

# **Aquifer response to managed aquifer recharge in the Adelaide metropolitan area**

Department for Environment and Water

October 2021

DEW Technical report 2021/19



**Government  
of South Australia**

Department for  
Environment and Water

Department for Environment and Water  
Government of South Australia  
October 2021

81–95 Waymouth St, ADELAIDE SA 5000  
Telephone +61 (8) 8463 6946  
Facsimile +61 (8) 8463 6999  
ABN 36702093234

**[www.environment.sa.gov.au](http://www.environment.sa.gov.au)**

#### Disclaimer

The Department for Environment and Water and its employees do not warrant or make any representation regarding the use, or results of the use, of the information contained herein as regards to its correctness, accuracy, reliability, currency or otherwise. The Department for Environment and Water and its employees expressly disclaims all liability or responsibility to any person using the information or advice. Information contained in this document is correct at the time of writing.



With the exception of the Piping Shrike emblem, other material or devices protected by Aboriginal rights or a trademark, and subject to review by the Government of South Australia at all times, the content of this document is licensed under the Creative Commons Attribution 4.0 Licence. All other rights are reserved.

© Crown in right of the State of South Australia, through the Department for Environment and Water 2021

ISBN 978-1-922027-28-3

#### Report prepared by:

Hayley Whittington and Danni Haworth  
Wallbridge Gilbert Aztec

#### Enys Watt

Water Science and Monitoring Branch  
Water and River Murray Division  
Department for Environment and Water

#### Preferred way to cite this publication

Department for Environment and Water (DEW), 2021, *Aquifer response to managed aquifer recharge in the Adelaide metropolitan area*, DEW Technical report 2021/19, Government of South Australia, Department for Environment and Water, Adelaide.

# Foreword

The Department for Environment and Water (DEW) is responsible for the management of the State's natural resources, ranging from policy leadership to on-ground delivery in consultation with government, industry and communities.

High-quality science and effective monitoring provide the foundation for the successful management of our environment and natural resources. This is achieved through undertaking appropriate research, investigations, assessments, monitoring and evaluation.

DEW's strong partnerships with educational and research institutions, industries, government agencies, Landscape Boards and the community ensures that there is continual capacity building across the sector and that the best skills and expertise are used to inform decision making.

**John Schutz**  
**CHIEF EXECUTIVE**  
**DEPARTMENT FOR ENVIRONMENT AND WATER**

# Acknowledgements

The authors would like to thank industry specialists who provided background information on managed aquifer recharge schemes contained in this report, as well as Russell Martin, Senior Principal Hydrogeologist at Wallbridge Gilbert Aztec, for his helpful external review containing constructive and targeted comments that have improved the focus and clarity of this report.

# Contents

<b>Foreword</b>	<b>ii</b>
<b>Acknowledgements</b>	<b>iii</b>
<b>Summary</b>	<b>vii</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Background	1
1.2 Objective	1
1.3 Scope	1
<b>2 Aquifer characterisation</b>	<b>3</b>
2.1 T1 aquifer	3
2.2 T2 aquifer	3
2.3 Aquifer zone storage capacity	3
2.4 Climate	9
2.4.1 Groundwater extraction	9
<b>3 MAR scheme impact analysis</b>	<b>11</b>
3.1 MAR scheme summary	11
3.2 Analysis of injection and recovery quantities	12
3.2.1 Impact of climate conditions	12
3.2.2 Historical injection and recovery volumes for MAR schemes	12
3.2.3 Injection volumes and aquifer zone storage capacities	13
3.3 Artesian conditions analysis	14
3.3.1 High risk vs medium risk vs low risk-areas	14
3.3.2 Monitoring well data	17
3.3.2.1 T1 aquifer trends	17
3.3.2.2 T2 aquifer trends	17
3.4 Affected groundwater users	20
3.5 On-ground inspection of wells	21
<b>4 Conclusion</b>	<b>24</b>
4.1 Summary	24
4.2 Limitations	24
4.3 Recommendations	25

<b>5</b>	<b>Appendices</b>	<b>26</b>
A.	Wells at risk of experiencing artesian conditions	26
B.	Flow chart for uncontrolled flowing wells	52
<b>6</b>	<b>Units of measurement</b>	<b>53</b>
6.1	Units of measurement commonly used (SI and non-SI Australian legal)	53
<b>7</b>	<b>Glossary</b>	<b>54</b>
<b>8</b>	<b>References</b>	<b>56</b>

## List of figures

Figure 2.1	Potentiometric contours for the T1 aquifer, winter 2016	5
Figure 2.2	Potentiometric contours for the T1 aquifer, summer 2017	6
Figure 2.3	Potentiometric contours for the T2 aquifer, winter 2016	7
Figure 2.4	Potentiometric contours for the T2 aquifer, summer 2017	8
Figure 2.5	Annual rainfall totals for the Adelaide metropolitan area	9
Figure 2.6	Extraction volumes compared to rainfall for the T1 and T2 aquifers of the Northern Adelaide Plains PWA	10
Figure 3.1	MAR injection and extraction volumes in the Adelaide metropolitan area since 2004–05	12
Figure 3.2	Net injection volumes for MAR schemes in the T1 and T2 aquifers	13
Figure 3.3	Artesian risk of the T1 aquifer	15
Figure 3.4	Artesian risk of the T2 aquifer	16
Figure 3.5	T1 aquifer monitoring well data	18
Figure 3.6	T2 aquifer monitoring well data	19
Figure 3.7	Wells assigned to the T1 aquifer at risk of experiencing artesian conditions	22
Figure 3.8	Wells assigned to the T2 aquifer at risk of experiencing artesian conditions	23

## List of tables

Table 3.1	Active MAR schemes in the NAP and CA PWAs using the T1 aquifer	11
Table 3.2	Active MAR schemes in the NAP and CA PWAs using the T2 aquifer	11
Table 3.3	Annual injection quantities by aquifer zone	13
Table 3.4	Cumulative injection quantities by aquifer zone	14
Table 3.5	Risk analysis categorisation criteria	14
Table 3.6	Number of wells located within the high and medium risk zones potentially at risk of flowing uncontrollably	21

# Summary

Managed aquifer recharge (MAR) has been adopted across the greater Adelaide metropolitan area as a storage method, providing an alternative water source to potable water for the irrigation of public open spaces and industrial uses. Over the past several years, pressures in the T1 and T2 aquifers have increased because of lower-than-expected recovery rates associated with the operation of MAR schemes and reduced extraction from other third-party users. The increasing aquifer pressures have resulted in artesian conditions across some parts of the Adelaide metropolitan area during the winter recharge period. The artesian conditions have caused several wells (where the headworks have not been designed for artesian conditions) to flow uncontrollably and require rehabilitation.

The objective of this assessment is to characterise the pressure level response of the T1 and T2 aquifers. There are currently 24 operational MAR schemes targeting the T1 and T2 aquifers. Groundwater extraction from the T1 and T2 aquifers has changed appreciably over the past several years in response to the availability of water from the Virginia and Glenelg to Adelaide Pipelines, a general reduction in industrial demand and some substitution of groundwater extraction by MAR schemes. A review of groundwater level trends identified that generally in the areas near active MAR schemes or where groundwater extraction has been notably reduced, a rising trend in aquifer pressure in both the T1 and T2 aquifers has been observed.

The amount of water being recharged by MAR schemes is significantly lower than the licensed volume. If all the current schemes plus the new Northern Adelaide Irrigation Scheme (NAIS) were to achieve their full licensed injection volume, the extent of artesian conditions across the Adelaide metropolitan area is likely to become considerably greater, placing a larger number of existing wells at risk of becoming artesian and requiring rehabilitation to prevent uncontrolled flows.

In most years, there is more water recharged into the T1 and T2 aquifers than extracted. This has resulted in a total net recharge to the aquifers of 13 ggalitres over the period 2004–05 to 2017–18. This comprised 2.8 GL/y in the T1 aquifer and 10.4 GL/y in the T2 aquifer.

Storage capacities for both aquifers were estimated by Hodgkin (2004) and separated into aquifer zones based on a specific set of criteria. The maximum injection volume in a single year has not exceeded the base case storage capacity where artesian conditions are expected in any of the aquifer zones. However, in the Northern Adelaide Plains (NAP) aquifer zones, and to a lesser extent in some of the Central Adelaide (CA) zones, a positive cumulative net injection volume over time is occurring. This implies that the cumulative volumes stored in the aquifers may be approaching the base case artesian capacities estimated by Hodgkin (2004) for these aquifer zones.

A risk analysis was carried out to delineate the medium and high-risk areas for artesian conditions, and the state drillhole database was used to identify wells at risk of experiencing uncontrolled flowing conditions. A total of 253 wells have been identified within the high-risk areas and 369 within the medium-risk areas for the T1 and T2 aquifers.

Three key recommendations are made:

1. **Increased data collection** to better understand the hydrogeological response of the aquifers to extraction and recharge. DEW has installed telemetered data loggers in 18 wells in the high-risk areas to determine the spatial extent of artesian conditions during variable recharge years. An additional 8 monitoring wells have been allocated to the medium-risk zones. The installation of telemetered data loggers will help determine the best timing of monitoring to capture artesian conditions. It will also allow MAR operators to assess pressure levels in real time, enabling them to adapt operations as needed and respond accordingly if flowing wells are identified.
2. **Further analysis of the groundwater extraction profile** (annual and seasonal, i.e. monthly) across the NAP and CA PWAs. DEW is implementing a State Water Register through its Water Management Solutions program that will allow groundwater users to upload their extraction data through a 24/7 self-service customer portal. NAP and CA users will be encouraged to submit their data monthly. This is to



support the development of a more robust and defensible numerical groundwater flow model for the Adelaide metropolitan area. Understanding the distribution of groundwater extraction over the winter period is crucial to a better understanding of the impacts.

3. **On-ground validation of wells located within the high-risk areas** will inform decision-making on an appropriate course of action to address the flowing wells issue.

# 1 Introduction

## 1.1 Background

Managed aquifer recharge (MAR) has been adopted across the greater Adelaide metropolitan area as a storage method, providing an alternative water source to potable water for irrigation of public open spaces and industrial uses. Additionally, MAR provides water security and assists to bridge the timing gap between the water supply and demand periods. There are 24 approved MAR schemes operating across the Northern Adelaide Plains (NAP) and Central Adelaide (CA) Prescribed Wells Areas (PWAs) that target the Tertiary T1 and T2 aquifers. Several other MAR projects are proposed for the Adelaide metropolitan area, but are either not yet licensed, or are licensed but not yet operational. Details regarding the active MAR schemes included in this investigation are presented in Section 3.1.

Over the past several years, pressures in the T1 and T2 aquifers have been increasing because of lower-than-expected recovery rates associated with the operation of MAR schemes, and reduced extraction from historical third-party users. The increasing aquifer pressures have resulted in artesian conditions across some parts of the Adelaide metropolitan area during the winter recharge period, which is typically May to October. The artesian conditions have resulted in several wells flowing uncontrollably where the headworks have not been designed to manage artesian conditions. This has necessitated the rehabilitation of these wells.

Historically, most of the MAR schemes in the Adelaide metropolitan area have not achieved their licensed annual injection volume. Although 2016–17 was the wettest injection season in recent years and resulted in the highest volume of injection, the injection volumes achieved were still below the licensed annual total. If all the current schemes plus the new and proposed MAR schemes (e.g. the Northern Adelaide Irrigation Scheme) were to achieve their full licensed injection volume, the extent of artesian conditions across the Adelaide metropolitan area is likely to become considerably greater, placing a larger number of wells at risk of becoming artesian and requiring rehabilitation to prevent uncontrolled flows. For this reason, Green Adelaide commissioned the Department for Environment and Water (DEW) to undertake the *Aquifer response to managed aquifer recharge in the Adelaide metropolitan area project*.

## 1.2 Objective

Most licensed MAR schemes across the Adelaide metropolitan area recharge the T1 and T2 aquifers of the NAP and CA PWAs. The key outcome of this project is to better understand the pressure response of these confined aquifers to MAR activities and reduced groundwater extraction by historical users.

A review of the operation of MAR schemes has incorporated climate variability, which influences recharge and extraction volumes. This in turn influences the pressures in the confined T1 and T2 aquifers. This assessment provides clarity and a greater understanding of the risk of artesian conditions and flowing wells occurring.

## 1.3 Scope

The deliverables for this project include:

- a review of the response of the confined T1 and T2 aquifers of the Adelaide metropolitan area to MAR, extraction by existing users, and climate variations
- prediction of areas at risk of developing artesian conditions that may lead to uncontrolled flowing wells
- identification of wells in the DEW monitoring network that may require remedial action

- validation of data on WaterConnect so DEW and MAR operators can better identify wells that are likely to become artesian
- assessment of the spatial distribution of the existing monitoring network to determine the suitability of the network to identify areas at risk of becoming artesian
- recommendations for further work, including technical assessments and field investigations.

## 2 Aquifer characterisation

Multiple aquifer systems occur across the Adelaide metropolitan area. The hydrogeology of the Adelaide Plains is described in detail in reports such as Gerges (2006) and Martin et al. (2018) and as such, only a brief description of the aquifers of interest is offered here.

### 2.1 T1 aquifer

The T1 aquifer is the shallowest Tertiary aquifer on the Adelaide Plains and comprises several stratigraphic units including the Hallett Cove/Dry Creek Sand and the upper Port Willunga Formation. This aquifer is permeable and typically confined or semi-confined over most of the Adelaide metropolitan area.

