

TOWARDS BETTER ONSITE WASTEWATER MANAGEMENT IN VICTORIA - COMMUNITY EDUCATION SERIES

FACT SHEET 7: COMMON DISPOSAL METHODS (SECONDARY TREATMENT SYSTEMS)

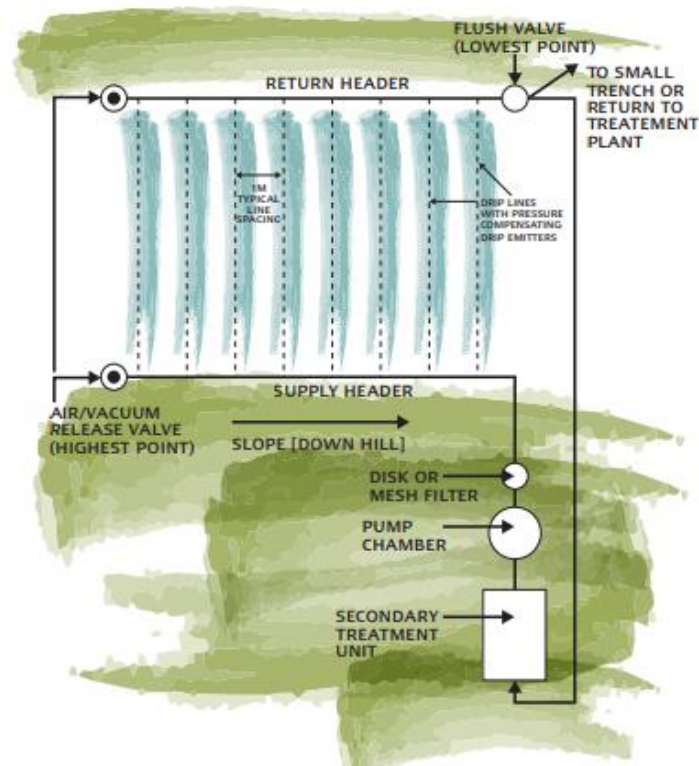
This information will be of interest to you if you are selecting an onsite domestic wastewater management system for your property, or live on a property that is not connected to a town sewerage system and have an aerated wastewater treatment system or other secondary treatments systems (alternatively for further information on conventional septic tank systems and their common disposal systems refer to Fact Sheets 1 and 6 respectively). This fact sheet focuses only on the common disposal methods for aerated wastewater treatment systems or other secondary treatments systems and introduces pressure compensated sub-surface irrigation, low pressure effluent disposal systems and covered surface irrigation. It is recommended that this fact sheet be read in conjunction with Fact Sheet 2 Aerated Wastewater Treatment Systems. Please check with your local Environmental Health Officer to ensure you get all the requirements for your local area.

7.1 PRESSURE COMPENSATED SUB-SURFACE IRRIGATION* (PCSS)

*Suitable for aerated wastewater treatment plants and septic tank with a sand filter.

Pressure Compensated Sub-surface Irrigation or PCSS is a closed network of small diameter irrigation pipes fitted with low flow drip emitters that are buried just below the surface of the ground. The system is pressurised to allow for an even disposal of the effluent across the disposal field. Such systems are growing in popularity, but need all of their components to be working properly to continue functioning correctly. Consequently servicing and maintenance are critical for these systems.

DIAGRAM 1: PRESSURE COMPENSATED SUB-SURFACE IRRIGATION



7.1.1 IMPORTANT COMPONENTS AND DESIGN FEATURES:

Mesh/ Disc filter – an inline filter that removes suspended particles from the wastewater before entering the irrigation network;

Drip line with low flow emitters – specialised irrigation line fitted with low flow emitters that, under pressure, disperse the wastewater at a measured rate;

Vacuum breaker / air inlet valve – this valve acts to overcome air pressure differences within the pipe network during the different phases of pump operation. Primarily it prevents soil from being drawn into the drip lines at times of negative pressure;

Flush valve – this valve allows for any accumulated particles and bacterial biofilms to be flushed out of the pipe, preventing clogging. These can be automated or manual;

Plant root protection – tree roots can clog up the drip lines so protect these lines with physical root barriers or trifluralin (or similar) dosing units. Check with your distributor or system installer whether the drip line is fitted with a root barrier.

