

Ti Tree Basin Hydrogeology

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Water Resources
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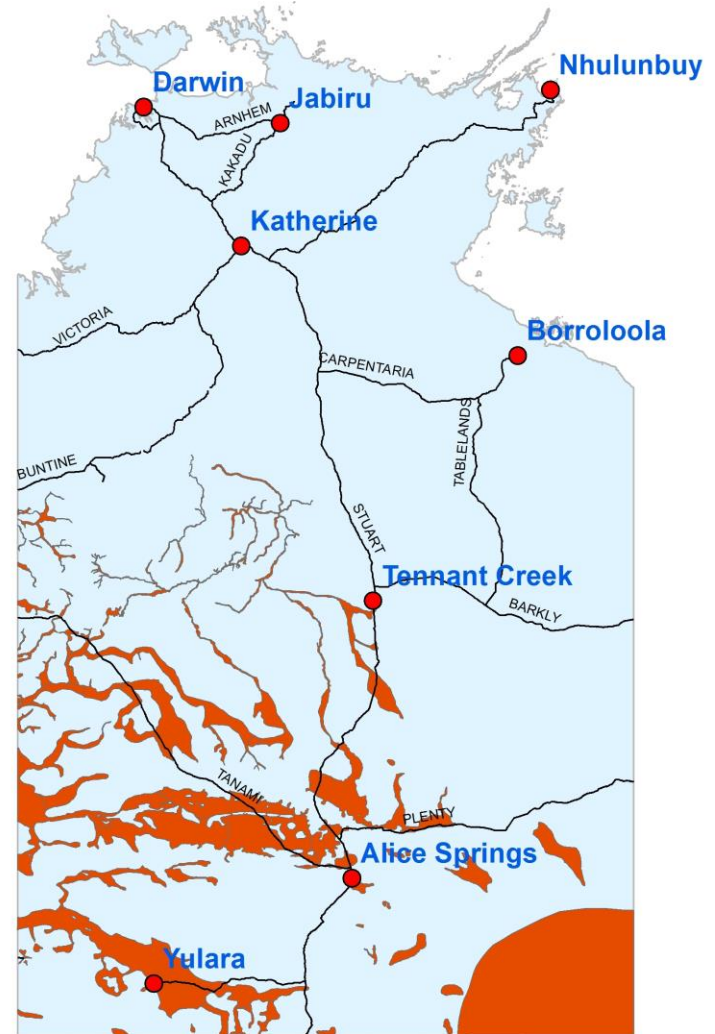
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Regional Geological Setting