Groundwater flow is generally towards the coastline, though cones of depression form around the Waterloo Corner and Grange areas during the irrigation season. Near the coast around the Dry Creek salt fields, pumping from the T1 aquifer for the industrial production of salt formed a large and long-standing cone of depression that was stable for over 20 years. However, salt field operations reduced significantly in 2015 after the closure of the Penrice soda ash plant at Osborne and groundwater levels have subsequently recovered by 3 to 10 m. Potentiometric surface contours for this period are shown in Figure 2.1 and Figure 2.2. It should be noted that prior to significant groundwater development, the T1 and T2 aquifers were up to 20 m artesian across the Adelaide metropolitan area (Gerges, 2006).

There are 2 MAR schemes operating in the T1 aquifer in the NAP PWA and 6 within the CA PWA.

### 2.2 T2 aquifer

The T2 aquifer underlies the T1 aquifer, separated by the regionally extensive Munno Para Clay confining bed. The typical stratigraphic unit of the T2 aquifer is the lower Port Willunga Formation sandy limestone. The Munno Para Clay thins and is absent in the northern portion of the NAP PWA. The latest extent of the Munno Para Clay is presented in Figure 2.1. Where the Munno Para Clay is absent, the T1 and T2 aquifers are undifferentiated.

The groundwater elevation and direction of flow are largely influenced by the permanent cone of depression that has formed around the Virginia horticultural region. This significant cone of depression has recovered from a winter low of 60 m below ground level (BGL) in the mid to late 1990s to its current level of around 30 to 40 m BGL because of the introduction of the Virginia Pipeline Scheme (VPS). The VPS was established in 1997 and provides around 20 gigalitres per year of recycled water from SA Water's Bolivar Wastewater Treatment Plant to around 360 customers in Virginia and surrounding areas for horticultural irrigation (SA Water 2020). A small cone of depression is also evident in the Regency Park area due to industrial extraction.

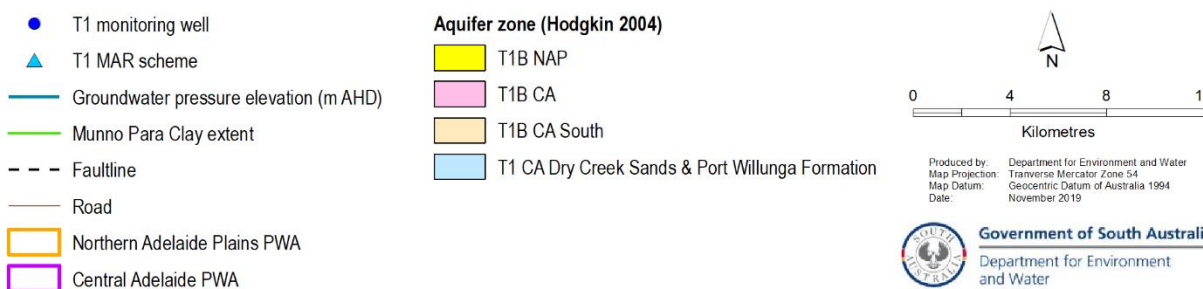
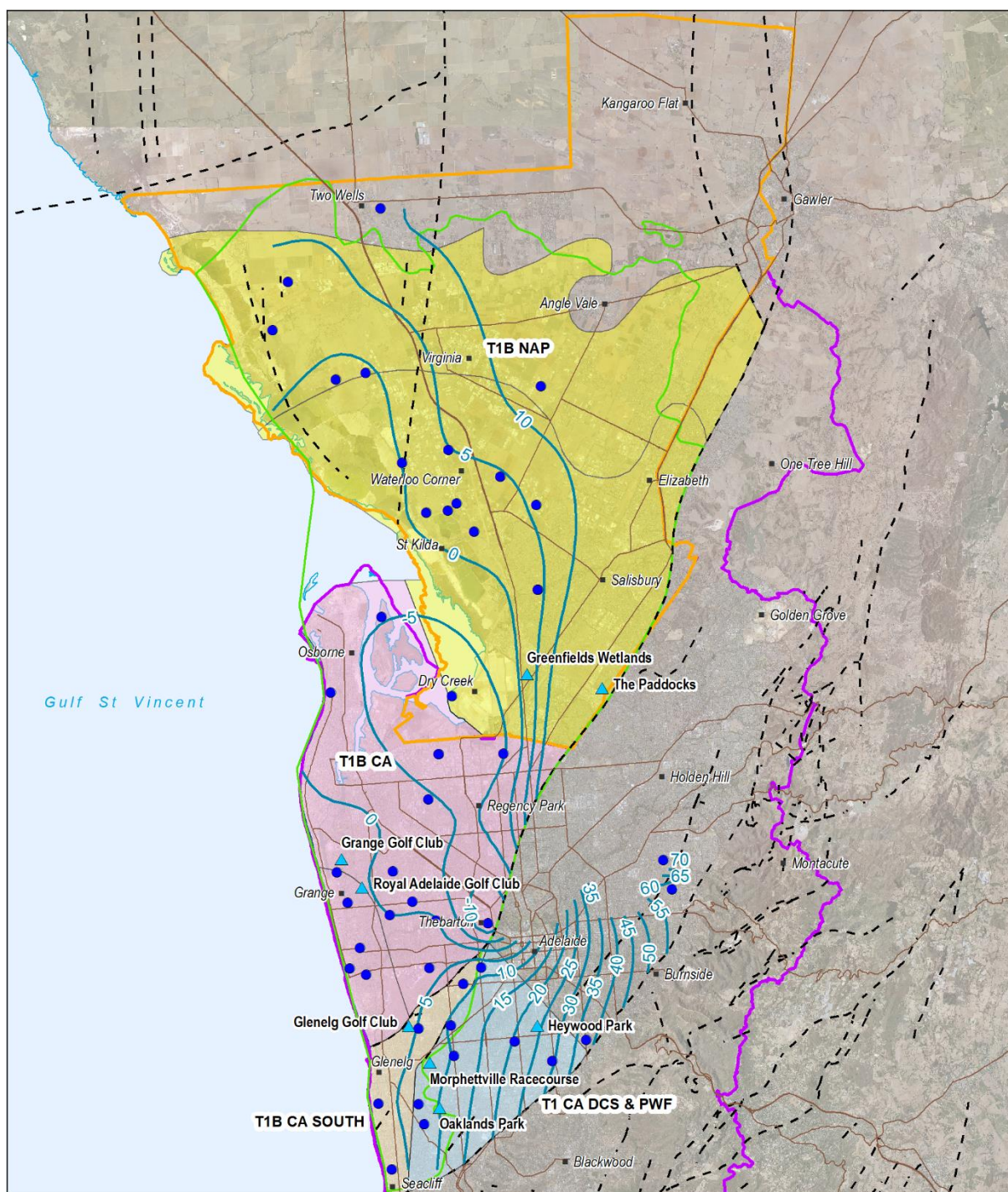
The 2016–17 water-use year (1 July 2016 – 30 June 2017) recorded the highest rainfall in the past 15 years, allowing MAR schemes to inject much more water than in other years, particularly in the T2 aquifer. It also reduced the demand for groundwater used for irrigation, resulting in less extraction (DEW 2018). Potentiometric surface contours for the 2016–17 water-use year are shown in Figure 2.3 and Figure 2.4.

There are 12 MAR schemes operating in the T2 aquifer in the NAP PWA and 5 within the CA PWA.

### 2.3 Aquifer zone storage capacity

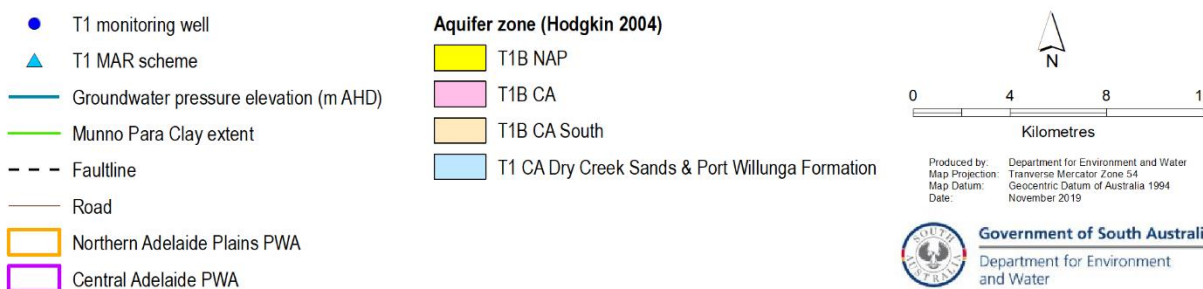
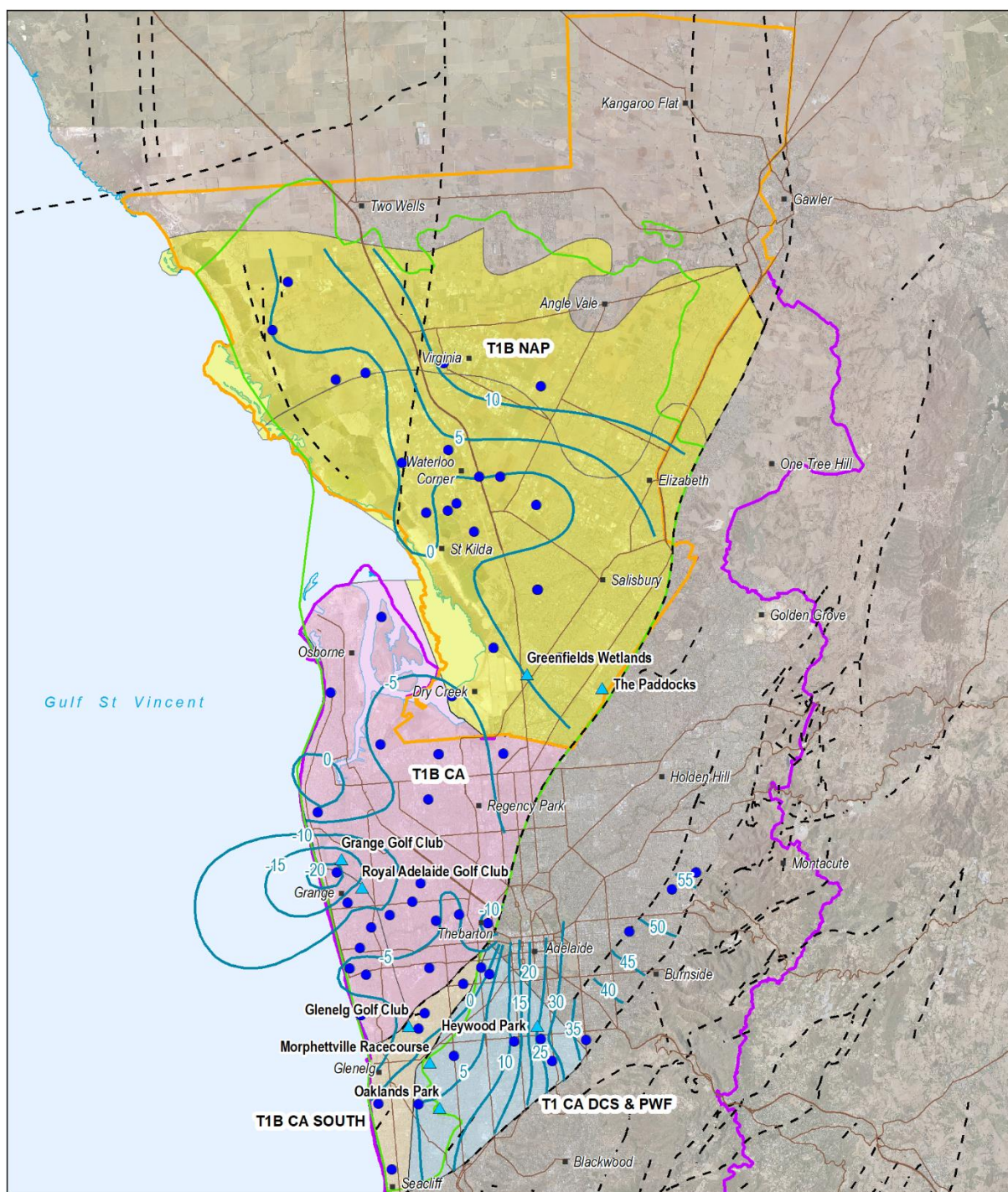
Through the *Waterproofing Adelaide Strategy* and *Urban Stormwater Initiative*, a study was commissioned to evaluate the aquifer storage capacities in the major Tertiary aquifer systems. This was driven by the increasing adoption of MAR as an alternative water resource management strategy. Hodgkin (2004) delineated the T1 and T2 aquifers across the NAP and CA PWAs into aquifer zones and evaluated the additional aquifer storage capacities

above the groundwater levels recorded in autumn 2003. The storage capacity was assessed under 2 scenarios: sub-artesian, in which groundwater level rises are limited to within 2 metres of the natural ground surface; and artesian, in which groundwater level rises above ground level, and were determined based on percentages of safe aquitard fracture pressures. Under the artesian scenario, Hodgkin assessed 3 additional conditions, (1) maximum artesian based on a minimum specific storage value; (2) maximum artesian based on a maximum specific storage value; and (3) base case, which is based on an intermediate specific storage value and a more conservative aquitard fracture pressure. The sub-artesian scenario using a maximum specific storage value and the artesian conditions 2 and 3 have been adopted for the purposes of this assessment. Further information relating to the determination of the storage capacities should be sought from Hodgkin (2004). The aquifer zones with active MAR schemes located in them are shown in Figures 2.1 to 2.4.



