

TOWARDS BETTER ONSITE WASTEWATER MANAGEMENT IN VICTORIA - COMMUNITY EDUCATION SERIES

FACT SHEET 4: HISTORIC SEPTIC TANK SYSTEMS

This information will be of interest if you live on a property that is not connected to a town sewerage system and you manage your own waste water. This fact sheet focuses only on existing historic septic tank systems. These systems are very old systems having been designed and installed well before the modern expectations, guidelines and regulations. Because many of these systems are very old they are generally not repairable and when major defects arise they will need to be upgraded or replaced to meet current requirements and improved performance expectations.

4.1 WHAT ARE HISTORIC SEPTIC TANKS?

An older septic tank is an in ground tank made on site using either bricks or concrete. Historically septic tanks only took black (toilet) water and commonly grey water was disposed of separately.

Like all septic tanks these contain a living ecosystem with good bugs that digest and treat waste water from your toilet, bathroom, kitchen and laundry. Additionally the septic tank allows solid material to settle, gives the good bugs time to breakdown some of the waste material, while also acting as a storage chamber for undigested materials. This is called 'primary treatment' of your wastewater.

A healthy septic tank should have three layers: a layer of fats forming a scum layer on the surface which helps reduce odours and provide the anaerobic environment (no oxygen present) that the good bugs need; a clear layer in the middle (called effluent); and a layer of sludge or undigested materials at the bottom of the tank. The clear effluent flows out of the tank when new wastewater enters and this effluent is discharged to an absorption field (refer to Diagram 2 and 3).

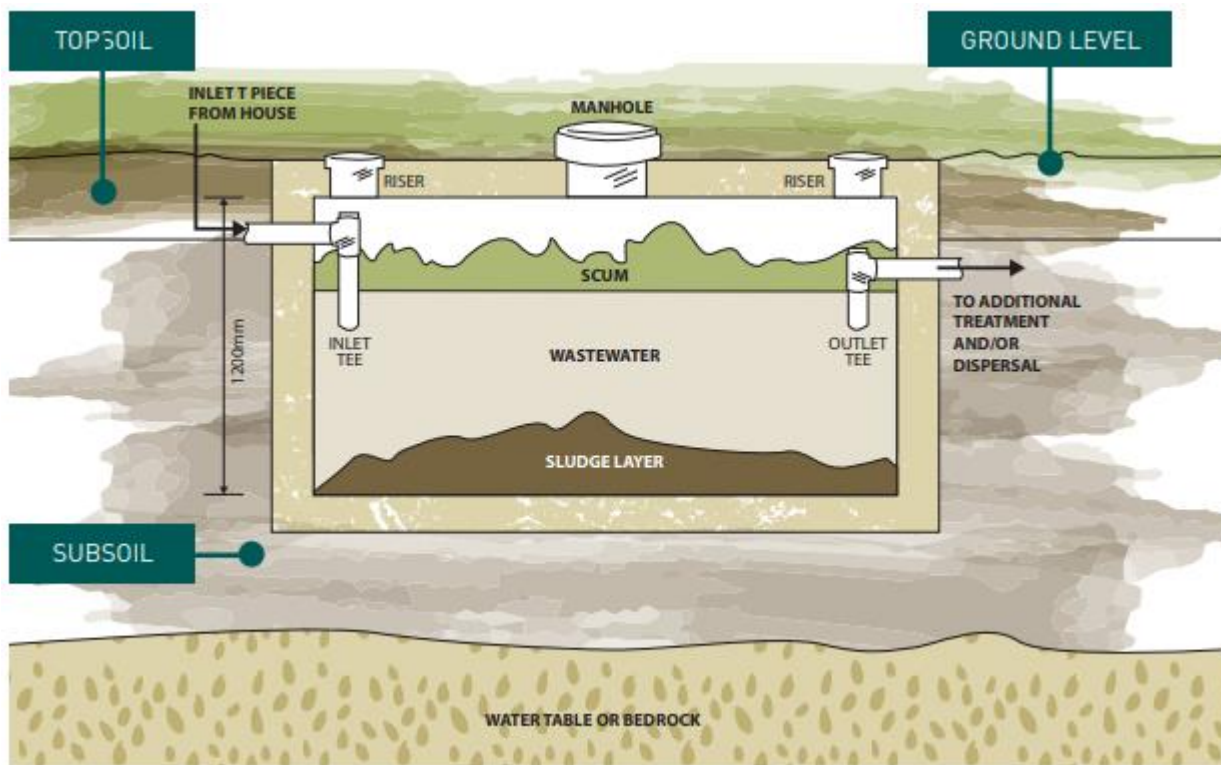
These septic tanks are not mechanical systems and mostly rely on gravity and good bugs to work, so this system when working well is generally inexpensive to operate.

