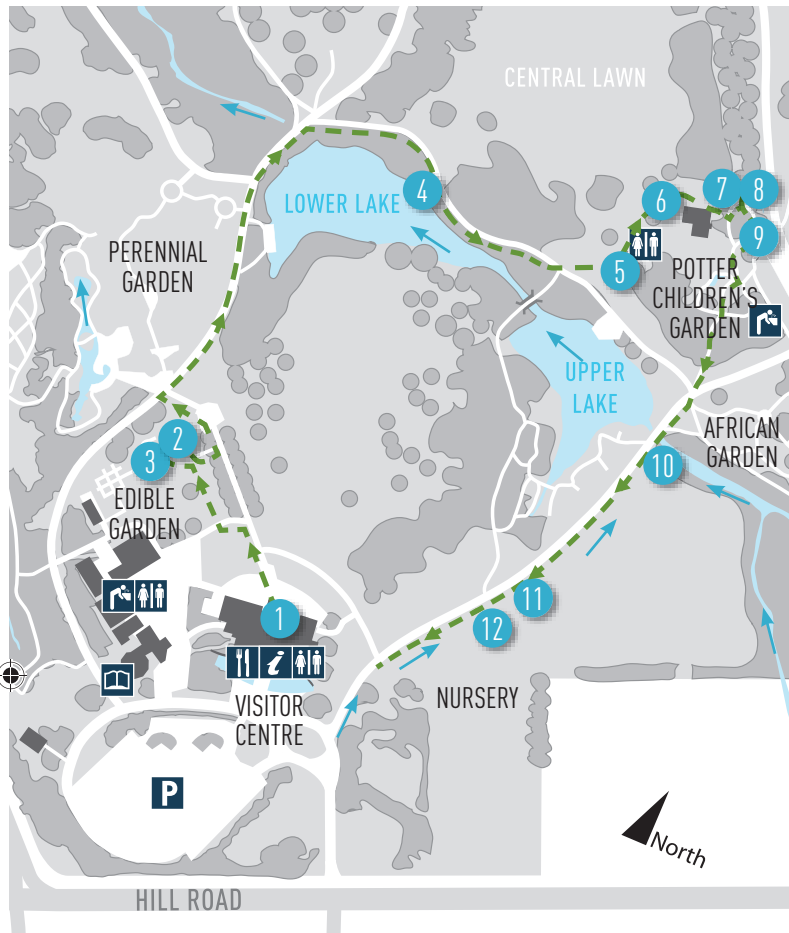




Stormwater solutions in the Auckland Botanic Gardens



- Sustainability trail
- Low Impact Design stormwater treatment
- Lakes and streams
- Stormwater flow

Our catchment

A catchment is an area from which rainfall flows into a waterway. There is a 16 hectare catchment surrounding the Auckland Botanic Gardens lakes, made up of suburbs, roads, our carpark and planted areas. It is part of a much bigger catchment that leads all the way to the Manukau Harbour. Catchments are sustaining systems. Many species depend on the water flowing through them. So all things living in a catchment are connected.

- 1 Visitor Centre water use**
The nikau water feature and visitor toilets use water that is collected from the roof and stored in an underground tank.
- 2 Edible rain garden**
An experimental combination of edible gardening, native plants and stormwater treatment.
- 3 Edible living roof**
A compact urban solution to stormwater treatment and growing your own plants.
- 4 Riparian lakeside planting**
Stormwater from the car park, paths, gardens, nursery and neighbourhood ends up in our lakes. Multiple solutions keep them clean – including planting along the banks.
- 5 Small treatment train**
A living roof and swale work in tandem, delivering treated stormwater to the lakes.
- 6 Large treatment train**
A series of devices treat stormwater from the Potter Children's Garden, including a stormwater planter box, infiltration trench, porous pavers and swale.
- 7 Succulent living roof**
A living roof providing stormwater treatment and habitat for wildlife.
- 8 Tree pit**
A compact device, suitable for treating large volumes of stormwater. Ideal for city streets.
- 9 Water tank**
Water collection and storage for re-use in the Potter Children's Garden.
- 10 Sediment forebay**
A large detention area for stormwater flowing in from the neighbourhood. Here sediment and other contaminants settle to the bottom.
- 11 Wetland swale**
Stormwater and nursery run-off is treated by native plants and conveyed to the sediment forebay.
- 12 Nursery water tank**
A 30,000 litre underground tank stores nursery irrigation run-off, for re-use.