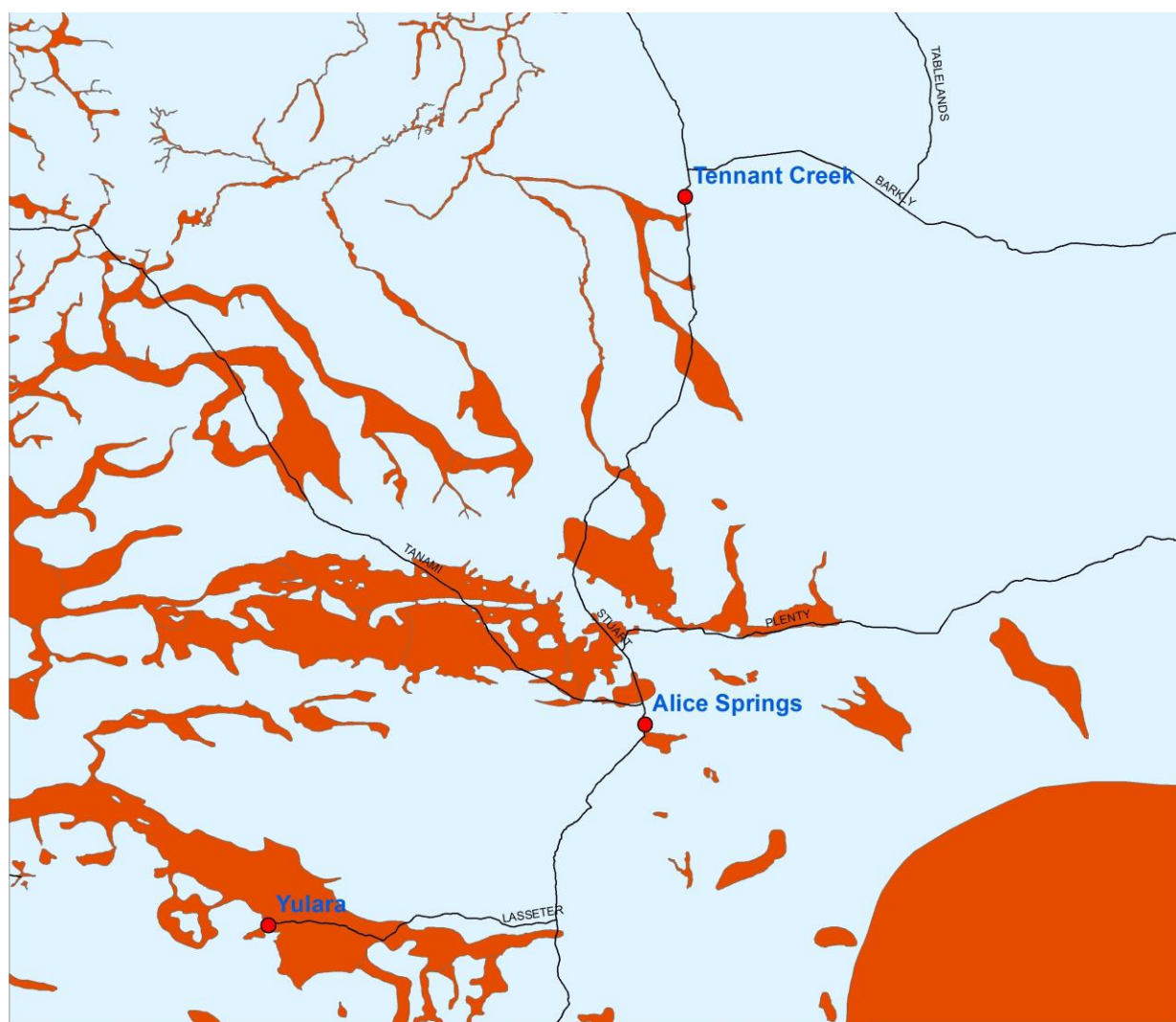
Regional Geological Setting

- ✚ Palaeovalley systems are key features in the Southern region
- ✚ Deep river and valley systems etched into landscape
- ✚ Tertiary and Quaternary aged sediments (~10 - 60 My)
- ✚ Deposited under river or lake conditions



Palaeovalley Systems

- Water supplies to towns and communities
- Potential for development
- Water quality good to saline



