Next: how to dig a septic soakaway

The drain field of a standard septic system is also called a leach field or soak away and is incorrectly called a French drain, if you wish to be pedantic.

There are many designs of drain field, the most common being a large pit filled with broken brick, rocks or even old tyres, and covered with old corrugated iron and a layer of soil. There are a number of reasons why this is neither the most efficient design, nor the safest.

A proper drain field comprises a long and narrow trench, the key being not the size of the hole but the surface area of the walls and floor of the trench.

The drain field should comprise trenches about 500mm wide by 1m deep below the bottom of the inlet pipe. Total depth must allow for a fall of the pipe of about 1:40 from the septic tank (therefore the further away from the septic tank you lay your drain field the deeper you will have to dig the trenches).

Trenches can be straight, curved or herring bone shaped to take into consideration contours and space and the total length will also be affected by the type of soil in which you are working.

You'll need more trenches in unabsorbing soil such as clay or ouklip, and possibly more but shallower trench in rocky ground but for normal household systems a total of 18 to 24m is usual.

The trench is filled to the level of the inlet pipe with hard material of between 20 and 50mm, such as rock, crushed stone or well-fired broken brick. The filling should be free of sand and "fines" which will clog the gaps which will be ample as the hard material forms a honeycomb in the trench. And, unlike old tyres and

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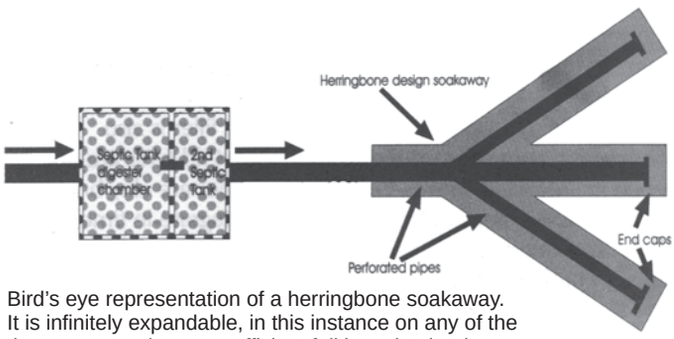

Bird's eye representation of a herringbone soakaway. It is infinitely expandable, in this instance on any of the three arms, so long as sufficient fall is maintained.

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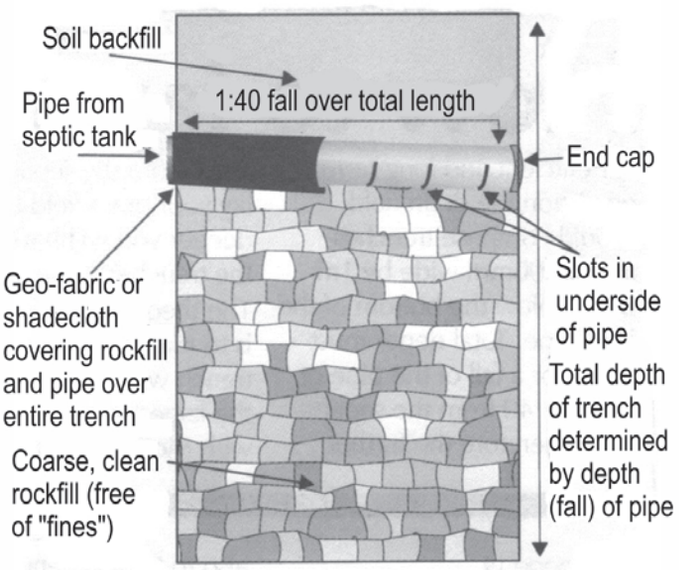
metal scrap, such material won't cave in over time. Atop this medium, in the centre of the trench, is laid 50 to 63mm rigid drain pipe, cut half through with slots on the underside every 10cm or so, taking into consideration the necessary fall of 1:40 over the entire length. If the trenches are herringboned proper joins are installed and the ends are blanked off with blanking pieces.

Over the entire length and width of the pipe geo-fabric (Bidem) or shade cloth is laid, which will not rot, and which prevents soil particles and sand from filtering into the hard matter (and preventing roots from growing into the trenches), while still allowing rainwater to filter downwards. Another method is to lay the shadecloth under the pipe and to bed the pipe in river sand before filling the remainder of the trench with soil. This is an unnecessary additional cost, however, and still allows roots to penetrate to the pipe where they block the slots.



Side-view of a herringbone trench soakaway

The trench is then back-filled with soil to surface level and planted with grass. The beauty of this system is that it is extendable: should the slots in any section of the pipe become blocked the fluid will simply flow further down the pipe. Furthermore, should the entire system become clogged, one of the blanking pieces at the end of the pipe is simply cut off and further extensions dug and laid.

What is put into the trench as filler is important. Old tyres are not good, neither are old clay bricks (they disintegrate in time). The media in the trench not only prevents it from collapsing but also provides surface area on which microorganisms attach themselves. The larger the surface area, the more accommodation for micro-organisms, and the cleaner the liquid which finally enters the soil.

The gaps provide for the liquid and air to flow. The micro-organisms are aerobic, ie they need air (oxygen) to live (unlike the micro-organisms in the septic tank itself, which are anaerobic).

After passing in contact with the media and their attendant organisms the liquid then seeps from the trench out into the soil. Here it is filtered and receives further treatment by the soil bacteria and plants. It is, however, still not "pure" or harmless.

Pollution of ground water by septic systems is of particular concern in smallholding areas where septic systems and boreholes are found in relative profusion. Siting of boreholes and septic systems is crucial in ensuring that borehole water remains clean and, while you may be able to ensure that your septic system is built far away from your borehole on your own plot, can you be sure that your neighbour's system is not close to your borehole?

For this reason, if your borehole water is used for animal or human drinking it should be subjected to regular testing for pathogens and harmful chemicals.