

Stormwater harvesting

How to collect and re-use stormwater from Sydney Water's stormwater system

Most of the stormwater pipes and channels in the Sydney metropolitan area are the responsibility of local councils, though Sydney Water provides some drainage services across 72 stormwater catchments in the Sydney region.

Sydney Water works with local councils and other agencies to manage Sydney's stormwater and investigate opportunities for its collection and re-use.

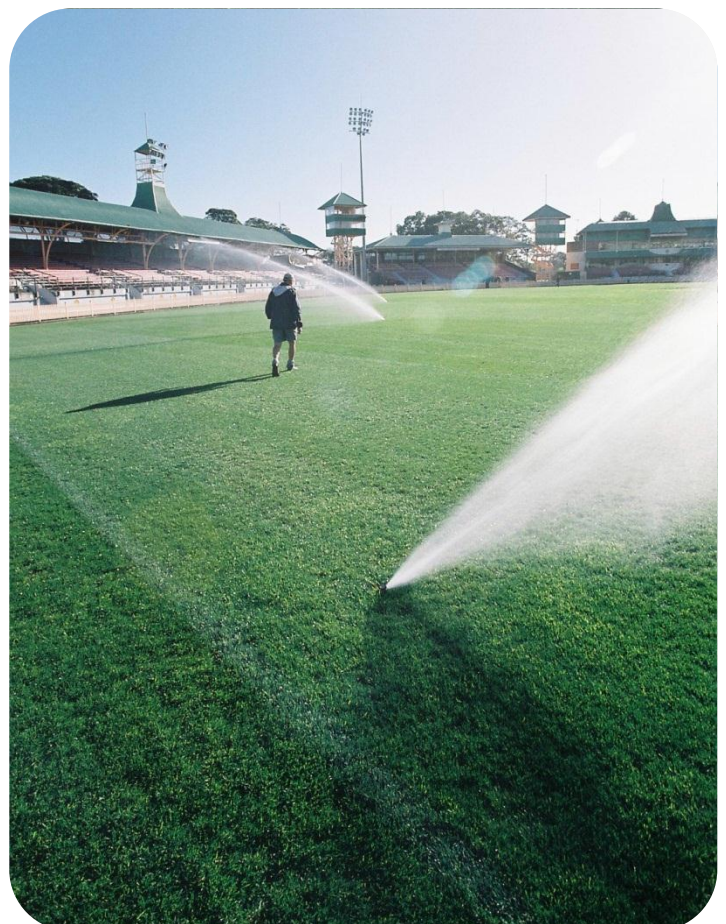
Harvesting stormwater for re-use is one of the many ways the NSW Government is securing Sydney's water supply for a growing population.

What is stormwater harvesting?

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

The stormwater is collected from stormwater drains or creeks, rather than roofs. Recycled water is treated so it's safe to use.

Recycled water produced from stormwater harvesting is commonly used to water public parks, gardens, sports fields and golf courses.



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Stormwater harvesting schemes in Sydney

The NSW Government's Metropolitan Water Plan encourages the private sector to implement innovative solutions to secure Sydney's water supply, particularly by recycling.

Local councils are responsible for about 95% of stormwater drainage in the Sydney region and most stormwater harvesting schemes are locally operated.

There are a number of projects across the Sydney region that collect and reuse stormwater. Sydney Water generally does not have a role in establishing or operating smaller local schemes, but will support and help facilitate access to the stormwater supply from its stormwater system.

The number of stormwater harvesting projects is constantly growing. For an up-to-date list, visit www.waterforlife.nsw.gov.au/recycling/stormwater.

Grants and funding

The NSW Government, through the NSW Climate Change Fund, provides funding for water savings projects in NSW. A number of stormwater harvesting projects have received grants from the NSW Government to re-use stormwater to save water and protect the environment.

To find out more, visit www.environment.nsw.gov.au/grants

The Australian Government has also funded stormwater harvesting projects in the past through the Department of Sustainability, Environment, Water, Population and Communities. Future grants will be advertised through their website.

To find out more, visit www.environment.gov.au.