Palaeovalley Systems

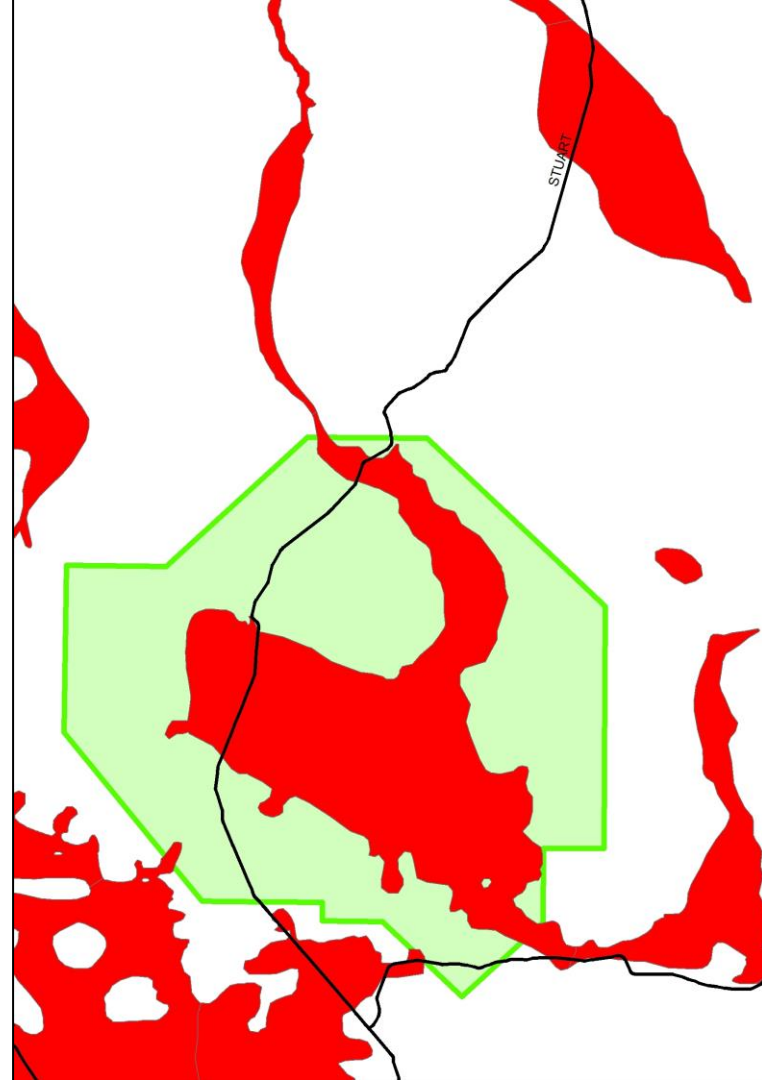
- Water supplies to towns and communities
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