

## Wastewater

We are responsible for taking away wastewater from customers' homes and businesses from sinks, baths, toilets and industrial activities.

## Network

We collect wastewater together with rainwater that runs into drains from roadways, roofs and other surfaces and it is all carried through a network of more than 30,000km of sewers. Much of the network is old, often dating back to Victorian times.

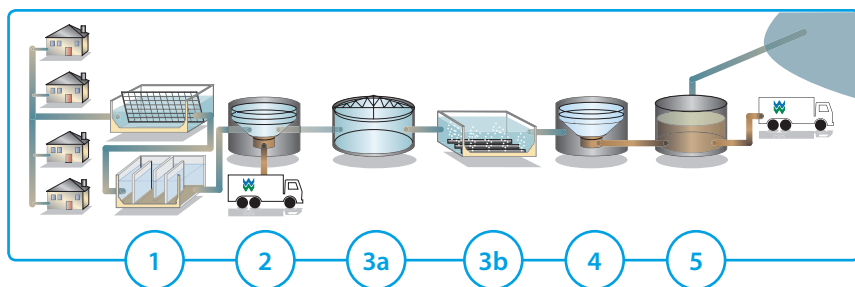
In October 2011, we assumed responsibility for managing the private sewers network in our operational area. We welcome this as a big step forward in customer service, and one that will lead to more effective management of the sewerage network.

Thousands of customers in Wales will no longer have to worry about repairs and maintenance of drains and sewers that until now have been privately owned. The transfer of 17,000km of private sewers and drains has doubled the size of the network Welsh Water operates to more than 30,000km.

## Treatment

The wastewater is treated to make it biologically safe at wastewater treatment works located next to rivers and along the coast of Wales. The purpose of wastewater treatment is to remove enough impurities from the wastewater to enable it to be returned safely to a river or the sea where it can again become part of the natural water cycle. Wastewater treatment is a complex process and methods used vary.

A visual representation of the wastewater treatment process:



**1. Screening** – Wastewater arrives at the treatment works. The wastewater needs to be screened to remove debris such as rags, plastics and large objects.

**2. Primary tanks** – Fine solid matter (Sludge) sinks to the bottom of the tanks and is removed by sweepers to be treated.

**3. Aeration** – The remaining wastewater is treated, this can be done by two methods:

**a) Filter beds** – Wastewater is sprayed on a bed of coke, gravel or clinker. Bacteria live on the surface and when the wastewater passes through these bacteria, fungi and other organisms feed on the organic matter turning it into water, carbon dioxide and nitrogen.

**b) Activated Sludge** – Air is pumped from the bottom of the tank. This keeps the bacteria supplied with oxygen which encourages the bacteria to multiply and feed on the organic matter in the wastewater.

**4. Final treatment** – The wastewater is now clean enough to be discharged back into the water course. On some sites we UV treat the water to produce an even higher level of water.

**5. Sludge treatment** – The water is discharged back to the water course (either the sea or river). The sludge we removed earlier in the process is collected and either disposed of in the landfill or utilised by farmers as a soil conditioner.