Benefits of stormwater harvesting

- Reduces the demand for drinking water by replacing it with recycled water produced from stormwater harvesting.
- Reduces stress on urban streams and rivers by capturing some of the pollutants and nutrients that would otherwise enter waterways from stormwater flows.
- Enables users to access an alternative source of water for non-drinking use.
- Increases opportunities for sustainable water management, which is an important consideration in water sensitive urban design.



Stormwater is collected, treated and used to irrigate Randwick Council's native plant nursery

Stormwater harvesting schemes

Stormwater harvesting schemes can be large or small. A stormwater harvesting scheme consists of:

- an extraction point where stormwater is captured or diverted from a drain, creek or pond
- a network of pipes to transport stormwater from the connection point to the storage site
- a dam or storage tank where stormwater is temporarily collected for treatment and use
- a treatment system that produces recycled water that is suitable and safe for its permitted use
- a network of pipes for distributing recycled water
- a system to manage by-products produced in the stormwater harvesting facility.

Guidelines and requirements

Recycled water produced from stormwater must be treated according to public health and environmental standards and requirements. The NSW Government has released the guidelines *Managing Urban Stormwater: Harvesting and Reuse (2006)*.

These NSW Government guidelines provide an overview of stormwater harvesting and its potential benefits and limitations. They also provide information about planning and designing stormwater harvesting schemes to meet statutory and regulatory requirements. To know more, visit www.environment.nsw.gov.au/stormwater/publications.

Sydney Water also has a *Stormwater Harvesting and Re-use Agreement* for stormwater harvesters, which sets out the conditions for extracting and managing stormwater from Sydney Water's stormwater network.

What is the impact of the Water Industry Competition Act 2006?

The *Water Industry Competition Act 2006* and the regulations supporting it commenced in August 2008. Its objectives are to encourage competition in the water industry and to foster innovative recycling projects and efficiency in the provision of water and wastewater services.

You may need to be licensed under the Act if you want to supply recycled water obtained from stormwater to other parties, or to access a stormwater pipe that is not on your property.

Assessment and approval of new stormwater harvesting schemes

To secure Sydney's water supply, safeguard public health, protect the environment, and maintain stormwater system operations, a number of government agencies play a role in regulating or assessing stormwater harvesting schemes.

Agency	Role
NSW Government	Provides the <i>Metropolitan Water Plan</i> as the strategic context for initiatives to secure Sydney's water supply.
Local councils	Approve the installation, operation and maintenance of privately operated recycled water schemes under Section 68 of the <i>Local Government Act 1993</i> .
NSW Office of Environment and Heritage (OEH)	<p>Advises local councils and stormwater harvesters about requirements to operate and maintain stormwater harvesting schemes, recycled water quality and how to protect the environment in accordance with the <i>Interim NSW Guidelines for Management of Private Recycled Water Schemes</i>.</p> <p>Stormwater harvesting proposals from local government require approval from OEH (Office of Water) under Section 60 of the <i>Local Government Act 1993</i>.</p> <p>Also administers the <i>Protection of the Environment Operations Act 1997</i> (POEO Act). The POEO Act requires environment protection licences for certain activities.</p>
Sydney Water	Manages agreements with stormwater harvesters to construct, operate and maintain their stormwater harvesting scheme – where stormwater is collected and captured from Sydney Water's stormwater system.
NSW Health	<p>Advises local councils on water quality requirements related to public health for recycled water produced from stormwater harvesting schemes (for processing Section 68 approvals).</p> <p>Provides advice on the content required for recycled water quality management plans for stormwater harvesting schemes.</p>
The Independent Pricing and Regulatory Tribunal (IPART)	<p>Regulates and periodically reviews Sydney Water prices.</p> <p>Processes applications for licences and arbitrates disputes under the <i>Water Industry Competition Act 2006</i> where they cannot be resolved between parties.</p>

Setting up a stormwater harvesting scheme from Sydney Water's stormwater system

To set up a stormwater harvesting scheme that collects and re-uses stormwater from Sydney Water's stormwater system, you will require approvals from Sydney Water, your local council, NSW Health and in some cases the NSW Office of Environment and Heritage (OEH). You may also need to consult with IPART, and apply for a licence under the *Water Industry Competition Act 2006 (WICA)*.