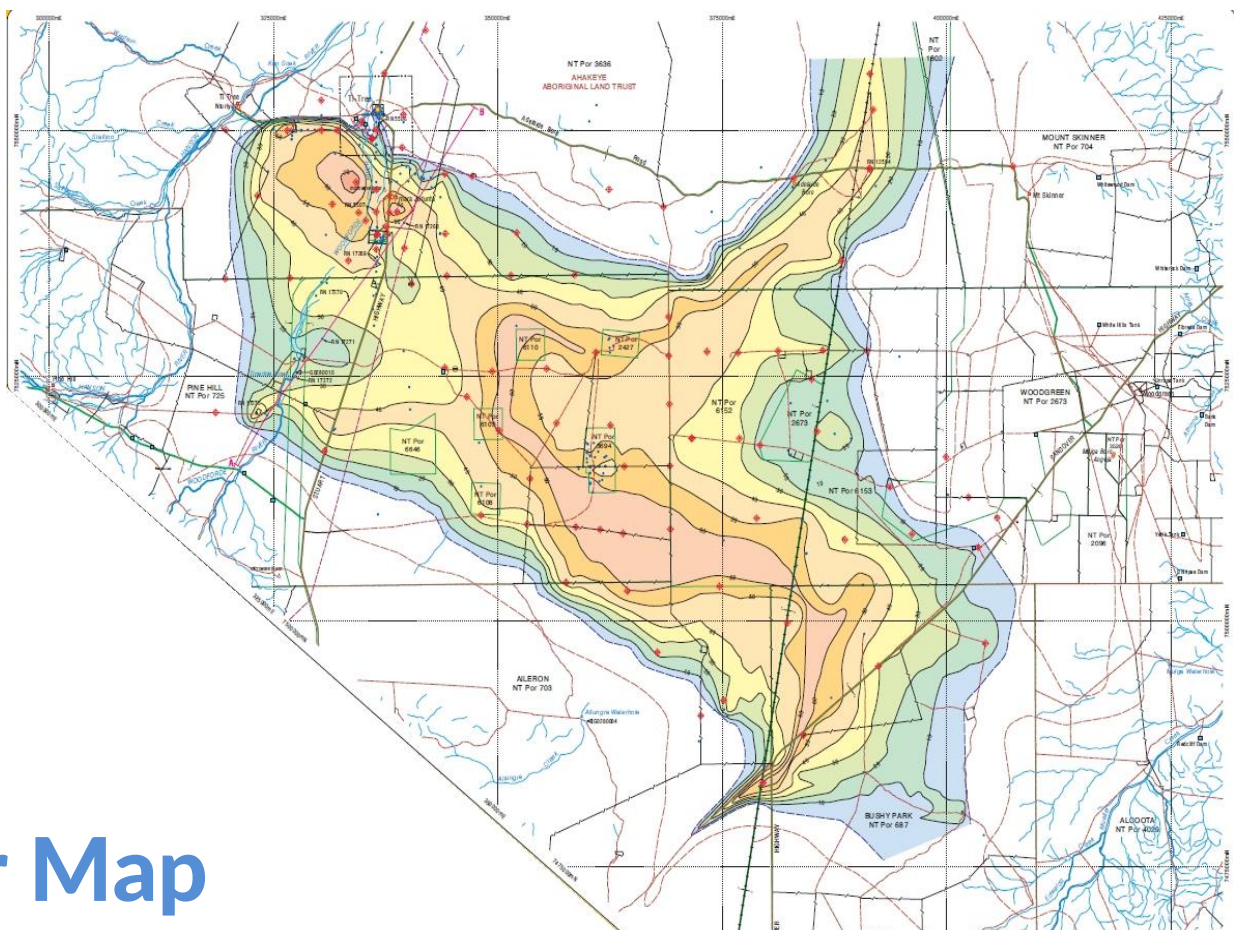
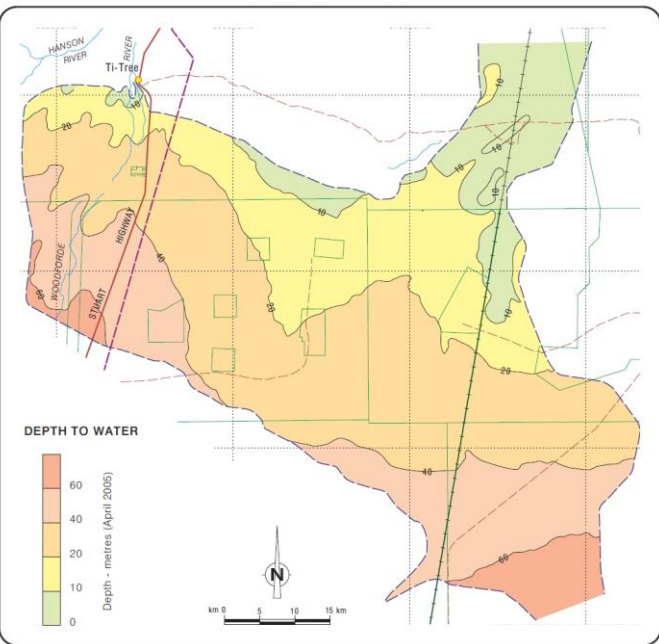
Ti Tree Basin Hydrogeology

