

# Waterwise Council Case Study



## Margaret River Water Recycling

### Synopsis

Margaret River Water Recycling is a town wide scheme developed by the Shire of Augusta Margaret River that takes treated water from the Water Corporation's Margaret River Waste Water Treatment Plant and uses it for irrigation of open space throughout Margaret River. It delivers significant environmental benefits utilising a waste product from the Water Corporation to replace water extraction from the Margaret River for irrigating open space.

The project is one of the few new municipal recycling schemes developed in the last 5 years in the State, thus has overcome considerable regulatory and administrative barriers. It comes at a time when State and Regional Water Plans are giving strategic direction to increase the recycling of water, demonstrating how these objectives can be achieved



*Margaret River Wastewater Treatment Plant and Storage Dam*

### Motivation

Margaret River Water Recycling provides a sustainable solution to long term recreational water supply needs, utilising a waste product that will grow in line with population increase, catering for future demand to expand and improve recreational facilities.

The project will save approximately 250 megalitres (ML) per annum of water from the Margaret River contributing to increased environmental flows and river health. It will also assist in offsetting the impacts of climate change on the river. The scheme is expandable to 540 kilolitres (kL) through increased pumping hours.

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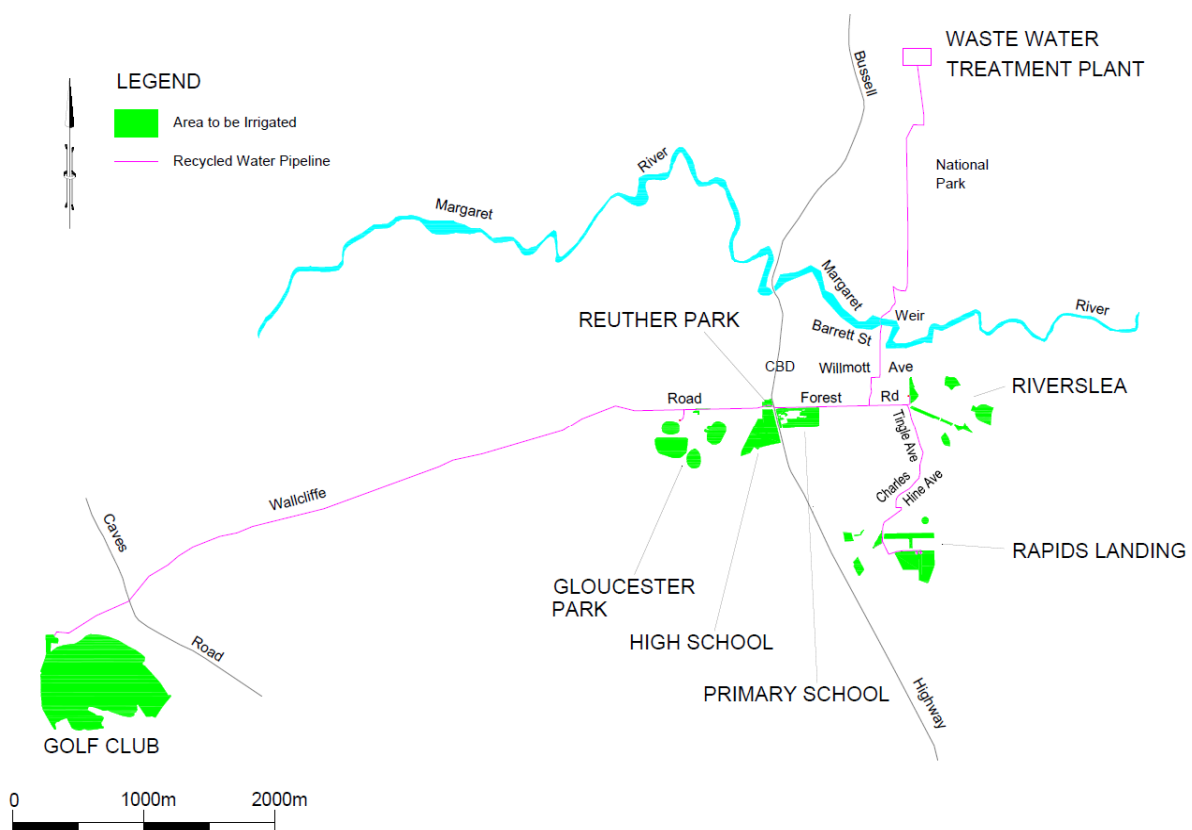


## Process/Approach

The Margaret River Water Recycling Scheme will recycle 180ML per year of treated water from the Margaret River Wastewater Treatment Plant in Margaret River for use in irrigating regional sporting facilities at Gloucester Park, Margaret River High School oval, Margaret River Primary School Oval, public open space in East Margaret River and the Margaret River Golf Course.

The project involved project feasibility studies, project planning, preparation of management plans, funding applications, environmental and health approvals, developing water use agreements, design, construction tenders, commissioning, signage, modifying irrigation systems and training staff in operational, testing and health procedures. The project is also in line with the Water Corporation's recently announced policy to provide recycled water free of charge for community uses.