**Figure 2.1 Potentiometric contours for the T1 aquifer, winter 2016**

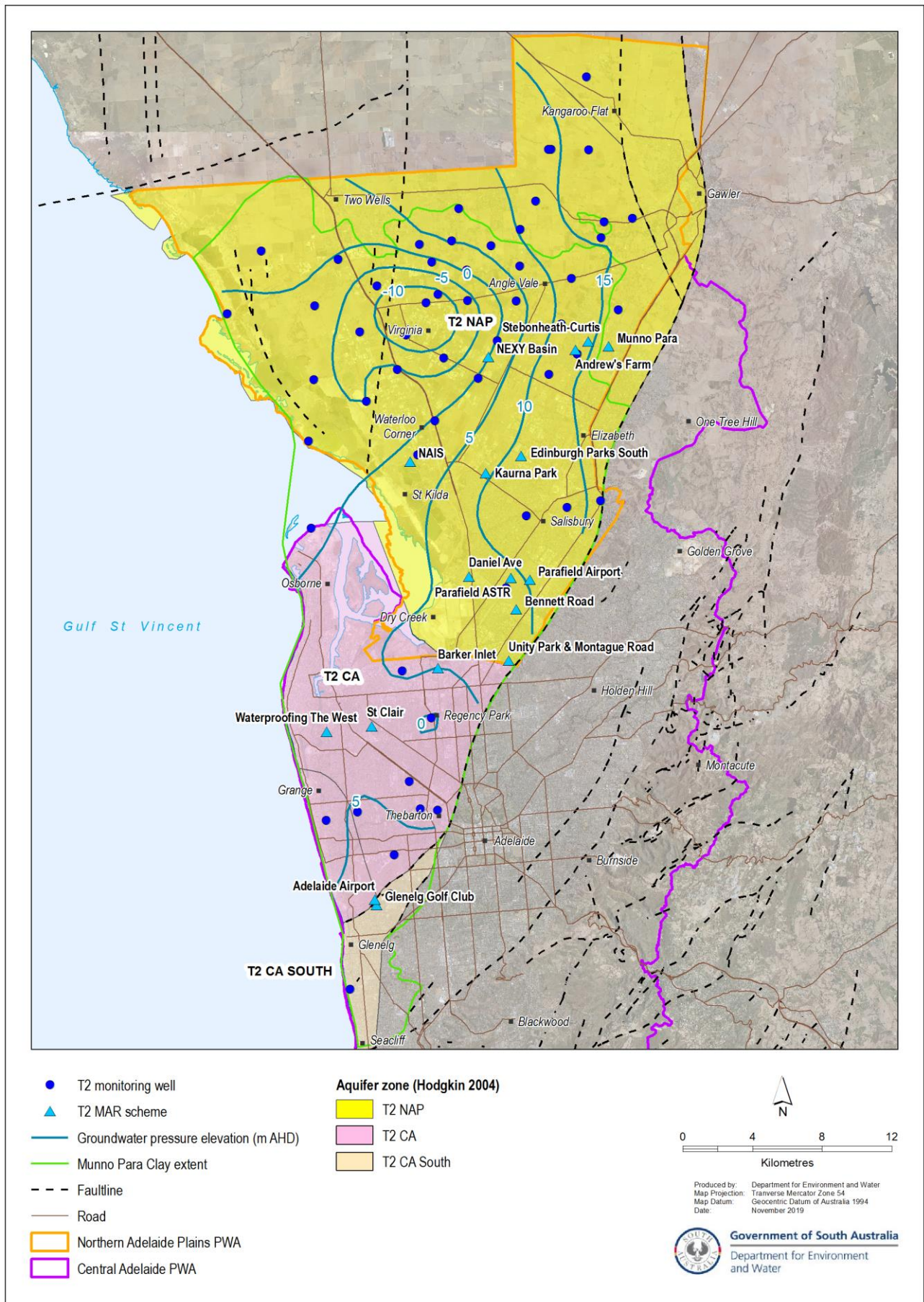




Document Path: W:\Projects\LOWMARS\aquiferreportage\ISMARReport\_Marketing\_2.2\_T1\_PotSurf\_summer\_2017.mxd

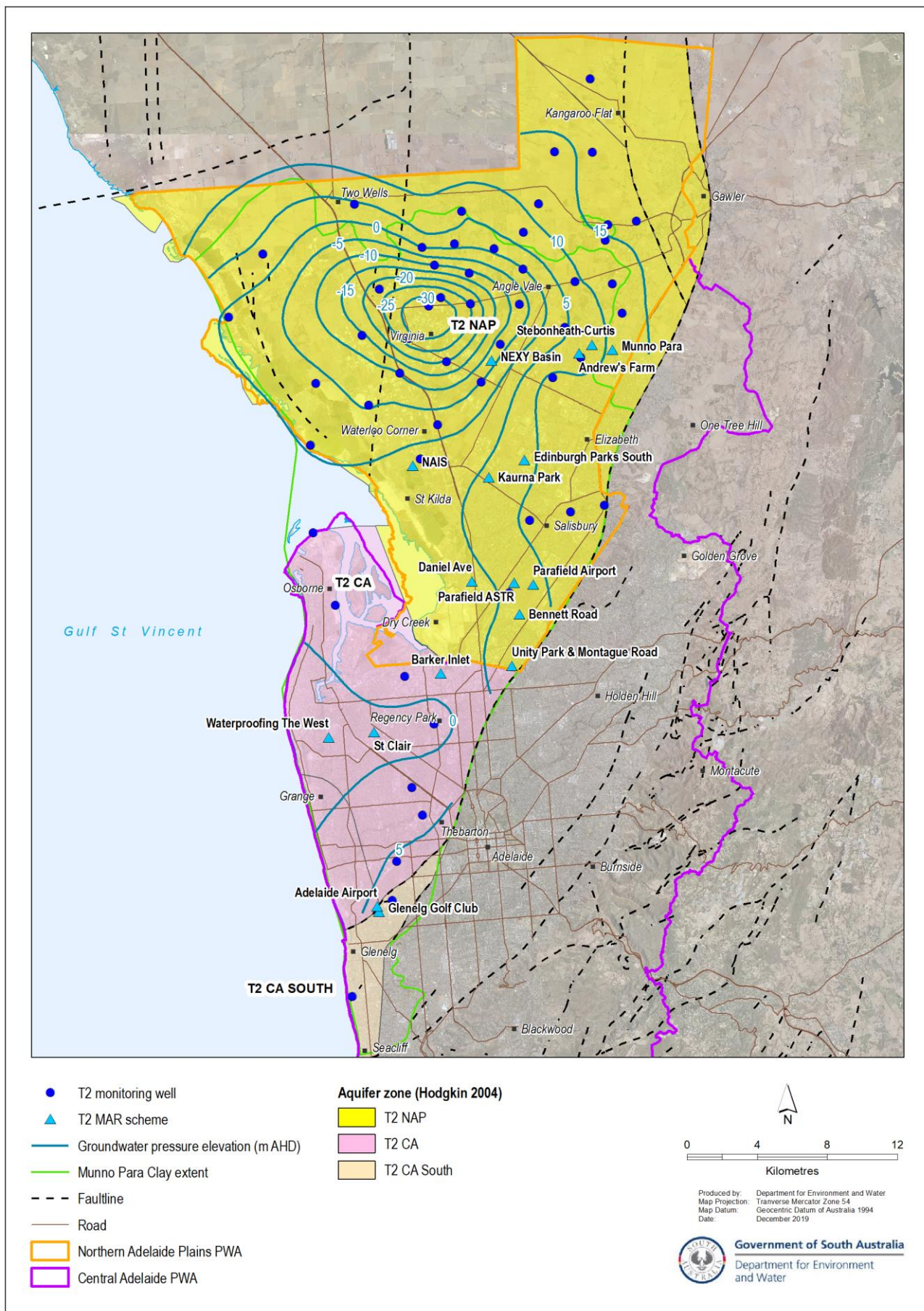
**Figure 2.2 Potentiometric contours for the T1 aquifer, summer 2017**





**Figure 2.3 Potentiometric contours for the T2 aquifer, winter 2016**





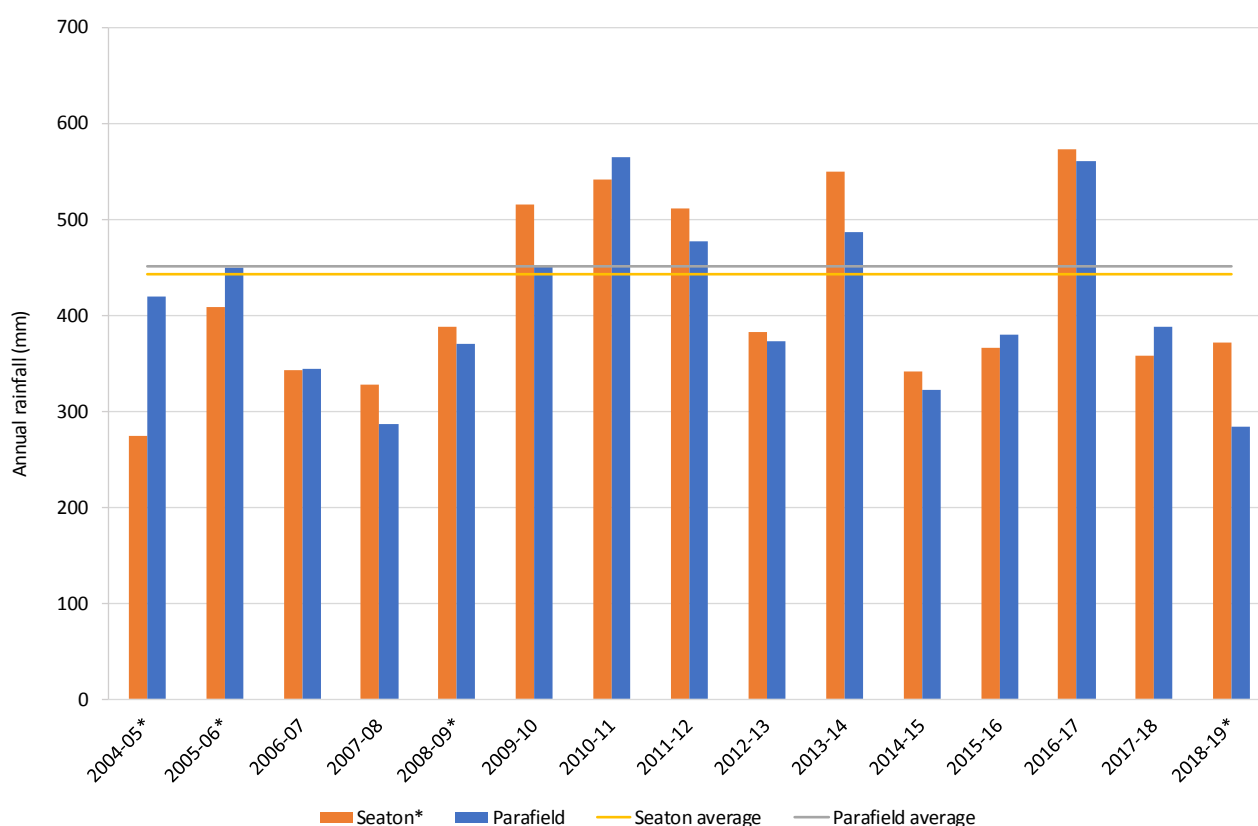
**Figure 2.4 Potentiometric contours for the T2 aquifer, summer 2017**

## 2.4 Climate

The Adelaide metropolitan area is typically described as having a Mediterranean climate, with mild winter temperatures and hot summers. The mean annual rainfall for Adelaide is 528 mm, recorded at the Kent Town Bureau of Meteorology (BoM) rainfall station (number 023000), with most of the rainfall occurring during late winter and spring. Approximately 27% of the mean annual rainfall occurs over the summer months (December through February).

Historical rainfall data from the 2004–05 to 2018–19 period for the Parafield Airport (station 023013) and Seaton (Adelaide Airport station 023024) BoM rainfall stations are presented in Figure 2.5. The data are presented in water-use years, which run from 1 July to 30 June. The rainfall data indicates that the northern metropolitan area (Parafield) typically receives less rainfall (by up to 80 mm/y) than the southern region (Seaton). The rainfall data also indicates a drying trend; when compared to the annual average (specified by BoM) for each site, (451.2 mm at Parafield and 439.9 mm at Seaton), more than half of the years since 2004–05 have experienced below-average rainfall conditions. The most recent exception to this is 2016–17 when the highest rainfall in the past 15 years was recorded.

The Seaton station included some months with incomplete data. Where rainfall data was not available for a particular month, the average rainfall for that month over the analysis period was used to 'patch' the missing data to provide a complete record. Years where this adjustment was made are marked with an asterisk in Figure 2.5.