Ti Tree Basin Aquifers

- ✚ 300m + Tertiary and Quaternary sediments
- ✚ Shallow unsaturated profile low permeability
- ✚ Sandstone ~ 40m thickness
- ✚ Underlain by low permeability sediments
- ✚ Bore yields typically 5 -15 L/s
- ✚ Aquifer thickness mapping



DEPTH TO WATER



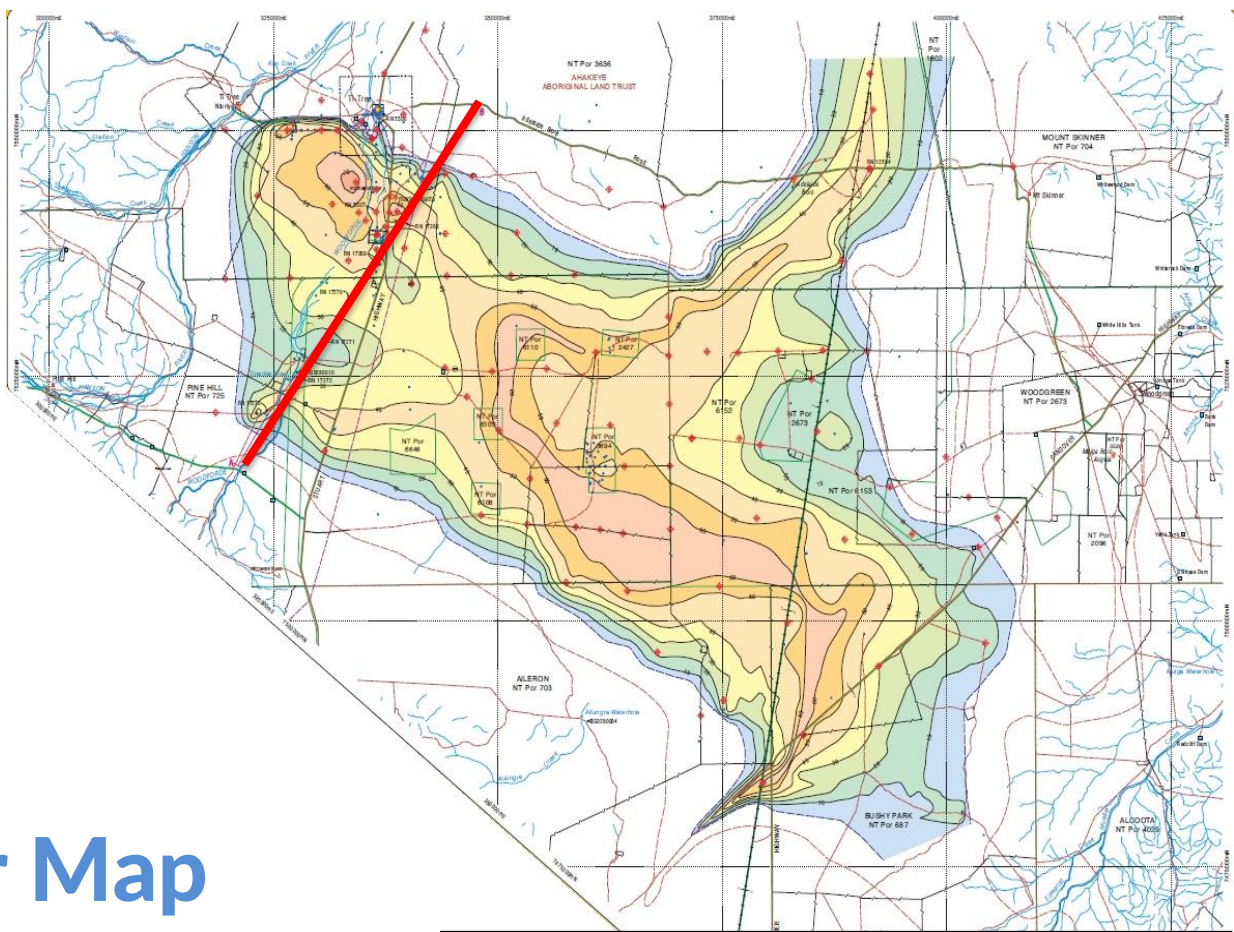
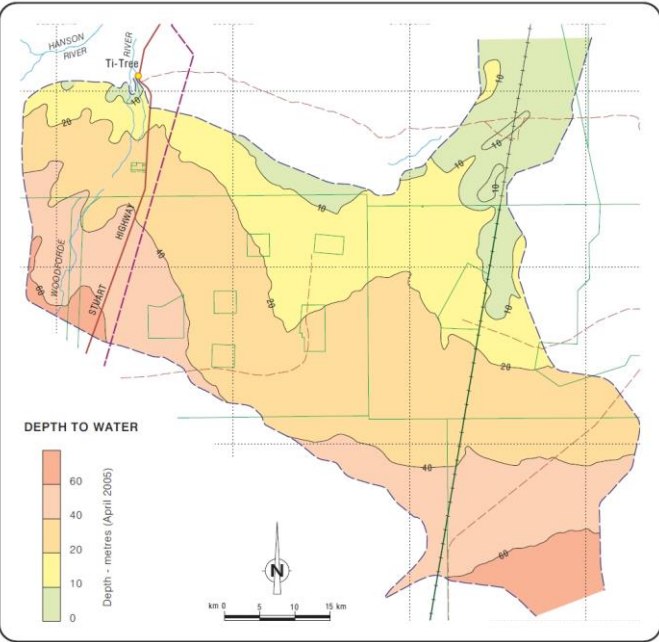
Depth to Water Map

