Thinking of setting up access to recycled water?

If you are a South East Water customer running your own business, you might be considering the use of alternative water sources. This brochure will provide you with an overview of some key considerations.

Where to start?
Alternative water sources can be used for various purposes to suit business needs. Exploring the possibilities of recycled water can present both economical and sustainable solutions.

Questions you should ask:
• What do we want to achieve?
• How much water do we need?
• What are the recycled water supply options?
• Which of the options best suits our needs and budget?

What is recycled water?
Recycled water is wastewater from bathrooms, laundries and kitchens that has been treated to a standard that is suitable and safe for its intended use.
Stormwater, when harvested and treated, can be also classed as a type of recycled water.
Recycled water produced at South East Water’s water recycling plants can be used as Class C or Class A recycled water.

Benefits of recycled water
• sustainable water supply
• reduces reliance on drinking water supplies
• provides a drought-proof water supply
• reduces the amount of treated wastewater going into local waterways

What to consider before proceeding with a recycled water project
• It can be expensive, especially if the project is small or very high quality recycled water is needed
• It can take a relatively long time to set up small recycled water schemes, due to extensive planning and approval processes
• recycled water use needs to be more closely managed compared to drinking water
• the treatment and distribution system requires ongoing maintenance and management
• you may require large storage tanks.
Differences between Class C and Class A recycled water

<table>
<thead>
<tr>
<th>Class C</th>
<th>Class A</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are restrictions for onsite management.</td>
<td>There are reduced restrictions for onsite management.</td>
</tr>
<tr>
<td>Irrigation of a golf course or open space needs to be completed four hours prior to public use (i.e. early hours of morning).</td>
<td>There are no time restrictions on when watering can occur. Spray drift needs to be kept to a minimum.</td>
</tr>
<tr>
<td>Wineries and market gardeners who sell raw products are required to use a dripper irrigation system and there must be no contact of recycled water with the produce.</td>
<td>Water can be used on vegetable crops that are consumed raw (e.g. lettuce).</td>
</tr>
<tr>
<td>Site layout requires a 50 metre buffer distance from your nearest neighbour or water course.</td>
<td>Reduced buffer distances are required. Spray drift needs to be kept to a minimum.</td>
</tr>
<tr>
<td>Dairy farmers are required to keep their stock off the area irrigated with recycled water for five days. Approval is required from Department of Environment and Primary Industries before Class C recycled water can be used with livestock.</td>
<td>Reduced restrictions on dairy farmers. Approval is required from Department of Environment and Primary Industries before Class A water can be used with livestock.</td>
</tr>
</tbody>
</table>

Similarities between Class A and Class C recycled water

- You cannot drink recycled water.
- You should avoid swimming in recycled water and you cannot fill swimming pools with it.
- Signage is required on sites using recycled water.
- Training of staff is required on sites using recycled water.
- Recycled water has extra nutrients in it compared to bore water or drinking water (i.e. potential reduction in costs of fertiliser use for the customer).
- Total dissolved solids and pH will be similar.

Water recycling in South East Water’s service area

- 7,578 residential customers
- 106 non-residential customers
- 4.2 billion litres of recycled water supplied in 2013–14
**Using recycled water**

In Melbourne’s south east, Class C and Class A recycled water is used in many ways, including for:
- industrial processes
- irrigating parks, sports fields, golf courses, market gardens and vineyards
- flushing toilets
- watering gardens
- filling ornamental ponds

*Recycled water is not used or suitable in Victoria for drinking purposes.*

**Water recycling plants**

Recycled water is produced at large water recycling plants. A number of South East Water’s councils and golf courses access this type of recycled water for irrigation, and in processes for steel manufacturing and at a commercial laundry.

*This type of recycled water works best for:*
- large water users
- sites that are close to a water recycling plant (fewer pipes to install)
- sites where the type of recycled water produced at the plant matches the required end use.

