

Moonee Valley on track for dam good water savings

Cleaner Production 

Stormwater diversion co-funding case study

Project Overview

PARTNER

Moonee Valley Racing Club

OBJECTIVE

To increase the volume of stormwater captured for track irrigation by harvesting all of the stormwater that flows through Club drainage networks and increasing the size of the dam in which it is stored

HOW THE SAVINGS WERE ACHIEVED

Drain diversions, dam excavation and construction of a Gross Pollution Trap

TECHNOLOGY UTILISED

Humeguard HG35 Gross Pollution Trap, weir gates, engineering surveys and machinery for construction and excavation

WATER VOLUME SAVING

60 million litres per year

OTHER SAVINGS OR IMPROVEMENTS

Considerable amount of hard rubbish and nitrogen diverted from Moonee Ponds Creek in large rainfall events

PROJECT FUNDING*

- \$172,380 from City West Water
- \$172,380 from Moonee Valley Racing Club

PROJECT PAYBACK – ESTIMATED

- 9.2 years without City West Water funding
- 4.6 years with City West Water funding

PROJECT PAYBACK – ACTUAL

- 4.1 years without City West Water funding
- 2 years with City West Water funding**

COST BENEFIT TO MOONEE VALLEY RACING CLUB

Now paying only 43c per kilolitre (net present value) for most irrigation water needs

* Original project scope estimated at over \$700,000 was modified to achieve most of the savings at a lower cost.

** City West Water aligns with EPA Victoria EREP regulations of a minimum 3 year payback period, however water savings exceeded estimated water savings and the project was completed under budget.



The Moonee Valley Racecourse is one of Victoria's premium horse racing tracks that has continuously operated at the venue since 1883. Fully owned by the Moonee Valley Racing Club, the racecourse is the home of one of Australia's most prestigious thoroughbred horse races, the Cox Plate.

In 2008/09, Moonee Valley attracted attendances of more than 143,000 over its 31 race meetings, as well as hosting conferences, conventions, weddings and other non-race day functions. Many of the visitors to the racecourse travel from regional Victoria, interstate and overseas, particularly during the Spring Racing Carnival. It is therefore a significant contributor to Melbourne's vibrant economy.

When the racecourse was reconstructed in 1993, a stormwater harvesting system was introduced which captured runoff from rooftops, hard surfaces and surrounding streets, running through two drainage systems under the racecourse. However, not all of this water could be captured for track irrigation, as the initial flows from rainfall had to act as a flushing mechanism to remove pollutants before the remainder of the flows would end up in an onsite storage dam.



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As such, Moonee Valley Racing Club was still largely reliant on Melbourne's drinking water supply for the irrigation of its racetrack and was listed as one of City West Water's top 100 customers based on volume of water used. Although the watering of its track is exempt from Melbourne's water restrictions due to its status as a venue of state significance, the Club remained committed to watering within the spirit of the restrictions and to improving water efficiency and the sustainability of its racetrack.

In consultation with City West Water, studies into the water use patterns and water quality requirements at the racecourse were undertaken, forming the basis for the water saving actions included in Moonee Valley Racing Club's waterMAP. Having considered the various sources of fit for purpose alternative water available for racetrack irrigation, it was decided that the most viable course of action was to improve the existing stormwater harvesting system and increase the dam storage capacity.

The first part of the project, which received \$172,380 in funding from City West Water,

was the installation of a Gross Pollution Trap (GPT) upstream of the main diversion pits in the underground stormwater network, to trap rubbish and sediment. This meant that initial flows from rain events could now be used for irrigation rather than for flushing out pollutants, as rubbish and sediment would be captured and stored by the GPT and saved from being discharged into nearby Moonee Ponds Creek. In addition, considerable amounts of nitrogen are now diverted from the creek in large rainfall events.

The subterranean stormwater networks were also resurveyed, cleaned and reengineered to maximise efficiency and to allow year round access at strategic points throughout the networks.

Following these initiatives, the dam capacity was further increased to 23.5 million litres by excavating 4,500 cubic metres of soil from the dam, benching and reshaping the sides. The increased dam capacity allows for greater capture of large rainfall events similar to those of the 6th March 2010, where nearly 17 million litres of stormwater was captured from a storm that lasted only 48 minutes.

To prevent problems arising should any significant future rainfall events cause the dam to reach capacity and overflow onto the track, weir gates were installed at key diversion points, ensuring that stormwater will be re-diverted through the drainage network into Moonee Ponds Creek.

The project has already delivered outstanding results for Moonee Valley Racing Club, its local community and for Melbourne's precious water resources. By increasing the amount of stormwater harvested and the dam capacity, enough stormwater has been captured to satisfy the racetrack's irrigation needs, effectively meaning that other initiatives originally planned as part of the project were no longer necessary. This reduced the overall cost of the project by approximately 50%.

The original annual water saving target of 42.7 million litres has already been exceeded and, along with other initiatives at the racecourse, the project is on track to save 60 million litres in the first year, amounting to a 70% reduction in water consumption.



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