AQUIFER THICKNESS

metres



DEPTH TO WATER



Depth to Water Map

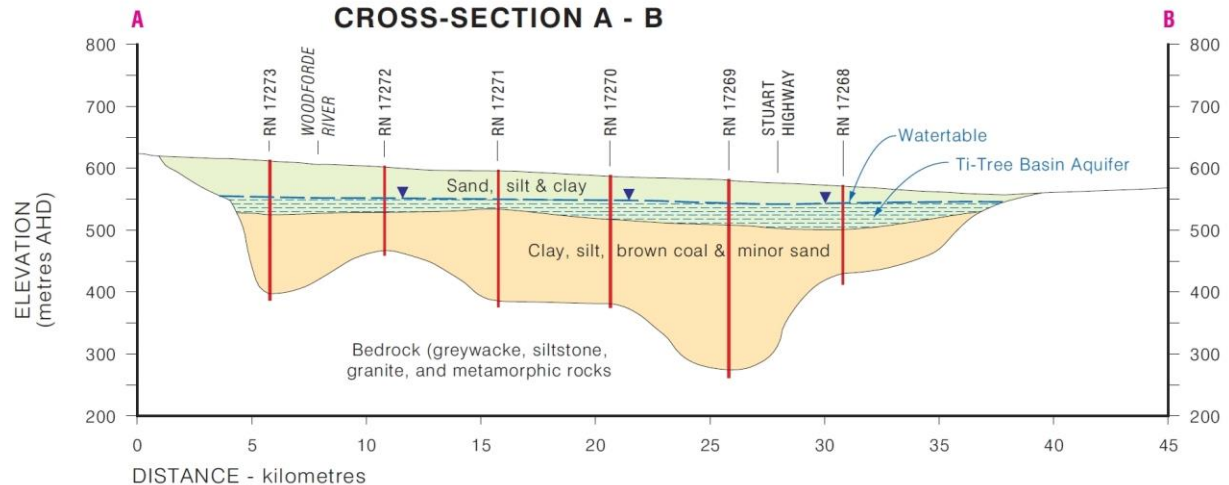
AQUIFER THICKNESS

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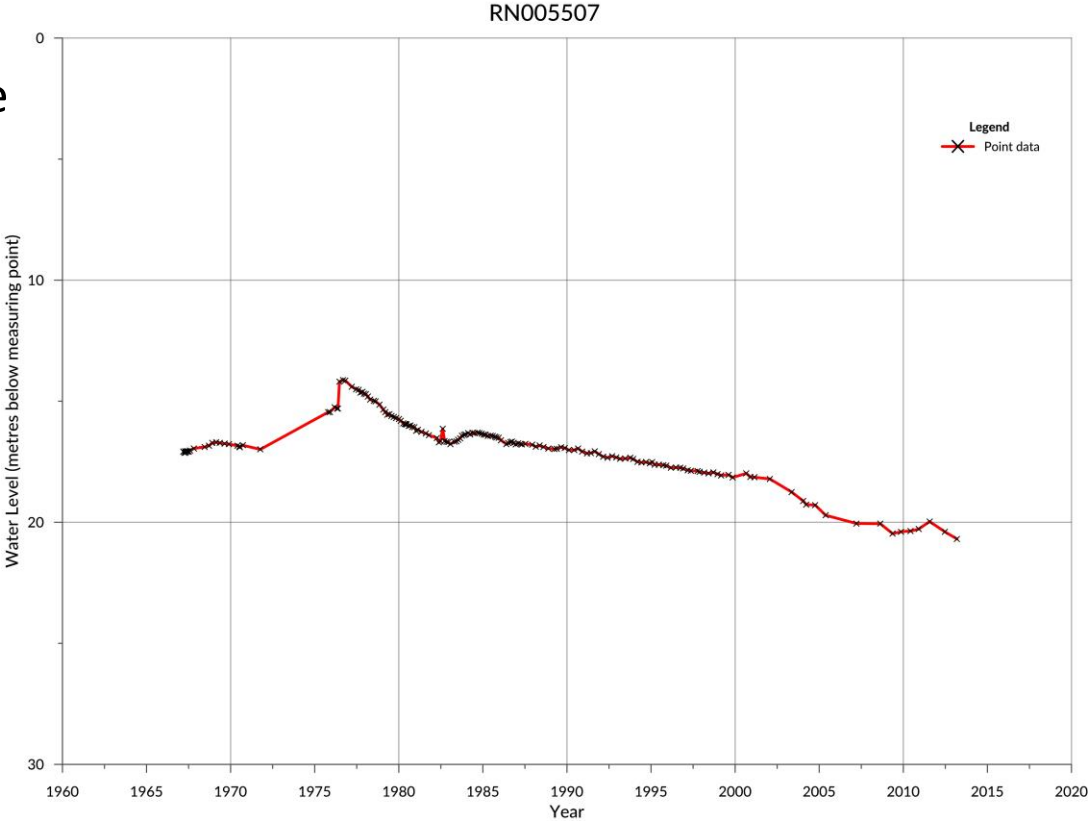
Other Aquifers

- ✚ Knowledge founded by mineral exploration including drilling and geophysical work
- ✚ Sandstone beds below 200m in discrete channels
- ✚ Potential yields of 10 L/s
- ✚ Brackish water



