Water recycling for the Teddington Direct River Abstraction project

Typically, wastewater is piped to sewage treatment works, where it can be filtered before undergoing **primary** and **secondary** treatment to make it safe to be released back into local watercourses. At some sewage treatment works there is a further stage, called **tertiary** treatment, which we're proposing to introduce at Mogden Sewage Treatment Works as part of the Teddington Direct River Abstraction (DRA) project.

Primary and secondary treatment get wastewater clean enough to discharge safely into the environment, as what's known as final effluent. Tertiary treatment, on the other hand, can achieve levels of water purification that make the water safe for reuse in water-intensive processes or for onward use as drinking water following further treatment.

Primary treatment:

After the wastewater is screened to remove large objects, like nappies, wet wipes and sanitary items, wastewater is put into settlement tanks where the solids sink to the bottom. The cleaner liquid passes over a wall near the top of the tank ready for the next stage of the process, while the settled solids are pumped away for further treatment.

Secondary treatment:

The cleaner wastewater is pumped into tanks called 'aeration lanes' where air is pumped through the water. This encourages useful bacteria to break down and eat harmful bacteria. A final treatment is carried out in another settlement tank, where the useful bacteria sink to the bottom and can be recycled back to the aeration lanes. The cleaned water passes over a wall near the top of the tank. We may need to carry out one more stage of treatment and filter the water through a bed of sand before the final effluent produced is discharged safely to rivers and streams.

Tertiary treatment removes tiny suspended particles from final effluent that has already undergone primary and secondary treatment, and is intended to remove dissolved organic and inorganic substances, and additional contaminants.

We're proposing to use a treatment technology known as Moving Bed Biofilm Reactor (MBBR) as our tertiary treatment process. This removes pollutants from wastewater by using bacteria to break them down.

We've started a pilot study at Mogden Sewage Treatment Works which will run for 12 to 18 months and provide invaluable data about the effectiveness of this technology at this location.

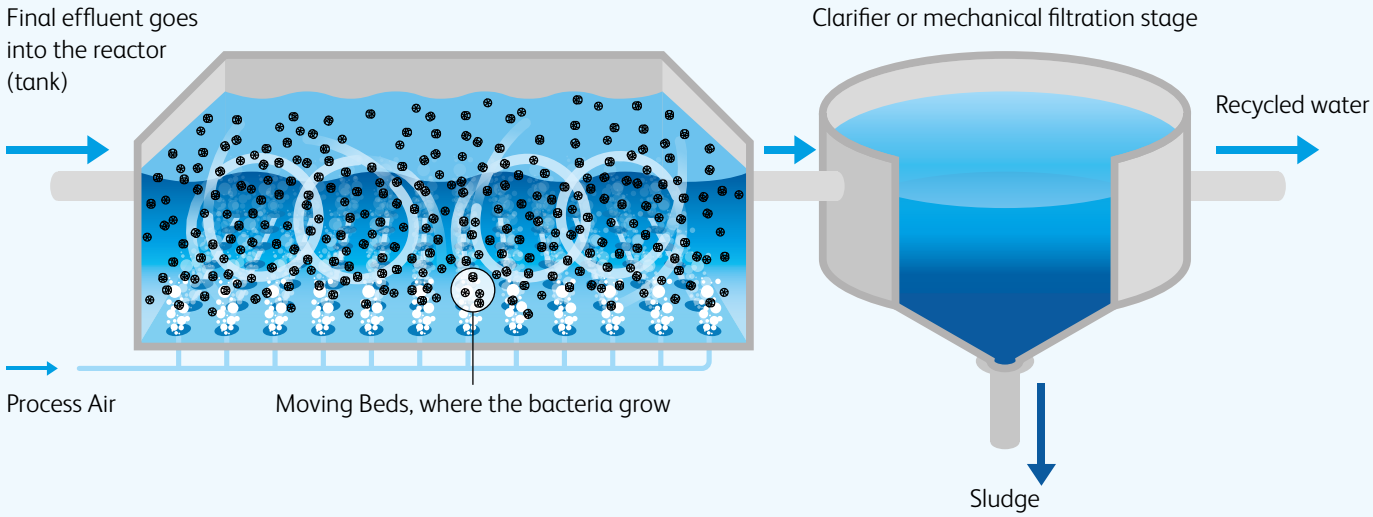
How MBBR Works:

Wastewater Flow: Final effluent enters the reactor (or tank) which has specially designed plastic carriers (the Moving Beds), these are constantly moving due to mechanical agitation or the flow of air.

Biofilm Growth: The naturally occuring bacteria grow on the surface of the carriers and form biofilms. As the final effluent flows through the tank, the bacteria digest organic matter, ammonia, and other pollutants, removing them from the water.

Effluent: Once the bacteria have done their job, the highly-treated recycled water flows out of the reactor, usually to a secondary clarifier or mechanical filter to remove any remaining solids before the water is discharged or further treated.

To find out more about the Teddington DRA project please visit our website at **www.thames-sro.co.uk/TDRA**



To find out more about our proposals please visit: **www.thames-sro.co.uk**