

TOWARDS BETTER ONSITE WASTEWATER MANAGEMENT IN VICTORIA - COMMUNITY EDUCATION SERIES

FACT SHEET 3: SEPTIC TANK WITH SAND FILTER

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 sand filters, their issues and some ideas to help manage them. To gain an understanding of the entire septic system, it is recommended that this fact sheet be read in conjunction with Fact Sheet 1: Conventional Septic Tanks (Basic Design Information) and Fact Sheet 6 Common Disposal Methods (Primary Treatment).

3.1 WHAT IS A SAND FILTER?

Sand filters are a form of secondary treatment and are most commonly installed in conjunction with conventional septic tanks (for details on conventional septic tanks refer to Fact Sheet 1: Conventional Septic Tanks: Basic Design Information). Sand filters are usually a box shape constructed out of heavy duty plastic or concrete and filled with sand material. The effluent from the septic tank is irrigated under low pressure and control dosing into a gravel filled bed on top of the sand material. This irrigated effluent then trickles through the sand material. The sand captures any remaining solid material and provides a good environment for good bugs (aerobic bacteria) to carry out extra digestion of the waste materials and reduces pollution. At the bottom of the box is another gravel drain system which then collects the treated effluent. This treated effluent is then pumped or gravity fed to underground trenches or a sub-surface irrigation system or another method approved by your local government EHO.

The main benefit of having a sand filter into your domestic wastewater treatment system is to treat the effluent coming out of the septic tank to a higher standard which will reduce negative impacts on the environment, and assist with site constraints (e.g. you are on a small block or dealing with environmental sensitivity).

3.2 WHAT ARE THE COMMON ISSUES WITH SAND FILTERS

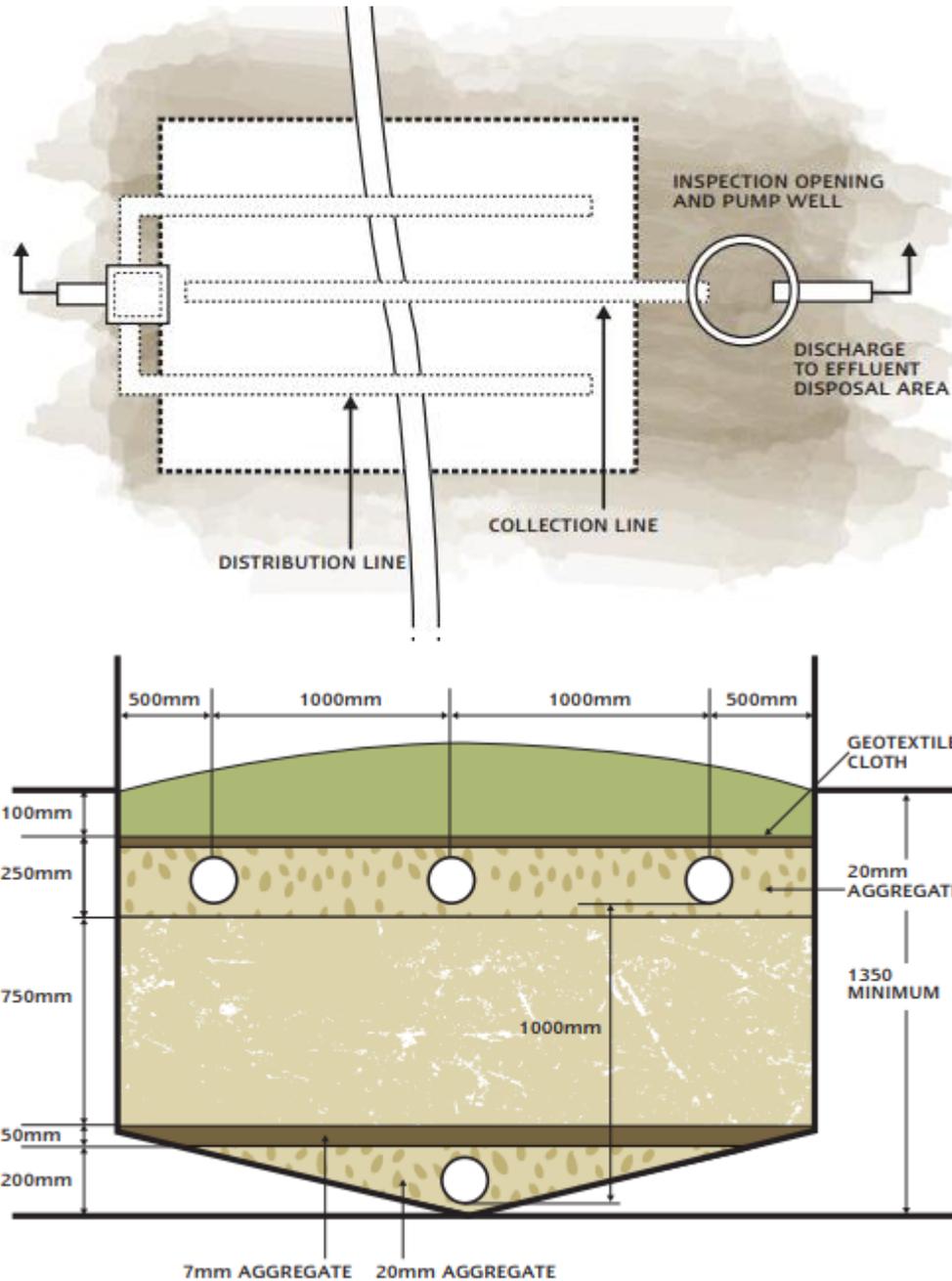
It is important to get the sand material just right. The sand used for sand filters needs to be neither too coarse nor too fine. If the material is too coarse then the wastewater passes too quickly and too fine sand slows the flow down too much increasing the likelihood of clogging.

