Northern Water Plant

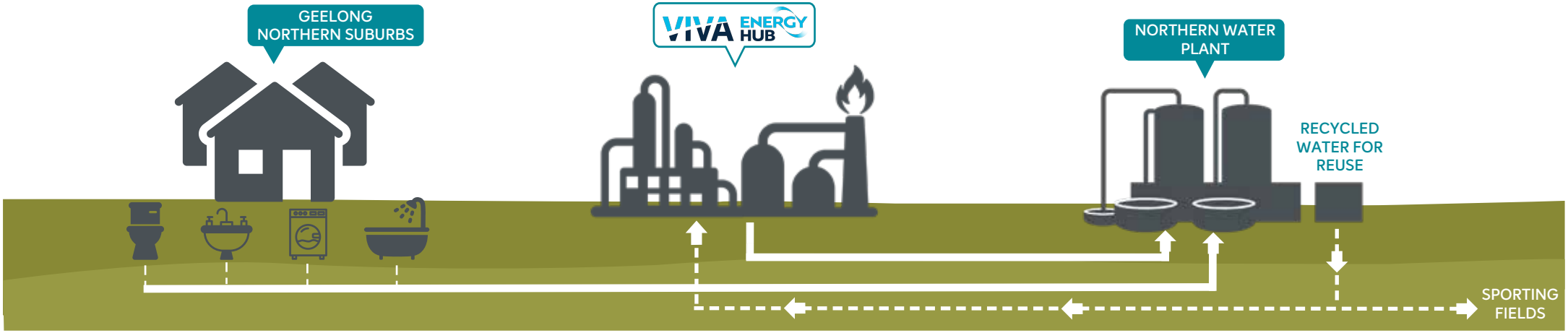
How does sewage get to the Northern Water Plant?

The Northern Water Plant (NWP) takes sewage from Geelong's northern suburbs and Viva Energy Australia's Geelong Refinery and treats it to produce high quality recycled water.

We all produce waste water, or sewage, every day. Each time we have a shower, flush the toilet or wash the dishes, sewage flows out of our houses and into the sewerage network. But where does the sewage go, and how is it converted to useful end-products?

Influent
Each day approximately 7 – 8 million litres of wastewater is treated at NWP. This includes sewage from the north Geelong region and wastewater from Viva Energy refinery.

Wastewater treatment
Sewage contains elements harmful to humans and the environment if left untreated. At the NWP we pass the wastewater through a number of processes, changing it from a harmful waste material to beneficial biosolids and recycled water.



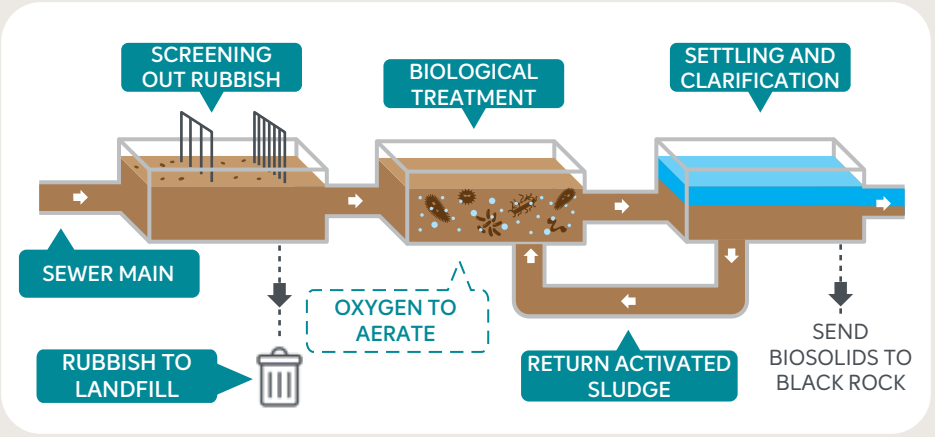
How do we process sewage at NWP?

Screening out rubbish
Two screens, a coarse and fine screen, are used to remove objects such as paper, gravel, plastics, nappies, and more from the sewage.

Biological treatment
Oxygen is added to the wastewater to ensure microorganisms can survive, making it easier for them to digest the solids and reduce odours.

