# *Eucalyptus* woodlands environmental water requirements

Date: January 2015

Bertrand Salmi

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*"The drying out of the reserve's soils due to drought and the installation of stormwater drains has caused a substantial decline in the vegetation's ecological health. Soil moisture can be expected to continue to decline as a result of climate change. This problem appears intractable."*

*Bushland Management Plan for Alex Wilkie Nature Reserve (Biosphere, 2009)*

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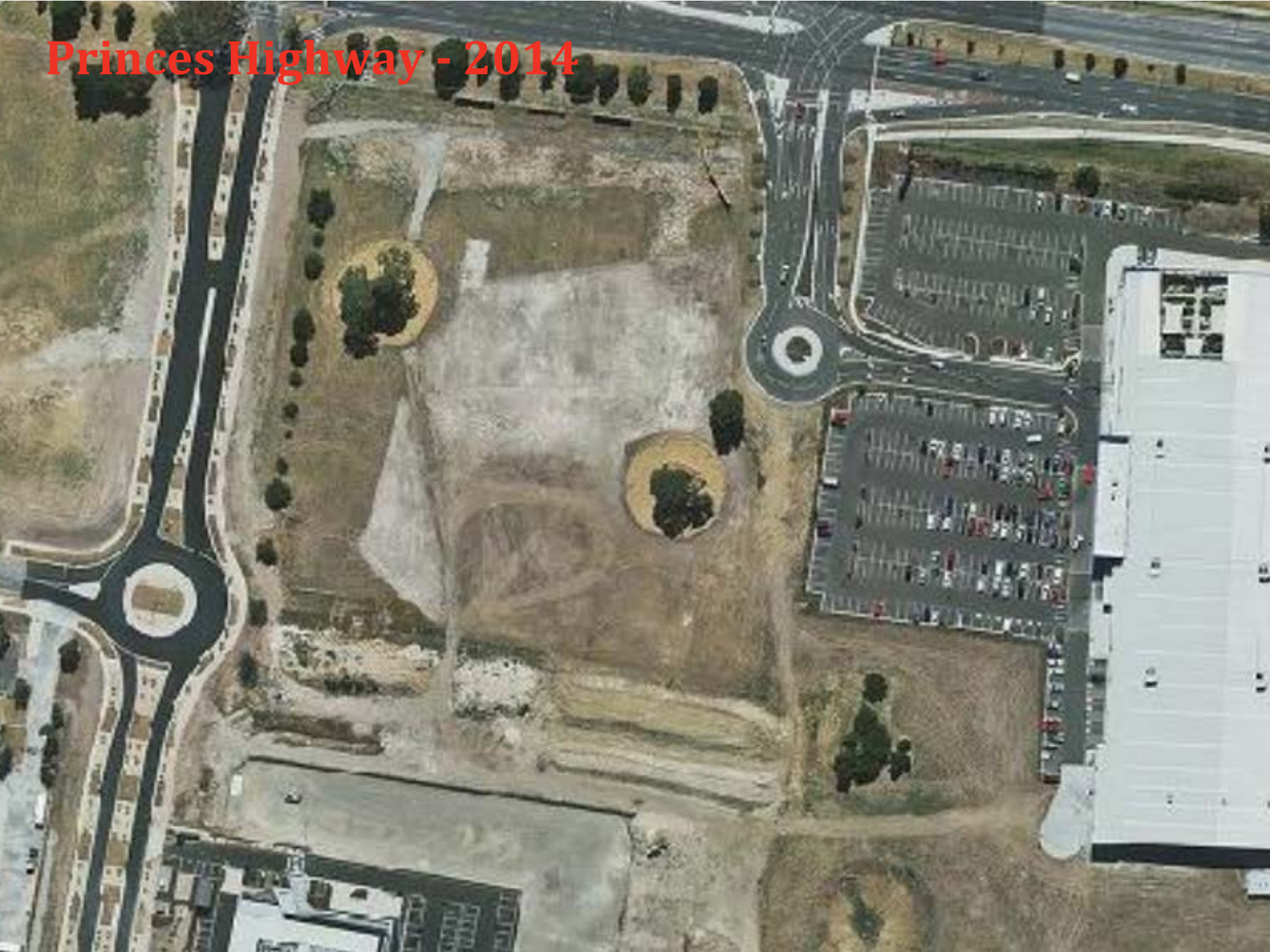

