care of your septic tank please see [Septic Tank Maintenance](#).

The drainfield is the important part of the system. This is where the "clear" septic tank effluent is distributed into the soil. The drainfield is, in essence, a 'bug farm'; a living and breathing biological treatment system. The soil provides a home for the bacteria. The bacteria are essential for treating the effluent. These aerobic bacteria breakdown the

nutrients in the effluent into their simple chemical forms. Many people mistakenly believe that the soil acts as a filter for the effluent, like a coffee filter, simply filtering out the large solids and letting the water pass through. That is part of the process, but treating the dissolved chemicals in the effluent is more important. This key part of the job is done by the bacteria that chemically 'fix' or break down the dissolved components of the effluent. This is reason why it is so essential to maintain a vegetative cover of grass or other shallow rooting plants over the drainfield. These plant roots 'pump' oxygen into the soil to keep the bacteria alive and working.

Building, paving, or even maintaining livestock over your drainfield all prevent vegetation from growing and may lead to costly repairs of your system. These practices are not only a bad idea for the health of your drainfield but are illegal by state ordinance. The County Environmental Health Division has numerous handouts on maintaining your drainfield. We also have handouts on how an owner can install their own standard system drainfield, capping fill drainfield, pressure distribution drainfield and sand filter system.

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### **What do I Need to Know About Installing a Standard System?**

The septic tank is connected to the drainfield by the effluent sewer and distribution box. The effluent sewer is a non-perforated pipe, usually three or four inches in diameter. The effluent sewer must extend past the septic tank at least five (5) feet, but may be longer than five feet, provided there is adequate fall to the drainfield. The effluent sewer must have a minimum of eight (8) inches of fall, as measured from the top of the tank outlet pipe to the top of the drainfield perforated pipe. (See the [effluent sewer layout\\*](#) drawing.) The effluent sewer is the only pipe to have any fall in a standard equal distribution system. All perforated pipe must be laid level.

The effluent sewer is connected to the distribution box. The distribution box has one inlet which is two (2) inches higher than the three outlets. The distribution box is used to equally divide the effluent between the drainlines and as an inspection port. The distribution box is connected to the drainfield by a minimum four (4) foot length of non-perforated pipe. This pipe is laid level (no fall) to the perforated drainfield pipe. The distribution box must be placed on a compacted, level soil base, separated from the perforated drainpipe by a four (4) foot long earth dam to prevent the effluent from undermining and shifting the box.

The perforated drainfield pipe (perf pipe) is installed in a trench with a level bottom (no fall). There must be six inches of gravel between the trench bottom and the bottom of the perf pipe. The drainfield gravel is 3/4" - 2 1/2" river rock or crushed rock that has been sorted and WASHED. It is very important to keep the gravel as clean as possible. It is the spaces between the gravel that holds the effluent. If the inter-gravel spaces are full of dirt, there is less reservoir capacity in the drainfield. The trench bottom and the perf pipe MUST be checked for level using a transit or laser level. Do not use a carpenter's level.

If you will be using the infiltrator chamber system instead of gravel, please see the *Infiltrator Installation Guideline* handout.

The perf pipe is usually installed level in the trench before the gravel is added, using 6" blocks or crossed 2x4's under the pipe. Or, install 6 inches of gravel then install the pipe level on top the gravel. There shall be a minimum of 2" of gravel over the perf pipe and the gravel shall be a total of 12" deep. The gravel shall be completely covered using filter fabric. Thirty inch wide filter fabric is required to cover and protect all the drainfield gravel. Filter fabric is used to prevent the soil backfill from filling in the spaces between the gravel.

The maximum trench depth, measured from native ground elevation to the bottom of the trench, must not be exceeded. The maximum trench depth is determined during the site evaluation and is listed on the individual permit. While you may be able to dig deeper than the maximum trench depth, you may be digging through a rapidly draining layer, a clay lens or a pyroclastic pan, all of which have different separation requirements from the bottom of the trench.

If there is any slope to the lot, and you cannot stay within the minimum and maximum trench depths, you must orient the drainlines to follow the slope contours. This is why you must provide ground elevation measurements at the beginning, middle, and end of each drainline when you submit your plot plan for the drainfield construction permit. Please be sure to indicate the unit of measure for these elevation shots (inches, 1/10 feet, feet...). Drainlines do not need to be straight but they do need to be level. If you have a sloping lot, ask for the *Serial Distribution Handout* which explains how to install drainlines on a sloping lot using drop boxes.

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### What Inspections Do I Need?

Call for a *pre-cover inspection* when the drainfield is installed and the filter fabric is in place, but before the system is backfilled. You will also need to water test the tank and riser for the pre-cover inspection. Block the inlet and outlet of the septic tank and fill the tank 2 inches up into the riser and hold for the inspector to verify. The septic tank may be partially backfilled, but leave the top one foot of the tank exposed on all four sides. When you are ready for the pre-cover inspection, submit (send or fax) the 'as-built' \* drawing and materials list (*Final inspection\_request and notice* form). Inspection requests are usually processed in three to seven working days.

**PLEASE** help us help you by including a vicinity map so we can locate your property easily and by posting the orange address cards at the access point to the property conspicuously.