A standard onsite wastewater system consists of a septic tank, distribution box, and drainfield. Wastewater enters the septic system via the home's plumbing and is dispersed through the soil in the drainfield, where it eventually recharges the groundwater. A standard drainfield is not feasible in all situations, so a capping fill drainfield or a bottomless sand filter are necessary for the treatment and disposal of wastewater. Additionally, Alternative Treatment Technologies (ATTs) are sometimes required instead of, or in addition to, a standard septic tank. Information about nonstandard systems is available online or in the Klamath County Community Development offices.

Septic Tanks

A septic tank provides primary treatment of wastewater, allowing solids to settle. The scum (grease, oils, and fats) rise to the top as the wastewater moves through the tank. Anaerobic bacteria digests some of the solids, generating sludge and gases. The gases escape through plumbing vents and the sludge accumulates in the tank, which is why it is important to have your septic tank pumped every four years, or as needed.

Check out the SepticSmart Homeowner Septic System User Guide for more tips about maintaining your septic tank at https://www.epa.gov/septic
Equal distribution boxes are used on sites without slope. The equal distribution box has one inlet, which is two (2) inches higher than the outlets. The box is used to equally divide the effluent between trenches and doubles as an inspection port. A non-perforated header pipe connects the distribution box to the distribution pipes. The header pipe must extend a minimum of four (4) feet from the distribution box to the distribution pipes, and be laid level in an equal distribution system.

Equal Distribution Boxes

On sloped sites, where it is not possible to install all drainfield trenches at the same elevation and meet the minimum and maximum depth requirements, a serial system using drop boxes is necessary. A drop box is similar to a distribution box, but instead of the header pipe outlets being the same level, one header pipe outlet is higher than the others. This allows the uppermost trench to fill, causing the effluent to rise and spill into the next uppermost trench.

Drop Boxes

The drainfield is an underground network of absorption trenches that distribute the wastewater effluent over a large soil area, allowing the effluent to percolate through the soil. The soil acts as a physical, biological, and chemical filter to remove most of the pollutants in wastewater. In a traditional drainfield trench, wastewater effluent is dispersed through perforated distribution pipe bedded in gravel.
System Design

For best functionality, the septic tank should be placed near the house, but at least five (5) feet away from any foundation. The less piping that solids have to pass through, the less likely blockages will occur. The tank must be level, located in an easily accessible place, and have at least one riser at the ground’s surface.

The effluent pipe, exiting the tank, must extend at least five (5) feet before connecting to the distribution box (or drop box) and include eighteen (18) gauge green tracer wire.

There must be a minimum of eight (8) inches of fall from the invert (bottom interior) of the tank outlet to the invert of the drainfield header pipe. In an equal distribution system, the effluent pipe is the only pipe to have any fall. All header and perforated drain pipe should be laid level in an equal distribution drainfield. In a serial distribution system, the header pipes between drop boxes will also have fall.

The drainfield trenches must be installed in the Approved Area identified in the site evaluation report and should follow the natural contours of the native soil. There must be eight (8) feet of undisturbed soil between each trench.

_A detailed site plan, like the one to the right, is required for all installation permits._

Site Plan for [Site Address]
OR
Parcel/Map Taxlot Number
{Section/Township/Range}
**Drainfield Installation**

1. Install the drainfield trenches using a transit or laser level to ensure the trenches are level. There should be no fall from one end of the trench to the other. The trench bottom should be at least twenty-four (24) inches wide. The trench depth is determined during the site evaluation process, is specific to each site, and is indicated in the installation permit. The maximum trench depth is measured from the native ground elevation to the bottom of the trench. It has been determined to be the most effective soil for the treatment of the wastewater, so it must not be exceeded.

2. Install at least six (6) inches of gravel at the base of the drainfield trenches. The gravel should be (3/4 - 2 1/2) inch river rock or crushed rock that has been sorted and washed. It may be installed after the pipe is laid, if the pipe rests on six (6) inch blocks or 2x4s.

3. Install the perforated pipe with the stripe and holes facing down on top of the gravel.

4. Each drainline lateral must be covered with at least two (2) inches of gravel.

5. Each trench must be covered with filter fabric or untreated building paper before backfilling.

6. Carefully place backfill to prevent damage to the system. Backfill must be free of large stones, frozen clumps of earth, masonry, stumps, and waste construction materials.

---

**The Department of Environmental Quality (DEQ) keeps an updated list of approved drainfield products that may be used instead of pipe and rock. The list of approved products and their installation guides can be found at https://www.oregon.gov/deq/Residential/Pages/Onsite-Products.aspx.**

*Please note that wire mesh with (1/2 - 1) inch openings should be placed below all gravel-less half pipes like Infiltrator Chamber.*

---

**Inspections**

Please complete the Final Inspection Request Form (available online) and submit to the Klamath County Onsite Department in person or via mail at 305 Main Street, Klamath Falls, Oregon 97601.

You must include the materials list, the as built drawing, watertype test levels, and trench depths.

Your inspector will arrive within seven (7) business days.

Please ensure your inspector has access to the property; this includes securing livestock and dogs and making gates accessible.

Upon completed inspections, your inspector will contact you with the results.

If you have any questions, you may contact our offices at (541) 883-5121, Option #6, Monday through Friday, 8 a.m. to 5 p.m.

*This installation guide is designed to explain the basic workings of the standard septic system and the basic layout. For construction and material standards for all septic system types, refer to Oregon Administrative Rules (OAR) 340, Division 71 and 73, available online at: https://www.oregon.gov/deq/Residential/Pages/Onsite-Rules.aspx*