Applying to Sydney Water for stormwater harvesting approval is a detailed process. It involves preliminary discussions, initial development approval and construction approval. Completing a thorough investigation and concept review before making a formal application ensures you will have all the necessary information for Sydney Water to properly assess your application.

For information on how to contact Sydney Water, see the 'To know more' section of this fact sheet.

After all approvals have been obtained and a *Sydney Water Stormwater Harvesting and Re-use Agreement* has been signed, you will be able to start constructing your scheme. When you build your stormwater harvesting scheme, Sydney Water and other agencies will ensure that it is built in line with the approved design and operates to agreed standards.

Sydney Water has a six-step stormwater harvesting application process.

Step 1

Carry out preliminary investigations and obtain advice.

Step 2

Develop and review your concept plan and design.

Step 3

Decide whether to proceed.

Step 4

Obtain approvals from Sydney Water, the local council and other government agencies.

Apply for a WICA licence from IPART (if required).

Enter into a *Stormwater Harvesting and Re-use Agreement* with Sydney Water.

Step 5

Construct your stormwater harvesting scheme and connect to Sydney Water's stormwater system.

Step 6

Commission and operate your stormwater harvesting scheme.

Step 1 - Preliminary investigations and advice

Doing some research for your stormwater harvesting scheme is the first step. Details you need to consider for your proposal include:

- how the recycled water will be used
- the volume of recycled water required for the proposed end use
- required extraction volumes
- the proposed stormwater treatment system
- the space required for your stormwater harvesting treatment facility
- likely costs and savings

Once you know what your needs are, Sydney Water and other relevant agencies can provide the right information and help you understand the requirements for your stormwater harvesting scheme.

Sydney Water's *Stormwater Harvesting and Re-use Policy* is also available on the Sydney Water website, sydneywater.com.au. The policy sets out the overarching principles, terms and conditions that apply when connecting to Sydney Water's stormwater system for a stormwater harvesting scheme.

What do you need to do?

Submit a stormwater harvesting proposal to Sydney Water, connections@sydneywater.com.au. Your proposal needs to include the proposed extraction point on the stormwater system.¹

You should also seek relevant advice and information from:

- NSW Office of Environment and Heritage (OEH)
- NSW Health
- the Independent Pricing and Regulatory Tribunal (IPART)
- treatment technology suppliers
- water recycling consultants
- your financial and legal advisors.

¹ If Sydney Water does not own the stormwater asset, we will not need to approve the scheme. You will need to determine who the owner of the stormwater asset is, and obtain their permission to connect to the stormwater system. In the first instance, contact the relevant local council to check whether they own the stormwater asset.

Sydney Water is not able to provide advice on specific requirements if you are connecting to a stormwater system owned by another organisation. This document may be used as a general guide only.

Consult with NSW Office of Environment and Heritage and NSW Health

NSW Office of Environment and Heritage (OEH)

Refer to the OEH guidelines *Managing Urban Stormwater: Harvesting and Reuse* about:

- planning and designing a stormwater harvesting scheme
- stormwater management (including collecting stormwater and environmental impacts)
- acceptable applications for recycled water and managing public health risk.

NSW Health

Discuss your stormwater harvesting scheme with NSW Health and obtain advice about:

- water quality requirements related to public health for the suitable uses of recycled water from stormwater harvesting schemes
- required treatment of the collected stormwater to standards set by NSW Health, depending on how the recycled water will be used.

What Sydney Water will do

Once you have confirmed that Sydney Water owns the stormwater asset at the proposed extraction point and we have received your proposal, we will provide information on whether or not there are any constraints that will affect your stormwater harvesting scheme.

If there are no issues that prevent your scheme from proceeding, we will provide:

- modelled stormwater flow rates, stormwater volumes, sewer overflows and water quality (where available)
- Sydney Water's existing obligations to other harvesters in the stormwater catchment and existing commitments to maintain minimum or environmental flows
- your obligations under Sydney Water's *Responsibilities of Connected Customers Policy*.

We will also provide you with:

- a copy of Sydney Water's standard *Stormwater Harvesting and Re-use Agreement* template
- Sydney Water staff contact details if you have any questions or need more information.

Why ask Sydney Water about your preliminary stormwater harvesting proposal?

