

Grahamstown Dam

Fact Sheet

The Hunter's largest drinking water storage, a critical supply system for Hunter Water customers.

Grahamstown Dam is the Hunter's largest drinking water storage, holding up to 182,000 million litres of water! It provides around half of the drinking water used by Hunter Water's customers, but this can be much more in times of drought and when demand is high in summer.

Grahamstown Dam is an off-river storage that was formed by building an embankment across the outlet of what used to be the Grahamstown Moors between Raymond Terrace and Medowie. Construction began in 1955 and was completed in 1965.

The storage capacity of the dam was increased by 50% in 2005. The works involved construction of a larger spillway at Irrawang and discharge channel under the Pacific Highway.

Grahamstown Dam's Drinking Water Catchment

Safe, high quality drinking water begins with healthy drinking water catchments. With a surface area of 28 square kilometres, the dam receives 35% of its water from rainfall on its surface. It also receives on average 28% from runoff from its own direct catchment. This catchment is made up of forested lands, some small farms and minor developments to the north of the dam, and parts of Medowie.

Williams River Catchment

The rest of the water in Grahamstown Dam, on average 37%, comes from the Williams River. The Williams River catchment is made up of forested and pastoral land with pockets of urban developments and more intensive agriculture including poultry and dairy farms.

Water is transferred from the Williams River at Seaham Weir via the Balickera Canal. The weir is used to separate the downstream tidal

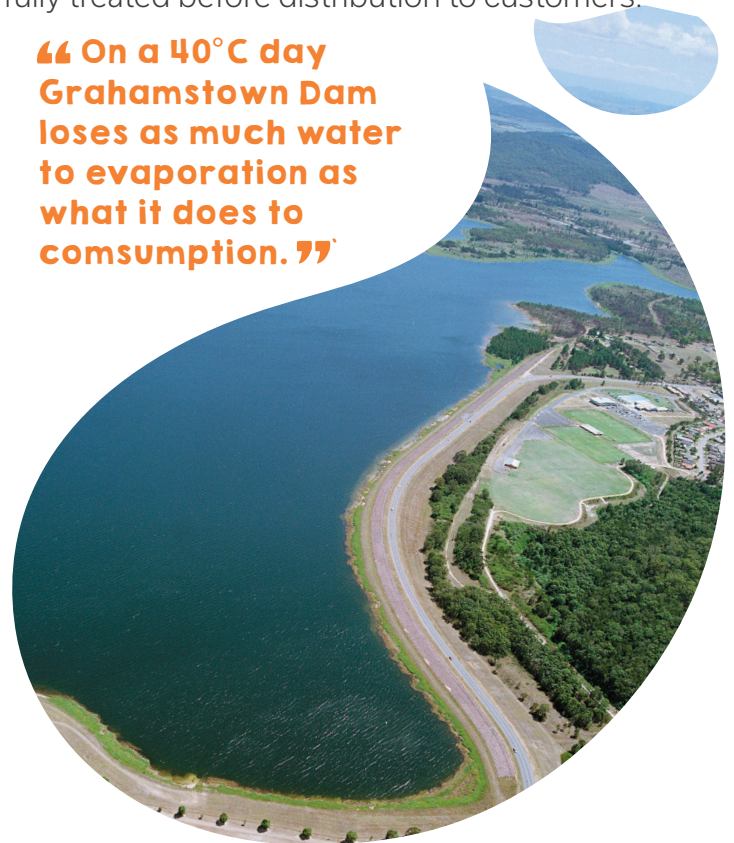
estuarine salt water from the upstream fresh water and to control the upstream water level. At the Balikera Pump Station the water is raised 15m and then continues to travel along the canal and tunnel to Grahamstown Dam.

Hunter Water monitors water quality in the Williams River for nutrients before transferring water to Grahamstown Dam. Like most Australian rivers, the Williams River is highly variable in flow and water quality. These are assessed against pumping rules to minimise the nutrient load transferred to the dam.

Grahamstown Water Treatment Plant

Water stored in Grahamstown Dam is pumped to Grahamstown Water Treatment Plant at Tomago. All water from Grahamstown Dam is fully treated before distribution to customers.

“On a 40°C day
Grahamstown Dam
loses as much water
to evaporation as
what it does to
consumption.”



Chichester Dam

Fact Sheet

Chichester Dam was the Lower Hunter's first drinking water storage system, and to this day is considered one of the most pristine catchments in Australia.

Located at the top of the Williams River catchment, Chichester Dam was built between 1915 and 1926. It provides around 35% of the Lower Hunter's water supply. The dam can hold 18,356 million litres of water, which is much smaller than Grahamstown Dam. What it lacks in storage capacity it makes up for in depth, being 37m deep compared to Grahamstown's 9m. This makes it less prone to water loss through evaporation.

Chichester Dam's Drinking Water Catchment

Chichester Dam is located 80 kilometres north of Newcastle at the south-eastern corner of the World Heritage listed Barrington Tops National Park. The dam is fed by the Wangat River to the north and Chichester River to the north-west. The catchment area is made up of 76% national park, 17% rural and 7% Hunter Water freehold land. It is so pristine due to little contamination run off and low water quality issues.