**Sewer mining**

Sewer mining is the process of tapping into a wastewater system (either before or after the wastewater treatment plant) and extracting wastewater, which is then treated onsite and used as recycled water. Some sewer mining by-products may be acceptable for return to the wastewater system under a Consent to Discharge Industrial Trade Wastewater.

*This type of scheme works best for:*
- sites that are close to large wastewater pipes
- end uses that require a steady daily supply such as for toilet flushing and cooling towers.

**Stormwater harvesting**

Recycled stormwater is produced by capturing and treating stormwater from drains, channels and other stormwater sources. South East Water operates the Troups Creek stormwater recycling plant. Residents in the neighbouring Avenview Estate use recycled water for toilet flushing and irrigation.

*This type of scheme works best for sites where:*
- there is enough space for storage
- a constant daily supply of recycled water is not required, like irrigation
- there is a double benefit of managing flood issues and improving water quality for receiving waterways.

**Onsite systems**

Recycled water is produced by capturing, treating and reusing wastewater from a site’s buildings or facilities. Wastewater at the site is treated to a very high level before being used for flushing toilets, in air conditioning systems and for watering gardens.

*This type of scheme works best for:*
- large developments of multi-storey buildings which incorporate sustainable design initiatives
- single customers or buildings, where there is no potential to be part of a large scheme with other customers.

**Will your recycled water project be viable?**

**Do you need recycled water?**

**Set goals**

What would you like to achieve through this project? For instance are you trying to save drinking water, not be reliant on stormwater or rainwater, reduce costs or expand your current operation?

**Consider all the options**

Have you looked at water efficiency measures like fixing leaks in irrigation systems? Improving water efficiency is often cheaper than a water recycling project and can be just as effective. Regardless of whether you go forward with water recycling, you should make sure you aren’t wasting your water resources.

**What kind of recycled water supply would work best for you?**

**Look for other potential users**

Consider whether there are others nearby who could be part of the recycled water project. This would allow you to share the costs and gain some economies of scale. You will also need to consider how long other users will be there and how they might use the recycled water. Will you continue to have a demand for recycled water and what type of legal responsibilities or agreements may you need to put in place?

**Consider water quality levels**

What standard of recycled water will you need? Recycled water treated to a lesser extent contains more nutrients. It can be very effective for irrigation, however extra handling safeguards need to be in place.

**Assess supply requirements**

Estimate the average and peak volumes you are likely to need, and the water pressure. Will you need the water all day and every day? Do you have existing storage or can you build onsite storage. All of these things can influence the cost of a project.

**Identify potential water sources**

Is there a South East Water treatment plant nearby? Are there any wastewater mains or stormwater channels close to the site? Can you capture rainwater or access bore water? You will also need to consider approvals will you need, depending on the source of water.

**Carry out a land suitability and risk assessment**

If you are thinking of irrigating, is the land suitable? Is the water quality suited to the site and proposed end use? What could go wrong with the project and how would you manage risks to the environment and community? South East Water can assist you through this process.
Is your recycled water project viable?

How would you set up your project?

Work out what you’ll need to build
Will you need a storage tank or dam? What type of pipe network will be needed? What approvals are required, both planning and regulatory?

Assess what onsite works you’ll need
Will you need to re-plumb your existing irrigation or drinking water system to take recycled water? Keep in mind internal retrofitting can be expensive.

