

Fact Sheet 1

Conventional Septic Tanks

There are around 6000 properties within the Shire of Nillumbik that are not connected to mains sewerage. These properties are serviced by an onsite wastewater disposal system (septic tank system). Wastewater if not properly managed can impact on public health and the environment.

There are 10 fact sheets about onsite wastewater systems:

1. Conventional septic tanks
2. Aerated wastewater treatment plants
3. Sand filters
4. Split system
5. Common disposal methods for primary treatment
6. Common disposal methods for secondary treatment
7. Purchasing a dwelling in Nillumbik
8. Greywater reuse
9. Indigenous plants and grasses for transpiration
10. Decommissioning your domestic wastewater system

This fact sheet provides information about conventional septic tanks. For information about aerated wastewater treatment systems read Fact Sheet 2. To learn about the entire septic system, we suggest that this fact sheet be read in conjunction with Fact Sheet 5 (common disposal methods for primary treatment systems).

What is a septic tank system?

A septic tank system is a small-scale sewage treatment system (also referred to as an onsite wastewater treatment system). They are commonly found in domestic properties when reticulated sewerage is unavailable.

What is a septic tank?

The modern septic tank is usually a 3200L concrete or plastic in-ground tank that has two internal chambers separated by a baffle. The tank holds and treats wastewater from a kitchen, bathroom, laundry and toilet.

The tank houses a living ecosystem of bacteria that decompose the organic material, treating the solids and wastewater before it is drained into the natural environment by means of an effluent disposal system.

A septic tank system is also known as primary treatment system.

Effluent disposal systems

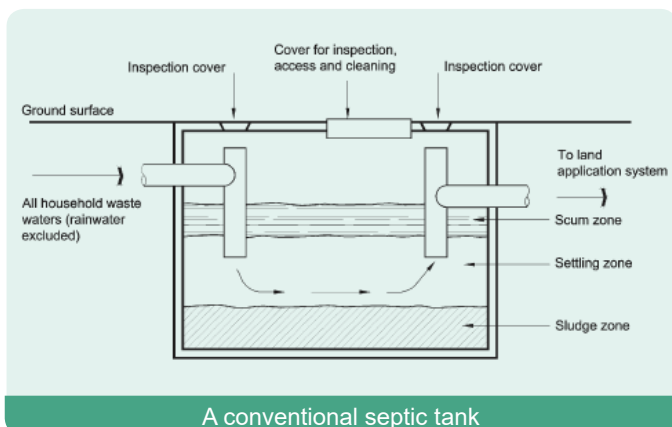
Wastewater treated to primary quality is only suitable for disposal below ground via soil absorption trenches, mounds and evapo-transpiration beds or trenches. For information about effluent disposal systems refer to Fact Sheet 4.

How does a septic tank system work?

The modern septic tank has two chambers separated by a baffle. When wastewater passes through the septic tank, heavier solids sink to the bottom (of the first chamber) and undergo bacterial digestion. This reduces the quantity of solids and changes its composition to sludge which builds up in the bottom of the tank.

Materials such as grease and oil float to the surface in the tank to form a crust over the liquid. When new wastewater enters the septic tank it displaces the effluent from the first chamber into the second where any remaining solids sink to the bottom and the process is repeated.

The remaining liquid, called effluent, flows from the tank into the drainage receptacles to soak into the surrounding soil where it may undergo further natural treatment processes.



Benefits of a septic tank

When the septic tank system is working well, it is generally:

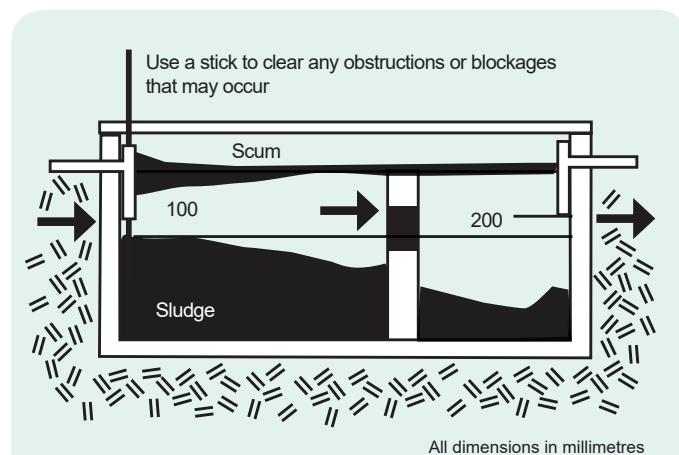
- Inexpensive to operate
- Does not require excessive maintenance
- Has minimum impact on the environment

Remember, septic tank systems are primary treatment systems. They do not kill bacteria, viruses or parasites. It is important that the effluent discharged from these types of systems is treated with caution, and contact with people, food (including vegetable gardens), clothing and pets is avoided.

A healthy septic tank

A healthy septic tank should have three layers. The first (top) layer is called a scum layer which contains fats and oils. The second layer contains clear effluent. The third layer (the sludge layer) is where the heavy solids settle on the bottom.

Sludge build-up or scum thickness reduces the available capacity for wastewater retention and should be pumped out every three to five years. Failure to pump out the septic tank can result in solids passing into the absorption trenches causing odour problems and the trenches to fail.