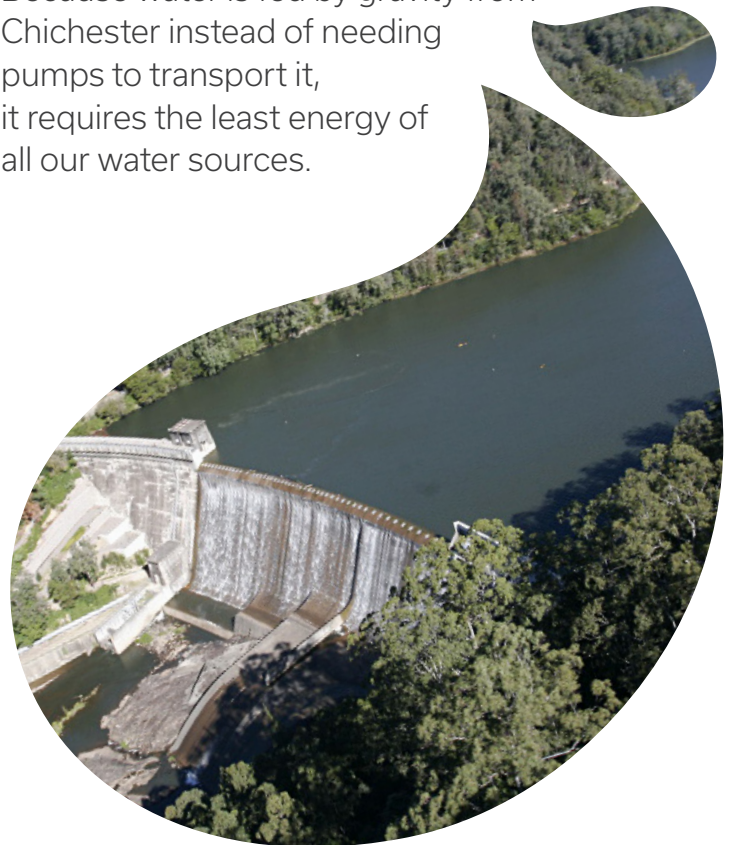
There is high run-off from the area due to the abundant rainfall and the large catchment area. Because of this, the dam is filled quickly following medium to heavy rainfall.

“To protect drinking water quality, public access is not permitted onto Chichester Dam or its catchment rivers, but there are three picnic areas within the site that are open to the community.”

Treating Water from Chichester Dam

Water from Chichester Dam is dosed with chlorine at the dam and then transported by a gravity pipe to Dungog, where it is treated at the Dungog Water Treatment Plant. The Chichester Trunk Gravity Main transports water from the treatment plant to the major city reservoirs in Maitland, Cessnock and Beresfield. The water not needed by these towns, about half of the water that flows from the dam, continues on to Newcastle where it mixes with water from the Grahamstown Water Treatment Plant.

Because water is fed by gravity from Chichester instead of needing pumps to transport it, it requires the least energy of all our water sources.



Recycled Water

Fact Sheet

Our recycling and reuse programs aim to save our precious drinking water supplies and reduce the amount of waste entering our environment.

Water recycling involves treating wastewater from our homes and businesses to remove impurities so it can be used again. We can use recycled water at home to flush toilets and water gardens, in our community to irrigate parks and ovals, and for agricultural and industrial use. Recycled water must be treated to a level that is appropriate and safe for the particular end use.

There are currently 15 recycled water schemes linked to our system in the Lower Hunter which produce a total of around six billion litres of recycled water each year. This is about 10% of all wastewater generated. We are using recycled water as one approach in the long-term management of our water supply and the reliable delivery of water and wastewater services to the Lower Hunter region.



“Our recycled water schemes save over 1,200 swimming pools worth of drinking water each year.”

Kooragang Recycled Water Scheme

The Kooragang Recycled Water Scheme (KRWS) transfers up to 12 Megalitres (ML) of treated effluent each day from the Shortland Wastewater Treatment Works to an advanced water treatment plant which produces up to 9ML per day of highly treated recycled water for use by industrial customers on Kooragang Island. This scheme alone saves up to 3billion litres of drinking each year.

How the Kooragang Recycled Water Scheme Works

Treated effluent is transported from Shortland Waste Water Treatment Works to Steel River and held in raw water tank.

Effluent passes through microfiltration units. A porous membrane allows water molecules to pass through while trapping larger materials.

After microfiltration the effluent goes through reverse osmosis. Membranes with holes just half the size of DNA filter the effluent of all salts, viruses and bacteria. Fresh water passes through while the reject water is trapped

Clean, pure H2O is held in the product water tank before being sent to Orica Mining Services Kooragang Island facility via an 8km pipeline.

Reject water is sent back to sewer where

Residential Recycled Water

More than 1,100 homes were connected to recycled water in 2019 as part of our first residential recycled water scheme. It is estimated each household will use 40 per cent less drinking water, by instead using recycled wastewater for a range of non-drinking purposes.