BASIC GUIDE TO SEWAGE TREATMENT SYSTEMS

Guide to Sewage Treatment

Building regulations require foul drainage to be connected to a public sewer or where this is not practicable to one of the following:

1. Cesspool
2. Septic Tank
3. Package Sewage Treatment Plant

CESSPOOLS

What is a cesspool?
A cesspool is a sewage holding tank with no outlet.

How does it work?
Sewage flows in and is stored, when the tank is full the waste is tankered away.

Site Suitability
-Sites where the ground is unsuitable for the waste to soakaway to ground

-Sensitive sites e.g., SSSI's and sites close to drinking water supplies

Advantages	Disadvantages
+ Low installation & maintenance cost	-No treatment of sewage
	-Require regular emptying

SEPTIC TANKS

What is a septic tank?
Multi-chambered tank with an outlet.

How does it work?
Primary tanks facilitate primary treatment to take place (the separation of liquids and solids by gravity). Sewage flows into the tank and the heavy solids 'sludge' sink to the bottom, lighter solids, grease and oils or 'scum' float to the surface. Some of the sludge is degraded by naturally occurring anaerobic (without oxygen) bacteria. The liquid effluent flows via gravity out of the tank and discharges to land by soakaway. Please note that some older septic tanks still discharge directly to watercourses. However, this practice is becoming less common due to more stringent consent standards. See below regarding Consent to Discharge.

Site Suitability

- Single domestic house or small developments
- Where there is sufficient porosity in the ground to allow for soakaway (ground porosity determined via percolation tests, for information on how to carry out percolation tests please contact us)

Advantages	Disadvantages
+ Relatively low installation cost	-Require emptying on an annual basis.
+ Some treatment	-Can only discharge where ground has sufficient porosity.

PACKAGE SEWAGE TREATMENT PLANT

What is a treatment plant?

A treatment plant is a more sophisticated unit than a septic tank, there are different types of package sewage treatment plant but they all generally follow the same principles.

How does a treatment plant work?

Package sewage treatment plants create an environment which facilitates the growth of bacteria which break down sewage into non- polluting end products. Treatment plants differ from septic tanks as not only does primary treatment take place but also secondary treatment. This requires an electricity supply which is used to artificially introduce air to the treatment plant; it is this oxygen transfer through the sewage which enables the growth of aerobic bacteria which are more effective in the breakdown of sewage than the bacteria present in a septic tank. This results in a higher quality effluent being produced, which can (subject to Environment Agency Consent to Discharge) be discharged directly to a watercourse.

Site Suitability

-Package sewage treatment plants are suitable for most sites from single domestic house up to 1000pe. - Subject to Environment Agency or SEPA, i.e., whether they will grant you consent to discharge to land or to watercourse

Advantages	Disadvantages
+ Sewage treated to higher standard	-Require electricity supply +
Suitable for larger developments	- Require regular maintenance to
	Ensure efficient operation.

Septic Tank Emptying Guidelines.

- 1 Park tanker in a safe sensible position where you are minimising disturbance to other road users, and to the public. Traffic management may be required at times.
- 2 Report to client that you have arrived.
- 3 Find Tank and gage how much suction pipe you may require, plan route where you are able to lay suction pipe to the tank. Make sure that when you are laying suction pipe you are not causing a trip or hazard to the general public.
- 4 Once the suction pipe has been laid on the ground from septic tank connect to tanker, check that the suction pipe is in a good position and will not harm, General public, Wildlife.
- 5 Remove septic tank lid/manhole, (If water treatment check that there are not any de-sludge guidelines which are sometimes the manufacturer attached inside septic tank). Check that lid is not damaged and the locks work. If damage report back to office and write on paperwork if there is space to let client know.
- 6 Put suction hose inside tank ready to empty.
- 7Start suction procedure. Build sufficient vacuum on tanker, then open inlet valve and start removing septic waste.
- **8** remove contents of tank by suction, make sure you remove all solids and not just the liquor, it is important that your remove all solids. Leave a little liquor in the bottom of septic tank. By leaving a small amount of liquor in the tank this will help build up bacteria faster for the breakdown of new waste coming into tank. Also leaving a small amount of liquor helps water treatment plants to keeping working properly.
- 9Once tank is empty close/shut inlet valve to tanker. And check that septic tank is empty, and you are satisfied that you have removed all the waste you can.
- 10Whilst septic tank is empty have a quick look to see if Septic tank is working to its full potential. Check that there is no ingress of water entering the tank from the walls, if so this would indicate a split or hole in the walls of tank, check, if treatment plant the blower system is working check if a Bio discs are moving. Report your findings.
- 11 Before dismantling suction pipe work from tank and tanker, make sure there is no remain liquor in the suction hose when undoing the suction hose connections. To prevent spillages, make suction hose is out of any liquor, build suction up on tanker, open inlet valve to remove any remaining liquor in suction hose close in let valve and remove suction hose, using an absorbent cushion under suction hose connection whilst undoing may help capture any drops of liquor. It is very important that if you have a spill that you clean it up. Children and pets may get it on themselves and get infected.
- 112 Before leaving site make sure you have not left any hoses, tools, spills, gloves on site, if client is in say goodbye and get paper signed if need be.

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