



## Soil Moisture Recharge to Maximise the Benefits of Stormwater Harvesting Systems?

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Stormwater harvesting schemes managed by City of Melbourne are currently under-utilised in the non-irrigation seasons. Some schemes are configured in such a fashion that treatment of stormwater ceases when the primary storage is full. By increasing the reuse throughout the year the scheme will remove more stormwater runoff from the catchment, therefore preventing pollutants from entering the Yarra River.

Through the millennium drought we were aware that deeper layers of the soil moisture were severely depleted and its possible levels of moisture may not have recovered through recent wetter years. This project aimed to trial, monitor and provide recommendations on how to increase soil moisture down to 80cm without making the surface excessively boggy, thus harvesting and utilising more stormwater in the non-irrigation period.

A site was identified in Fitzroy Gardens for the small scale winter irrigation trial as it was shown to be a dry area with suitable soil type for an irrigation trench, and relatively young vegetation that is likely to benefit from winter irrigation.

City of Melbourne was provided with a Living Rivers grant to install two large irrigation trenches in the North East and North West of the Fitzroy Gardens. Twelve capacitance probes were placed throughout the two sites to monitor how the water moves through the soil profile. A web based data platform was used for data capture analysis of the soil moisture sensors.

An irrigation program was run every weekday for 5 weeks in August and September 2017.

The initial findings from the 5 week irrigation trial illustrated that the two sites were affected very differently. In the west, the 60cm, 70cm and 80cm layers fluctuated with irrigation and only the two closest probes to the irrigation trench were impacted. In the east soil moisture fluctuation was evident in the 40cm, 50cm and 60cm layers, again in the two closest probes to the irrigation trench.

It is recommended that more data will be required to determine if winter irrigation becomes a common occurrence in the Fitzroy Gardens. A second irrigation trail will begin in May 2018.