

Reed Beds

Performance

Well designed reed beds are able to achieve reductions in nutrients as follows:

Nitrogen Reductions of 25 to 30%

Biological Oxygen Demand Reductions of 65 to 90%

Suspended Solids Reductions of 55 to 90%

Phosphorus Reductions of 20 to 40%

Advantages

Generally low construction costs.

Suit households where the land can become waterlogged, or the soil is mostly clay.

A typical household could be served by two to three reed beds, approximately 10m by 1m.

With care, can be designed for gravity flow and can remove the need for a pump.

The beds need not be straight and can be made into attractive garden features.

Disadvantages

May require land application of the treated wastewater. If the treated wastewater is recycled to flush toilet(s) and/or a washing machine, with excess flow to sewer, land application is not applicable.

Some of the reeds need to be harvested yearly.



Reed beds are similar in many ways to a wetland and are designed so that the wastewater does not pollute the environment.

Reed beds are impermeable on the bottom and the sides.

The interior of the reed bed is filled with gravel, small rocks or soil in which are placed reeds.

The roots of the reeds penetrate to the bottom of the reed bed.

Wastewater is passed to the reed beds after being collected in a septic tank.

It then passes through the gravel and is treated by the algae growing on the gravel particles.

The reeds do two things:

Firstly, they take in oxygen through the leaves and send it to the roots. The oxygen passes out from the roots and helps aerate the wastewater, enabling aerobic bacteria to grow and treat it.

Secondly, they take up water from the reed beds so that there is less and less water to treat. During hot weather, all the water may be evapotranspired by the reeds. After treatment by the reed beds, the water is applied to land for further treatment.