It is very important to remember that septic tanks do not kill the bad bugs that can make us ill (bacteria, viruses and parasites) and the effluent from these tanks must be treated with caution. Contact with people, food, clothing and pets by effluent from septic tanks **MUST** be prevented.

As shown in Diagram 1 these very old septic tanks are unlikely to have a baffle which improves the efficiency of solids settling out of wastewater. You might find that these older tanks require more maintenance as a result of this. You may be able to retro-fit a baffle depending on the construction of the tank or it might be an advantage to replace your existing tank with a modern one. Speak to your local Environmental Health Officer for further information.



DIAGRAM 1: SINGLE COMPARTMENT SEPTIC TANK (WITHOUT A CENTRAL Baffle)



4.2 HISTORIC GREY WATER DISPOSAL:

As stated earlier historically septic tanks were used to collect only black (toilet) water. All the other waste water generated including laundry, kitchen and bathroom water (grey water) was dealt with separately.

Methods for disposal included:

- Trenches connected to the individual fixture (i.e. kitchen water to one trench, laundry to another etc.)
- Off site disposal with all water being sent to local streets, storm water drains, or creeks.
- Over land disposal with a pipe connected to the waste water fixture and the water was allowed to run over backyards or open paddocks if the property had sufficient space.

4.3 WHAT ARE THE DIFFERENCES BETWEEN AN OLD AND NEW SEPTIC TANK?

Technological advancements provide us with the opportunity to manage our wastewater in safer and more effective ways. Existing historic septic tanks are an out-dated method for managing wastewater as they lack some of components of modern septic tank designs.

The key differences between historic and modern septic tanks are:

- A Baffle – a wall-like structure that acts to reduce the flow of solids through the tank and then into the disposal field.
- Outlet Filter – a strainer that further acts to reduce suspended solids entering the disposal field.
- Inspection Ports – these allow easy access for visual inspections of the interior of the septic tank.
- Established Operating Capacities – modern septic tanks are now factory made and have specifications for the amount of wastewater they can manage.

The standards and regulatory requirements that manage the design, installation and operation of modern systems have also evolved, meaning that your historic septic tank system may not meet modern expectations. However existing septic tank systems are still allowed to be used until one or more of the following arise:

- Your system fails and requires repair or replacement;
- Your grey water is being disposed of off site;
- There is a high risk of environmental degradation or human health impacts;
- Reticulated sewer system becomes available in your area;
- You alter your house design or any plumbing fixtures attached to your septic tank system;
- Your septic tank no longer meets the water quality standards it is required to achieve; or

– You have been given an order by local government or other relevant wastewater or environment protection authority to upgrade your septic tank system.

If your existing septic tank system is no longer operating as it should, then it will need to be replaced with an on-site wastewater management system that is currently approved for installation in Victoria.

Therefore, it is in your best interest to maintain your historic septic tank system to the highest possible standard to protect the natural environment, your community, your family’s health and your hip pocket.

4.4 HISTORIC DISPOSAL FIELDS:

The effluent from these historic septic tanks goes to trenches for final disposal. Diagram 2 shows the design of a typical absorption trench which has changed only slightly over time. The one big change was replacing the clay pipes with the slotted PVC or agricultural pipe. Older disposal fields tended to be smaller and designed to cope with a less wastewater. These disposal fields can struggle with the amount of water that we generate today.

Trenches can be expected to last for 20 years or longer, however solids particularly fats and oils from the septic tank entering the disposal field can clog up the pipes and trenches, shortening their life.