Settling and clarification
During the settling and clarification stage, wastewater is held in a large tank specifically designed to aid settling of solids.

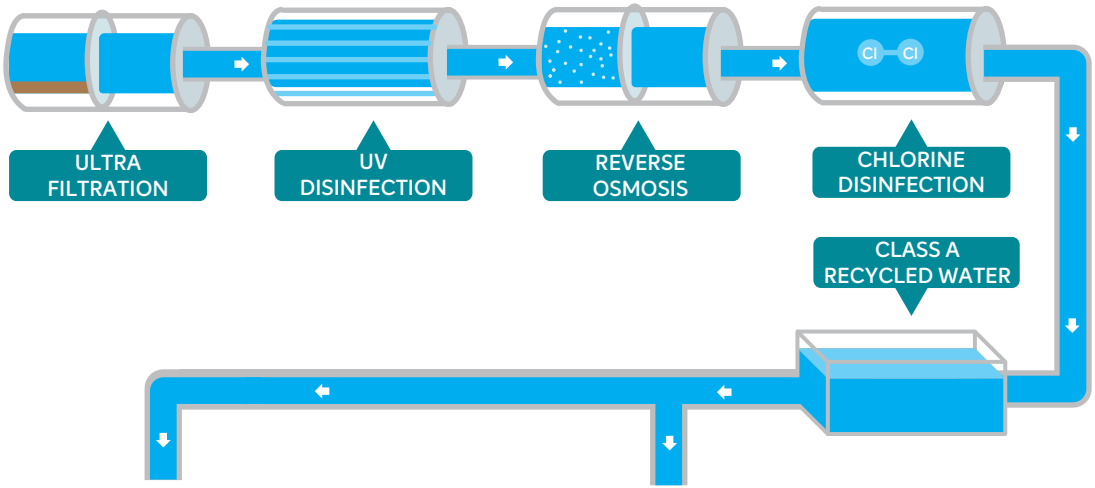
The sludge that forms on the bottom of the tank is either sent back to the Biological Treatment step to help boost treatment efficiency or pumped back to the local sewer for further treatment at Barwon Water's Black Rock Water Reclamation Facility.



We're investigating the use of oxygen produced as a byproduct of Viva Energy's electrolysis process, to treat water more efficiently at our Northern Water Plant in Geelong from 2026 onwards.

Recycled water for reuse

Following the settling and clarification steps, a specialised filtration process commences to produce recycled water. This process includes ultrafiltration (UF) to remove particles, bacteria, and viruses; ultraviolet (UV) disinfection to kill harmful organisms; reverse osmosis (RO) to filter out dissolved salts and contaminants; and chlorine disinfection as the final step in killing any remaining bacteria and viruses to meet our strict water quality standards for reuse.



VIVA ENERGY HUB

Class A recycled water is supplied to Viva Energy to support the refinery processing, and soon will be used to generate renewable hydrogen and oxygen.

Additional recycled water is then used for sports complex irrigation, including the Stead Park Sporting Reserve.

The NWP treats the growing volumes of sewage in the region and recycles about 95% of the sewage water. The plant delivers recycled water for irrigation to Stead Park and other community facilities reducing reliance on precious drinking water.

We'll continue collaborating with Viva Energy on partnership opportunities to improve environmental outcomes, economic benefits and reduce emissions in our region.

Green Oxygen for Wastewater Treatment

We're exploring how oxygen can transform wastewater treatment plants and support the development of Australia's hydrogen industry.

In aerobic wastewater treatment, aeration is the most critical element of the treatment system.

The Green Oxygen for Wastewater Treatment Project funded by ARENA (Australian Renewable Energy Agency) aims to demonstrate the practical use of oxygen produced as a byproduct of renewable hydrogen production, for more efficient wastewater treatment.

The project received a grant from Australian Renewable Energy Agency (ARENA) as part of ARENA's Advancing Renewables Program. The views expressed here are not necessarily the views of the Australian Government, and does not accept responsibility for any information or advice contained here.

Barwon Water

For further information

1300 656 007 info@barwonwater.vic.gov.au www.barwonwater.vic.gov.au