Princes Highway - 2014


Crabtrees


KEEP
LEFT

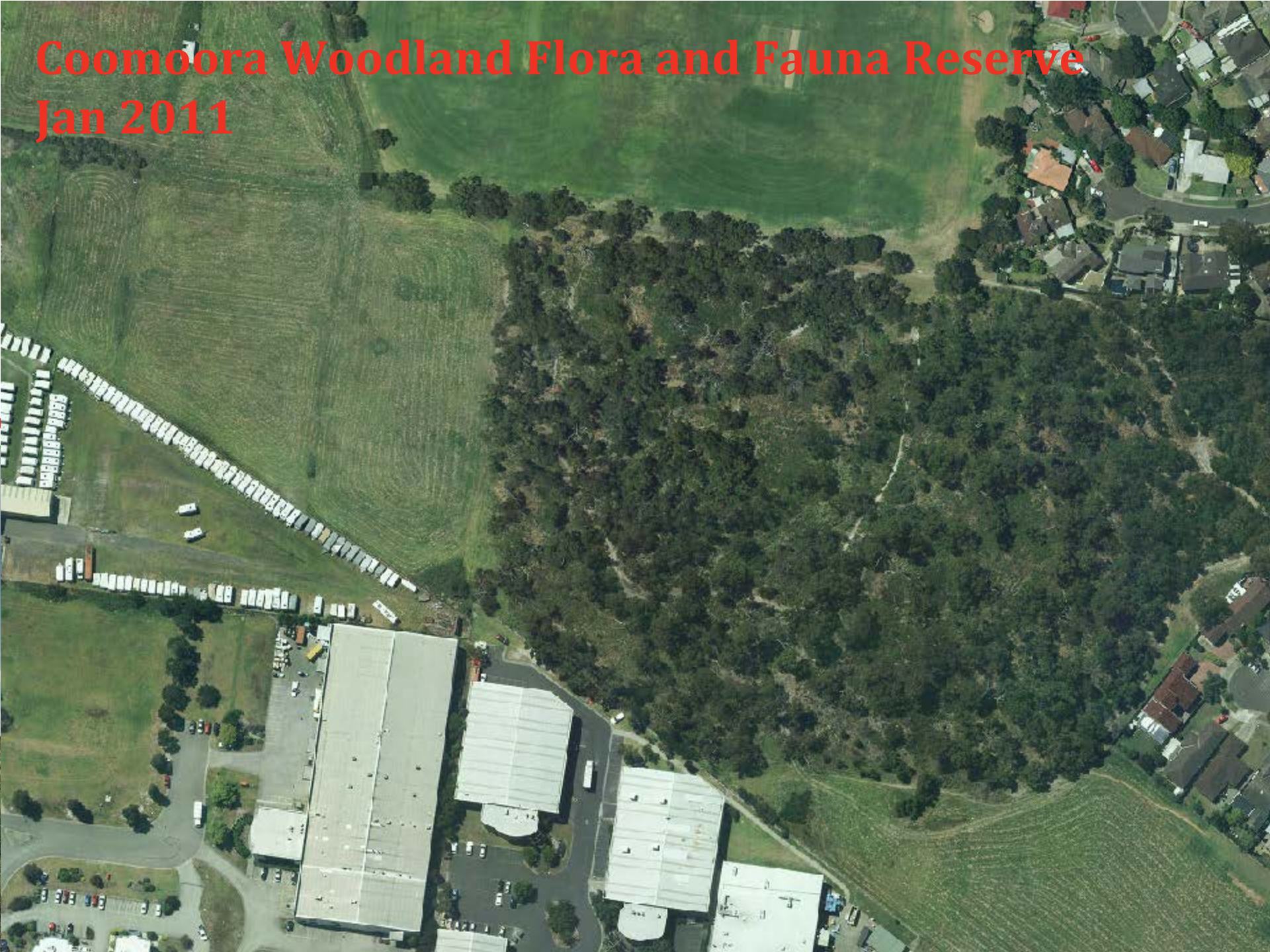

National Drive Reserve
Jun 1999


National Drive Reserve
2002


National Drive Reserve
Jan 2005


National Drive Reserve
Feb 2009

# Coomoora Woodland Flora and Fauna Reserve
# Jan 2011



# Coomoora Woodland Flora and Fauna Reserve Dec 2011

# Coomoora Woodland Flora and Fauna Reserve
# Oct 2012

# Coomoora Woodland Flora and Fauna Reserve
# Oct 2013

# Management Plans

**Typical recommendations**

- Control of weed species
