



Land Application Areas

The reuse of domestic wastewater on-site can be an economical and environmentally sound use of resources.

What are land application areas?

These are areas that allow treated domestic wastewater to be managed entirely on-site.

The area must be able to utilise the wastewater and treat any organic matter and wastes it may contain. The wastewater is rich in nutrients, and can provide excellent nourishment for flower gardens, lawns, certain shrubs and trees. The vegetation 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 (based on disposal or through an irrigation system (based on utilisation).

Soil absorption systems do not require highly treated effluent, and wastewater treated by a septic tank is reasonable as the solids content in the effluent has been reduced. Absorption systems release the effluent into the soil at a depth that cannot be reached by the roots of most small shrubs and grasses. They rely mainly on the processes of soil treatment and then transmission to the water table, with minimal evaporation and up-take 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 pre-treated 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 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 and run-off into neighbouring properties

There are some public health and environmental concerns about surface irrigation. There is the risk of 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.

Regulations and recommendations

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 is done by a soil scientist. Care should be taken to ensure correct buffer distances are left between the application area and bores, waterways, building and neighbouring properties.

At least two warning signs should be installed along the boundary of a land application area. The signs should comprise of 20mm high Series C lettering in black or white on a green background with the words:

**RECLAIMED EFFLUENT
NOT FOR DRINKING
AVOID CONTACT**

Depending on the requirements of your local council, wet weather storage and soil moisture sensors may need to be installed to ensure that effluent is only irrigated when the soil is not saturated.

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

Humans and animals should be excluded from land application areas during and immediately after the application of treated wastewater. The longer the period of exclusion from an area, the lower the risk to public health.

The householder is required to enter into a service contract with the installation company, its agent or the manufacturer of their sewage management system; this will ensure that the system operates efficiently.

Location of the application area

Treated wastewater has the potential to have negative impacts on public health and the environment. For this reason the application area must be located in accordance with the results of a site evaluation, and approved landscaping must be completed prior to occupation of the building. Sandy and clay soils may present special problems.

The system must allow even distribution of treated wastewater over the land application area.

Maintaining your land application area

The effectiveness of the application area is governed by the activities of the owner.

Do

- Construct and maintain diversion 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 (not clay).
- Keep the grass regularly mowed and plant small trees around the perimeter to aid absorption and transpiration of the effluent.
- Ensure that any run off from the roof, driveway and other impermeable surfaces is directed away from the application area.
- Fence irrigation areas.
- 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

- Erect any structures, construct paths, graze animals or drive over the land application.
- Plant large trees that shade the land application area, as the area needs sunlight to aid in the evaporation and transpiration of the effluent.
- Plant trees or shrubs near or on house drains.
- Alter stormwater lines to discharge into or near the land application area.
- Flood the land application area through the use of hoses or sprinklers
- Let children or pets play on land application areas.

- Water fruit and vegetables with the effluent.
- 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 signs of system failure include:

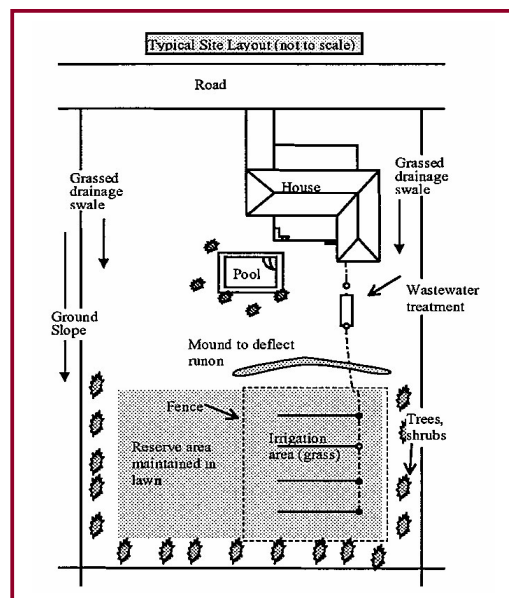
- Surface ponding and run-off of treated wastewater.
- Soil quality deterioration.
- Poor Vegetation growth.
- Unusual odours.

Volume of water

Land application areas and systems for on-site application area 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 tank may require desludging.
- The application area has been poorly designed.
- Stormwater is running onto the area.



**For further information and advice on
Your Land Application Area
Contact:**
Kempsey Shire Council
22 Tozer Street, West Kempsey
Ph (02) 6566 3200 Fax (02) 6566 3205