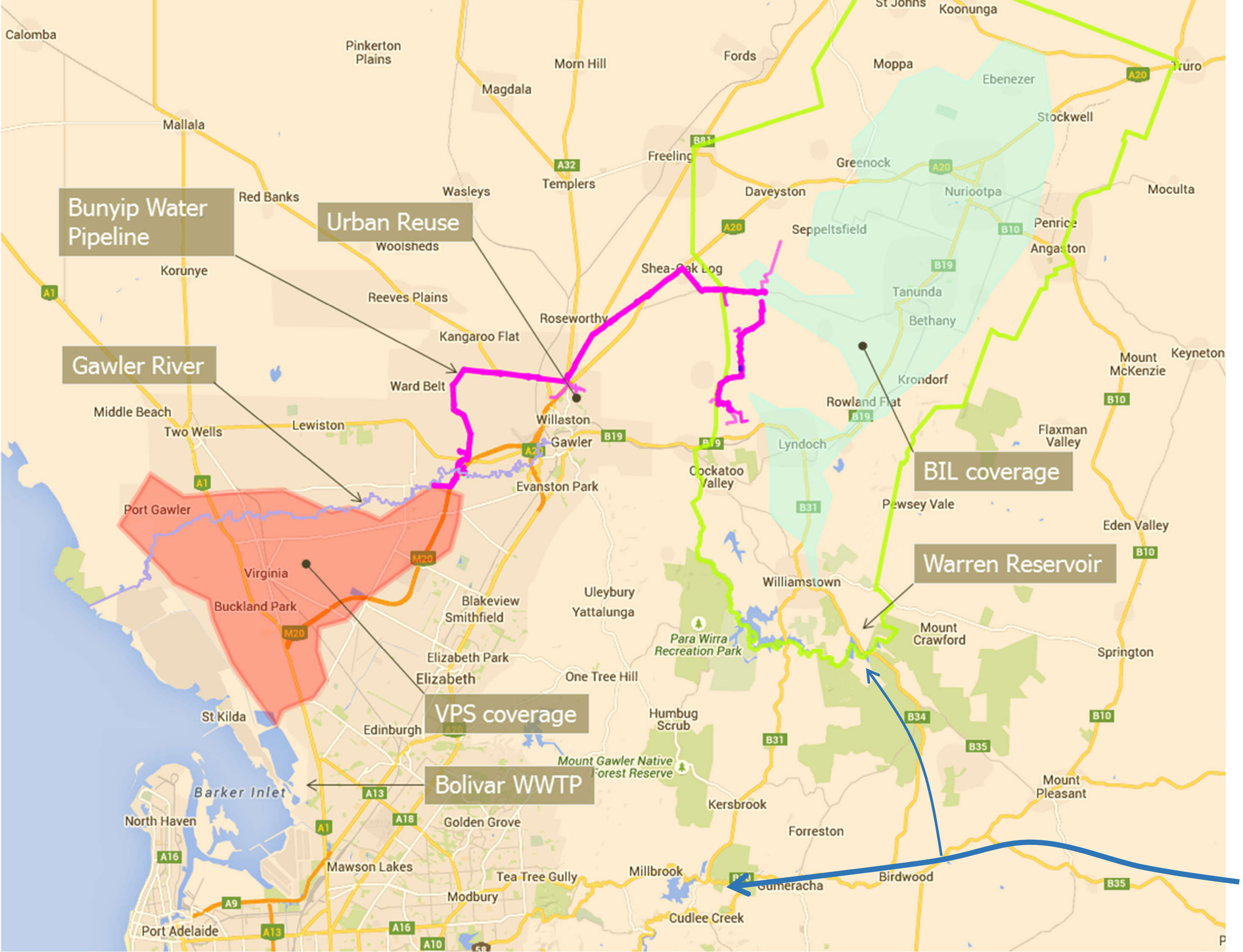


South Australia is the driest State on the driest continent on Earth.