- Prevent re-establishment of woody weeds
- Reduce harmful plantings
- Fire management
- Boosting significant & scarce plant species

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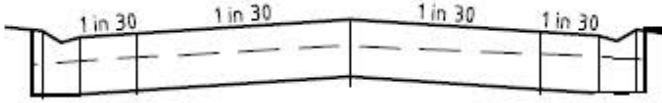
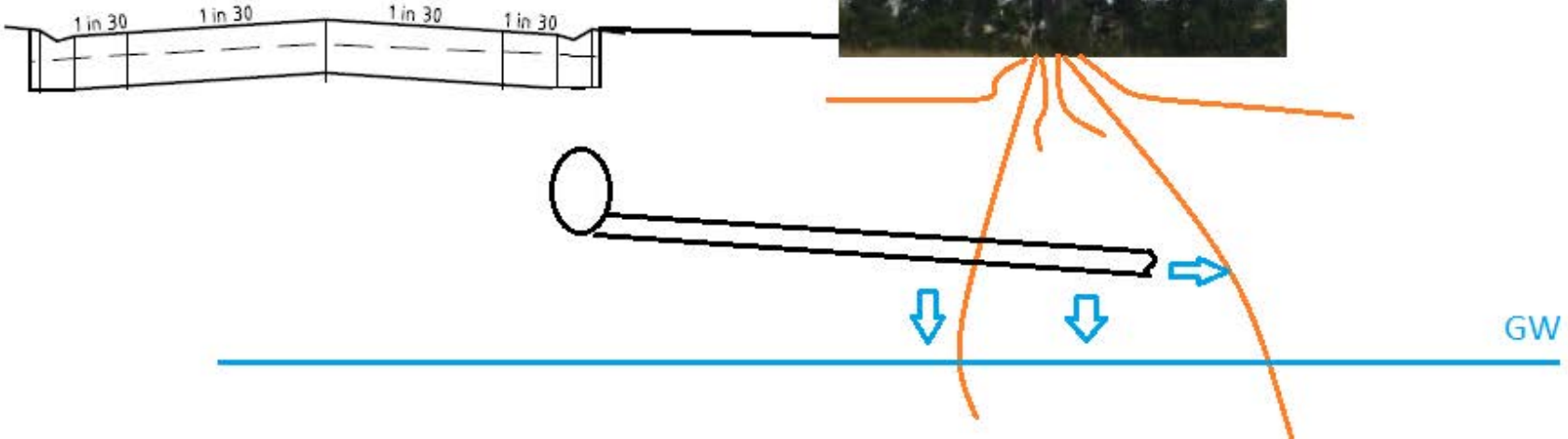
# Current situation




# What we are proposing to do



# We are not the first to think of this

Other projects

- City of Monash in partnership with the University of Melbourne and Melbourne Water
- Napier Park (Moonee Valley City Council)