Physical aspects of the project include construction of 11.5 km of recycled water mains with 6.1 km including Margaret River crossing completed and Stage Two extension to Margaret River Golf Course 5.4km completion planned in 2010/11. It also includes the construction of two tanks, a pigging station, irrigation installation and upgrading and two new irrigation pump stations.



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## Planning

After initial feasibility studies were completed by the Lester Group (Wood and Grieve) establishing the general concepts, technical feasibility and indicative costs, the Environmental Technology Centre at Murdoch University completed detailed water balance and cost benefit analysis. Initial community consultation was undertaken establishing wide community support for the project.

The Shire of Augusta Margaret River Council provided leadership supporting the project including identifying it as a strategic project through their strategic planning and financial planning processes.

The Shire identified several grant funding opportunities and prepared project plans including risk management, communication and environmental management plans which contributed toward successful applications for funding through Community Water Grants and the Regional Headworks Program. This was a particularly ground breaking project for the Regional Headworks Program as they had not previously funded water recycling projects.

A nutrient irrigation and management plan was prepared (NIMP) through a partnership with the Margaret River campus of Curtin University, to establish water demand and soil capacities and to establish nutrient management requirements to ensure long term soil health.



*Recycled Water Pump Station at Margaret River Wastewater Treatment Plant*

## Approvals

There were a few challenges in establishing the approvals process as there have been no similar projects taken through the current approval processes. Approvals were prepared and obtained from:

- Department of Health.
- Department of Aboriginal Affairs (section 18 approval).
- Water Corporation (Recycled Water Supply Agreement).
- Department of Environment and Conservation (access to state forest for construction of water mains).

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Letters of support were obtained from the Forest Products Commission who currently permit Water Corporation access to their pine plantation for disposal of treated water and the Department of Water who are keen to see reduced water extraction from the Margaret River.

Initial advice from agencies was that the project would require approval from the Department of Water and Department of Environment. The nutrient and irrigation management plan was submitted to Department of Water seeking approval for the project however it was later established that the Department was not in the end required to approve the project.

The Department of Environment initially indicated licensing would be required, but after an application was submitted, the requirement for license was waived on the grounds that the project was for beneficial reuse rather than disposal of a waste that had potential to harm the environment.

The approval process involved preparation of applications, supporting reports and negotiation, discussion and provision of additional information. It is hoped that the work achieved through resolving many of the challenges faced by this project will assist in streamlining the approval process for future water recycling projects. The Shire of Augusta Margaret River is making all information available to other organisations as templates to assist in the approval process for other water recycling projects.

As part of the approval process the project manager was required to undertake research into water quality standards, update all management plans, prepare detailed cost estimates and determine cost allocations to project partners. Also in order to obtain Health Department

Approvals a detailed operations manual was required to be prepared addressing operation, training, testing, signage and reporting.

## Design

The design of the project included designing integration and connection with existing infrastructure at the waste water treatment plant, determining pipe sizes and routes, preparing pipeline designs and specifications, addressing land matters. The design also encompasses requirements at sites using recycled water including planning irrigation systems and subsequent irrigation system design inclusive of tanks, pump stations, irrigation upgrades and signage. It involved research and investigation of water quality standards and methods to manage including strategic use of subsurface irrigation, secondary UV treatment and irrigation scheduling.

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## Construction

After planning, approval and design stages, the construction phase was more straightforward including preparation of tender documents and advertising tenders, tender selection and award, construction management and contract administration.

During the construction phase, a detailed commissioning process was established and is being implemented on both the contract and principles sides. The commissioning process includes testing and inspections to verify the quality of the construction work and on the principles side it involves finalising operations manuals, inducting and training staff in operational procedures and developing testing and reporting programs and training staff to undertake these functions.

Under the Water Services Act, the Shire was also required to become a licensed water provider to distribute water to schools and the Margaret River Golf Club. An application was made for an exemption and was approved by the Governor and was recently gazetted.

## Costs

Final stage of construction to the Margaret River Golf Course in progress and cost will be \$2.6million when works have been completed and the golf course connected.

## Lessons Learnt

In addition to the tasks outlined above this project has also involved regular consultation and information to the public to ensure that stakeholders were kept informed and to maintain public support. Public support was a key component of success, which saw key project hurdles overcome. In particular, obtaining support from the Water Corporation CEO and Minister for Water to review the Corporation's policy on recycled water pricing resulted in a change to policy that will assist in encouraging greater recycling of water for irrigating public open space across the state.

## Funding Partners

- Department of Local Government and Regional Development Royalties for Regions.
- South West Development Commission – Funding, Support.
- Lester Group – Original concept, seed funding and major contributor.
- Department of Education and Training – Funding.
- Department of Sport and Recreation.
- Community Water Fund – Funding.
- Margaret River Golf Club.

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## Further Information/References

<http://www.amrsc.wa.gov.au/development/major-projects/>

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