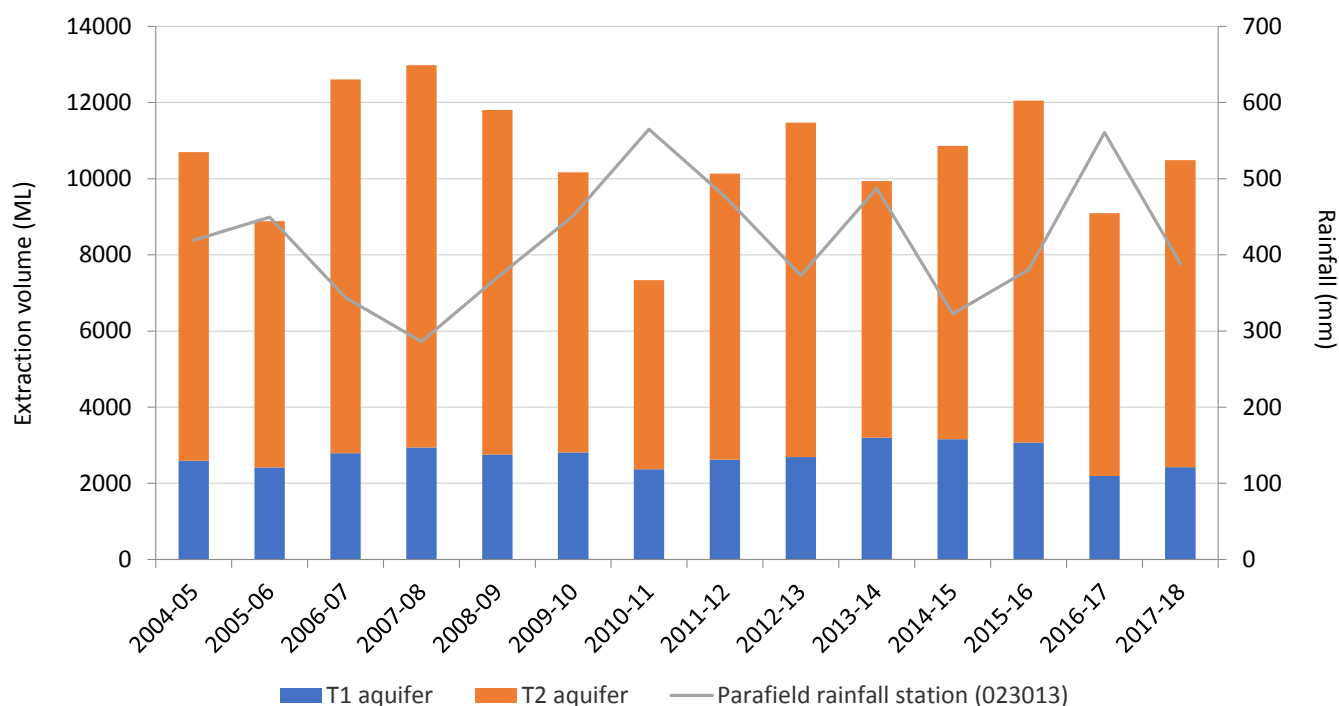


**Figure 2.5 Annual rainfall totals for the Adelaide metropolitan area**

### 2.4.1 Groundwater extraction

Groundwater is extracted from the T1 and T2 aquifers for a variety of uses ranging from industrial to irrigation. Groundwater extraction in the NAP PWA is governed by the Northern Adelaide Plains Water Allocation Plan and is metered. Groundwater extraction in the CA PWA is in the process of being licensed. As part of this process, meters

will be installed and accurate extraction data for the area should be available in the next few years. Seasonal trends of groundwater extraction cannot be analysed as the metered volumes are only reported annually for the water-use year. Annual trends in historical groundwater extraction indicate that in lower rainfall years, there is a greater volume of extraction and conversely, groundwater extraction is lower during wet years. This trend is seen in both the T1 and T2 aquifers, as shown in Figure 2.6. Due to the similar trend for each rainfall station and its location in the NAP PWA, only the data from Parafield (023013) is presented in Figure 2.6.



**Figure 2.6 Extraction volumes compared to rainfall for the T1 and T2 aquifers of the Northern Adelaide Plains PWA**

Groundwater extraction from the T2 aquifer has varied between 6.7 GL/y and 8.98 GL/y in the 5 years up to 2017–18. Since accurate metering began in 2005, the highest recorded extraction was 10 GL/y during 2007–08. Groundwater extraction from the T1 aquifer has varied between 2.2 GL/y and 3.2 GL/y in the 5 years up to 2017–18, with the highest recorded extraction being 3.2 GL/y during 2013–14. A review of groundwater extraction spatially across the NAP PWA with rainfall variability did not identify any significant trends.

Groundwater extraction has stabilised somewhat over the period evaluated (2004–05 to 2017–18). An example of this is shown in Figure 2.6 when comparing 2017–18 to 2006–07. These time periods have comparable rainfall (423 mm and 416 mm, respectively), however, in 2006–07 licensees extracted nearly 3 GL more than in 2016–17. This is most likely the result of measures that were implemented across metropolitan Adelaide in response to the Millennium Drought, including:

- National Water Scheme funding
- ‘Smart Water’ technology use
- alternative water suppliers entering the market, including the Virginia Pipeline Scheme (VPS) and various stormwater-harvesting initiatives that do not include MAR as a component.

The introduction of treated reclaimed water from the Bolivar Wastewater Treatment Plant via the VPS supplies an additional 20 GL/y of treated wastewater during summer to the Northern Adelaide Plains. The scheme was established in 1997, with the available volume being fully extracted by 2007.

## 3 MAR scheme impact analysis

### 3.1 MAR scheme summary

Kretschmer (2017) provides a description of the location and operation of all MAR schemes across the Adelaide metropolitan area. The MAR schemes recharging the T1 and T2 aquifers are listed in Table 3.1 and Table 3.2, respectively. There are 2 MAR schemes operating in the T1 aquifer in the NAP PWA and 6 within the CA PWA. There are 12 T2 MAR schemes in the NAP PWA and 5 in the CAP PWA, noting that the Glenelg Golf Club injects and extracts from both aquifers.

**Table 3.1 Active MAR schemes in the NAP and CA PWAs using the T1 aquifer**

Scheme	Easting	Northing	Aquifer	PWA
Greenfields Wetlands	280459	6145968	T1	NAP
The Paddocks	284181	6145261	T1	NAP
Oaklands Park	276148	6124520	T1	CA
Heywood Park	280962	6128584	T1	CA
Grange Golf Club	271292	6136819	T1	CA
Royal Adelaide Golf Club	272319	6135409	T1	CA
Morphettville Racecourse	275652	6126748	T1	CA
Glenelg Golf Club	274613	6128566	T1	CA

**Table 3.2 Active MAR schemes in the NAP and CA PWAs using the T2 aquifer**

Scheme	Easting	Northing	Aquifer	PWA
Andrew's Farm – Stebonheath	286049	6160449	T2	NAP
Munno Para	287957	6160666	T2	NAP
NEXY Basin	281042	6160056	T2	NAP
Stebonheath – Curtis	286801	6160949	T2	NAP
Bennett Road	282651	6145551	T2	NAP
Daniel Avenue	279925	6147441	T2	NAP
Edinburgh Parks South	282935	6154362	T2	NAP
Kaurna Park	280898	6153377	T2	NAP
Parafield Airport	283426	6147254	T2	NAP
Parafield ASTR	282347	6147343	T2	NAP
Unity Park & Montague Road	282215	6142601	T2	NAP
Northern Adelaide Irrigation Scheme (NAIS)	278782	6151115	T2	NAP
Waterproofing the west	271759	6138523	T2	CA
St Clair Development	274339	6138828	T2	CA
Adelaide Airport	274522	6128858	T2	CA
Barker Inlet	278151	6142172	T2	CA
Glenelg Golf Club	274613	6128566	T2	CA

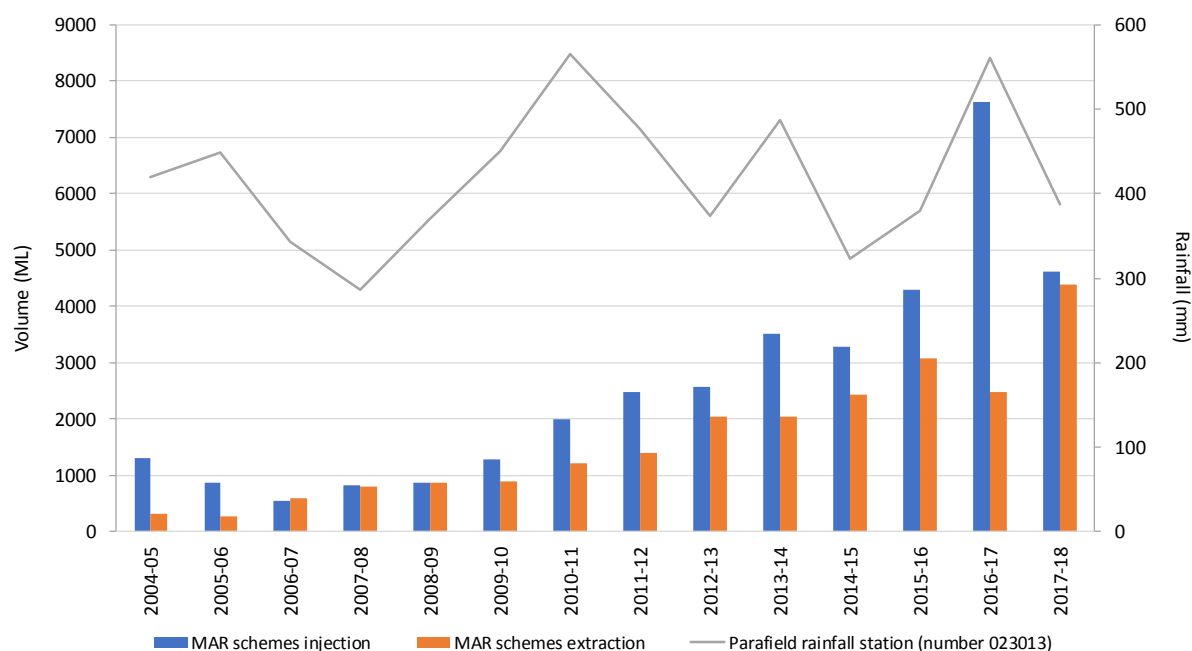


It is a condition of a MAR licence that monthly injection and extraction volumes are reported annually. From the annual reporting, it is apparent that the actual volumes recharged to the aquifer are significantly less than the licensed volumes. The total licensed volume for MAR schemes recharging into the T1 aquifer is 3,165 ML/y (with 1,230 ML/y in the NAP and 1,935 ML/y in CA). However, the maximum volume recharged into the T1 aquifer was just 1,015 ML/y in 2016–17. The total licensed volume for MAR schemes recharging into the T2 aquifer is 16,930 ML/y (with 13,740 ML/y in the NAP and 3,190 ML/y in CA). Similarly, the maximum volume recharged into the T2 aquifer was only 6,624 ML/y in 2016–17.

## 3.2 Analysis of injection and recovery quantities

### 3.2.1 Impact of climate conditions

Observations of the total injection and extraction volumes for all the MAR schemes compared against rainfall initially indicates that as expected, there are greater extraction volumes in lower rainfall years, and smaller volumes extracted in high rainfall years. Similarly, greater harvest quantities for injection have historically been achieved in higher rainfall years and vice versa. There is a general trend of increasing injection volumes (Figure 3.1), which would also be associated with more schemes becoming operational and the optimisation or expansion of the schemes.

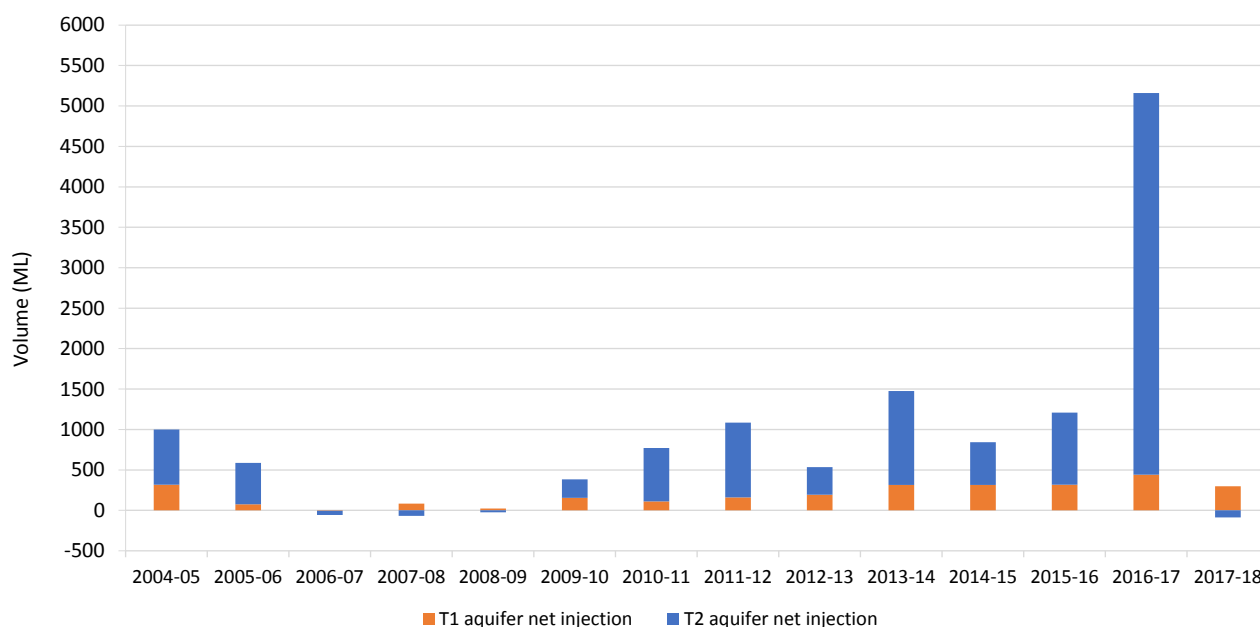


**Figure 3.1** MAR injection and extraction volumes in the Adelaide metropolitan area since 2004–05

### 3.2.2 Historical injection and recovery volumes for MAR schemes

Historically, the volume of water recharged has exceeded the volume extracted during the annual reporting period for MAR schemes targeting both the T1 and T2 aquifers<sup>1</sup>. The overall difference between the volume injected and extracted for all MAR schemes is shown in Figure 3.2 as a 'net injection volume', where a negative value indicates a higher volume has been extracted than injected. This trend has resulted in an overall surplus of 13 GL injected into the 2 Tertiary aquifers, with 2.8 GL in the T1 aquifer and 10.4 GL in the T2 aquifer. The bulk of this surplus (11.7 GL) has accumulated since 2009, with just over a third of it accumulating in 2016–17 alone.