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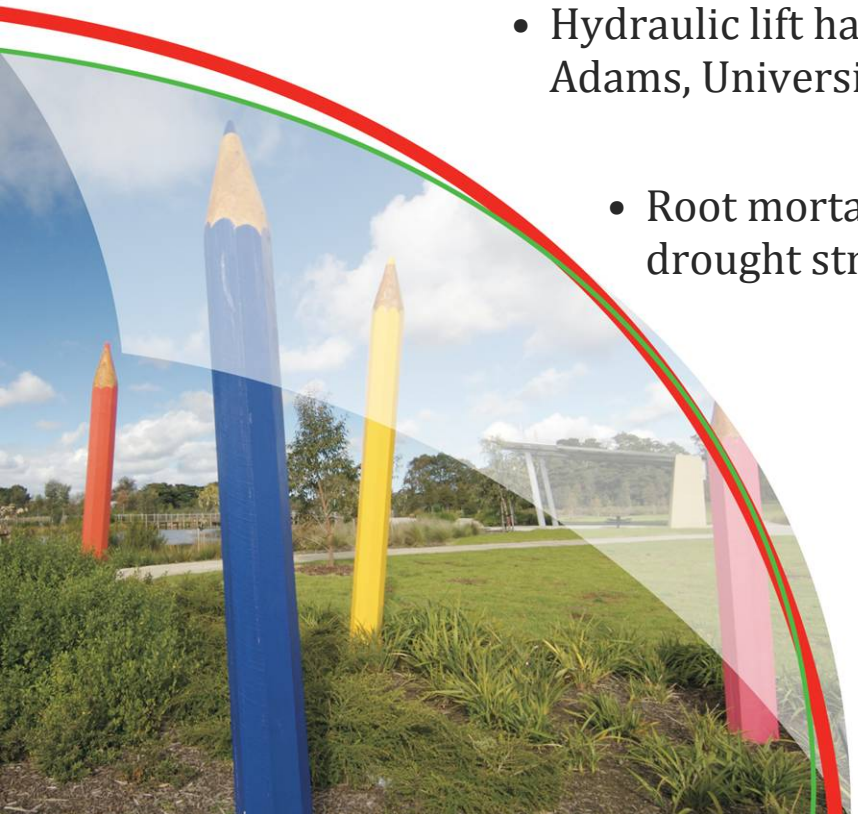
# Why might this work?

**River Red Gum (*Eucalyptus camaldulensis)***

- Proportion of groundwater use varies from 40% to 60% (Thorburn & Walker, 1994), 67% of total annual water use (Engel et al, 2005)
- Hydraulic lift has been demonstrated in this species (Mark Adams, University of Western Australia)
- Root mortality in the upper layers following seasonal drought stress (Gill & Jackson, 2000)



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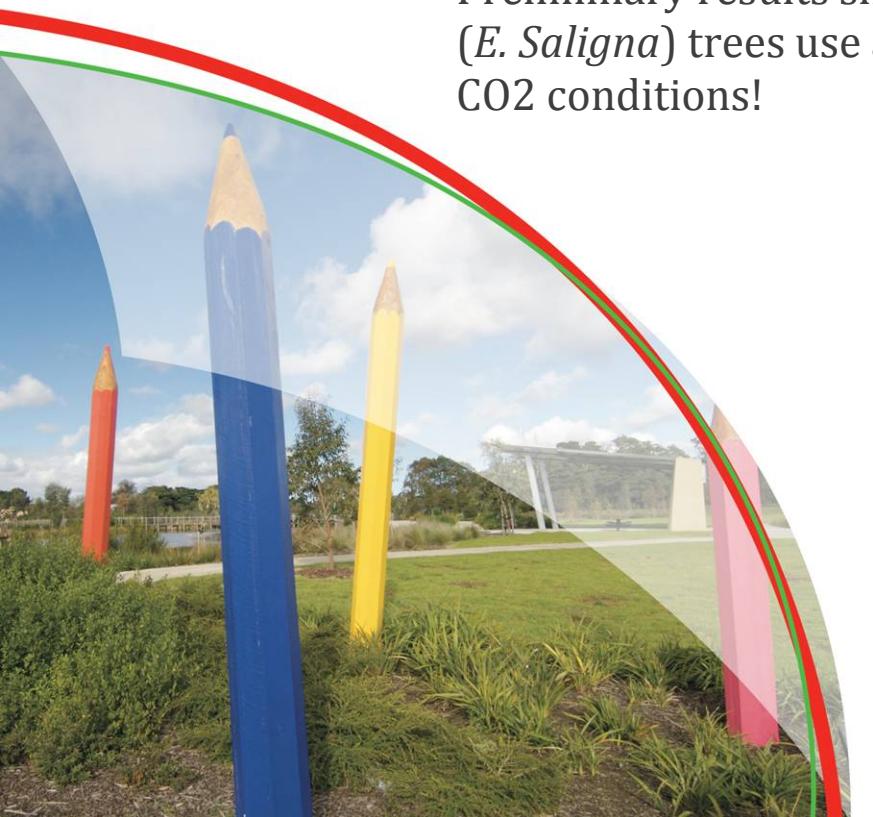
# Is this really necessary?

