

# Environmental Health

Private Sector Housing



# Septic tanks, cesspools and other small treatment plants



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In some situations it is not possible to connect the drainage system of a property to a mains drainage system. Septic Tanks and Cesspools can be effective ways of dealing with foul drainage provided they are managed correctly.

This leaflet has been written to help you understand private foul drainage systems. It provides basic information about how they work and routine maintenance that each of the systems require.

On average we each produce approximately 200 litres of waste water per day. Any drainage system has to have sufficient capacity to deal with these quantities, bearing in mind the number of people in the house.



## What is a septic tank?

Septic tanks are typically a two or three chamber system which will usually be built of brick or blocks although modern types are pre-formed in reinforced fibreglass. These tanks partially treat sewage naturally by making use of bacteria which break down the solid matter, thus reducing its volume. The solids then form a sludge at the bottom of the tank and the liquid flows out and is discharged via a drainage system

under the ground called a "soakaway", provided that it does not present a pollution risk to ground or surface water.

A septic tank should be emptied when necessary, usually once a year and must be watertight, adequately ventilated and not located where pollution may be caused.

Consent from the Local Authority and the Environment Agency will be required for a new installation and a percolation test will usually be required prior to tank installation.

# Percolation test and soakaways

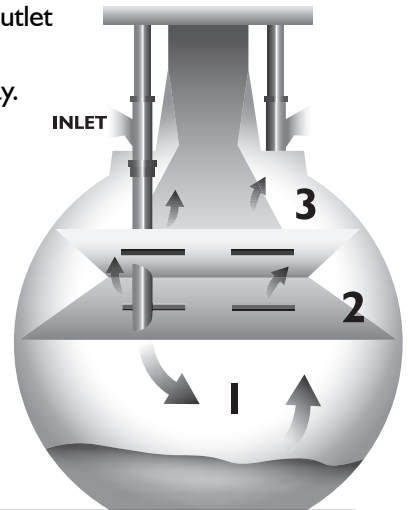
Sometimes the surrounding ground is not suitable to allow effluent water to soakaway. The soil may not be permeable if there is a lot of clay. Percolation tests need to be carried out to ensure that the water can be harmlessly disposed of from a septic tank or a similar installation. The tests should be carried out following BS6297: 1983 to determine the size of the soakaway.

It may not always be possible to install soakaways. Soil conditions or other factors, such as ground water levels may mean they would not be suitable. If so, you will need to consider some other form of drainage. Before constructing soakaways you must obtain a "Consent to Discharge" from the Environment Agency, who will advise you on how to perform the percolation test. It may also be subject to an application under Building Regulations.

# How does a septic tank work?

Sewage enters the chamber via the inlet and there the solids settle. Settled effluent then passes up through the tank and into chamber 2. Here finer suspended matter is treated, with any sediment falling back down into tank 1 via some slots.

Clarified effluent from chamber 2 passes into chamber 3 and is then discharged via the outlet to the soakaway.



## Septic tank capacity

The size of the tank must be suitable for the number of people or households that intend to use it. Your tank installer should be able to advise and may use the following formula:

$$C = (180P + 2000)$$

Where  $C$  = Capacity of the tank in litres and  $P$  = The population served

# Where can a septic tank be sited?

There are a few things to bear in mind when planning the location of your septic tank:

- Septic tanks should ideally be located at least 7m from any dwelling and soakaways at least 15m from a dwelling.
- Tanks and soakaways should never be located near to a well or borehole.
- The type of soil needs to be suitable to allow filtration and percolation. (See 'Percolation test and soakaways'.)

Please contact Building Control for more specific advice on **01395 517482** or view Approved Document H of the Building Regulations 2000.

## Septic tanks problems

- **Overloading:**  
More people equals more sewage. To rectify this it may be that a new, bigger system and/or soakaway is required.

- **Frequency of emptying:**  
If solids enter the soakaway it will become blocked and ineffective. However, if the tank is emptied too often, the bacteria won't establish themselves and the system won't function effectively.
- **Damaged/inadequate soakaway:**  
If the soakaway is broken the effluent will not be dispersed evenly and therefore not drain away correctly. If you want to construct a new soakaway, the percolation test should be carried out, details of which are available from the Environment Agency.



## What is a cesspool?

A cesspool is a sealed underground holding tank, which stores sewage until it is pumped out and disposed of. They must be covered to prevent the ingress of ground or surface water and the leakage of foul water.

They are watertight tanks and can be made of brick, block, steel or glass fibre.

# How does a cesspool work?

Its function is simply to collect waste. When the cesspool is full, which is likely to be every four to six weeks, it needs emptying. Cesspools have to contain all the waste from the house, therefore the size of the cesspool can be considerable. Cesspools are typically only used where ground conditions are “unsuitable” or where the proximity of local watercourses prevent the use of alternative private systems such as a septic tank. Cesspools can be expensive to run due to the cost of emptying.