<sup>1</sup> Historically, licence conditions unilaterally required that all MAR schemes leave 20% of the annual recharged volume in the aquifer as an environmental benefit. This condition is now assessed on a scheme-by-scheme basis.



**Figure 3.2 Net injection volumes for MAR schemes in the T1 and T2 aquifers**

### 3.2.3 Injection volumes and aquifer zone storage capacities

An analysis was undertaken to determine the maximum volume of water that has been injected in a single year for each MAR scheme. The maximum volume injected in a single year for each aquifer zone delineated in Hodgkin (2004) was then calculated. The licensed annual injection volume for each aquifer zone was also calculated. These values are summarised and compared to Hodgkin's sub-artesian, base case and maximum storage capacity values in Table 3.3 to provide the theoretical range of storage capacity where artesian conditions are expected. The maximum volume injected in a single year has not exceeded the base case storage where artesian conditions are expected in any of the aquifer zones.

**Table 3.3 Annual injection volumes and storage capacities by aquifer zone (after Hodgkin 2004)**

Aquifer zone	Injection volume (ML)		Storage capacity (ML)		
	Maximum annual injection	Licensed annual injection	Sub-artesian, maximum $S_s$	Base case artesian	Maximum artesian, maximum $S_s$
T2 NAP	5594	11 051	10 717	29 757	59 213
T1B NAP	507	1230	818	2775	5630
T2 CA	922	3190	666	15 356	34 120
T2 CA South	91	300	82	1085	2374
T1B CA	351	500	850	2918	5938
T1B CA South	48	300	21	133	281
T1 CA DCS & PWF	484	1135	511	869	1580

As shown in Figure 3.2, there is a surplus of water injected at MAR schemes in most years. The cumulative 'net injection volume' for each aquifer zone was calculated, to determine whether these zones are nearing the estimated artesian base case or maximum storage capacity volumes (Table 3.4).

A positive cumulative net injection volume over time is occurring in the NAP aquifer zones, and to a lesser extent in some of the CA zones. This implies that the cumulative volumes stored in these aquifers are beginning to approach the base case artesian storage capacities estimated for these aquifer zones and have done so in the T1B NAP zone. This provides a limitation to expansion of storage in some areas, but also provides an opportunity for increased extraction. Note that this does not describe local impress head effects on artesian conditions, as it is a description of overall aquifer storage as per the zones identified by Hodgkin (2004).

**Table 3.4 Cumulative injection volumes and storage capacities by aquifer zone (after Hodgkin 2004)**

Aquifer zone	Cumulative net injection volume since schemes active	Sub-artesian, maximum S <sub>s</sub>	Base case artesian	Maximum artesian, maximum S <sub>s</sub>
T2 NAP	10 251	10 717	29 757	59 213
T1B NAP	3501	818	2775	5630
T2 CA	1375	666	15 356	34 120
T2 CA South	22	82	1085	2374
T1B CA	74	850	2918	5938
T1B CA South	-28	21	133	281
T1 CA DCS & PWF	-106	511	869	1580

### 3.3 Artesian conditions analysis

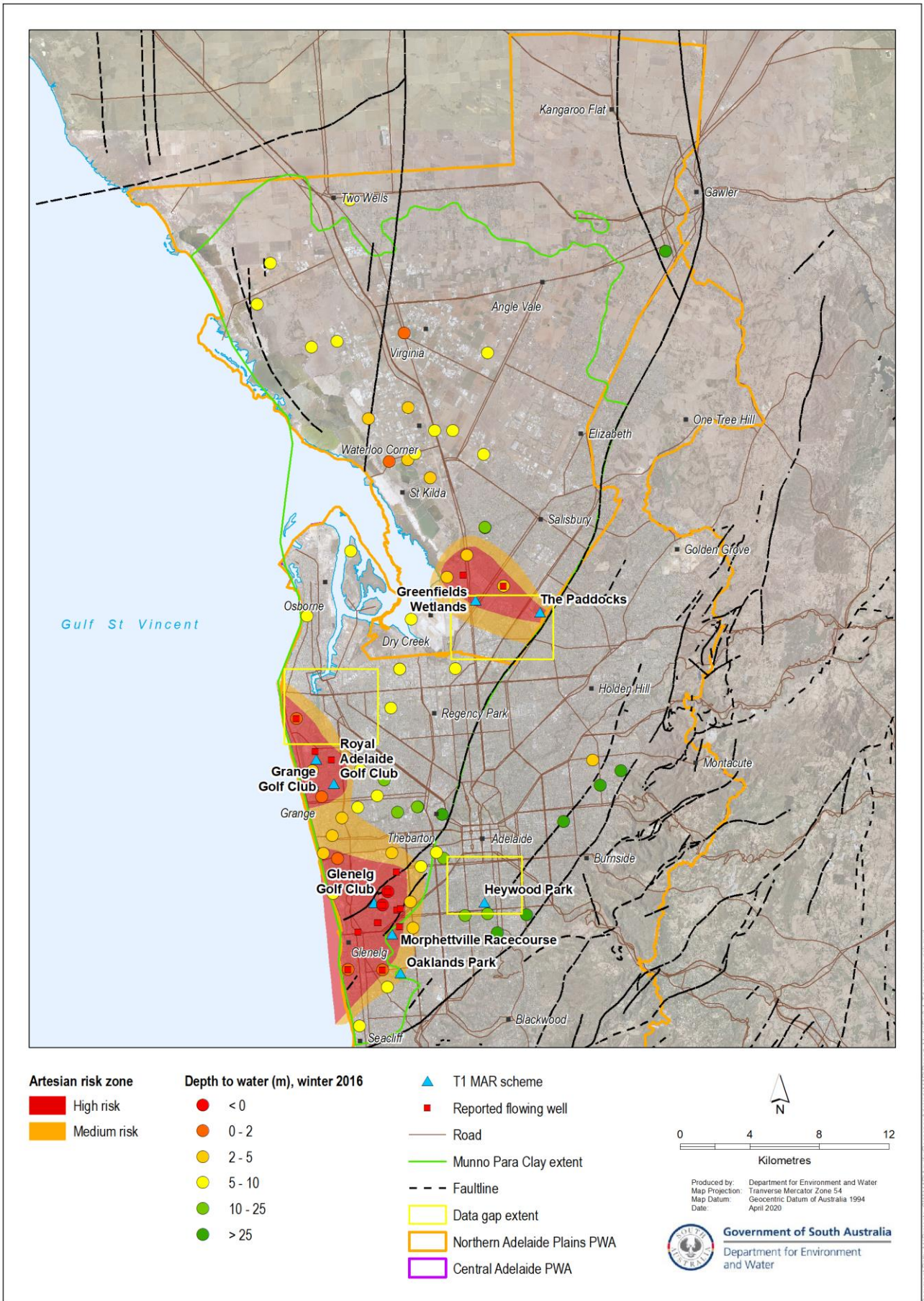
Artesian conditions occur when a well is drilled into a confined aquifer and the aquifer pressure results in a standing water level that is higher than the ground surface. Typically, well owners in the Adelaide metropolitan area have reported artesian conditions when their wells have started flowing uncontrollably. To identify areas that may be at risk of experiencing artesian conditions, but have not been previously reported as such, a risk analysis was undertaken for the wells in the NAP and CA PWAs that are targeting the T1 and T2 aquifers.

#### 3.3.1 High risk vs medium risk vs low risk-areas

To quantify the expected risk to wells in the Adelaide metropolitan area, criteria were selected for 3 risk categories (Table 3.5). Maps showing the medium and high-risk artesian zones for the T1 and T2 aquifers were created based on these criteria and are presented as Figure 3.3 and Figure 3.4.

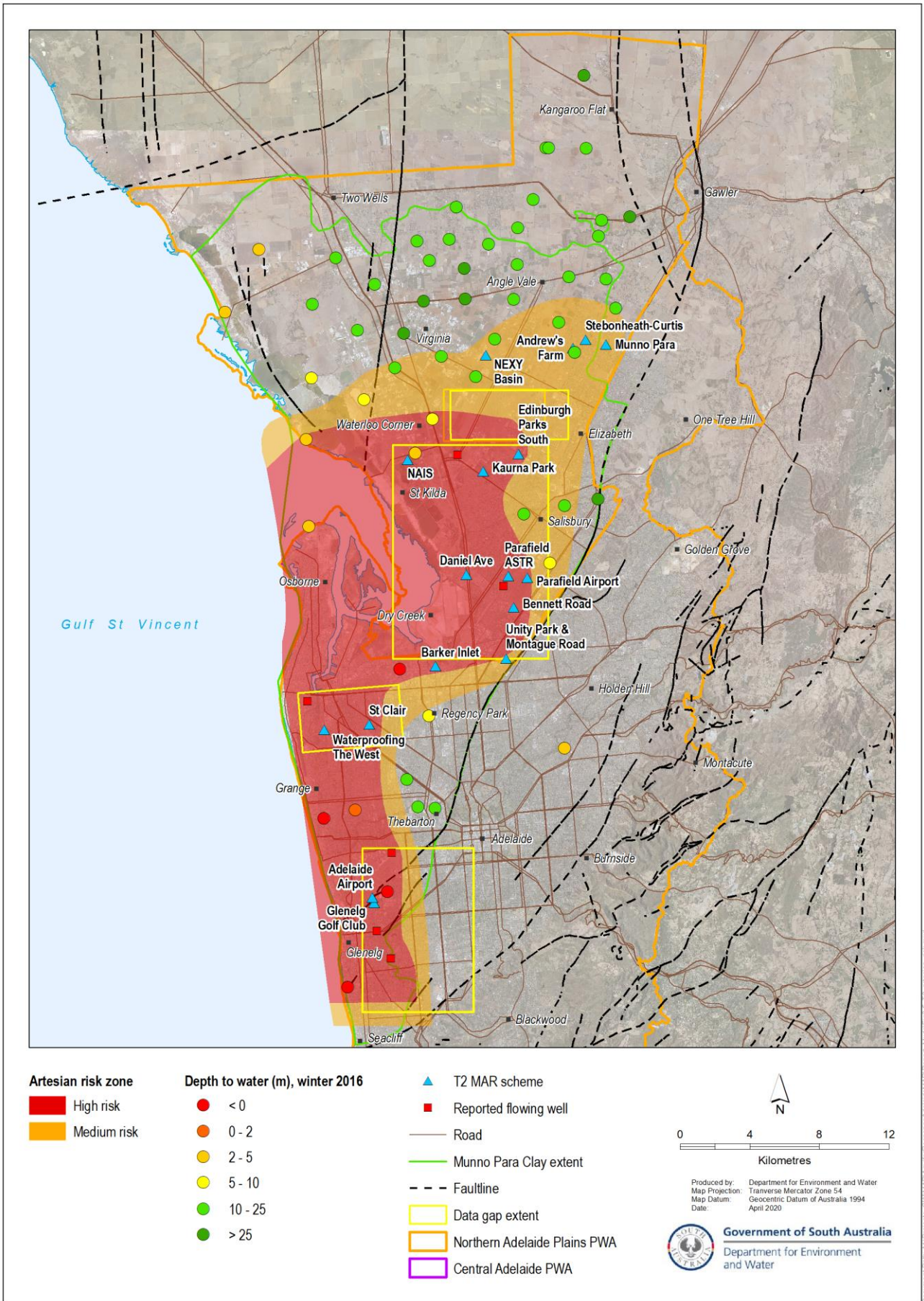
**Table 3.5 Risk analysis categorisation criteria**

Category	Criteria
High	<ul style="list-style-type: none"> <li>locations adjacent to existing MAR schemes where artesian conditions have been previously reported to DEW</li> <li>locations adjacent to existing MAR schemes where the standing water level (based on monitoring well data from 2016–17) is expected to be above or close to surface ground level</li> <li>locations adjacent to NAIS wells in the T2 aquifer</li> </ul>
Medium	<ul style="list-style-type: none"> <li>locations adjacent to existing MAR schemes where the standing water level is 2 to 5 m below ground level</li> <li>locations adjacent to NAIS in the T2 aquifer where artesian conditions may become more likely in future</li> </ul>
Low	<ul style="list-style-type: none"> <li>locations that are targeted by MAR schemes, but without evidence of artesian conditions becoming more likely in future based on existing user behaviour</li> </ul>



**Figure 3.3 Artesian risk of the T1 aquifer**





**Figure 3.4 Artesian risk of the T2 aquifer**

### 3.3.2 Monitoring well data

Areas identified as medium and high-risk zones were investigated in greater detail to provide additional certainty for the analysis. Monitoring wells within these higher-risk areas were identified and hydrographs created, with standing water level (depth below ground level) data presented for key monitoring wells for the period 2005 to 2019 (Figure 3.5 and Figure 3.6).

#### 3.3.2.1 T1 aquifer trends

It is apparent that the south-western suburbs display more varied groundwater trends, with some wells indicating local declines in groundwater pressure level over time, and some a rise over time. The rising trend in the groundwater pressure level in the western suburbs of the CA PWA is considerable and appears to begin in 2007. Figure 3.5 shows that artesian conditions have been recorded in several wells across the CA PWA since 2016, namely ADE014 in Camden Park, NOA043 in Glengowrie and NOA002 in Somerton Park. YAT117 in West Lakes Shore (hydrograph not shown) has also reported artesian conditions since 2016. It should be noted that ADE014 and NOA002 have recorded artesian conditions in the 1940s, 1950s, 1960s and 1980s. YAT037 in Grange has recently recorded close to artesian conditions and shows similar conditions in the late 1930s and 1950s.