Also if you only have a single trench run you might find the wastewater is not being distributed along the full length of that trench. This can result in muddy and smelly patches in your yard. Below are examples of common older trench designs.

Below are examples of common older trench design along with two absorption field layouts that would no longer meet requirements,

DIAGRAM 2: TYPICAL ABSORPTION TRENCH

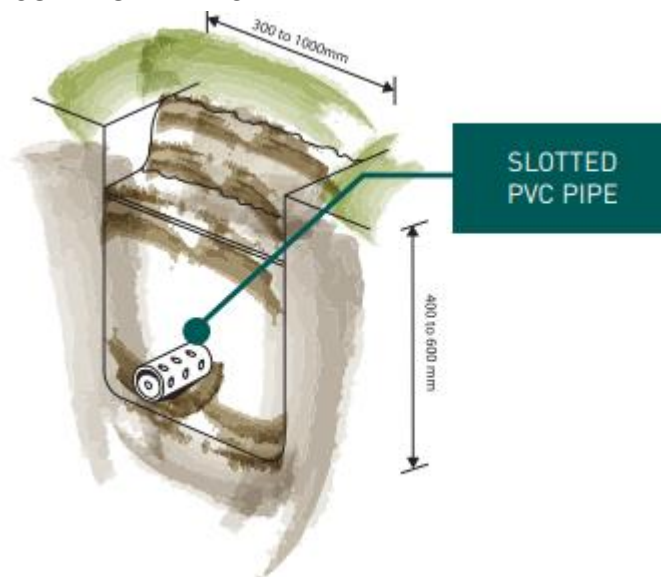
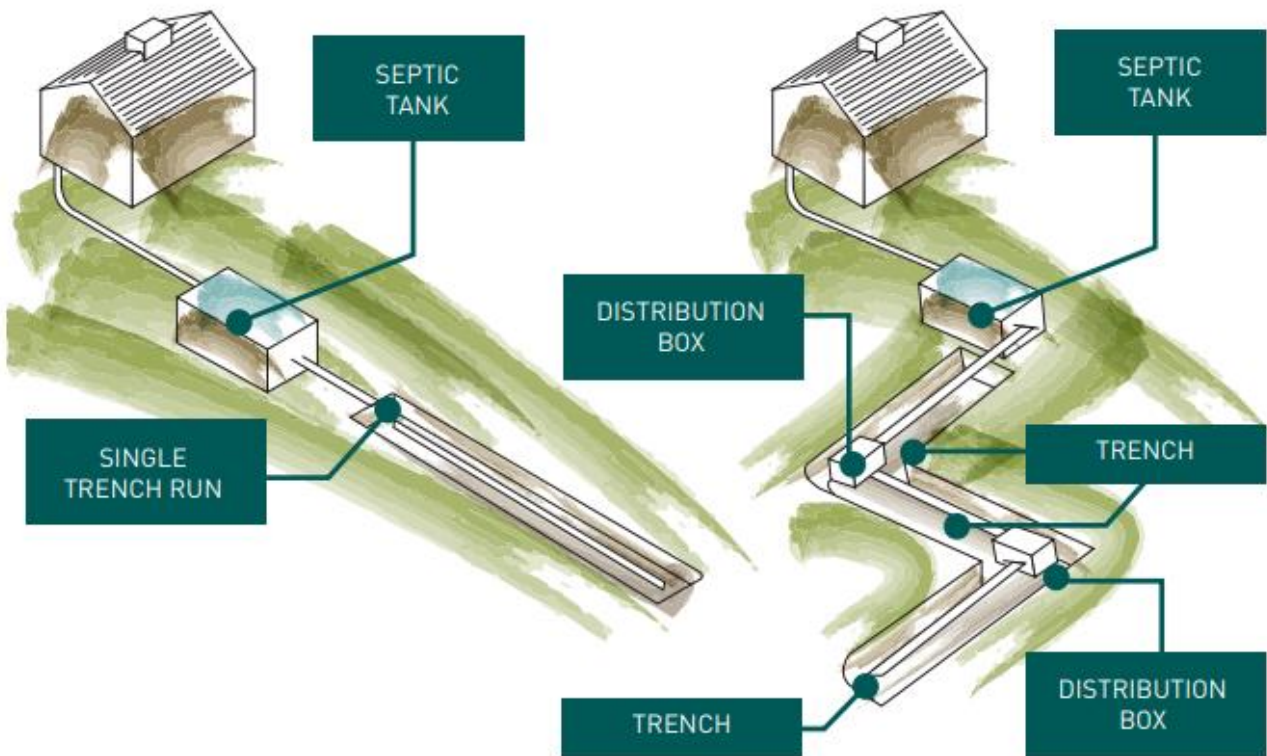


