

The Undercover Story



People First

Southland District Council

Te Rohe Pōtae O Murihiku

Septic Tank and On-site Disposal

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Artwork kindly supplied by
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Introduction

Most houses in rural areas and many dwellings in semi-rural areas close to cities and towns rely on the septic tank system to treat household sewage and wastewater. Properly installed and maintained this is an hygienic and economical way of treating household wastewater.

If neglected it can pollute the environment, put you and your neighbours' health at risk and be expensive to repair. For communities relying on septic tanks, effective operation and maintenance will prevent the need for expensive reticulated sewerage systems.

Your septic tank system is easy to keep in a healthy state as long as you understand how it works, and carry out a few simple maintenance tasks.

By following the instructions in this brochure you can operate an effective and environmentally friendly system, which will safely treat and dispose of all wastewater from your bathroom laundry, kitchen and toilet.

If you have problems or want further advice on the operation of your system, the Southland District Council's Environmental Health Section is there to help.

The Septic System

The septic system has two main parts: the *Septic Tank*, in which larger particles are removed from the waste and some decomposition takes place, and the *Treatment/Drainage Field*, in which the effluent is treated as it soaks into the ground through distribution pipes.

Wastes flow by gravity down the house drain to the tank. The partially treated effluent flows out of the tank and is distributed into the drainage field, where natural processes in the soil absorb and treat it.

The most effective treatment occurs in unsaturated soil conditions with nutrient removal and bacterial die-off before the effluent reaches the water table.

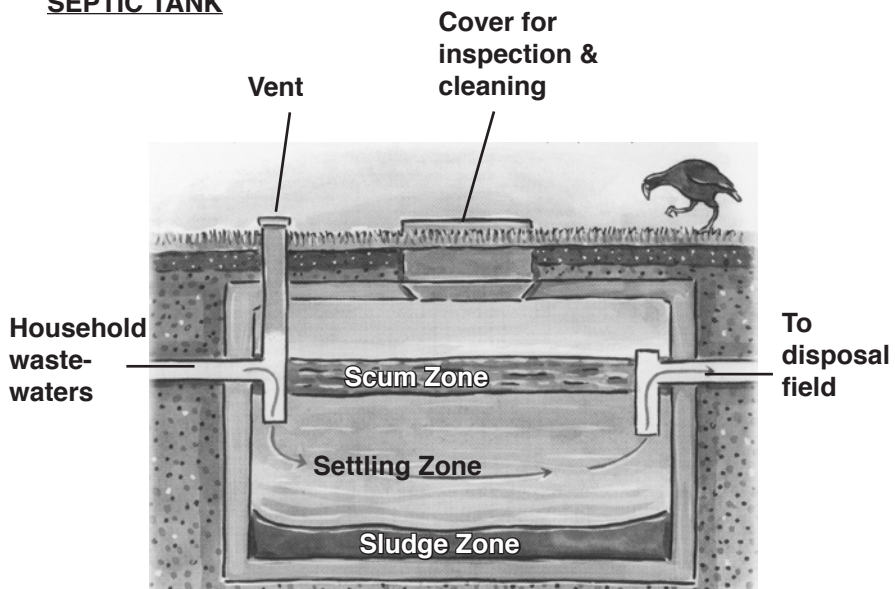
What Does The Septic Tank Do?

The main job of the septic tank is to pre-treat household wastes before they enter the drainage field.

Three processes take place in the tank.

- The heavier, solid particles in the sewage settle to the bottom of the tank forming a sludge. Lighter materials, including fat and grease, float to the surface forming a scum layer.
- Anaerobic bacteria in the septic tank breakdown some of the organic solids into liquid components, helping to reduce the build-up of sludge in the tank.
- Sludge and scum are stored in the tank, rather than being allowed to flow into the drainage field where they would quickly clog the soil.

SEPTIC TANK



Where it all goes

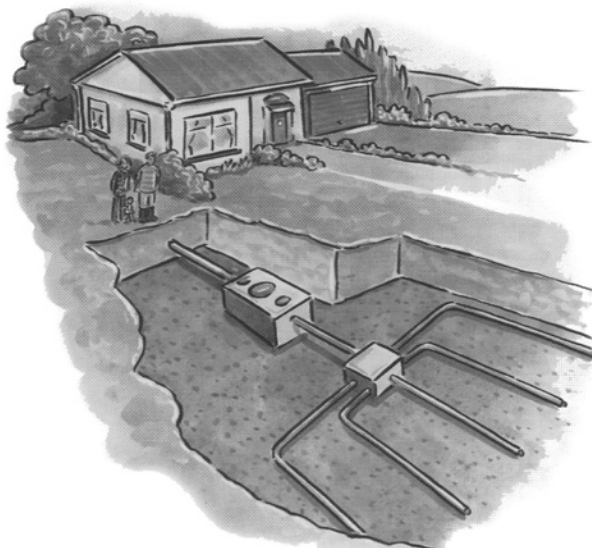
When the effluent leaves the septic tank it has received only limited treatment. Further treatment is carried out by natural processes occurring in the disposal field. The type of disposal field used depends on the soil conditions, slope of section, vegetation and underlying ground structure.