Sydney Water will be able to give you general advice about what is needed for most stormwater harvesting schemes. However, requirements may vary as each stormwater system and catchment is different. Stormwater harvesting schemes need to be assessed on a case-by-case basis.

There may be reasons why stormwater flows must remain in the system and are not available to collect and re-use. For example:

- Some sections of a stormwater channel may need more minimum flow than others, to ensure effective operation of the stormwater system.
- Where there are other stormwater harvesters or recycling schemes downstream of where you are proposing to connect, there may be restrictions on the stormwater available for your scheme.
- There may be nearby natural waterways, like creeks and wetlands, which require a certain amount of stormwater flow to ensure they remain healthy for aquatic plants and animals.

These constraints may affect the cost, design and feasibility of your proposed stormwater harvesting scheme.



Botany Wetlands rely on stormwater flows to ensure aquatic plants and animals are kept healthy

Step 2 - Develop and review your concept plan and design

Before you lodge your formal stormwater harvesting application, it is a good idea to develop and review your proposed stormwater harvesting concept plan and design with Sydney Water.

This will enable you to get general feedback before paying for and lodging a full technical design. Sydney Water will check your proposal for any required variations and whether the proposed location of your extraction point is acceptable.

At the end of this step, you should have all the information you need about:

- connecting to Sydney Water's stormwater system
- collecting stormwater from Sydney Water's stormwater system
- deciding if you want to proceed with your stormwater harvesting scheme.

Please note that the feedback Sydney Water provides on your concept plan does not constitute an approval to connect to a Sydney Water asset.

What do you need to do?

- Develop a concept plan and design that details the proposed:
 - location of the extraction point
 - stormwater extraction volume
 - collection and treatment processes
 - any discharge points.

You may choose to engage consultants specialising in stormwater recycling to assist with your concept plan. You may also choose to involve a listed Water Servicing Coordinator (WSC) to help design your concept.

A list of WSCs can be found on Sydney Water's website at sydneywater.com.au.

- Give your concept plan and design to Sydney Water for initial feedback.

What Sydney Water will do

We will examine your stormwater harvesting concept plan and design, and discuss it with you.

The aim is for Sydney Water to develop a thorough understanding of your project and help you develop a feasible proposal.

We will then send you a letter that outlines:

- feedback on your proposed concept plan and design
- any variations to the general requirements that apply to your concept plan and design
- possible modifications of your concept plan and design for you to consider.



Filtered stormwater is added to the dam at Cammeray Golf Club and is used to irrigate the course

Step 3 - Decide whether to proceed

If you decide to go ahead with your stormwater harvesting scheme, you will need to select a technology supplier and may need to engage a Water Servicing Coordinator (WSC).

What do you need to do?

- Select a listed Water Servicing Coordinator (WSC) to lodge your stormwater harvesting scheme application.
- Select a technology supplier for your on-site stormwater treatment and storage facility.

Why do you need a Water Servicing Coordinator (WSC)?

Applications to connect to Sydney Water's assets must be made through a licensed WSC.

A WSC can answer questions about your application process on behalf of Sydney Water. They can also facilitate the project management, design and construction of any required works.

A list of WSCs can be found on Sydney Water's website at sydneywater.com.au.

Step 4 - Obtain approvals

You will need to obtain approvals from Sydney Water and other government agencies. If required, you may also need to apply for a WICA licence from IPART.

What do you need to do?

Sydney Water approval to connect

You need to formally apply to Sydney Water to construct the extraction point and, if applicable, the discharge point(s) for your stormwater harvesting scheme.

You will need to:

- engage a licensed WSC to lodge your stormwater harvesting scheme application with Sydney Water
- lodge your completed *Application for Consent to Discharge Industrial Trade Wastewater* (if applicable)
- provide the necessary information to Sydney Water to finalise your *Stormwater Harvesting and Re-use Agreement*
- complete a risk assessment with relevant stakeholders to ensure that your design meets required guidelines for safe operation.

You will also need to consult with NSW Health. The collected stormwater needs to be treated to standards set by NSW Health, depending on how the recycled water will be used.

Your application should be lodged after you have received development approval from the local council or NSW Department of Planning and Infrastructure.