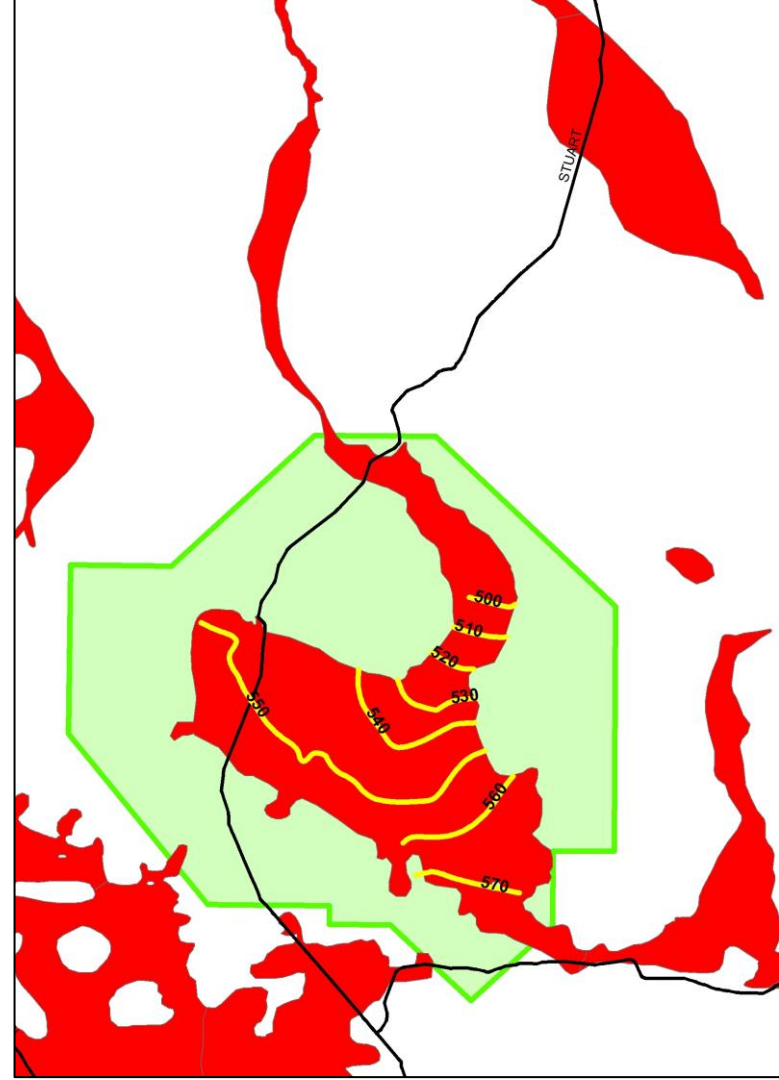
Groundwater Monitoring Data

- Mid 1970's wet period notable
- Event based recharge
- Only significant rains result in recharge

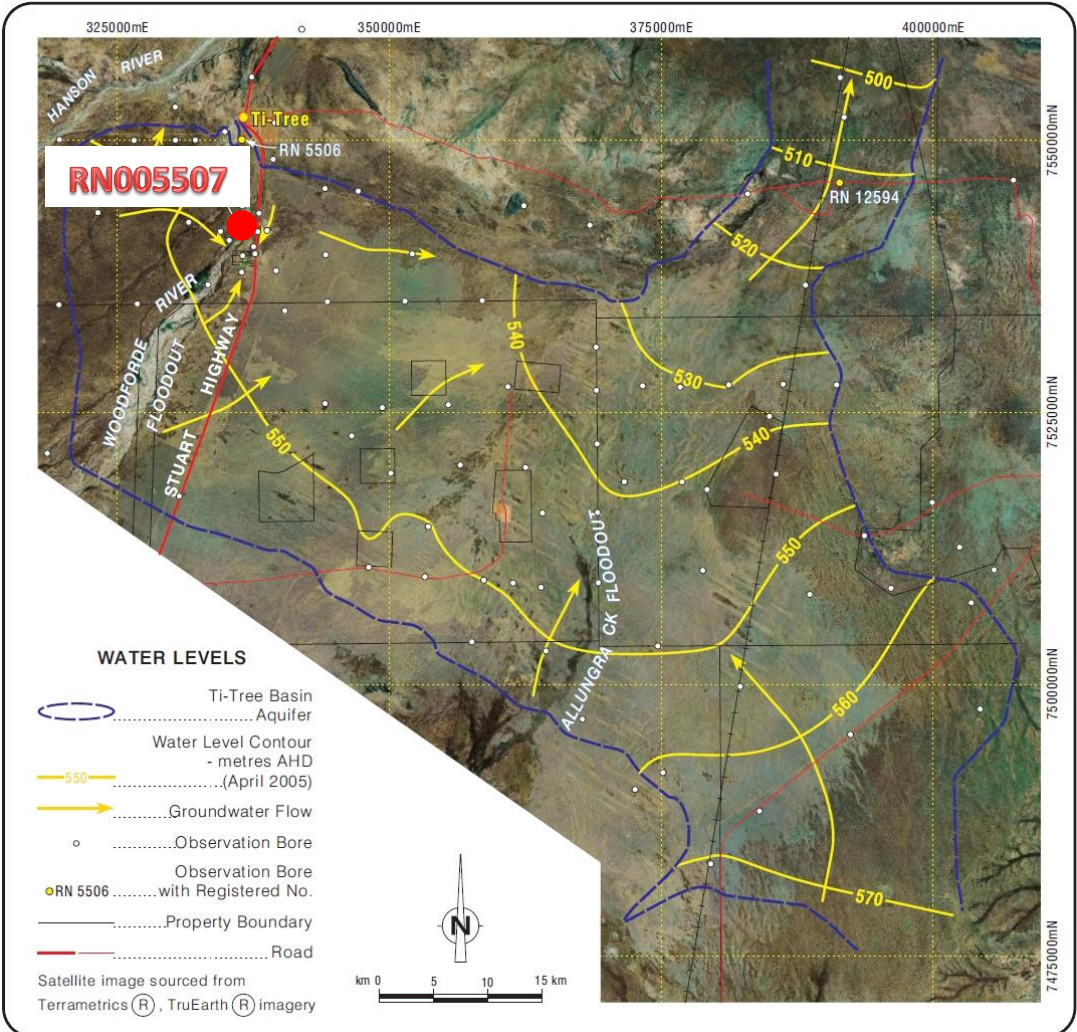


Groundwater Movement and Recharge

- Generally northward
- Hanson River Palaeovalley
- Discrete areas of preferential recharge
- Unsaturated zone research