When the scum is within 100mm of bottom of inlet and/or sludge is within 200mm of bottom of outlet, desludging of the tank is required to prevent any solids passing untreated and so clogging the disposal area

Septic Tank diagram: Desludging of tank required

Other components of a septic tank system may include:

- Pump wells
- Alarms
- Sand filters (refer to Fact Sheet 3)

What is a pump well?

A pump well is required when:

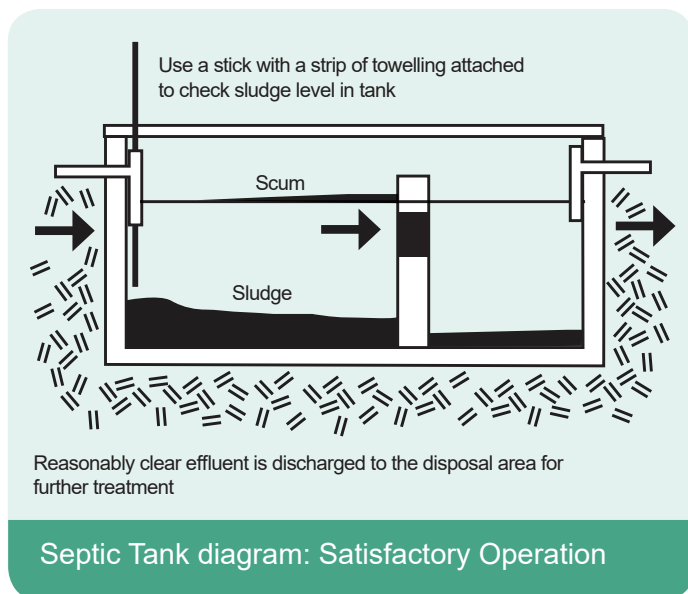
- There is insufficient fall to allow the effluent to reach the disposal area via gravity.
- The effluent disposal area is located a significant distance from the septic tank system.

In these situations, a pump is installed in a 'pump well' and fitted with a visual or audio alarm which activates when the pump fails. Pumps should be submersible and driven by motors rated at 0.2 kw or more, or as specified by the manufacturer. The storage capacity of a pump well must be equal to the pump's ability to handle the peak hourly flow from the septic tank system plus emergency storage.

Setback distances for septic tanks

The effluent disposal field should be installed at least three metres from a house or permanent structure. For further setback distances refer to the EPA Code of Practice for onsite wastewater management available at epa.vic.gov.au/your-environment/water/onsite-wastewater

The septic tank will need be located sufficient distance from a dwelling or permanent structure to not impact the footings.



Maintaining your septic tank

- Septic tanks should be inspected periodically by a licensed plumber to check scum and sludge levels and the outlet and inlet pipes for blockages. The owner must keep a record of pump outs, inspections and other maintenance activities.
- Septic tanks must be de-sludged every three to five years depending on use. Newly pumped out tanks should be refilled with clean water and a handful of lime added to reduce the odours and encourage good bacteria.
- Household products must be suitable for disposal through a septic tank. Bleaches, disinfectants or nappy soakers can all affect the operation of the septic tank. Biodegradable detergents with low phosphorus and salt are a better alternative.
- If an individual is receiving chemotherapy treatment, the septic tank will need to be pumped out once treatment has been completed, ensuring the plumber is aware of the contamination.
- Do not put rubbish such as sanitary napkins, condoms or disposable nappies down the toilet.
- Do not alter any part of a septic tank system without Council approval as individual septic tank systems have been designed for a specific amount of wastewater.
- Spread laundry cycles throughout the week to reduce the disruption of the settling process by peak wastewater flows. Visit lanfaxlabs.com.au for information about laundry products.

Common problems associated with septic tanks

- Too much sludge or scum will reduce the available capacity for wastewater retention and may result in the sludge and/or scum layer pushing out into the effluent disposal area and clogging up the pipes.
- Too much water going into the septic tank can also result in solids being pushed out of the tank and clogging up the pipes.
- Using too much water increases the flow rate and inundates the effluent disposal area.
- Toxic chemicals such as bleach or commercial cleaners going into the septic tank can result in the good bacteria being killed off and stop the anaerobic digestion process.

Common signs of a failing septic tank

- Water draining away too slowly
- Pipes making noises or gurgling when draining
- Offensive odour
- Bright green, spongy grass on the effluent disposal area even during dry weather
- Water ponding over the effluent disposal area (absorption trenches/beds).

A failing effluent disposal area may require a system upgrade and or replacement.

For information

For information on onsite wastewater systems contact Environmental Health on 9433 3340.

Comparison of Septic Tanks and Aerated Wastewater Treatment Systems (AWTS)

Septic tank systems	AWTS
<ul style="list-style-type: none">• Generally does not require power, unless the effluent needs to be pumped.• Limited maintenance. De-sludging is required every 3-5 years, depending on use.• Effluent is commonly disposed of via absorption trenches.	<ul style="list-style-type: none">• Requires a continual supply of power.• Regular maintenance. Must be serviced once every 3 months and have an annual water sample test.• De-sludging every 3-5 years depending on use.• Effluent is commonly disposed of via subsurface irrigation.

A list of onsite wastewater systems which have a Certificate of Conformity with the Australian Standards 1546 can be found on the Environment Protection Authority (EPA) website at epa.vic.gov.au

It is important to note that secondary systems are likely to be the best option on properties with environmentally sensitive features such as creeks and dams or where there is limited area available for disposal areas and properties with a poor soil profile.

For information about Aerated Wastewater Treatment Systems, refer to Fact Sheet 2.