#### 3.3.2.2 T2 aquifer trends

The groundwater pressure level measured in T2 monitoring wells shows a rising trend from approximately 2013 onwards in the CA PWA. This trend is deemed to be significant, with considerable winter recovery seen in some wells.

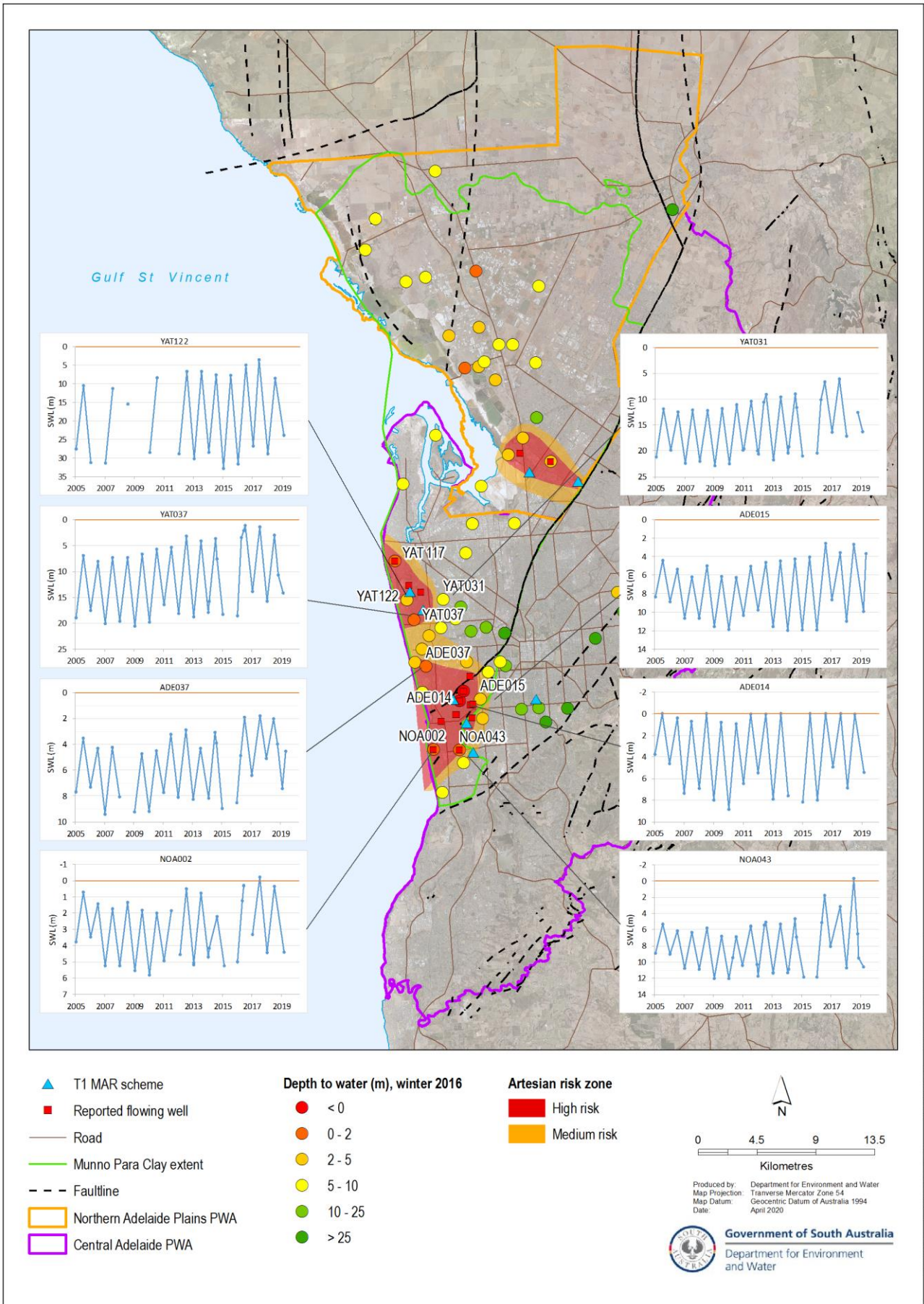
PTA163 is in the suburb of Port Adelaide and has recorded a rise in groundwater pressure level of around 4 m since 2014 and was recorded as flowing in 2019. It should be noted that PTA163 is located nearly 4 km north of the Waterproofing the west MAR scheme and nearly 4 km south of the Penrice soda ash plant at Osborne, which is now defunct. Penrice stopped extracting significant volumes of groundwater from the T1 and T2 aquifers in 2013. A state monitoring well located at the plant, PTA160, shows that the pressure level in the T2 aquifer rose by about 23 m between 2011 and 2014, and a further 6 m between 2014 and 2017.

PTA67 and YAT53 are in the suburbs of Wingfield and Regency Park, about 2 to 3 km from the Barker Inlet MAR scheme and 5 to 6 km from the Waterproofing the west scheme. They have recorded a rise in groundwater pressure of 12 to 13 m since 2013, with PTA67 recording artesian conditions in the 3 years from 2016 to 2018.

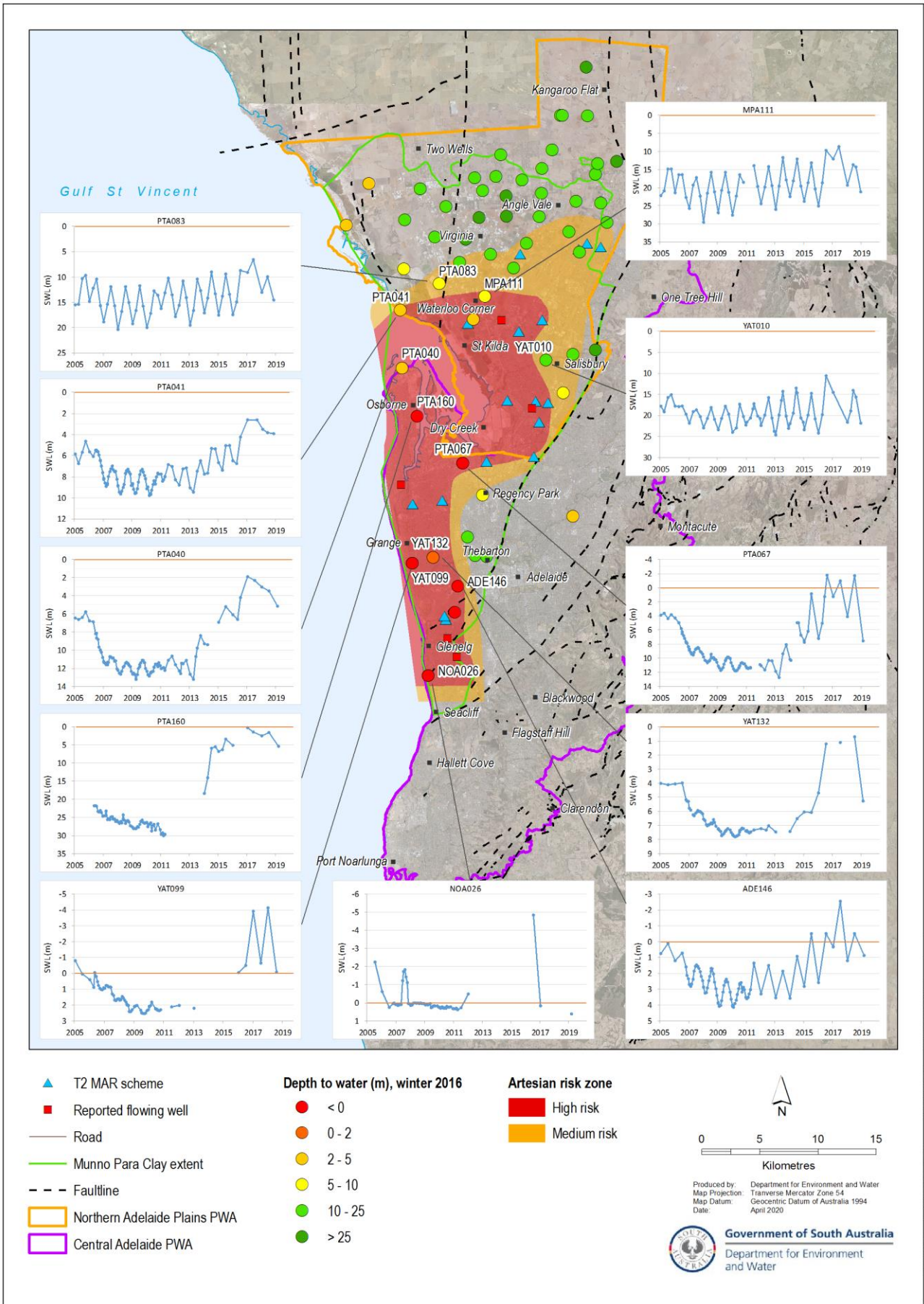
YAT66, YAT132 and YAT99 are in the suburbs of Allenby Gardens, Kidman Park and Henley Beach, nearly 5 km south of the Waterproofing the west scheme and about 5 km north of the Adelaide Airport MAR. These wells have recorded groundwater pressure level rises of 6 m since 2014. YAT99 has recorded artesian conditions between 1983 and 2005 and again since 2016.

This trend of rising levels is also seen in the NAP PWA wells; however the trend appears to be less pronounced and begins earlier, in 2007. This could be due to a combination of the factors described in Section 2.2 and the surplus injection into the aquifer as described in Section 3.2.2. Figure 3.6 shows that like the T1 aquifer, artesian conditions have been recorded in several T2 aquifer wells across the CA PWA since 2016, namely PTA067 in Wingfield, ADE146 in Export Park, NOA026 in North Brighton and YAT099 in Henley Beach. It should be noted that these wells have also recorded artesian conditions since the 1980s. The water level in PTA160 in Osborne came within 30 cm of the ground surface in 2017, and PTA040 and PTA041 recorded water levels within 2 to 3 m of the ground surface in 2016.





**Figure 3.5 T1 aquifer monitoring well data**



**Figure 3.6 T2 aquifer monitoring well data**



### 3.4 Affected groundwater users

The development of artesian conditions has highlighted the risk of uncontrolled flowing wells and the resulting potential for damage to infrastructure. Historically, the potential impacts of individual schemes have been assessed, however the cumulative impacts of the operation of all the schemes in a localised area was not considered. In response to the reports of uncontrolled flowing wells, and the ongoing development or expansion of the MAR schemes coupled with reduced groundwater extraction, Green Adelaide seek an estimate of how many wells are at risk and where they are located.

Using the medium and high-risk artesian extents identified in Section 3.3, DEW's Groundwater Data drillhole database was surveyed to identify the wells that may not have the required headworks infrastructure to contain artesian pressure. The process of identifying the number and location of wells was developed using the following approach:

1. identification of all known wells that are located within the medium and high-risk zones
2. wells targeting Quaternary, fractured rock or deeper Tertiary aquifer systems were removed
3. wells classified as a water point (WP) were removed
4. wells where the status is designated as backfilled were removed
5. wells that form part of a licensed MAR scheme were removed, as it is considered that these wells have the appropriate headworks to manage artesian conditions
6. wells listed to have been constructed under a Class 3 drilling permit were removed
7. wells in the NAIS modelled 'zone of influence' that were recently inspected by the DEW Drilling Inspector and deemed to have the appropriate headworks were removed
8. DEW monitoring wells and private wells known to have been rehabilitated to manage artesian conditions were removed
9. creation of a subset of wells that are recorded to have been completed in the T1 and T2 aquifers, or wells where an 'aquifer monitored' has not been assigned
10. where an 'aquifer monitored' has not been assigned, the lithological log (where available) was reviewed to attempt to identify the aquifer
11. where a lithological log is not available the well depth was compared to the Tertiary aquifer hydrostratigraphic layers developed by the Water Science and Monitoring Branch, or nearby lithological logs were reviewed to assign a target aquifer
12. wells that have a current (2016–2018) water level of more than 10 metres below ground level were removed.

A conservative/high-risk approach was taken, which included:

- Wells where the status is designated as abandoned have been retained in the data set, as abandoned does not necessarily mean that the well has been backfilled correctly.
- A Class 3 drilling permit allows drilling operations in flowing aquifer systems, so any well that was not known to have been drilled with a Class 3 drilling permit was included.
- Wells that do not have an assigned depth but had an 'aquifer monitored' have also been included, as the risk cannot be quantified.
- Wells that do not have an assigned depth nor an 'aquifer monitored' have also been included, as the risk cannot be quantified. Where these wells are in both a T1 and T2 aquifer risk zone, the well was assigned to the T1 aquifer as it was considered more likely that, based on their location, the wells would target the shallower and fresher aquifer.

A total of 259 wells have been identified in the high-risk areas and 305 within the medium-risk areas of the T1 and T2 aquifers (Table 3.6). This includes 123 wells in the T1 aquifer and 136 wells in the T2 aquifer potentially at high risk of experiencing flowing artesian conditions. The locations of these wells are presented in Figure 3.7 and Figure 3.8. Figure 3.8 includes the status of wells already inspected by the Drilling Inspector. There are 26 DEW monitoring wells that have been identified in the high-risk zones that do not have headworks appropriate for controlling artesian flow. Twelve are current monitoring wells, with 8 of these—PTA 40, PTA 76, PTA 94, PTA159, PTA 160, PTA 163, YAT132 and YAT137—having a recent water pressure level reading of less than 2 metres below ground level. These monitoring wells should be prioritised for the sealing of headworks. The full list of at-risk wells can be found in Appendix A.