DIAGRAM 3: TYPICAL HISTORICAL TRENCH LAYOUT



Too much sludge in the septic tank. This can result in the effluent leaving the septic tank being ladden with solid material and clogging up pipes and absorption trenches. Ensure the septic tank is desludged regularly, and never allow the sludge to be less than 100mm from the bottom of the outlet pipe.

Too much water going into the septic tank which can result in solids being pushed out of the tank and clogging up the pipes and trenches. This is a common problem resulting from the system being undersized to manage the household wastewater or overused. The answer to this problem is to look at the amount of wastewater being generated in your house and reduce it as much as possible (e.g. install water saving devices). The other option is much more expensive and involves increasing the size of the disposal field.

Stop toxic chemicals such as bleach or commercial cleaning products from going into the system. These chemicals can kill off the good bugs and will hinder the breakdown of wastewater in the septic tank.

There are usually warning signs of problems in your septic system. If you notice water draining away too slowly, pipes making noises or gurgling when draining, sewage smells, or water ponding near your trenches then these are the signs that your septic system is failing. You need to contact a licensed plumbing practitioner (for assistance and get some help).

4.6 DEALING WITH SEPTIC TANK PROBLEMS

Septic tanks overfull with sludge and scum allow untreated wastewater with solid material to flow out of the tank, clogging pipes and the absorption trenches. This is the most common cause of problems with septic tank systems. You need to desludge your septic tank every 3-5 years depending on use. If you have a septic tank without a baffle then it may be necessary to de-sludged it more regularly.

Newly de-sludged tanks should be refilled with clean water and a hand full of lime added to reduce any odours and encourage the growth of good bugs.

The following are some helpful hints to keep your septic tank healthy:

- Have your septic system regularly checked for sludge and scum level build up, and blockages by your licensed plumbing practitioner;
- Keep a record of de-sludging, inspections and other maintenance activities;

- Check the household products that you use are suitable for disposal through septic tank systems.

Bleaches, solvents, oils, paints, disinfectants, antibiotics, chemical cleaners, pesticides and herbicides, and caustic soda can kill the good bugs in your septic system. You can protect your system by using traditional non-toxic cleaners, like vinegar and bicarbonate of soda, in the kitchen and bathroom;

- Use biogradable liquid detergents (eg concentrates with low phosphorus and salt);
- Ensure that the septic tank is mosquito proof;
- Do not put rubbish such as sanitary napkins, condoms or disposable nappies down the toilet;
- Spread your laundry cycles throughout the week to reduce the disruption of the settling process inside the septic tank.
- Your septic tank system has been designed to manage a particular amount of wastewater so be careful not to overload the system. Do not alter any part of your septic tank system without Council approval.

4.7 DEALING WITH ABSORPTION TRENCH PROBLEMS:

Clogged trenches are a common cause of problems for septic tank systems. Trenches fail when they get blocked and effluent is unable to evaporate or drain away. You can tell when the trenches have failed because the area will be soggy, smelly and covered with dense grass. Absorption trenches should last for 15-25 years, but if they are not well built and maintained properly the trench life can be reduced significantly.

The following are some helpful hints to keep your septic trenches healthy:

- You need to divert stormwater away from the trenches;
- Plant small water loving, shallow rooted plants down-slope of the trenches and these will help to adsorb the effluent;
- Do not drive over or allow livestock to disturb the trenches;
- Do not build structures like garages or sheds over the trenches;
- Do not cover the trenches with concrete or pavers;
- Do not place excessive amounts of top soil on top of the trenches;
- Do not let children play near the trenches

4.7 WHO TO CONTACT:

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