

Land Application areas allow treated domestic wastewater to be managed entirely on-site. Under certain circumstances the re-use of domestic wastewater on-site can be an economical and environmentally sound use of resources.

The land application area must be able to utilise the wastewater and treat any organic matter and wastes it may contain. Wastewater is rich in nutrients, and can provide excellent nourishment for flower gardens, lawns, certain shrubs and trees. The vegetation in such areas should be suitably tolerant of high water and nutrient loads.

HOW DOES A LAND APPLICATION AREA WORK?

Treated wastewater applied to a land application area may be utilised or simply disposed, depending on the type of application system that is used. The application of the wastewater can be through a soil absorption system or through an irrigation system provided sufficient area and absorbent soil is available on site.

SOIL ABSORPTION SYSTEMS do not require highly treated effluent, and wastewater treated by septic tanks has the potential to be disposed by this method as the solids content in the effluent has been reduced. Absorption systems rely mainly on the processes of soil treatment and then transmission to the water table, with minimal evaporation and uptake by plants. These systems are not recommended in sensitive areas as they may lead to contamination of surface water and groundwater.

IRRIGATION SYSTEMS may be classed as either subsurface or surface irrigation. If an irrigation system is to be used, wastewater needs to be pretreated to at least the quality produced by an aerated wastewater treatment system (AWTS). *Subsurface irrigation* requires highly treated effluent that is introduced into the soil, below but close to the surface. The effluent is utilised mainly by plants and evaporation. *Surface irrigation* requires highly treated effluent that has undergone aeration and disinfection treatments, so as to reduce the possibility of bacteria and virus contamination. The effluent is then applied to the land area through a series of drip, trickle or spray points which are designed to eliminate airborne drift or run-off into neighbouring properties.

There are some public health and environmental concerns about surface irrigation. There is the risk of human contact with treated effluent and the potential for surface run-off. Given these problems, subsurface irrigation is arguably the safest, most efficient and effective method of effluent utilisation.

The design and installation of land application areas should only be carried out by suitably qualified or experienced people, and only after a site and soil evaluation has been undertaken by a soil scientist. Sandy soil and clayey soils may present special problems. Care should be taken to ensure correct buffer distances are left between the application area and, waterways, buildings, and neighbouring properties. The system must allow even distribution of treated wastewater over the land application area. Humans and animals should be excluded from these land application areas.

At least two warning signs should be installed along the boundary of a land application area. The signs should comprise the following words: "Reclaimed effluent not for drinking – avoid contact".

Regular checks should be undertaken of any mechanical equipment to ensure that it is operating correctly. Council may, require periodic analysis of soil or groundwater characteristics.

MAINTAINING YOUR LAND APPLICATION AREA

The effectiveness of the land application area is governed by the activities of the owner. Consider the following do's and don'ts.

DO

- √ Construct and maintain drains around the top side of the application area to divert surface water.
- √ Ensure that your application area is kept level by filling any depressions with good quality top soil.
- √ Keep the grass regularly mowed and plant small trees around the perimeter to aid absorption and transpiration of the effluent.

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- √ Ensure that any run off from any roof, driveway and other impermeable surfaces is directed away from the application area.
 - √ Fence irrigation area.
 - √ Ensure appropriate warning signs are visible at all times in the vicinity of a spray irrigation area.
 - √ Have your irrigation system checked by the service agent when they are carrying out service on the treatment system.

DON'T

- X Erect any structures, construct paths, graze animals or drive over the land application area.
- X Plant large trees that shade the land application area.
- X Plant trees or shrubs near or over any house drains.
- X Alter stormwater lines to discharge into or near the land application area.
- X Flood the land application area through the uses of hoses or sprinklers.
- X Let children or pets have access to or play on the land application areas.
- X Water fruit and vegetables with the effluent.
- X Extract untreated groundwater for potable use.

WARNING SIGNS

Regular visual checking of the system will ensure that problems are located and fixed early. The visual warning signs of system failure include:

- Surface ponding and run-off of treated wastewater
- Soil quality deterioration
- Poor vegetation growth
- Unusual odours

Land application areas and systems for on-site application are designed and constructed in anticipation of the volume of waste to be discharged. Uncontrolled use of water may lead to poorly treated effluent being released from the system.

If the land application area is waterlogged and soggy the following are possible reasons:

- Overloading the treatment system with wastewater
- The clogging of the trench with solids not trapped by the septic tank
- The application area has been poorly designed
- Stormwater is running onto the area

Poorly maintained AWTS's are a potentially serious source of water pollution and may present health risks, cause odours and attract vermin and insects. By looking after your treatment system you can do your part in helping to protect the environment and the health of you and your family.

Disclaimers

This Fact Sheet was believed to be correct at the date of its approval.

This Fact Sheet is for general information purposes only.