BIL (Barossa Infrastructure Limited) serves much of the Barossa Valley with River Murray water mostly, blended with stormwater and recycled water

Bunyip Water forms a link that reclaims water generated on the urbanised plains north of Adelaide, and serves the western Barossa.

The VPS (Virginia Pipeline Scheme) distributes a high quality treated wastewater to market gardens.

The River Murray serves much of Adelaide's needs but it is threatened by over-use and climate change.

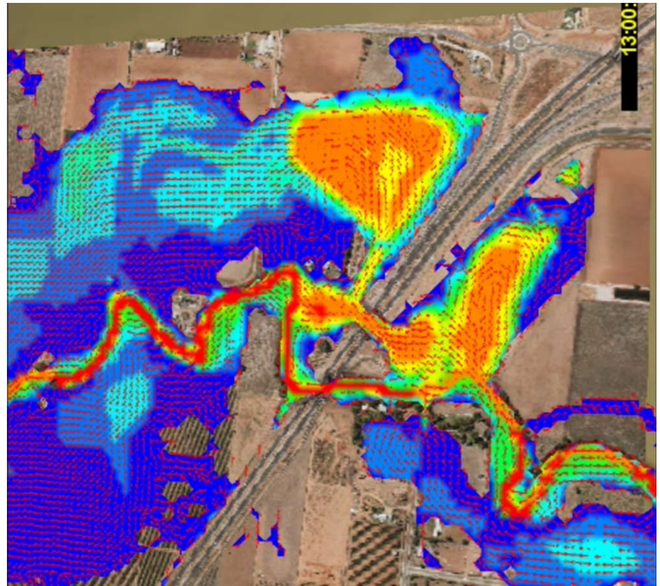
Wingate Basin was a “borrow pit” where sandy material was sourced to construct the Northern Expressway.

Two lagoons were also created to form a bypass for the Gawler River where the Expressway crosses.

Small stormwater flows from the Expressway were directed to Wingate Basin and the eastern lagoon.

The western lagoon was connected to Wingate Basin by a V-notch with a three foot diameter concrete pipe just below its base.

During a flood water the V-notch floods Wingate Basin to continue the natural path across the plain.



Model of 1 In 100 year flood event

The PIC negotiated an easement for safe entrance to the site, and also for a borrow pit for clay to line the dam.

A two-foot thick constructed clay liner is covered with one foot of topsoil to form a 350 ac-ft dam.