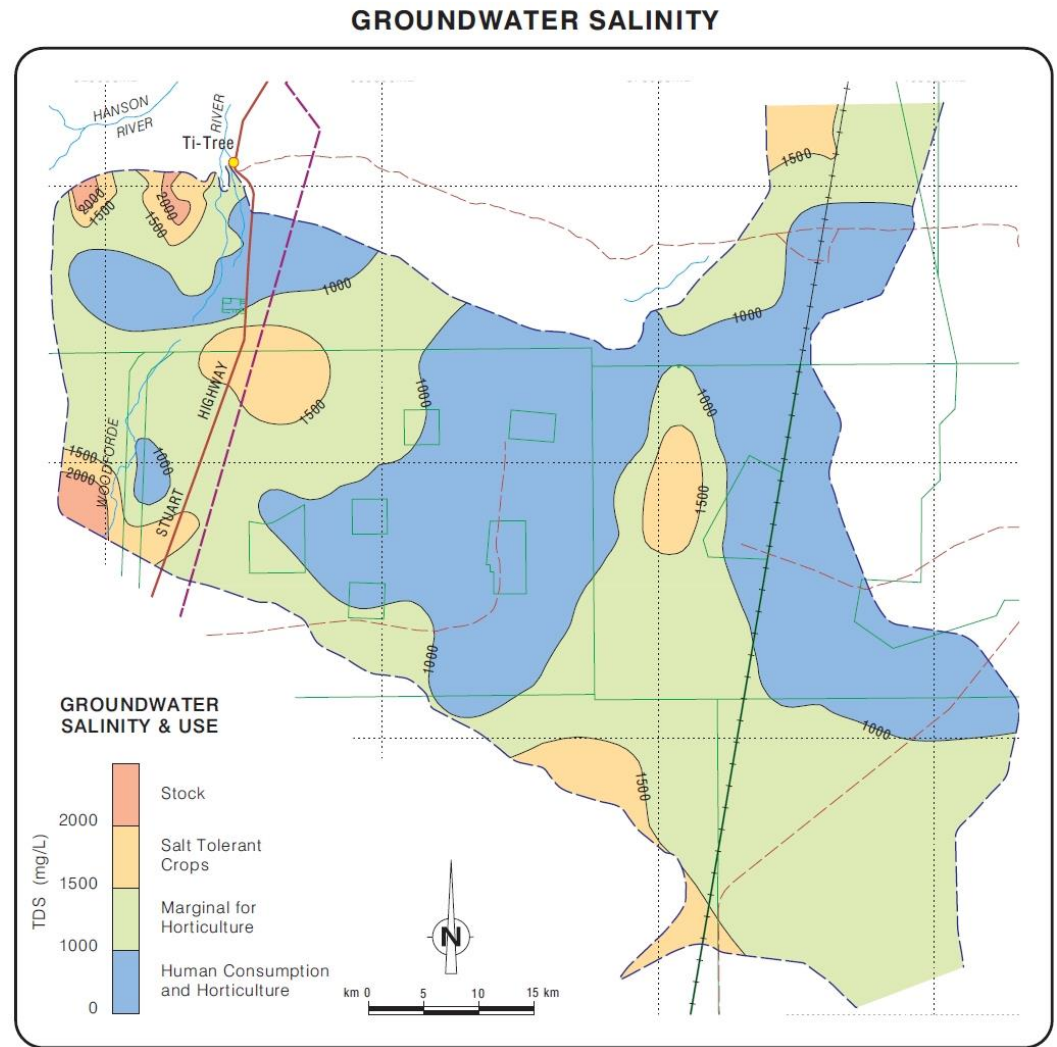


Groundwater Movement and Recharge



Groundwater Quality

- ✚ Sodium chloride salt, nitrate
- ✚ All groundwater suitable for stock watering
- ✚ Parts of the aquifer potable for human consumption



Research

Research

- 🚧 Investigations conducted Water Resources since 1960's
- 🚧 Superscience site
- 🚧 Hydrologic Research by National Groundwater Research and Training (NCGRT) – Flinders University
 - Recharge mechanism and variability
- 🚧 Ecological research by Terrestrial Ecosystem Research Network (TERN) - University of Technology Sydney
 - ❖ Woodland and savanna
 - Carbon budget
 - Responses to rainfall and climate drivers

Future Work

Future Work

Water Resource Monitoring

- ✚ Additional rainfall data distributed across the area
- ✚ Strategic groundwater level monitoring required
- ✚ Continued surface water monitoring for Allungra Creek and Woodforde River

Water Usage

- ✚ Stock and Domestic usage

Investigations

- ✚ Deep aquifer system
- ✚ Establish GDEs