Council approval to install and operate

If you are a private stormwater harvester, you will need two approvals from your local council:

1. Approval to install the stormwater harvesting scheme.
2. Approval to re-use the harvested stormwater for a particular application.

These approvals may be sought at the same time. You should refer to the *Interim NSW Guidelines for Management of Private Recycled Water Schemes* for information and templates to help you apply for these approvals.

For stormwater harvesting schemes where local council owns the stormwater asset, stormwater harvesters also need approval from the NSW Office of Environment and Heritage (OEH). An Environmental Impact Statement is required under the *Environmental Planning and Assessment Regulation 2000*, unless your scheme will supply recycled water solely for industrial use or if it treats less than 1,500 kilolitres of stormwater a day.

Obtain any licences required by IPART

Consult IPART and if required, formally apply for any licences required under the *Water Industry Competition Act 2006*. You may also need to get your own legal advice if applying for any required licences.

What Sydney Water will do

- Sydney Water will assess your stormwater harvesting scheme after receiving your application.
- We will send you a *Letter of Approval*, which outlines the conditions of approval for your connection to Sydney Water's stormwater system.
- You must then:
 - comply with all conditions specified in the *Letter of Approval*, including entering into a Works Agreement (if applicable)
 - obtain all approvals and any consents (including landowner's consents) required by law for your stormwater harvesting scheme
 - lodge any security bond required by Sydney Water.
- We will work with you to finalise your:
 - Works Agreement** – this covers construction of the extraction point and (if applicable) discharge point(s).
 - Stormwater Harvesting and Re-use Agreement** – this agreement outlines the terms and conditions of your stormwater harvesting connection.
 - Application for Consent to Discharge Industrial Trade Wastewater** – you are required to apply for a *Consent to Discharge Industrial Trade Wastewater* if you plan to discharge residuals to our wastewater system.
- Once you have provided us with evidence of meeting these requirements, we will send you a letter confirming that you have met all our requirements and have permission to connect to Sydney Water's stormwater system.

What is a Stormwater Harvesting and Re-use Agreement?

A *Stormwater Harvesting and Re-use Agreement* outlines the terms and conditions of your connection to Sydney Water's stormwater system.

The agreement will outline the rights and responsibilities of both Sydney Water and your stormwater harvesting scheme. These may include:

- your acknowledgement that the quantity and quality of stormwater we provide may vary
- your obligations to manage any activity on-site that might affect your connection to Sydney Water's stormwater system
- any restrictions on the quality or quantity of trade wastewater we will accept
- providing Sydney Water staff with access to your site and the stormwater asset.

The agreement also includes contact details of both the site owner and Sydney Water representatives who manage your agreement. It also outlines who you should notify if something goes wrong, or if something threatens the quality of our stormwater or wastewater.

When it is finalised, your *Stormwater Harvesting and Re-use Agreement* will be issued to you as an appendix in an *Additional Services Agreement*.

The *Additional Services Agreement* applies to services that aren't covered by Sydney Water's *Customer Contract*. It outlines the terms under which Sydney Water provides these additional services and your rights and obligations. More information about the *Additional Services Agreement* is available at sydneywater.com.au.



This wet basin collects stormwater to help reduce flood risk to local properties

Step 5 - Construction and connection to Sydney Water's stormwater system

Once you have approval from Sydney Water, you can construct your stormwater harvesting scheme in accordance with your approved design.

What do you need to do?

- Engage a constructor that is experienced in stormwater work to construct your stormwater connection. Evidence of the constructor's experience must be provided to Sydney Water.
- Engage a listed constructor to connect to the wastewater system, if you intend to discharge residuals to our wastewater system.
A list of these constructors can be found on Sydney Water's website at sydneywater.com.au.
- Engage the same or other contractors to construct your stormwater harvesting scheme.

What Sydney Water will do

- Confirm that your selected contractor(s) can be used to construct your connection points, based on their experience in stormwater works and listing for wastewater works.
- Inspect the completed construction work of your extraction and discharge points (if applicable).
- Approve your stormwater harvesting scheme if it complies with the agreed design in your *Works Agreement*.
- Approve your *Application for Consent to Discharge Industrial Trade Wastewater*, where applicable, and provide you with your consent document.