**Field trial experiment by the University of Western Sydney**

Preliminary results show that mature Sydney Blue Gum (*E. Saligna*) trees use about 25% less water under high CO2 conditions!



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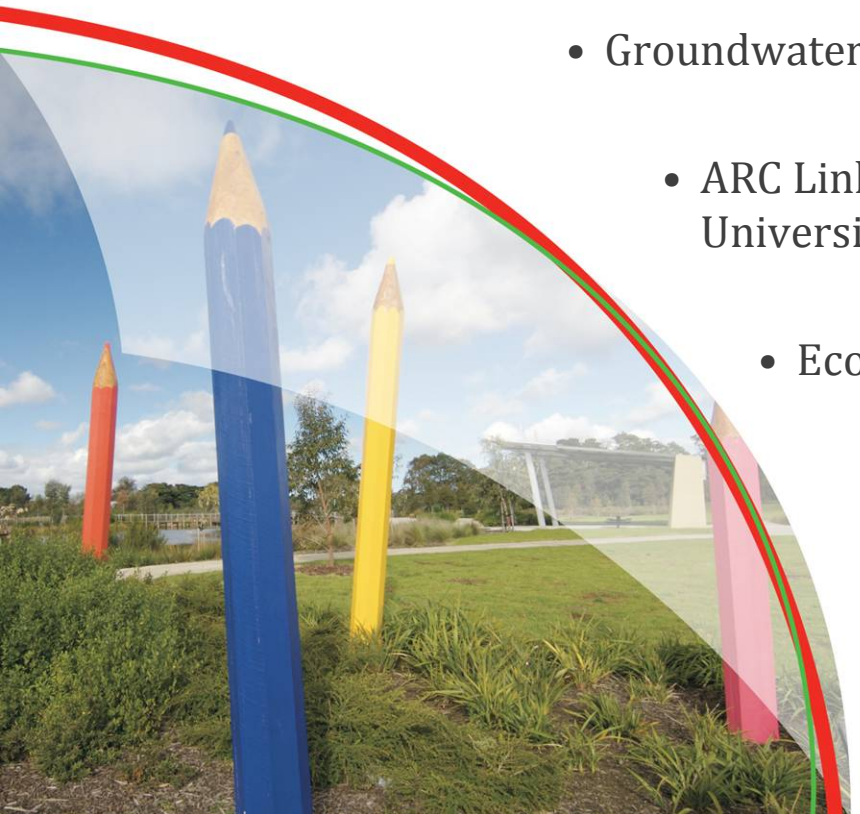
# How will we assess whether it works?

**Proposed Monitoring**

- Soil moisture monitoring
- Groundwater monitoring
- ARC Linkage funding application with Monash University and Moonee Valley City Council
- Ecological monitoring



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# Tips

- Don’t use climate change to justify your projects
- Visibility is key
- Engage with local experts

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