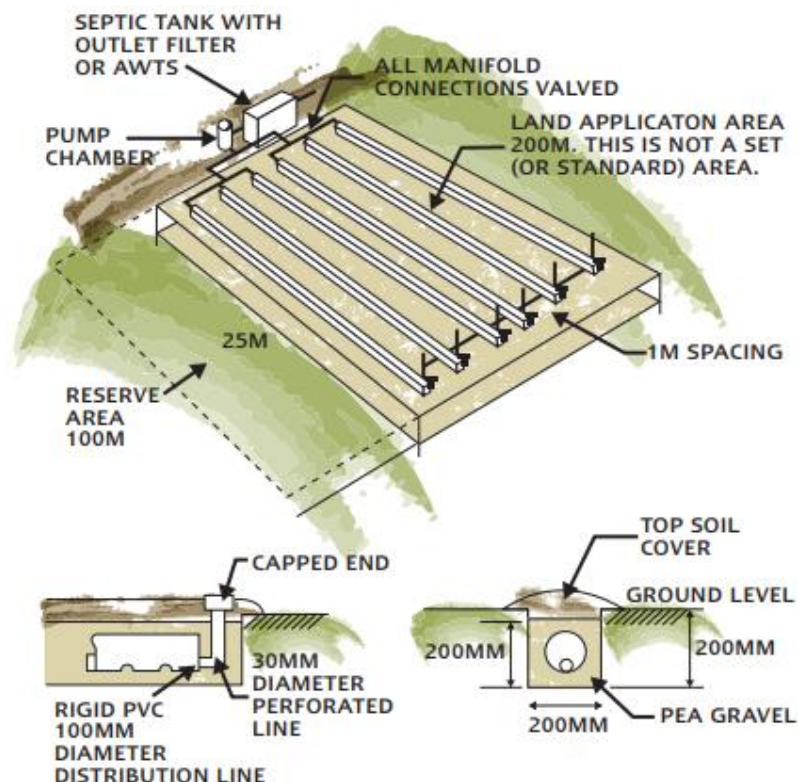
7.2 LOW PRESSURE EFFLUENT DISPOSAL SYSTEMS* (OR LPED)

* Suitable for aerated wastewater treatment plants and septic tank with a sand filter

LPED systems discharge the effluent from an AWTS system into a series of shallow aggregate filled trenches. These trenches are made up of lengths of pressure line perforated with drilled squirt holes at regular intervals which are laid into larger distribution pipes made from slotted PVC. The ends of the perforated drainage pipes are capped as shown in Diagram 2.

These systems they are pressurised but not pressure compensated but instead have the effluent dosed into the drainage pipes in a way that allows the effluent to spread out along the whole length of each line preventing spot loading at each perforation. With this type of irrigation system, effluent comes in contact with the good bugs living in the aerobic upper layer of the soil that help with nutrient and moisture uptake while shallow rooted plants provide pathways for evapotranspiration

DIAGRAM 2: LPED SYSTEMS



7.3 COVERED SURFACE IRRIGATION SYSTEM

Covered surface drip irrigation systems involve disinfected secondary effluent being applied directly to the surface of the soil using pressure compensated drip emitters covered by a layer of mulch or other approved cover material. This cover material will be kept in place by durable bird resistant mesh netting pinned securely to the ground. The thickness of cover material should be no less than 150 mm. Disinfected secondary treated effluent can ONLY be produced by secondary treatment systems aerated wastewater treatment systems that have appropriate disinfection installed (e.g. chlorinator or UV light). These systems are similar to the sub-surface pressure compensated irrigation systems shown in Diagram 1.

7.4 Some simple steps to healthy irrigation systems

Servicing of your AWTS – it is mandatory that your AWTS be serviced by a qualified servicing agent every three months. This service should include:

– **Flushing** – irrigation systems should be flushed to remove sediment that has accumulated in the drainage pipes. Ensure that your servicing agent confirms this is happening each time they service your AWTS.

– **Rotation** – this step only applies if your system has multiple irrigation fields and no automatic rotation device. In this situation you will need to manually rotate the use of each irrigation field and this will alternate fields to 'rest' and prevent saturation from overuse. This will extend the life of your irrigation system. Be sure to follow your licensed plumbing practitioner's instructions when undertaking this task to maintain a suitable load for the system's pump unit.

– **Filter replacement** – to ensure the filter (disc or mesh) continues to adequately protect your irrigation system, it must be regularly cleaned or replaced when beginning to wear. Additionally your servicing agent can clean this filter during the servicing of your AWTS.

– **Soil maintenance** – should the soil around your irrigation field begin to crust or tunnel, apply gypsum to the area. The gypsum will help the soil to breakdown from larger clods to finer particles and also helps to make some minerals that have been locked in these clods available for plants to use. Please note that gypsum will not benefit all soils.

Mulching for surface irrigation – it is necessary to ensure your covered surface irrigation field is covered with thick heavy mulch (150mm deep). Mulch plays an important role in containing wastewater within the irrigation field and reduces the potential for direct contact to occur. Overtime this mulch will degrade and will need to be topped up or replaced. While paper and straw mulches are cheaper options they are way too light for this type of application. Instead you need a heavy mulch such as wood chips to retain the wastewater and not be blown away by the wind

Replanting for surface irrigation – plants form an important part of managing wastewater within your disposal field. Plants absorb and transpire up to 70% of all wastewater that is discharged from your irrigation system. Therefore it is essential that you replace plants immediately should any die.

Dripper head replacement – dripper heads in older surface irrigation systems can become damaged or broken and will need to be replaced as soon as possible. They must only be replaced with heads that release drips, as spray emitters can release aerosols that suspend in the air increasing the potential for your family coming in direct contact with the wastewater.

7.6 WHO TO CONTACT:

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