Auckland Botanic Gardens

Where ideas grow



Stormwater solutions in the
Auckland Botanic Gardens



Looking after our place

Our Botanic Gardens lakes were once affected by contaminated stormwater, so we decided to fix that. We now treat a lot of our stormwater by using Low Impact Design principles.

What is stormwater?

Rain falling on natural areas is taken up by the plants, is filtered into the soil, and gently released into streams. However, rain falling on roofs, roads and concrete just slides off without slowing down – this is what we call stormwater.

This run-off collects and carries contaminants, like oil from roads.

In cities, stormwater is piped away quickly, and is often released untreated into streams, and so finds its way to the sea.

Stormwater contaminants that often cause problems:

- **Sediment** like soil loosened by erosion covers shellfish beds and smothers fish breeding grounds.
- **Nutrients from fertilisers** such as phosphate and nitrogen cause algae growth which chokes waterways.
- **Vehicle and household liquids** such as oil, detergent and paints are harmful to aquatic life.

The Puhinui Stream passes through the Auckland Botanic Gardens. Contaminants that flow into the stream can pollute the water, eventually reaching the sea.

The Puhinui Stream starts its life high in the forested hills of Auckland's Hunua Ranges.

It flows down through farmland, potentially picking up sediment, fertilisers and stock effluent.

Then it enters the suburbs, collecting stormwater and contaminants along the way.

Once it reaches the Auckland Botanic Gardens we try to keep contaminants out by treating our stormwater on-site.

The Puhinui Stream eventually meanders out to the Manukau Harbour, carrying the contaminants it has collected.

The water quality of the harbour depends on what flows into it.

HUNUA RANGES

FARMLAND

ALFRISTON

AUCKLAND BOTANIC GARDENS

MANUKAU

Our commitment to sustainability

Here at the Auckland Botanic Gardens we are improving the way we look after the Gardens. Taking care of our stormwater is the first step. We are also improving two other aspects of our operations: our garden practices and our use of energy. Look out for information about these initiatives in the future.



Sustainable
water
management



Sustainable
garden
practices



Sustainable
energy
cycles

Issues

Stormwater issues are not local, but part of a system. Someone is always downstream of stormwater.

Contaminants are bad news

Contaminants in waterways endanger public health and kill fish and other wildlife; they can also cause water weeds to flourish, smothering waterways. The more contaminated a stream, the more damaged its ecosystem. We need to stop contamination, not just for the wildlife, but also for our own children.

Beach closed!

A contaminated stream can make a beach unsafe for swimming or collecting shellfish.

Fast flows

Stormwater pipes deliver fast flows of untreated water to natural waterways. The fast flow erodes streams, destroys fish and insect habitats, removes stream vegetation and undermines trees on stream banks.

Thirsty soils

Removing rainwater via stormwater pipes means this water cannot soak in and become groundwater. Groundwater is essential for healthy plants and soil and supplies water to local streams.

Solutions

Solutions lie with people and how we work to share our resources.

Slow the flow and clean it up

Follow the Sustainable Water Trail to see how the Auckland Botanic Gardens reduces and treats stormwater and irrigation run-off. We've installed 'Low Impact Design' devices. Many of these devices mimic natural processes, using plants to slow the water flow and remove contaminants.

Looking after your place

In your own garden - think about your surfaces. Simply it is better to have planted gardens rather than concrete! However many stormwater solutions used at the Auckland Botanic Gardens can be adapted for home use (some will need advice from a certified engineer of course!)

See some ideas including plans at www.aucklandcouncil.govt.nz
Kids - join a local Waicare group to become involved!
www.waicare.org.nz

Other water-wise choices

As well as reducing stormwater you can conserve water. Reduce the amount of water that you use from city reservoirs by choosing the best time of day to water, using mulch, choosing plants suitable for Auckland conditions and collecting your own rain water.

We can help you with all of these topics at www.aucklandbotanicgardens.co.nz
Ph 09 267 1457