The sand material can also become clogged by too much solid material coming from the septic tank reducing effectiveness and increasing the need for maintenance.

Sand filters can be affected by high rates of wastewater being applied in one day. These filters become less effective at removing bad bugs and other wastes from the wastewater at high wastewater loading rates.

Uncontrolled dosing and uneven distribution of wastewater across the filter surface can result in parts of the filter becoming overloaded resulting in wastewater being flushed through the filter without adequate treatment. For effective operation, the wastewater needs to be carefully dosed and evenly distributed across the surface of the sand filter.

DIAGRAM 1: A BASIC SYSTEM



3.3 A FEW SIMPLE STEPS TO A HEALTHY SAND FILTER:

De-sludge your septic tank every 3-5 years depending on use. Sludge from the septic tank forms a crust on the surface of the sand filter and blocks the wastewater from moving through the filter. Consequently you may be required to periodically replace the sand in the sand filter material;

- It is possible that you will be required to have the treated effluent coming from your sand filter tested and a copy of the test results sent to your local government:
- If the effluent is discharged off site then it needs to be tested for biochemical oxygen demand, suspended solids and the presence and levels of bad bugs 3 times a year.
- If the effluent is discharged below the ground surface then it needs to be tested for biochemical oxygen demand and suspended solids annually;
- Install water saving devices to limit the flow of wastewater through the system;
- Inspect the sand filter and disposal area for odours, wet spots or surfacing sewage. If you notice any of these you will need to call a licensed plumbing practitioner;
- Pump failure or water ponding on the surface of the sand filter can be serious problems.

- If you have an older sand filter you might consider upgrading it to include a pressurised distribution system. This system will allow more even distribution of the wastewater across the surface area of the sand filter and helps it to work more effectively;
- Do not build structures like garages or sheds over the septic system or sand filter;
- Do not cover the sand filter with concrete or fixed pavers;
- Divert stormwater away from the system; and
- Keep traffic and livestock off the system.

3.5 HISTORIC SAND FILTER SYSTEMS:

If you have an ageing sand filter incorporated into your domestic wastewater system and a small allotment, it is likely that this system was designed to discharge the treated effluent to the street kerb or other offsite location. This is an out dated method of designing wastewater systems that was frequently used to manage wastewater generated from houses on small allotments.

This method of discharge is no longer permitted due to the risks to the environment and human health. However there is no need to panic just yet. If you have a system designed to discharge offsite it is unlikely that you will be required to change it unless one or more of the following circumstances arise:

- Your system fails and requires repair or replacement;
- The risk of environmental degradation or health impacts becomes too great;
- You alter your house design or any plumbing fixtures attached to the system;
- Your sand filter no longer meets the water quality standards it is required to meet;
- You have been given a formal written direction by your local government or other relevant wastewater or environmental protection agency to the upgrade the system.

Therefore, it is in your interest to maintain your wastewater management system to the highest standard possible in order to protect the natural environment, your community, your family's health and your hip pocket.

3.6 WHO TO CONTACT:

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