Several types are commonly used including:

1. Soakage Trenches

These are the most common form of disposal field, used where there is a layer of topsoil over clay. Suitable for both flat and sloping sites.

Field tiles are laid in a shallow trench surrounded with reject gravel. Effluent flows out through the gaps between the tiles and soaks into the surrounding soil. The soil and bacteria in the soil remove nutrients, kill off many of the bacteria and generally clean up the effluent. Some soakage trench systems have a distribution box, which allows effluent to be diverted from one trench to another. One trench can be allowed to recover while the other is in use.



2. Soakholes

See Appendix A

Soakholes have been used as a method of effluent disposal in many areas, particularly where there is poor soakage into clay over gravels.

A soakhole is dug or bored through the clay layer into gravel layers below. Effluent from the septic tank is discharged into the soakhole.

With the need to protect groundwater the conditions relating to this type of discharge have been made more stringent.

The conditions or rules for this type of disposal are contained in the *Effluent Land Application Plan for Southland*. This document is administered by Environment Southland.

3. Specific Design

These are other systems which have application in difficult or specialised situations.

Most rely on multi-chamber or modified septic tanks with pump out or siphon dosing systems. As their name suggests they are usually designed by engineers with specific knowledge in soil structure and hydraulics.

The systems utilise small bore pipe and artificially raised mounds. The unsaturated soil concept is achieved by the effluent draining through the soil mound between each dosing.

Problems

Problems can occur with systems which have not been maintained and where drainage fields have become saturated, blocked or clogged. The warning signs are obvious:

- Wastewater ponding on the surface of the ground.
- The smell of sewage near the septic tank or drainage field.
- Slow running drains or toilet.
- Wastes discharging from gulley traps.

A failed septic tank system is a serious health and environmental hazard and can lead to:

- Infection to you or your family.
- Pollution of streams and ditches.
- Contamination of drinking water supplies.
- Breeding of flies, mosquitoes and rodents.
- Risk of infection to pets and farm animals.



Some Don'ts



1. The Septic Tank

- **Don't** use a garbage disposal unit
- **Don't** flush sanitary napkins or disposable nappies into the system
- **Don't** pour concentrated bleaches and disinfectants down drains
- **Don't** put paint, oil or chemicals into the system
- **Don't** drain surface water into gulley dishes
- **Don't** permit any stormwater to enter the tank.

2. The Disposal System

- **Don't** build structures over the disposal system
- **Don't** build roads over the disposal system
- **Don't** allow surface water to pond over the disposal system
- **Don't** direct stormwater or ground water into the disposal system
- **Don't** allow stock to pug up the disposal area
- **Don't** grow deep rooting trees and shrubs over the soakage trench.



Management of Your On-Site System

With any on-site wastewater management system the on-going maintenance of the tank and soakage field is the sole responsibility of the home-owner or occupier. Whilst advice is given by Council Environmental Health Staff on appropriate methods of disposal, owners must appreciate that the continuing effective operation of their system is largely determined by their own actions (eg. use of water conservation measures).

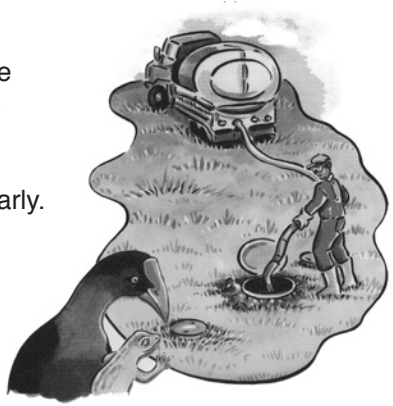
Should nuisance conditions arise because of owner neglect or abuse of a system, immediate steps must be taken to remedy the situation. In cases where old systems have been installed and have failed, owners should seek expert advice on how the situation can be corrected.

The following information should assist property owners in ensuring that their onsite systems have a long and troublefree life.



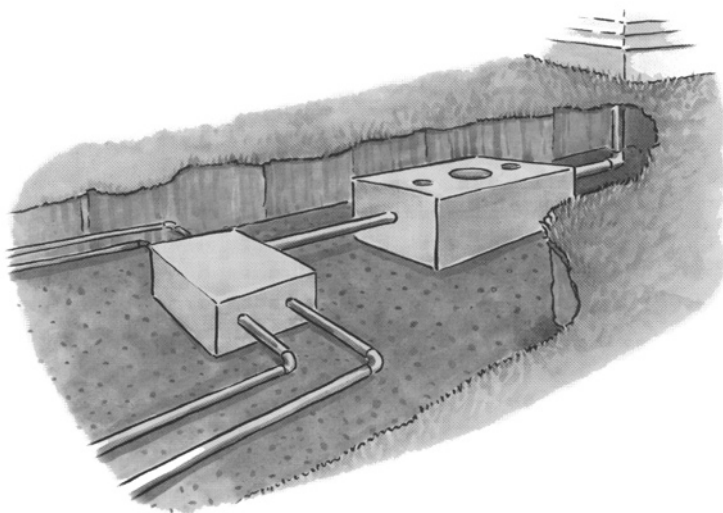
Tank Maintenance

- Ensure that the mushroom vent on the septic tank is kept clear and free from long grass etc.
- Have the septic tank desludged regularly. Every 3-4 years is recommended.