Step 6 - Commission and operate your stormwater harvesting scheme

Your approval to operate a stormwater harvesting scheme will also include conditions imposed by your local council. You should only start using recycled water once your stormwater harvesting scheme has been properly validated and verified and the results formally acknowledged by the approving local council.

What do you need to do?

- Ensure your stormwater harvesting scheme is validated and achieves the agreed recycled water quality and discharges – as required by NSW Health, in the *Australian Guidelines for Water Recycling 2006* and the *Interim NSW Guidelines for Management of Private Recycled Water Schemes*.
- Once operational, your stormwater harvesting scheme must be independently audited on a regular basis.
- It is your responsibility to monitor the operation and maintenance of your stormwater harvesting scheme, in accordance with the conditions of approval for your scheme's operation.

What Sydney Water will do

- Monitor the operation of your extraction and discharge points to our stormwater system.
- Monitor compliance with your Sydney Water *Stormwater Harvesting and Re-use Agreement* and *Consent to Discharge Industrial Trade Wastewater* (if applicable).
- Initiate the renewal of your *Stormwater Harvesting and Re-use Agreement* and *Consent to Discharge Industrial Trade Wastewater* as required.

Understanding your stormwater harvesting fees and charges

IPART regulates and periodically reviews Sydney Water prices. Currently, IPART has set the price for stormwater harvesting at zero. This means that once your stormwater harvesting scheme is commissioned, Sydney Water will not charge you for the stormwater you extract from its system. However, you will need to pay regular fees if you require a *Trade Waste Agreement* for your scheme.

Sydney Water seeks no financial gain from stormwater harvesting, but must recover any costs incurred in allowing your stormwater harvesting connection and operation to its stormwater network. Any savings to Sydney Water will be reflected in our charges. As each stormwater harvesting scheme is different, establishment charges are calculated on a case-by-case basis.

As part of the application process with Sydney Water, you will need to pay fees for your *Stormwater Harvesting and Re-use Agreement*. Details of Sydney Water's fees and charges are available at sydneywater.com.au. You will also need to cover any fees charged by other government agencies and service providers you employ. This may include your technology supplier, the WSC, financial and legal advisors.

Resolving disputes

We aim to help and support you in achieving your stormwater harvesting and re-use goal, while at the same time protecting our stormwater system, licence obligations and business risk.

Sydney Water's *Stormwater Harvesting Policy* outlines the overall principles, terms and conditions that apply to stormwater harvesters connecting to Sydney Water's stormwater system.

Where possible, Sydney Water will work with you to resolve any issues and negotiate with you where necessary.

If you can't resolve an issue with Sydney Water to your satisfaction, you can refer the matter to the Energy and Water Ombudsman NSW (EWON) for independent dispute resolution and arbitration.

Disputes with other government agencies can be resolved through the individual agency's dispute resolution process.

Definitions

- **Recycled water** is produced by cleaning wastewater, stormwater or greywater to remove impurities. A series of treatment steps is used to clean and purify recycled water to a standard that is suitable and safe for its intended use.

For large scale recycling schemes, treated wastewater may be sourced from wastewater treatment plants. Wastewater that is sourced directly from the wastewater system is called 'sewer mining'.

- **Stormwater harvesting** involves collecting, storing and treating stormwater from urban areas, which can then be used as recycled water.
- **Wastewater** is water that has been used previously. This includes water from households (blackwater and greywater) as well as water from industrial and commercial sites. The wastewater going to Sydney Water's treatment plants is about 99.8% water.
- **Water Sensitive Urban Design** involves integrating water cycle management into the urban planning and design process.

To know more

For more information about setting up a stormwater harvesting scheme in the Sydney region, contact Sydney Water's Business Customer Services:

Call: 1300 985 227

Email: businesscustomers@sydneywater.com.au

Visit: sydneywater.com.au

NSW Office of Environment and Heritage (OEHL)

Call: 9995 5000

Email: info@environment.nsw.gov.au

Visit: www.environment.nsw.gov.au

NSW Health

Call: 9391 9000

Visit: www.health.nsw.gov.au

Independent Pricing and Regulatory Tribunal (IPART)

Call: 9290 8400

Email: ipart@ipart.nsw.gov.au

Visit: www.ipart.nsw.gov.au