



# Urban water reuse & integrated water management

## Helping the environment

The integrated approach to water management at Sydney Olympic Park has realised significant environmental benefits in terms of

- water conservation
- waste minimisation
- pollution control

Sydney Olympic Park's water saving and recycling initiatives play a major role in the protection of local waterways and helping to maintain a sustainable supply of drinking water for Sydney into the future.

### The Water Reclamation and Management Scheme (WRAMS)

commenced operation at Sydney Olympic Park in July 2000. WRAMS is a large scale integrated urban water system incorporating

- collection and treatment of sewage
- collection, treatment and storage of stormwater
- supply of recycled water for non-drinking uses to all residents, commercial premises and sporting venues
- is capable of servicing a population of approximately 20,000 people.

## Water safety

**The quality of recycled water is the most important aspect of WRAMS operation.**

The quality of recycled water is continuously monitored to ensure public health and safety. In addition, effective measures are implemented across the whole operational area to eliminate any risk of cross connections between drinking and recycled water systems including appropriate signage, labels and public information.

Recycled water is safe for all specified uses. These are

- toilet flushing
- washing clothes
- washing pets
- watering gardens (including vegetables), lawns and parks
- filling ornamental ponds, water features and fountains
- fire-fighting
- washing cars, windows, brickwork
- irrigation of parklands and playing fields
- air-conditioning cooling.

Recycled water from WRAMS is not suitable for human consumption, drinking, showering or swimming.

Recycled water quality has achieved all mandatory chemical, physical and biological performance standards.

## Benefits of integrated water management

**WRAMS is a new way of solving urban water challenges.**

WRAMS success demonstrates that large-scale urban water recycling systems are feasible, safe, reliable and beneficial for the community and the environment.

Further, it is highly suitable for new urban developments and instrumental in resolving and sustainably managing many of the stresses on urban water infrastructure. The Sydney Olympic Park Master Plan (2002) requires all new developments to connect to WRAMS.

Integrated water management at Sydney Olympic Park

- saves approximately 850 million litres of drinking water each year by reducing drinking water consumption at Sydney Olympic Park and Newington by around 50%
- treats and re-uses almost 100% sewage contributing to reduction in the discharge of sewage effluent to waterways and the ocean from the area
- contributes to developing greater public confidence in using recycled water
- develops understanding of sustainable whole-of-catchment urban water management strategies.



# WRAMS

Sydney Olympic Park WRAMS is currently capable of servicing a population of approximately 20,000 people



## Implementation lessons

**From developing, implementing and operating WRAMS the following significant lessons have been learned.**

### Community confidence and support

Community collaboration and extensive awareness, education and communication in planning and implementing WRAMS has ensured no significant complaints regarding water quality or scheme performance. The customers of WRAMS are aware of the contribution they are personally making to reducing demand on Sydney's drinking water supplies and the reduced impact of sewage effluent on waterways and oceans.

### Technology

WRAMS incorporates proven and emerging technologies in the area of biological treatment process, microfiltration and reverse osmosis. WRAMS operation, performance and monitoring is fully automated and continuously controlled by using highly advanced telemetry control systems. Further incremental improvements in recycled water infrastructure, research and development over time will advance technological performance, making this and future re-use schemes more efficient, reliable and economical.

### Research

High quality research is an essential feature of successful urban water re-use. Sydney Olympic Park Authority in collaboration with universities and industry, facilitates research in the area of technological improvements, instrumentation, wastewater treatment, water quality monitoring and detection. Access to WRAMS enables academic staff to expand the knowledge base, apply innovation and incorporate new ideas. It also creates opportunity for investment in the research industry.

### Pricing

The recycled water price is set 15 cents below Sydney's drinking water price. A small connection charge is also applicable on a quarterly basis. This recycled water price doesn't reflect its true cost or value and there is a need to undertake national review of the pricing structures for the supply of drinking and recycled water.