**Table 3.6 Number of wells located within the high and medium risk zones potentially at risk of flowing uncontrollably**

Risk zone	T1		T2	
	Known depth	Depth unknown	Known depth	Depth unknown
NAP – High	6	19	70	23
NAP – Medium	8	10	141	48
CA – High	85	13	25	18
CA – Medium	76	11	5	6

### 3.5 On-ground inspection of wells

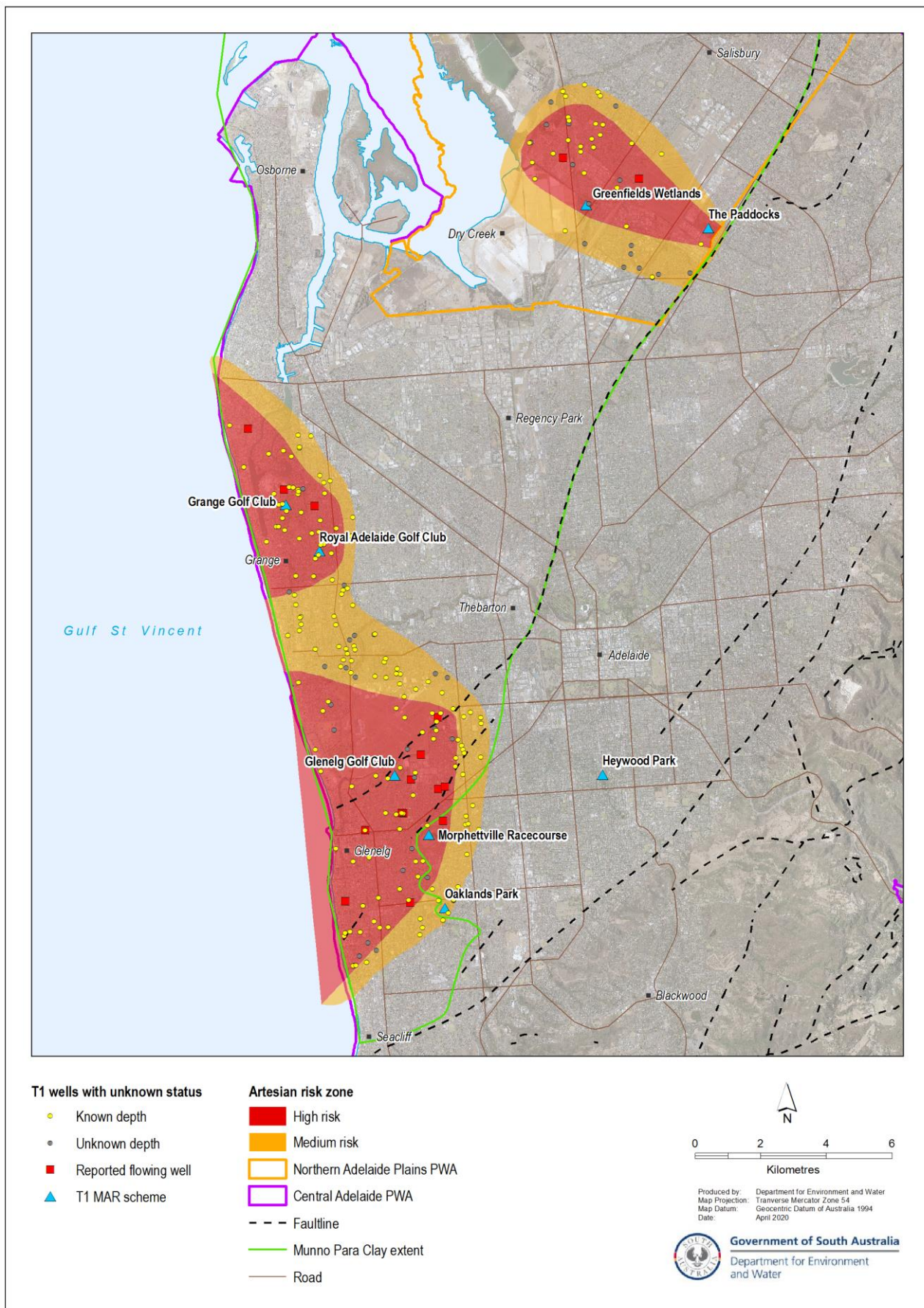
Many wells have been identified to have a medium to high risk of artesian conditions. An on-ground survey of each well would be required to accurately identify those wells that would require rehabilitation works to reduce the risk of damage if uncontrolled flowing occurs.

Information captured during field investigations such as status, location, condition, headworks, risk profile and photographic evidence should be uploaded to the State’s drillhole database, SA Geodata. This will allow MAR operators to access the updated well information via DEW’s Groundwater Data information system on the WaterConnect website should wells begin to flow in the future.

Due to the recent implementation of NAIS, the highest priority should be given to the identified high-risk region of the T2 aquifer in the NAP PWA and north-western area of the Central Adelaide PWA (Figure 3.8). As mentioned previously, DEW’s Drilling Inspector recently conducted a well inspection program in the NAIS modelled ‘zone of influence’, which has considerable overlap with the medium and high-risk areas of the NAP PWA, but there are still a considerable number of wells assigned to the T2 aquifer in this area where the status of the well remains unknown. It should be noted that more than 15 of these wells are located within the boundaries of the Bolivar wastewater treatment plant, which is the primary recharge site for the NAIS project.

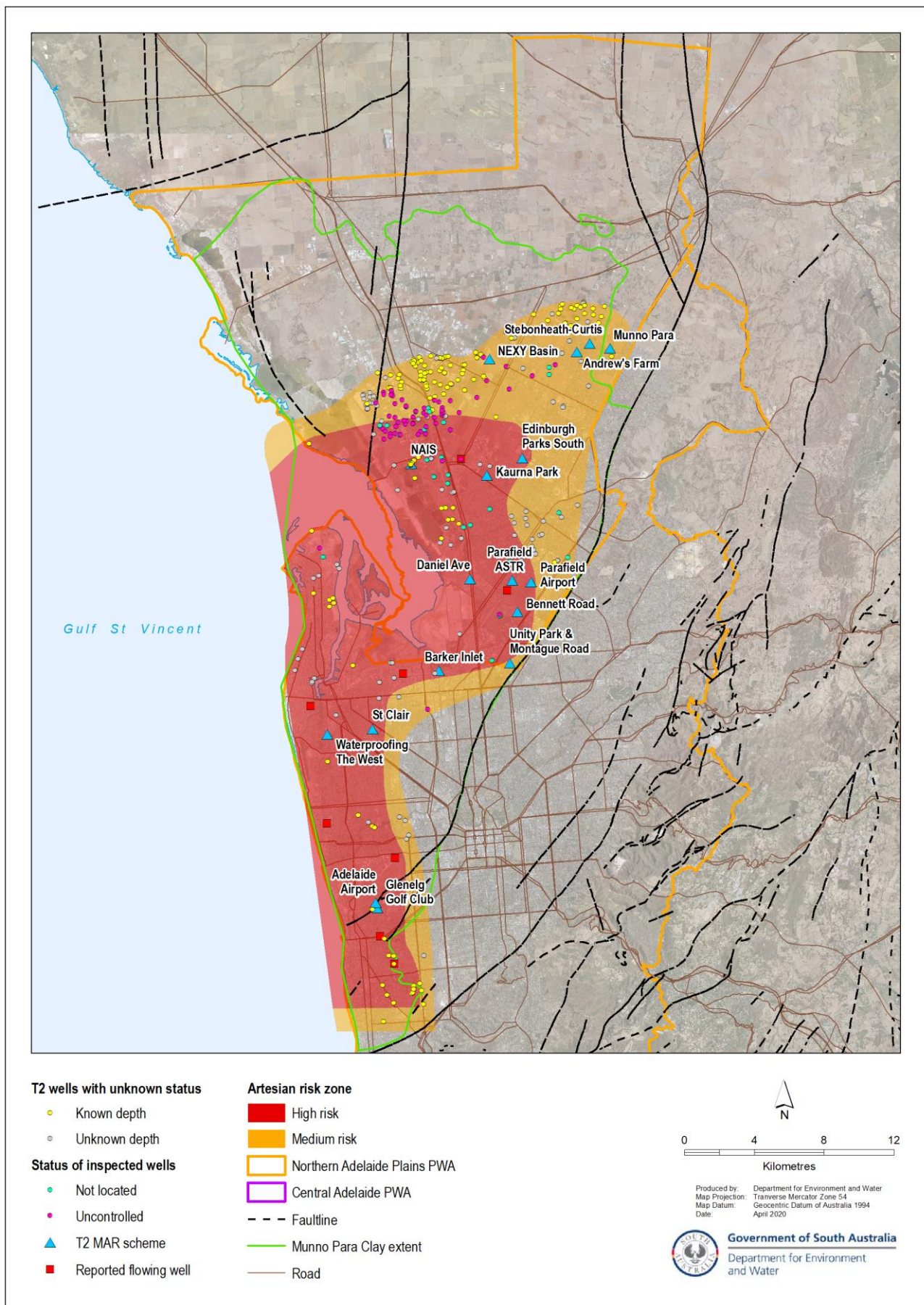
The second priority should be given to the wells within the remaining high-risk zone of the Central Adelaide PWA for the T2 aquifer and the high-risk zones identified in the T1 aquifer.

The wells at medium risk could either be inspected, or DEW’s uncontrolled flowing wells procedure implemented, whereby no action is taken until a flowing well is reported and the Drilling Inspector responds accordingly (Appendix B).



**Figure 3.7 Wells assigned to the T1 aquifer at risk of experiencing artesian conditions**





**Figure 3.8 Wells assigned to the T2 aquifer at risk of experiencing artesian conditions**



# 4 Conclusion

## 4.1 Summary

There are 24 approved MAR schemes operating across the NAP and CA PWAs that target the Tertiary-aged T1 and T2 aquifers. This assessment aimed to characterise the pressure level response of these aquifers to licensed groundwater extraction and the operation of MAR schemes across the Adelaide metropolitan area. A review of groundwater level trends identified that generally in the areas near active MAR schemes and where groundwater extraction has been notably reduced, there is a rising trend in aquifer pressure in both the T1 and T2 aquifers.

The amount of water being recharged by MAR schemes is significantly lower than the licensed volumes. Nevertheless, in most years, there is more water recharged into the T1 and T2 aquifers than extracted. This has resulted in a total net recharge to the aquifers of 13 GL over the period 2004–05 to 2017–18. This comprises 2.8 GL/y in the T1 aquifer and 10.4 GL/y in the T2 aquifer.

The maximum injection volume in a single year has not exceeded the base case storage where artesian conditions are expected in any of the aquifer zones. However, in the 2 NAP aquifer zones a positive cumulative net injection volume over time is occurring. And, in the case of the T1B NAP zone, the cumulative net injection volume has exceeded the base case artesian conditions estimated by Hodgkin (2004) for this aquifer zone.

The cumulative net injection volumes from MAR schemes coupled with a decrease in groundwater extraction in some areas has created a risk of artesian conditions occurring. Where a well is not appropriately sealed, the resultant uncontrolled flow could result in damage to infrastructure. A risk analysis was carried out to identify the medium and high-risk areas for artesian conditions, and the state drillhole database was used to identify the wells at risk of experiencing uncontrolled flowing conditions.

A total of 259 wells have been identified within the high-risk areas and 305 within the medium-risk areas for the T1 and T2 aquifers. However, this is likely to be an overestimation of the number of wells as a conservative/high-risk approach was taken. An inspection program is recommended to assess the current headworks of the identified wells in the high-risk zones to determine if they are suitable to control artesian pressures. Due to the recent implementation of NAIS, which aims to recharge 4.05 GL/y to the T2 aquifer in the NAP PWA, this region is considered the highest priority for inspection followed by the high-risk areas in the CA PWA and the T1 aquifer. Note that SA Water are taking a proactive approach to managing high-risk wells in the T2 aquifer in the area identified by numerical modelling as likely to experience artesian conditions caused by the MAR scheme at Bolivar as part of NAIS.

## 4.2 Limitations

The following aspects were identified as limitations to the work undertaken:

- The number of wells affected is likely to be an overestimation due to the conservative/high-risk approach taken. For example:
  - Due to time limitations, the information from DEW's Groundwater Data drillhole database was used without independent validation and consequently, some wells may be incorrectly assigned to an aquifer.
  - It is difficult to accurately classify the construction and depth of some wells located within the high and medium-risk zones because of missing well information.
- Wells known to have been drilled with a Class 3 drilling permit (which allows drilling operations in flowing aquifer systems) were not included in the initial analysis. However, if artesian conditions are not present at

the time of well completion, there is a risk that the driller will not adequately seal the well with pressure cementing.

- This report only considers the risk of wells flowing uncontrollably due to artesian conditions. It should be noted that once flowing wells are capped with appropriate headworks to prevent flow at the surface, there is still a risk to the integrity of the well if the well has not been drilled under Class 2 or 3 drilling conditions. The age and construction material of the well can also compromise the well integrity. This could pose a risk of inter-aquifer leakage occurring. Additionally, wells that are not pressure cemented may not show any artesian conditions or expression at the surface. Any water migrating up the annulus of the well may be lost to the overlying Quaternary-aged aquifers before it gets close to the surface.
- At the time of writing, the statewide monitoring network did not extend across all regions of the Adelaide metropolitan area and the frequency of water level monitoring did not allow for accurate monitoring of artesian conditions. Therefore, a level of interpretation was adopted when inferring the risk extents of artesian conditions. These areas are highlighted in yellow boxes on the artesian risk maps (Figure 3.3 and Figure 3.4). DEW, with the cooperation of several MAR scheme operators, have since installed a set of telemetered loggers across metropolitan Adelaide to help monitor artesian conditions, including these data-poor areas.
- Groundwater extraction data in the NAP PWA is reported as an annual total, meaning seasonal trends could not be identified.
- Groundwater extraction in the in the CA PWA is in the process of being licensed. As part of this process, meters will be installed but until then, accurate extraction data is not available.
- Some of the artesian conditions, especially in the western suburbs, may be exacerbated by the subsurface geometry of the aquifer systems associated with faulting. For example, it is not known how far the Redbanks Fault extends south or if there are other features similar to the Brighton Fault along the western margin.