When you have an outline of your potential recycled water project, use our matrix to see whether it’s viable.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Unlikely</th>
<th>Has potential</th>
<th>Looks promising</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much recycled water will you need?</td>
<td>&lt; 100,000 litres/day</td>
<td>100,000 to 500,000 litres/day</td>
<td>&gt; 500,000 litres/day</td>
</tr>
<tr>
<td>What will you use it for?</td>
<td>• Industrial process</td>
<td>• Flushing Toilets</td>
<td>• Irrigation of open spaces. Sports fields and golf courses</td>
</tr>
<tr>
<td></td>
<td>• Cooling Towers</td>
<td>• In washing machines</td>
<td>• Agriculture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Watering gardens</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Washing cars</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How consistent is your water use?</td>
<td>Very inconsistent</td>
<td>Consistent</td>
<td>Very consistent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Highly variable or unpredictable</td>
<td>• Fairly predictable through the year</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>How similar is your current source water to recycled water?</td>
<td>Much lower quality</td>
<td>Slightly lower quality</td>
<td>Similar or better</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Will need a lot of treatment</td>
<td>• Needs some treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How far away is the recycled water source?</td>
<td>Long distance</td>
<td>Medium distance</td>
<td>Very close</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 5 kilometres plus</td>
<td>• 1.5 to 5 kilometres</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>What is along the alignment of the source of recycled water and your site?</td>
<td>Major obstacles</td>
<td>A few obstacles</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Freeway, river, railway</td>
<td>• Alignment can be adjusted to accommodate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will you need storage?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Will need storage for 7 to 28 days</td>
<td>• Will need storage for 5 to 7 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What onsite works will you need?</td>
<td>Will need major onsite works</td>
<td>Will need some works</td>
<td>Minimal works required</td>
</tr>
</tbody>
</table>

Matrix outcomes

After assessing your proposed recycled water project, if your outcome results are mainly:

- This project will probably be unviable due to the very high cost per kilolitre of recycled water. The project should not proceed unless other significant drivers exist.
- This project will possibly succeed if some of the features can be improved. For example, by finding other customers or using a better source of recycled water.
- This is a potentially viable project, worth going ahead and developing a proposal.
Detailed water recycling information

If water recycling looks like a potentially viable option for your site and you’ve worked out which type of recycling is likely to be most feasible, talk to us for more information. You can also refer to:

- Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1 - 2006) (AGWR)
- Plumbing Code of Australia
  Australian Standard AS/NZ 3500 and AS1319
- epa.vic.gov.au
- health.vic.gov.au
- mornpen.vic.gov.au
- frankston.vic.gov.au
- livingvictoria.vic.gov.au
- recycledwater.com.au
- yourhome.gov.au/water/wastewater-reuse

Definitions

Recycled water
The term used to describe water that has been used (usually in human activities) and purified using a series of treatment steps so it can be used again. Stormwater is usually classed as a type of recycled water if it’s reused.

Stormwater
Rain that hits the ground and runs off to drains or elsewhere. The term is often used in an urban context where rain runs off hard surfaces such as roads and car parks, often picking up contaminants.

Wastewater
Water that has been used, usually in human activities. This includes water from households (blackwater and greywater) as well as water from industrial and commercial uses. The wastewater going to South East Water’s treatment plants is about 99.8% water.

Blackwater
Wastewater that includes water from toilets.

Greywater
Wastewater from any part of the home, except the toilet. Depending on the purpose, greywater may be used treated or untreated.

Stormwater harvesting
Involves collecting, storing and treating stormwater from urban areas, which can then be used as recycled water.

Sewer mining
The process of tapping into a wastewater system (either before or after the wastewater treatment plant), and extracting wastewater, which is then treated and used as recycled water.

Onsite systems
Small treatment plants, usually privately owned and managed, that clean and treat wastewater so it can be used onsite or nearby.

Direct potable reuse
Where recycled water is added directly to the drinking water supply.

Indirect potable reuse
Where recycled water is added to an aquifer, river or other water source, which later joins the drinking water supply.

Biosolids
When solids are separated from wastewater during the wastewater treatment process, which go through biological treatment. Biosolids are a rich source of phosphorus and nitrogen and can be used in agriculture, horticulture and site rehabilitation.

Megalitre (ML)
One million litres

Note: Some content in this brochure is reproduced courtesy of Sydney Water.

To know more
Visit southeastwater.com.au/recycledwater or call our Integrated Water Officer on 9552 3686.