# 850

million litres of water  
saved annually

Photo: Craig Carlstrom

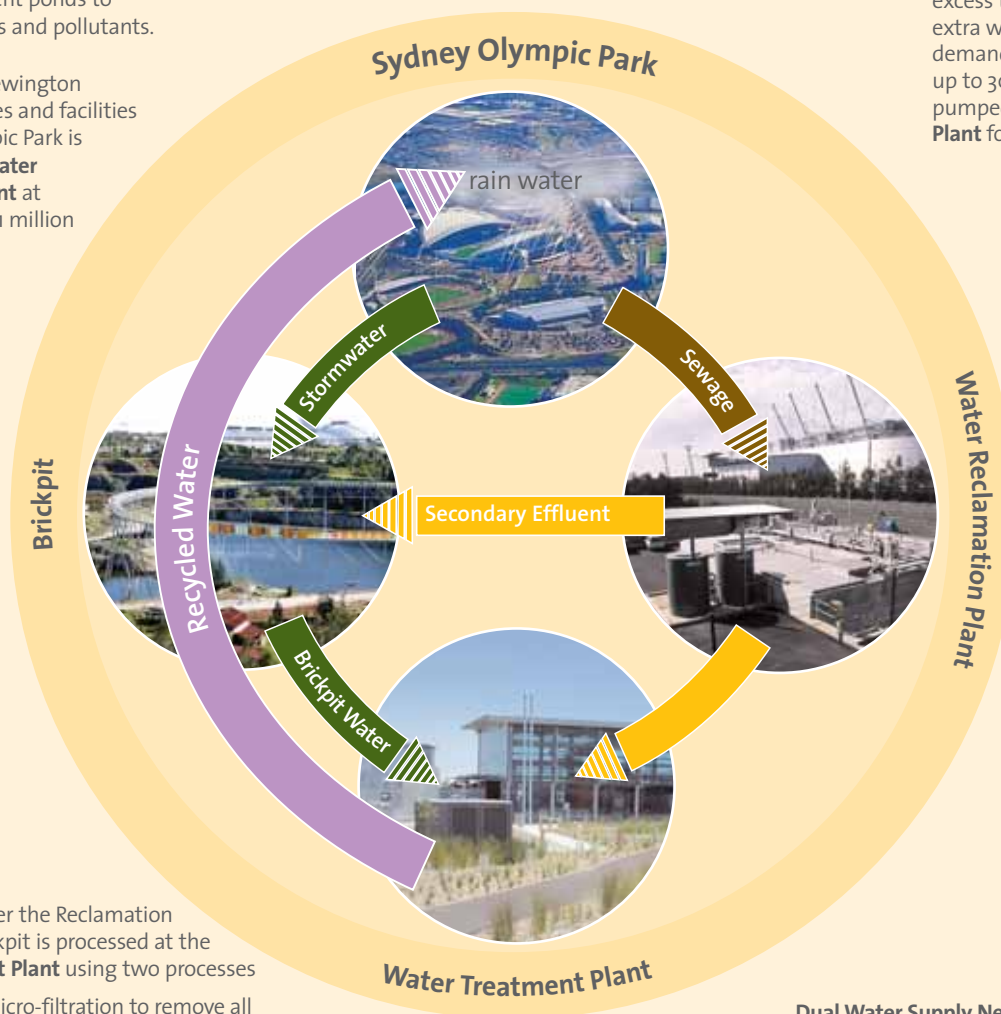


## How the scheme works

**Stormwater** runoff from roofs, roads and parks first passes through treatment ponds to remove nutrients and pollutants.

**Sewage** from Newington and major venues and facilities at Sydney Olympic Park is treated at the **Water Reclamation Plant** at a rate of up to 3.1 million litres per day.

The **Brickpit** acts as a water storage reservoir to store stormwater and excess treated effluent to provide extra water for final treatment when demand is high. The reservoir holds up to 300 million litres which can be pumped to the **Water Treatment Plant** for final processing as required.



Water from either the Reclamation Plant or the Brickpit is processed at the **Water Treatment Plant** using two processes

- Continuous micro-filtration to remove all particles larger than 0.2 microns (including water parasites, viruses and bacteria)
- Reverse osmosis to reduce salinity. Chlorine is also used to disinfect the water.

The plant can treat up to 7.5 million litres of water per day.

### Dual Water Supply Network

Separate pipelines carrying drinking and recycled water are installed throughout Sydney Olympic Park and Newington. Each facility has 2 metered connections, one for drinking and the other for recycled water.

For more information on urban water reuse  
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or visit [www.sydneyolympicpark.com.au](http://www.sydneyolympicpark.com.au)

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## Integrated urban water cycle

Integrated Urban Water Cycle Management is a unique strategic and holistic framework developed and implemented at Sydney Olympic Park for the first time. The objective of integration is to provide better outcomes to meet long term environmental, social and economic needs than could otherwise be achieved by managing the parts independently. It combines water supply, sewage, recycled water and stormwater resources, with a whole range of activities, services, functions and technologies.