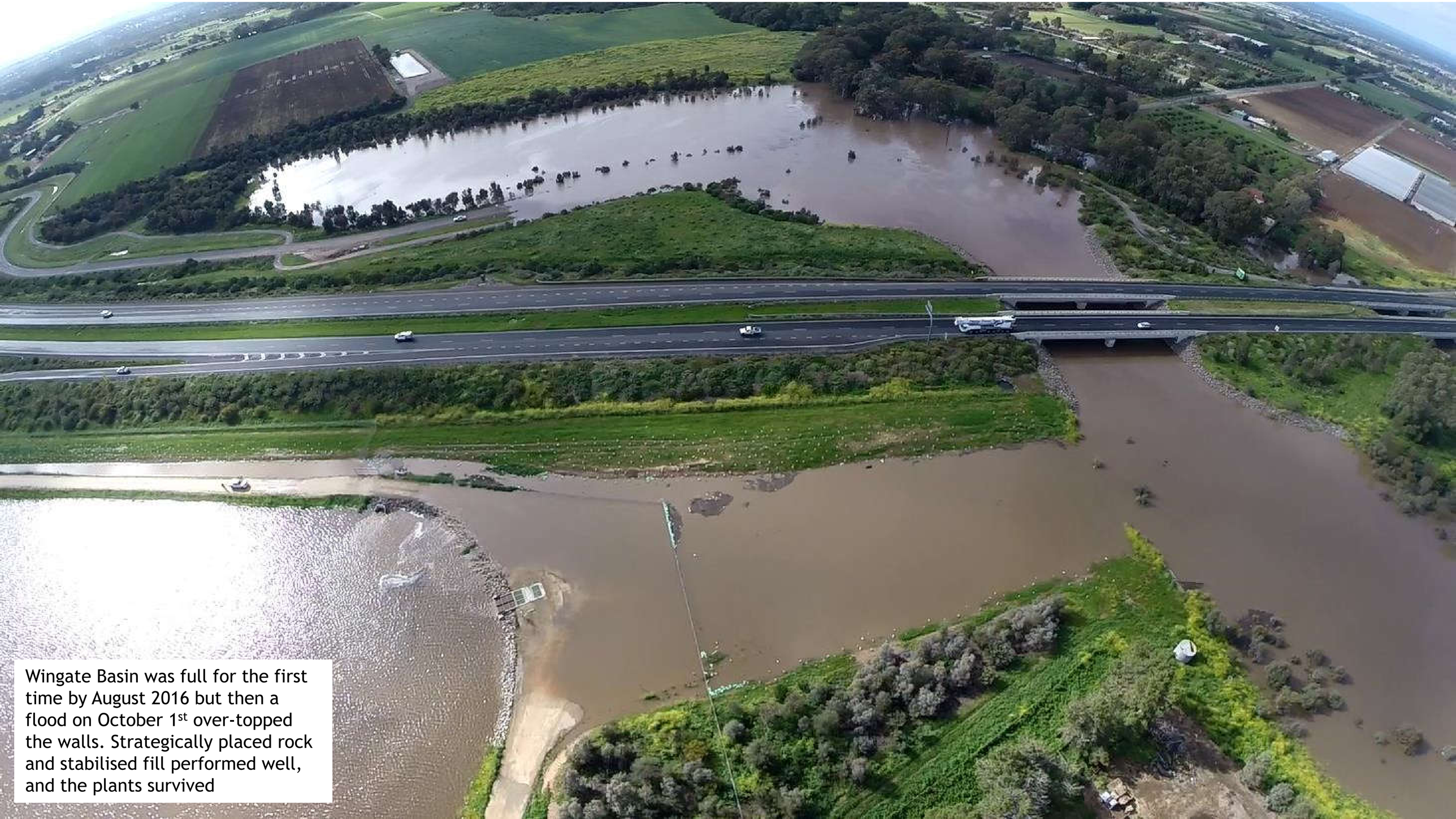
The V-notch was filled back to natural flood-plain level. A 14 mgd submersible pump station in a wet-well (10’ dia x 29’ deep) utilises the existing 3’ pipe as an intake.

As the dam will be dry more often than wet, sprinklers irrigate native plantings on the banks to resist erosion. The flat floor of the dam can be flood irrigated if local stormwater fails to sustain the wetland plantings.

In the north west corner the intake of Pump Station 2 is submerged in a 4 ac-ft EPDM-lined dam. From PS#2 water is transferred to Hill Dam at 3.5 mgd via inline boosters at PS#3 and PS#4.

