

PROJECT NAME

Meadowbank Park Stormwater Treatment System

RESPONSIBLE COUNCIL: Ryde

CONSTRUCTION DATE: 2009

LOCATION: The park is surrounded by residential houses and streets in the suburb of Meadowbank.

SUB-CATCHMENT: Archers Creek



Rock sedimentation basin at entrance to the system



Stormwater inlet points into rock sedimentation basin (there is a large amount of leaf debris in the basin after a recent storm event).

Overview

Meadowbank Park, located next to the Parramatta River foreshore, is a popular area for dog walking and a range of sports. Stormwater runoff from the surrounding residential area and roads flows directly into the park and eventually the River. This project constructed a stormwater treatment system utilising an unused corner of land within the park, on Andrew Street.

Objectives

The driver for this project was the need to improve the quality of stormwater directly entering the Parramatta River. The funding from the NSW Environmental Trust grant provided an opportunity to use some principles of Water Sensitive Urban Design and construct a stormwater treatment system designed to replicate the natural flow of water.

By capturing and treating the stormwater, the objectives were to:

- Reduce the volume and velocity of stormwater flowing into the park and nearby creek.
- Contribute to water quality improvements in the Parramatta River catchment (by reducing stormwater and filtering pollutants that would have otherwise flowed into the Parramatta River).

Approach

A pit was installed in Andrew Street to divert stormwater flow from the residential area and roads to a constructed basin, located in the corner of the park. The basin is lined with rocks allowing the stormwater to pond and some larger debris (such as leaves) to settle. At the end of the basin there is a channel filled with gravel to dissipate the flow of water and prevent soil erosion. Native grasses were planted in and around the basin and channel.

The whole system is sunk below the level of the surrounding areas so that during periods of heavy rain and greater flow of water, the water can temporarily pond and gradually infiltrate into the soil.

After completion of the project, a low timber wall was constructed around the side of the basin that faces the adjacent hockey field. The wall is to stop hockey balls and prevent people from walking over the system to retrieve balls.



Flow dissipation channel filled with gravel



Excavation of the basin, 2009.



Stormwater outlet and the channel, 2010.

For supplementary technical information about this project go to www.parramattariver.org.au

This project is supported by the Parramatta River Catchment Group, through funding from the NSW Environmental Trust's Urban Sustainability Program.

Photos supplied by City of Ryde (2009) & Cardno Pty Ltd (2010).
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Some educational signs have been displayed in the park to explain the stormwater treatment system and increase public awareness about some components of Water Sensitive Urban Design.

Lessons learnt

- The overall project cost was more than expected mainly due to the need to remove and dispose of rubbish that was discovered during the time of excavation.
- The system has been monitored during periods of wet weather. Large amounts of leaf debris were found to be entering the system and blocking the stormwater pit and rock basin inlet. Based on the types of trees nearby, the system may need more frequent cleaning of leaves after heavy storms and during autumn.

Results & Outcomes

- This system successfully captures and filters most of the stormwater that was previously draining directly from the Macintosh Street sub-catchment into the Parramatta River.
- Water quality modeling of the system predicts that it is capable of significantly reducing water pollutants flowing into the River: a 39% reduction of Nitrogen, a 63% reduction of Phosphorus and a 78% reduction of Total Suspended Solids (inorganic particles suspended in the water).
- The project has made good use of an under-utilised section of the park. The site is close the road and is easily accessed for construction and maintenance.
- Council has received positive comments about the system from local residents.
- The system is visually attractive and is functioning to both improve water quality and control water quantity. The growth of the plants (and their roots) and the continual decomposition of organic matter will help the system to become self-sustaining over time.