

# Sheeted catchments meet future water need

**Location:** Wharminda

**Region:** Eyre Peninsula, SA

**Industry:** Mixed farming

**Issue:** A reliable water source, independent of mains water, to supply farming business.

**Key outcome:** A sustainable and good quality water supply across four mixed farming enterprise properties using a sheeted catchment and storage solutions.

## Background

The Prime Family business farm around 7,284 ha in a mixed farming operation over four farms within the Wharminda district. The enterprise focus is on wheat and barley production, however they also have substantial vetch pastures. They manage between 3,500 – 4,000 sheep and this carrying capacity is influenced greatly by restricted access to water, poor water quality and low water pressure over some areas of their properties.

“The annual water bill was around \$22,000 per annum. With the increasing price of water we could only see our overall cost increasing with no improvement in supply and quality. We were constantly chasing water pressure related issues and scaling within existing infrastructure. We open the existing pipe annually to release the scale, taking away resources when we need those during and after harvest.” Peter said.

These continuing issues sparked an investigation into achieving self-sufficiency through the selection of the most appropriate harvesting and storage options to capture and disperse high quality water on and across their properties.

## The project

Family members undertook research over a number of years, and talked to local farmers before making a decision to pursue the feasibility of establishing their own sheeted catchment and storage system. A reputable plastic sheeting company with a history of installing water harvesting systems, provided design principles that would cater for their farming and stock needs. After reviewing quotes a one hectare sized sheeted catchment was chosen. This allowed for a storage capacity of three million litres. Calculate on a need for: 1) livestock requiring four litres per head per day, 2) the required volume of water needed for spraying crops, and 3) domestic use and back up capacity in times of drought.

The sheeted catchment was installed in January 2016 on a sandy rise on the highest point on the property. Heavy duty plastic was welded together and held in place with earth banks around the edge and tires to prevent wind blowing under the plastic. Runoff was captured in a plastic lined dam at the bottom of the slope and stored for future use. A solar pump is used to move the water to two 240,942 litre and one 227,304 litre feeder tanks and several 22,730 litre tanks placed at strategic sites around the properties.





The original three quarter inch pipe was used throughout the properties to move the water to tanks and troughs however, a number of issues occurred due to the old pipe system, including old scaling, low pressure and leakages. To rectify the problem they sort advice from a local rural supply business who advised them to change to one and quarter inch polly-pipe for better flows. They have since laid approximately 5 kms of new polly-pipe for this project.

## Outcomes

Word soon spread about the sheeted catchment and interest from the local agriculture bureaus and interested parties saw over 100 landholders visit the site in the first year. Peter and his family explained the reasoning why they have undertaken this impressive project to provide water security to four farms.

In hindsight, there are a number of things The Prime family would have done differently.

“Evaporation was a major issue as the dam is exposed to wind and this was not taken into account in the original design. Several methods have been implements to reduce evaporation – some successful and others will not be tried again. Installations of strategic feeder/holding tanks across the properties to store the water made the bulk of our system evaporation proof leaving little water in the sheeted catchment dam.” Peter said.

“May 2018 was extremely dry and the remaining dam water drying up. To reduce further evaporation we trial tying together 11,000 twenty litre drums across the dam and in another trial 1,100 shuttles were used with mixed success. We will be looking for a better alternative.” said Caleb.

Algae build up has become an issue with the stagnant water supply left in the dam. It was managed with the addition of copper sulphate. Caleb noticed that with further evaporation the copper sulphate concentrated and needed to be managed differently. Due to the location of their water harvesting site being exposed to some wind events, they have added an additional 220 truck tyres to the liner to prevent any suction and wind lifting the plastic liner.

“The biggest benefit the family sees is the time saved chasing water during harvest, over summer and autumn, particularly for stock requirements and spraying. Peace of mind with access to high quality water when we need it. Not having to continually move stock around to select paddocks that had access to water have been important gains in our property management. We’ve noticed stock are drinking much less than our original calculation, as they are getting access to higher quality water. Livestock are using calcium blocks in the paddock for their calcium needs” Caleb said.

## The future

Future plans include installing more poly-pipe to take water to other areas of the farm that has, until now, been unable to be grazed. Installing water meters and tank monitors to monitor water use and have early notification of leaks. Continual monitoring and investigation into the need for a cover on the sheeted catchment dam to limit evaporation (weighing up costs, logistical issues and functioning with existing storage).

“We have enough water in storage across the four properties for our current needs when we install an additional 227,304 litre holding tanks in the near future” Caleb said.



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