

Victoria Park / Pakapakanthi (Park 16) Wetland

The Wetland

The wetland is located at the southern end of Victoria Park/Pakapakanthi (Park 1), adjacent Park Lands Creek. Stormwater runoff from approximately 600 hectares of urban land and 100 hectares of hills face land flow down Park Lands Creek, through Glenside and under the intersection of Fullarton and Greenhill Roads.

The wetland covers an area of approximately 3.2 hectares and provides 100 million litres of flood storage. It comprises areas of permanent water, areas that become inundated with stormwater during regular flow events and a broader area that will only become inundated during more significant flow events.

The system provides regional benefits including flood detention, stormwater pollutant removal, amenity and recreational enhancement, and increased biodiversity with over 120 new trees and over 100,000 new plantings including aquatic species.

The wetland incorporates 4 main components:

1. Inlet pond – stormwater enters a deeper pool known as an inlet pond which removes coarse sediments and slows flow velocities into the vegetated area of the wetland. The pond has a cement treated base that makes it suitable to access for cleaning every 5-10 years.
2. Macrophyte zone – the main area of the wetland supports a diverse range of water plants that provide the majority of the stormwater treatment by filtering, collecting and processing stormwater pollutants. This area comprises a series of deeper pools and marsh zones that will hold permanent water. Deep pools are generally 1500mm deep and provide a habitat for fish, frogs and mosquito predators during long dry periods as water levels in the shallower areas recede. Marsh zones are typically 100-350mm deep and become more inundated during regular flow events. The macrophyte zone is designed to increase by up to 250mm in depth during storm events before overflowing from the inlet pond along Park Lands Creek. It takes 2-3 days to drain back down to permanent water levels after a rain event.
3. Flood basin embankment – a vegetated embankment to the west of the wetland is designed to retain water during significant storm events. During these events, water levels in the wetland will rise and, once full, flow will overtop the inlet pond and continue along Park Lands Creek. A box culvert through the embankment controls outflows from the site. Once the capacity

of the culvert is exceeded, water will pool behind the flood embankment and spread out over the area, including the wetland. Water will continue to flow through the culvert and, once the flood event has ceased, water levels will recede over a number of hours.

4. Landscape integration – the wetland design ensures integration of the system with the existing natural environment with a focus on protection of the butterfly conservation area and existing significant trees. The wetland creates a natural habitat with significantly increased native plant species and passive recreation opportunities, including walking paths, wetland crossing points, viewing areas and extension of the Victoria Park running track.

Establishment Phase

The wetland was opened to the public in May 2022 and will take 2-3 years to fully establish.

During the establishment phase, the wetland is inspected and assessed fortnightly and a rolling cycle of maintenance works is delivered on an as-required basis. The requirement for maintenance will lessen as the site becomes more established.

In the initial stages, the water plants will require irrigation during drier times, regular weeding and replanting of some areas to ensure coverage is maintained. The temporary irrigation system that is installed above-ground will be removed following the establishment phase.

During dry periods, the water levels will recede back to the deeper pools leaving the vegetated marshes to dry out. This is part of the natural cycle of the wetland and the plants adapt to survive in these conditions once established. This wetting and drying cycle is beneficial for the long-term health of the wetland plants.

In the first few summers, it is expected that algae will grow on the wetland pools. This is because of the high levels of nutrients in the soils and the warmer weather over summer months. Plant species are carefully selected and, as they establish, will take up these excess nutrients to grow, meaning less is available for invasive aquatic weeds, algae and sludge.

Algae does not affect the health of the water plants unless it becomes so thick that it smothers them. It is part of the maintenance regime to monitor and remove excess algae.

The wetland is a natural system of which mosquitos play a role. Excess mosquito populations are controlled by having deep pools in the wetland that provide permanent habitat for mosquito predators such as fish, frogs and dragonflies.

Dogs on-leash

Off-leash dogs have had a significant impact on the biodiversity of the wetland, including the health and success of establishing plants and the native waterfowl. City of Adelaide recently considered concerns that have been raised by members of the community and resolved that the wetland area be designated as 'dogs on leash at all times'. Signage will be installed in coming weeks.

Final works

The project delivery team has been closely monitoring the operation and function of the wetland since it was opened to the public and have identified areas of remediation and rework that have resulted from large flow events, particularly during the winter months of 2022. These works include measures to protect the site against damage in future high flow events and completion of outstanding works to ensure the whole of the site is accessible to visitors.

Replanting has commenced in recent days with a focus on those species that have performed well and to replace plants that have been damaged. In the coming weeks, activity will increase on site and some areas will be inaccessible for periods of time. Works are due for completion prior to the end of April 2023 and regular maintenance inspections will continue beyond this date.

Operation of the wetland

Normal rain events

- Flows enter the inlet pond from Park Lands Creek
- A low-flow weir transfers flows under a boardwalk into the shallow vegetated area of the wetland
- Flows take one to two days to reach the wetland outlet pit
- The outlet pit regulates the outflow rate and transfers water back into Park Lands Creek on the western side of the flood basin embankment

High flow or longer duration events

- During high flows or long duration events, water will begin to flow over the overflow weirs from the inlet pond and wetland directly into Park Lands Creek
- These higher flows will travel along Park Lands Creek to the outlet culvert
- The outlet culvert controls flows through the flood basin embankment

Significant flood events

- During significant flood events, the outlet culvert will choke flows and water levels will rise within the flood basin, inundating the wetland area
- The culvert regulates flows from the wetland area therefore protecting against flooding of downstream areas
- Following the flood event, water levels will recede to permanent water levels over a number of hours

