

Clarkes Point Water Harvesting Project

SUPPLEMENTARY INFORMATION

The case study for this project is found at www.parramattariver.com.au

This is additional technical information to supplement the case study.

This system has a small catchment (approx 1.1 hectares, including road and vegetation surfaces of the car park and the sailing club roof) which is predicted to yield approximately 4ML of stormwater per year, of which 680kL is required for the sailing club. The size of the system was dropped from a capacity of 160 kL to 60kL when it was decided that irrigation use would not be included.

The majority of stormwater runoff from the car park is initially captured by three inlet pits. One of the inlet pits in the car park has a rock lined garden bed leading up to it to dissipate overland flows and reduce the amount of sediment entering the inlet pit. The water is directed towards a Continuous Deflective Separation (CDS) treatment unit that removes gross pollutants such as litter and organic matter. From this unit, the water enters a Hydrofilter that removes micro pollutants and heavy metals.

The filtered water is then delivered to a 60kL Versitank underground storage tank. The Versitank is made of interlocking plastic modular units sitting within an impermeable liner, surrounded by sand and covered with a geotextile fabric. During times of high flow (heavy rainfall event), excess stormwater is able to overflow into the pre-existing pipe line that discharges directly into the Parramatta River, having undergone primary treatment through the CDS.

Stormwater from the sailing club roof and amenities block is also directed to the Versitank. Leaf guard guttering and a first flush device are fitted to the plumbing collecting rainwater from the sailing club roof.

From the Versitank, harvested stormwater is conveyed to a Hydrofilter. The filter is capable of removing stormwater contaminants, including coarse to fine sediments, heavy metals, phosphorus and oils, in a two stage treatment process:

Stage 1 - removal of particles (pre-filtering) by centrifugal separation, which allows the particles to settle out at the bottom of the unit in the collection chamber, and,

Stage 2 - filtration and removal of dissolved substances by adsorption and chemical precipitation through the multi-layered porous concrete filter element.

When harvested water is required for toilet flushing or at the boat washing tap, water is pumped from the two rainwater tanks through a carbon filter (to treat discolouration of the water due to the tannins from leaves) and a UV disinfection system (to kill micro-organisms and bacteria) and then pumped to the boat washing tap and toilets.

There is a pipe connecting the two rainwater tanks. The water is pumped and circulated between them for oxygenation and to reduce the growth of algae.

Maintenance requirements include:

- **Quarterly:** Cleaning of the CDS units (by suction, grab or basket)
- **Quarterly:** Cleaning of the rainwater tank's first flush device and filter screen
- **Quarterly:** Although continual immersion in water helps clean filters giving them a 5 to 10-year lifespan, filter elements need occasional back flushing and should be checked quarterly.
- **Every 1-2 years:** Removal of sediment from the Hydrofilter.
- **Occasional checking and maintenance:** tank, pump and gutter guards.