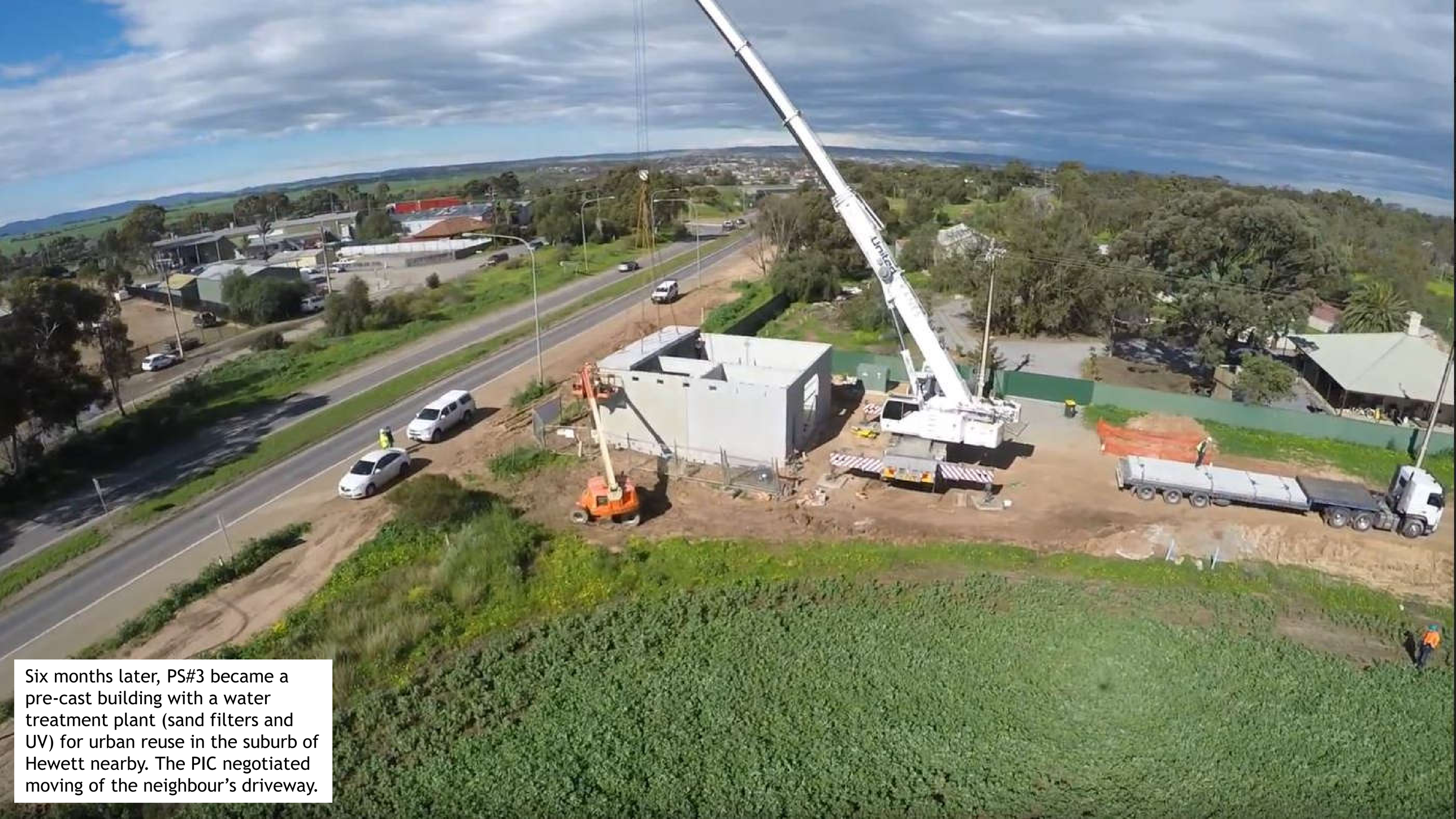
Water is also pumped to MAR (Managed Aquifer Recharge) at 3.5 mgd from a tank near PS#2. The source of MAR water is either stormwater from Wingate Basin, or treated wastewater from the Virginia Pipeline Scheme (VPS).


It’s great when it works!!



Wingate Basin was full for the first time by August 2016 but then a flood on October 1st over-topped the walls. Strategically placed rock and stabilised fill performed well, and the plants survived

"Early Water" was an emergency response to drought. This PS#3 – one of three diesel pumps in series over 17 miles and 660' in 15" pipe. Constant monitoring for 2.5 months in early 2016 was required.



Six months later, PS#3 became a pre-cast building with a water treatment plant (sand filters and UV) for urban reuse in the suburb of Hewett nearby. The PIC negotiated moving of the neighbour's driveway.

Hill Dam was constructed on the highest vineyard so it can serve others reliably by gravity. Higher flows allow existing irrigation to be 50% to 200% faster. White HPDE liner over clay, 550 ac-ft, 31’ deep.

Hill Dam has one inlet-outlet and another outlet on the far side, each with motorised valves on a UPS that close on high flow alarm. The liner has under-drainage with 4 leak detection areas.