## Cesspool facts

- Cesspools should be located no closer than 7m from any inhabited building.
- A cesspool should be sited so that there is no risk of polluting water supplies.
- A consent will be required from the local authority before works commence.
- The minimum capacity (from the Building Regulations) is 18 cubic metres or at least 45 days storage.
- Rainwater should not be collected as it can quickly fill a cesspool.



## What is a package treatment plant (Biodisk/ Biobubble)?

These work by allowing the natural bacteria to break down the sewage. They are similar to septic tanks but usually include some means of stirring the sewage or adding air to help

bacteria breakdown the effluent. Because of this they often require a power supply.

They can also serve multiple properties and may be more appropriate than many septic tanks. They can provide a good quality effluent which means they are better suited to more environmentally sensitive areas. They require a soakaway area similar to septic tanks so consent is required from the Environment Agency.

# Reed beds

A modern reed bed sewage treatment system can successfully treat sewage to the required standards. It usually comprises a settlement tank to remove gross solids, followed by a flow over specially prepared reed beds of specific reeds.

These selected reeds have the capability to transfer oxygen from the stems to the rhizomes (roots) where biological action purifies the sewage. The resulting effluent, which can be almost “clean”, may be discharged to a land drain or watercourse (subject to Local Authority and Environment Agency consent).

The system can be operated without power, if an adequate fall is available across the site. The only maintenance required is regular emptying of the settlement tanks.

# Purchasing a property

If you are considering buying a house with a septic tank system, ensure the drainage field (which contains the soakaway) is inspected prior to signing contracts and ask the householder if a maintenance log is available. An inspection of the whole system should be carried out by a competent surveyor. With new houses, ensure you have a warranty which covers the system.

# Indicators of problems with your system

- Slowly draining sinks, toilets, baths etc.
- Tank covers lifted by overflowing solids.
- Backing-up of sewage at the inlet.
- Surface flooding “downstream” of the tank.
- Nettles and vigorous plant growth downstream.
- Ground movement near the tank or soakaway.
- Polluted water in ditch or watercourse.
- A smell of sewage in the area.

# How to avoid problems

- Products such as bleach, chemical cleaners and biological washing powders should be avoided or used sparingly as these reduce biological activity and affects the efficiency of the system.
- Determine emptying frequency on sludge levels and **not** on whether the system is blocked and unable to work. Once sludge has entered land drains it is difficult to regain their porosity.

- Additional sanitary fittings, washing machines and dishwashers will result in extra sludge and in turn, more frequent emptying.
- Approximately 1/6 of the sludge should be left in the tank as an anaerobic 'seed'.
- It is also important to ensure that there are no connections from the rainwater system into a biological treatment unit. Divert any rainwater into a separate soakaway or ditch as clean water requires no treatment and may overload the system.
- Know the position of the system within the garden to prevent unnecessary damage to pipe work and aid emptying and maintenance.



## The law

Under the provisions of the Public Health Act 1936, it is an offence to allow a cesspool or septic tank to overflow or leak, and if prosecuted, a fine and daily penalty may be imposed. In addition, if a sewage system is found to be causing pollution to a watercourse the Environment Agency can take legal action under the Water Resources Act 1991, which could result in a fine up to £20,000 and/or three months imprisonment. Septic tanks and cesspools should therefore be sited carefully so there is no risk of pollution, particularly to water supplies.

## What if I have a problem?

Problems occur very rarely, but should be remedied as quickly as possible. If you are unable to find the problem and deal with it yourself, call out a specialist contractor. There are a number of contractors that should be able to empty and inspect your system and inform you of any problems and if necessary, undertake any work required. These will be listed in the phone book or Yellow Pages under septic tanks, water, waste, environmental consultants or sewage.

## How can we help?

We can provide advice on septic tanks and cesspools as well as investigate complaints of nuisance from drainage systems, leaking tanks or defective soakaways for instance. We can require the owner or owners to remedy the problem. Failure to do so can result in legal action against the person responsible under the Public Health or Building Acts.

# Useful contacts

## **East Devon District Council Environmental Health**

Tel: 01395 517456

Email: [environmentalhealth@eastdevon.gov.uk](mailto:environmentalhealth@eastdevon.gov.uk)

## **East Devon District Council Building Control**

Tel: 01395 517482

Email: [buildingcontrol@eastdevon.gov.uk](mailto:buildingcontrol@eastdevon.gov.uk)

[www.eastdevon.gov.uk/building\\_control](http://www.eastdevon.gov.uk/building_control)

## **Environment Agency**

Tel: 08708 506506

[www.eastdevon.gov.uk/drainage](http://www.eastdevon.gov.uk/drainage)



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