



WASTE WATER TREATMENT SYSTEMS EXPLAINED

General

In an area where a public sewer is not provided a wastewater treatment system is required. A wastewater treatment system is a general term for the on-site system which treats effluent coming from a dwelling house or large commercial/industrial premises.

When reference is made to a domestic wastewater treatment system it is understood to mean either a septic tank or a mechanical aeration unit and associated percolation area/soil polishing filter discharging to groundwater.

Ground water is the body of water which is always present and moves slowly through the soil subsurface. This body of water is the supply for drinking water wells. Examples of surface water channels are open drains, streams, lakes and rivers.

Effluent is made up of solids and liquid. Approximately 95% of effluent is made of liquid consisting of urine, flush water, sink waste etc...

Effluent from a dwelling house discharges to a septic tank/mechanical aeration unit where the
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solid portion of the effluent is settled and treated (sludge). Following this process the liquid portion of the effluent is then discharged to a percolation area/soil polishing filter.

The purpose of a percolation area/soil polishing filter is to allow the liquid portion of the effluent to filter down through the subsoil on site. This percolation process allows final treatment of the effluent to occur before it is discharged to the groundwater. See Figure 1.

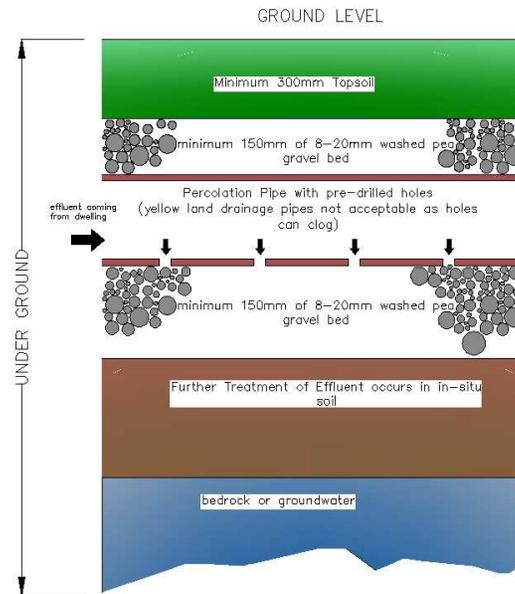


Figure 1
All septic tanks/mechanical aeration units require a percolation area or soil polishing filter to be fitted

after them. Otherwise the full effluent treatment process cannot occur.

What is the difference between a septic tank and a mechanical aeration unit?

A septic tank is effectively a sludge settling tank. Sludge (solid portion of effluent) settles to the bottom and the liquid portion of the effluent passes through to the percolation area for further treatment. See Figure 2.

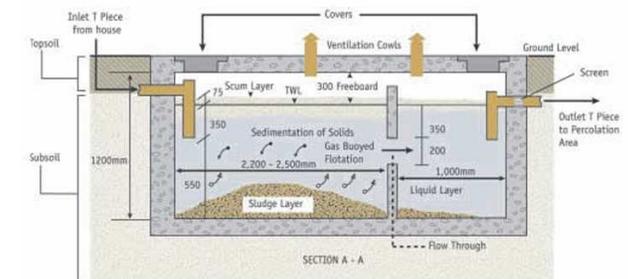


Figure 2

A mechanical aeration unit can be referred to in many ways –Biocycle unit, Bison unit, Envirocare, Tri-cel, BAF system etc...

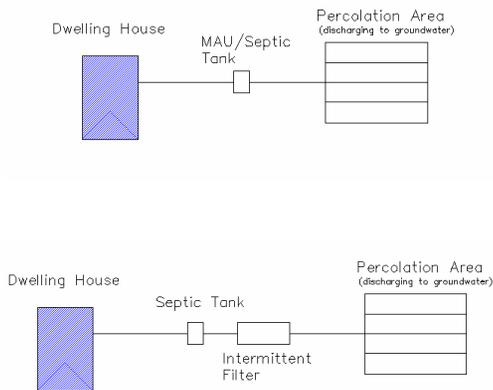
While the process of sludge settling is also carried out in a mechanical aeration unit, it treats the liquid portion of the effluent also.

Mechanical aeration units vary in the methods used to treat effluent, however **no** mechanical aeration unit treats effluent fully and all mechanical aeration units **must be** followed by a percolation area/soil polishing filter to allow the final part of the

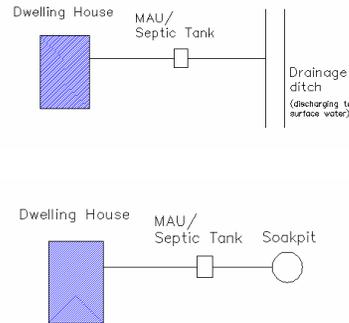
treatment process take place before effluent is discharged to groundwater.

The choice between using a septic tank or a mechanical aeration unit is generally determined by the percolation value, often referred to as permeability, of the soil on-site. However there are other factors to be taken into consideration and your site assessor will be able to guide you further.

Acceptable wastewater treatment formations



Unacceptable wastewater treatment formations



Advice on Maintenance

Septic Tank

Sludge settles in a septic tank. Over time the septic tank fills up and regular emptying of a septic tank is essential to ensuring that the system continues to work effectively.

The depth of sludge can be checked using the following technique or any other appropriate method:

- Use a 2-m pole and wrap the bottom 1.2-m with a white rag
- Lower the pole to the bottom of the tank and hold there for several minutes to allow the sludge layer to penetrate the rag, and
- Remove the pole and note the sludge line, which will be darker than the colouration caused by the liquid waste.

Please note appropriate health and safety measures should be taken if undertaking such work.

Accumulated sludge and scum material found in the tank should be removed by an appropriately permitted contractor (in accordance with the Waste Management (Collection Permit) Regulations). A list of permitted contractors in your area is available on the National Waste Collection Permit offices.

www.nwcpc.ie

Mechanical Aeration Unit

A Mechanical Aeration Unit is electrically operated and has “moving parts” which require servicing and replacement at regular intervals. A maintenance contract is thus required with the unit supplier to ensure unit operates correctly, de-sludged and sludge generated is disposed of appropriately.

A mechanical aeration unit **must** be operated and maintained in accordance with the terms of the relevant planning permission, the EPA Code of Practice 2009 and manufacturers instructions.

Further Information:

<http://www.epa.ie/downloads/advice/water/wastewater/>