

Can We Afford Not to Harvest?

Greg Yeoman – Director, Stormwater 360

Water as a local and global resource is requiring vigilant planning and management more than ever to cope with today's demand and climate. Growing population and increased industry, drought and flooding are putting mounting pressure on our current resources and infrastructure, making stormwater harvesting and water reuse systems a practical reality.

While New Zealand is not facing the same water shortages as Australia, the cost and demand of water in New Zealand is increasing significantly, particularly in the expanding Auckland region. Following the water crisis of 1994, a pipeline from the Waikato river was constructed to reduce Auckland's water supply shortage. Last year however, Auckland was again faced with another shortage as the treatment plant was at capacity after last summer's droughts. Auckland's population is predicted to grow to 1.7 million by 2026 – an increase of approximately 40% on 2001 levels (Statistics NZ). Stormwater reuse is a viable long term alternative to building further pipelines and treatment plants to cope with the future demand.

Industrial operations use accounts for 11% of New Zealand water use, (excluding hydro generation)* while drinking water accounts for only 8%. On-site underground storage tanks or stormwater reuse systems are ideal for these facilities as they typically have large impervious surfaces. Underground stormwater reuse tanks have the potential to not only save industry large sums of money for water supply, but also to manage the stormwater by reducing runoff volumes and discharged pollutant loads. Currently the price for water in Auckland is between \$1.30 and \$2.33 per 1000L. A 1ML storage tank in Auckland could save up to \$2,300 every time it was emptied, this could be significant for a high water use industrial premise.

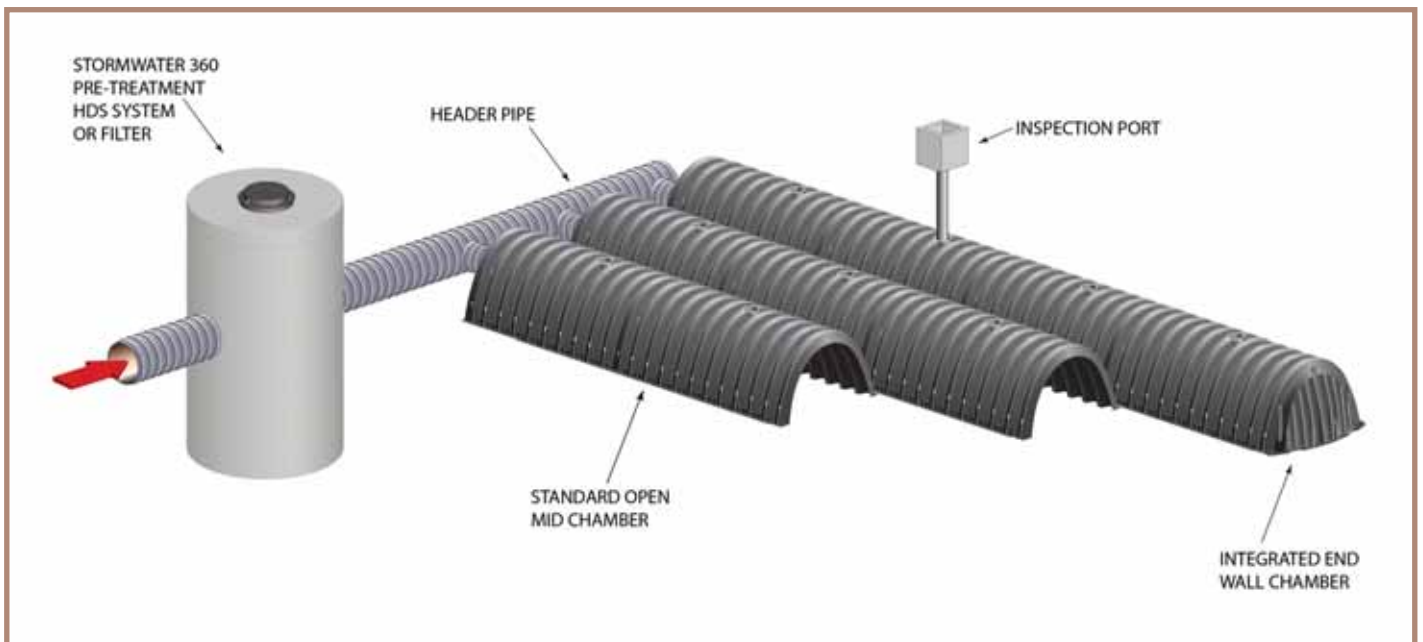
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Williamstown Reuse

ChamberMaxx System



Case Study: Water reuse at Williamstown Cricket Ground, Melbourne, Australia

When the tender was let for Hobson Bay City Council's Williamstown Cricket Club upgrade, a major component was to introduce a water reuse scheme for irrigation of the cricket ground.

The requirement of 10 – 12ML (10,000,000 – 12,000,000L) estimated yield over the annual period for irrigation of the cricket ground set a challenging brief for Hobson Bay City Council engineers. The final concept adopted was a two phase construction programme. Phase one consists of a 1ML (1000,000L) underground ChamberMaxx plastic arch detention system, with Phase Two being a treatment train consisting of a wetland upstream of a proposed media filter which is then pumped into the detention system.

A 20Ha residential catchment provides the collection area for the stormwater harvesting system. The harvesting system is to be completed in three stages, the first stage being the installation of underground ChamberMaxx storage chambers. This stage needs to be completed first to cause minimum disruption to the cricket season.

Underground plastic arch chambers were determined to be the best option for Phase One of the project, and the competitive tender was awarded to Stormwater360 Australia using their ChamberMaxx detention arch system. With low profile storage depth of 770mm and high traffic loading capability the chambers provide a versatile low cost detention option. Each chamber weighs approximately 40Kg which means they can be easily man-handled around the site without the need for lifting with heavy machinery. Site installation Contractor Shane Harrison com-

mented "The ChamberMaxx arch system is the easiest I have installed to date. With the moulded in end sections it's simply a matter of overlapping the chambers before backfilling with the crushed rock". A total of 401 plastic arches were used to achieve the 1ML requirement.

With the prolonged dry periods of recent weather patterns combined with the possibility of tropical storm events, catching rain runoff from the surrounding catchments benefits the local community two-fold. "It's feast or famine it seems these days. Harvesting the stormwater runoff from the roading and hardstand areas both reduces the risk of flooding while preserving the rivers and aquifers from the heavy irrigation demands of the sports park." ■

*Update of water allocation data and estimate of actual water use of consented takes 2009-10, MFE



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