Disposal Field Area

- Check that water does not pond in the area during or after heavy rain.
- Check that effluent is not ponding at the end of the soakage trench.
- Alternate between soakage trenches every 3-6 months, if you have an adjustable distribution system.
- The distribution box must be kept accessible.



APPENDIX A

5. Rules and Principal Reasons

Rule 5.1.2

The following activities are permitted activities:

1. The discharge onto or into land from a new foul water drainage system; and
2. The discharge onto or into land from a replacement of an existing foul water drainage system;

Provided that the following criteria are met:

- a. the volume of the discharge does not exceed 1.25 cubic metres (1250 litres) per day, averaged over a period of one month; and
- b. there is no discharge of foul water directly to water, including groundwater, or the coastal marine area by:
 - i. tile drainage
 - ii. overland flow
 - iii. pipes, or stormwater drains
 - iv. artificial free drainage areas; and
- c. the system is designed and sited to avoid stormwater infiltration; and
- d. the discharge contains only foul water; and
- e. all pipelines, drains, pumps and reservoirs associated with the foul water drainage system are maintained so as to avoid any noxious, dangerous, offensive, or objectionable effect; and

Appendix A Continued

- f. the soakage field dosage pipes are not within:
 - i. 20 metres of any water body or wetlands listed in Appendix F, excluding aquifers;
 - ii. 50 metres of any coastal water;
 - iii. 50 metres of any existing potable water abstraction point;
 - iv. 20 metres of another septic tank on the same property and
- g. no part of the infiltration surface is within 900 mm of the groundwater table at its mean seasonal high water level; and
- h. community sewage reticulation is further than:
 - i. 30 metres from the nearest boundary of the allotment where the foul water originated; or
 - ii. 60 metres from the nearest part of a building from which the foul water originated; and
- i. the soakage field dosage pipes evenly distribute the foul water effluent to the infiltration surface of the soakage field; and
- j. the foul water drainage system is not used for disposal of chemical toilet wastes.

*Note: For any additional information please contact
Environment Southland*

Explanation

The discharge of foul water from new and replacement sanitary appliances and fixtures is an activity where the potential adverse effects can easily be avoided. It is therefore appropriate to permit the activity, subject to criteria that will ensure that adverse effects are avoided.

The maximum discharge volume is based on the volume of foul water than can be expected from an average residential dwelling with six to eight full-time adult occupants. For guidance as to typical domestic foul water flow designs see Appendix E.

Direct discharges of contaminants into water bodies or coastal marine area will adversely affect water quality, and the life supporting capacity of the water ecosystem. Stormwater and groundwater drainage systems have the potential to deliver contaminants directly into ground or surface water.

Buffer distances are utilised as a precautionary measure to mitigate the adverse effects of the discharges on potable water. The distance of 900 mm above groundwater will ensure that there is sufficient suitable soil to assimilate any contaminants. Where groundwater is very shallow (less than 900 mm) it is possible to build the soakage field beds up to attain the required buffer distance.

Explanation Continued

It is important that the foul water drainage system is maintained and operated within the design parameters of the system, with respect to effluent characterisation and volume. Stormwater entering the system will substantially increase the discharge volume. This may compromise the integrity of the soakage field. It is also important to ensure that acids or other chemicals that may adversely affect the biological processes within the foul water drainage system are not added to the system.

These substances can adversely effect the life supporting capacity of the soil ecosystem. They may also adversely affect the microbiological activity within the foul water drainage system. Where community sewage reticulation is reasonably available, a connection should be made to it.

The discharge should not result in an objectionable or offensive odour, or effect (in the opinion of an Environment Southland Enforcement Officer) beyond the property boundary. If the discharge does result in any of the above adverse effects, Section 17 (3) (a) and (b) of the Resource Management Act 1991 provides Environment Southland with the power to serve an enforcement order, or an abatement notice in order to avoid those adverse effects.

The requirements of this Plan are in addition to the need to obtain a building consent for the construction, replacement or alteration of buildings and/or sanitary plumbing.

General

- Draw up a plan of your drainage system showing the position of all drains, the septic tank and disposal field. The plan should show all drains, both foul water and storm water.
- Keep records of when the septic tank is desludged and when the distribution box is switched between trenches.

For any additional information please contact Environment Southland

SOUTHLAND DISTRICT COUNCIL

New Sewerage Drains - Red Property ID _____

New Stormwater - Dotted Black Name _____

Old Drains - Full Block Plumber _____

Scale: 1:100 Situation _____

All Drawings must be Correct to Scale Showing all Sanitary Fittings and other Necessary Information.

For further information please contact:
Southland District Council

Phone - 03 218 7259

Fax - 03 218 9460

Email - emailsdc@southlanddc.govt.nz



www.southlanddc.govt.nz