### 4.3 Recommendations

Three key recommendations are made:

1. **Increased data collection** to better understand the hydrogeological response of the aquifers to extraction and recharge. DEW has installed telemetered data loggers in 18 wells in the high-risk areas to determine the spatial extent of artesian conditions during variable recharge years. An additional 8 monitoring wells have been allocated to the medium-risk zones. The installation of telemetered data loggers will help determine the best timing of monitoring to capture artesian conditions. It will also allow MAR operators to assess pressure levels in real enabling them to adapt operations as needed and respond accordingly if flowing wells are identified.
2. **Further analysis of the groundwater extraction profile** (annual and seasonal, i.e. monthly) across the NAP and CA PWAs. DEW is implementing a State Water Register through its Water Management Solutions program that will allow groundwater users to upload their extraction data through a 24/7 self-service customer portal. NAP and CA users will be encouraged to submit their data monthly. This is to support the development of a more robust and defensible numerical groundwater flow model for the Adelaide metropolitan area. Understanding the distribution of groundwater extraction over the winter period is crucial to a better understanding of the impacts.
3. **On-ground validation of wells located within the high-risk areas** will inform decision-making on an appropriate course of action to address the flowing wells issue.

# 5 Appendices

## A. Wells at risk of experiencing artesian conditions

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
652800254	PTA 40	T2 High	Central Adelaide	Tomw(T2)	7/02/1968	225	STL	OUTER HARBOR	270868.1476	6150198.981
652800288		T2 High	Central Adelaide	Tomw(T2)	22/07/1952	170.69		OSBORNE	270957.7719	6146620.295
652802823		T2 High	Central Adelaide					SEMAPHORE	269903.1641	6142184.994
652802875		T2 High	Central Adelaide					NORTH HAVEN	270964.2021	6147482.027
652802902		T2 High	Central Adelaide					LARGS BAY	270322.3199	6143418.772
652802962		T2 High	Central Adelaide					NEW PORT	271014.2318	6141730.481
652802965		T2 High	Central Adelaide					NEW PORT	270869.4317	6141452.482
652802969		T2 High	Central Adelaide					NEW PORT	270882.8579	6141541.007
652802986		T2 High	Central Adelaide					LARGS BAY	270061.159	6142852.996
662701622	NOA 4	T2 High	Central Adelaide	Tomw(T2)	1/09/1934			WARRADALE	274922.6496	6124124.329
662701671		T2 High	Central Adelaide	Tomw(T2)		100.58		WARRADALE	275178.686	6123568.329
662701677		T2 High	Central Adelaide	Tomw(T2)	9/01/1946	176.78		OAKLANDS PARK	275556.7275	6123126.219
662707895		T2 High	Central Adelaide	Tomw(T2)	23/09/1988	89.5		MARION	276597.1134	6123646.961
662708325		T2 High	Central Adelaide	Tomw(T2)	22/10/1990	100		MARION	276693.6987	6124103.199
662714367		T2 High	Central Adelaide	Tomw(T2)	17/01/2011	100		MARION	276665.1495	6123703.018
662715555		T2 High	Central Adelaide	Tomw(T2)		81.7		MARION	276704.1661	6123896.001
662803369		T2 High	Central Adelaide					OSBORNE	272318.7903	6148270.275
662804379		T2 High	Central Adelaide					WINGFIELD	277916.7726	6142026.259

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662804385		T2 High	Central Adelaide					WINGFIELD	275393.7888	6142630.305
662804386		T2 High	Central Adelaide					WINGFIELD	275481.7592	6142633.237
662804396		T2 High	Central Adelaide					WINGFIELD	275582.7872	6141755.296
662804411		T2 High	Central Adelaide					OTTOWAY	274738.7592	6141510.265
662807453		T2 High	Central Adelaide					KIDMAN PARK	274121.7528	6133485.271
662807457		T2 High	Central Adelaide	Tomw(T2)	1/04/1931	254.51		KIDMAN PARK	274339.7238	6133248.236
662807630		T2 High	Central Adelaide	Tomw(T2)	1/01/1932	264.57		LOCKLEYS	274468.7208	6133189.261
662807848		T2 High	Central Adelaide	Tomw(T2)	14/01/1930	170.69		NOVAR GARDENS	274350.7637	6128485.225
662807875		T2 High	Central Adelaide	Tomw(T2)	1/01/1914	92.96		GLENELG EAST	275016.705	6126812.273
662807917		T2 High	Central Adelaide	Tomw(T2)	1/01/1933	65.53		GLENGOWRIE	275282.7012	6125843.265
662807926		T2 High	Central Adelaide	Tomw(T2)	20/12/1967	94.49		MORPHETTVILLE	275549.7566	6125808.22
662808640		T2 High	Central Adelaide					QUEENSTOWN	272257.7	6139641.214
662808654		T2 High	Central Adelaide	Tomw(T2)	10/05/1962	604.42		GRANGE	271776.2903	6136964.419
662808849		T2 High	Central Adelaide					PENNINGTON	274729.7478	6140585.333
662811153	YAT 132	T2 High	Central Adelaide	Tomw(T2)	9/10/1979	244		KIDMAN PARK	273527.446	6133887.807
662813488	NOA 32	T2 High	Central Adelaide	Toc(T2)	30/10/1985	238		MORPHETTVILLE	275580.7128	6125341.235
662815205	PTA 160	T2 High	Central Adelaide	Tomw(T2)	6/12/1989	243		TAPEROO	272133.2821	6146059.043
662819729		T2 High	Central Adelaide					NORTH HAVEN	271264.7368	6147640.365
662819875		T2 High	Central Adelaide	Tomw(T2)	12/03/1997	162	PVC	OUTER HARBOR	271307.156	6149197.993
662822421		T2 High	Central Adelaide	Tomw(T2)	28/10/2005	220		OSBORNE	271869.1529	6146238.958
662822559		T2 High	Central Adelaide	Tomw(T2)	16/02/2006	194		TAPEROO	271887.1272	6145851.022
662822560		T2 High	Central Adelaide	Tomw(T2)	23/02/2006	194		OSBORNE	272087.5022	6146335.622

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662824911	PTA 163	T2 High	Central Adelaide	Tomw(T2)	12/08/2009	164		OUTER HARBOR	271515.1712	6148693.977
662827436		T2 High	Central Adelaide	Tomw(T2)		185		GILLMAN	273213.1982	6142478.94
662829209		T2 High	Central Adelaide					OSBORNE	272439.3605	6148042.722
652800252	PTA 41	T2 High	Northern Adelaide Plains	Tomw(T2)	25/08/1961	137.16	STL	BUCKLAND PARK	270699.9764	6155197.349
662803005		T2 High	Northern Adelaide Plains					SALISBURY NORTH	282005.7684	6153304.31
662803008		T2 High	Northern Adelaide Plains					BURTON	281067.7927	6153915.224
662803026		T2 High	Northern Adelaide Plains					BURTON	280520.7792	6154011.295
662803287		T2 High	Northern Adelaide Plains	Tomw(T2)		97.54		PARALOWIE	279955.7581	6150517.279
662803333		T2 High	Northern Adelaide Plains	Tomw(T2)	12/07/1934			BOLIVAR	278299.786	6149774.354
662803335		T2 High	Northern Adelaide Plains					BOLIVAR	278229.7894	6149517.273
662803337		T2 High	Northern Adelaide Plains	Tomw(T2)	1/01/1962	119		BOLIVAR	279561.7386	6150394.295
662803343		T2 High	Northern Adelaide Plains					BOLIVAR	278588.7861	6150373.349
662803345		T2 High	Northern Adelaide Plains					BOLIVAR	279454.7952	6149778.285
662803405		T2 High	Northern Adelaide Plains					BOLIVAR	278840.728	6149385.268
662803808		T2 High	Northern Adelaide Plains	Tomw(T2)	1/08/1965	103.63		WATERLOO CORNER	278810.1333	6155991.996
662803810		T2 High	Northern Adelaide Plains					WATERLOO CORNER	278527.7826	6156787.246
662803815		T2 High	Northern Adelaide Plains	Tomw(T2)	1/10/1966	115.82		WATERLOO CORNER	277909.132	6156696.998
662803838		T2 High	Northern Adelaide Plains					BOLIVAR	278943.839	6152387.274
662803839		T2 High	Northern Adelaide Plains					BOLIVAR	279021.8103	6152440.314
662803846		T2 High	Northern Adelaide Plains		1/01/1962			WATERLOO CORNER	278323.8006	6152573.355
662803863		T2 High	Northern Adelaide Plains					WATERLOO CORNER	278665.8233	6152911.345
662803868		T2 High	Northern Adelaide Plains	Tomw(T2)	22/09/1934	127.41		WATERLOO CORNER	278665.8428	6152914.342

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662803873	PTA 8	T2 High	Northern Adelaide Plains	Tomw(T2)	11/08/1950			WATERLOO CORNER	278688.8378	6153394.263
662803876		T2 High	Northern Adelaide Plains	Tomw(T2)	1/01/1933			WATERLOO CORNER	277877.8295	6153297.357
662803880		T2 High	Northern Adelaide Plains	Tomw(T2)	2/06/1938	106.68		ST KILDA	276777.8152	6153228.333
662803891		T2 High	Northern Adelaide Plains	Tomw(T2)		152.4		WATERLOO CORNER	277454.7899	6154275.291
662803896		T2 High	Northern Adelaide Plains					WATERLOO CORNER	277722.8186	6154347.364
662803898		T2 High	Northern Adelaide Plains					WATERLOO CORNER	277722.8186	6154347.364
662803904		T2 High	Northern Adelaide Plains	Tomw(T2)		160.32		WATERLOO CORNER	278308.6993	6154409.333
662803948		T2 High	Northern Adelaide Plains					WATERLOO CORNER	277598.6822	6154653.365
662804003		T2 High	Northern Adelaide Plains	Tomw(T2)	23/12/1968	114.3		WATERLOO CORNER	276292.18	6156491.033
662804009		T2 High	Northern Adelaide Plains					WATERLOO CORNER	276975.7083	6156610.278
662804010	PTA 18	T2 High	Northern Adelaide Plains					WATERLOO CORNER	277485.737	6156737.268
662804024		T2 High	Northern Adelaide Plains	Tomw(T2)	25/05/1973	106.68		WATERLOO CORNER	275174.1426	6156252.999
662804030		T2 High	Northern Adelaide Plains	Tomw(T2)	2/11/1964	103.63		WATERLOO CORNER	275071.1411	6155906.993
662804031		T2 High	Northern Adelaide Plains	Tomw(T2)	3/11/1964	104		WATERLOO CORNER	275391.1903	6155761.968
662804032		T2 High	Northern Adelaide Plains	Tomw(T2)	1/01/1967	116.13	STL	WATERLOO CORNER	275368.1451	6155610
662804037		T2 High	Northern Adelaide Plains	Tomw(T2)	20/03/1959	19.41		WATERLOO CORNER	275897.8299	6155709.382
662804041		T2 High	Northern Adelaide Plains	Tomw(T2)	21/07/1964	117.35	STL	WATERLOO CORNER	275939.1451	6155702.996
662804087		T2 High	Northern Adelaide Plains	Tomw(T2)	1/01/1964	114.3		WATERLOO CORNER	274761.1611	6156219.965
662804089		T2 High	Northern Adelaide Plains	Tomw(T2)	10/03/1973	106.68		WATERLOO CORNER	274896.145	6156062.003
662804091		T2 High	Northern Adelaide Plains		1/01/1962			BUCKLAND PARK	274420.8324	6155745.238
662804092	PTA 38	T2 High	Northern Adelaide Plains		1/01/1962			ST KILDA	275580.7422	6153968.281
662804125		T2 High	Northern Adelaide Plains					ST KILDA	275800.7777	6152542.278

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662804350		T2 High	Northern Adelaide Plains					DRY CREEK	279341.8159	6144272.191
662804861		T2 High	Northern Adelaide Plains	Tomw(T2)	30/04/1951	116.43	STL	PARALOWIE	281066.8212	6151454.253
662805044		T2 High	Northern Adelaide Plains					SALISBURY DOWNS	282504.7975	6149951.315
662805155		T2 High	Northern Adelaide Plains	Tomw(T2)				PARAFIELD GARDENS	282240.7637	6148440.285
662805239		T2 High	Northern Adelaide Plains					PARAFIELD GARDENS	282866.8124	6148499.28
662806904	YAT 8	T2 High	Northern Adelaide Plains	Tomw(T2)	11/09/1919	249.94		POORAKA	281208.7668	6142765.164
662807162		T2 High	Northern Adelaide Plains	Tomw(T2)	15/08/1978	115	STL	WATERLOO CORNER	277110.1353	6155895.996
662813834	MPA 111	T2 High	Northern Adelaide Plains	Tomw(T2)	12/12/1986	135.1	PVC+STL	WATERLOO CORNER	277983.8017	6156376.248
662814321		T2 High	Northern Adelaide Plains	Tomw(T2)	15/12/1988	122	WST	WATERLOO CORNER	276673.1406	6156379.964
662815129		T2 High	Northern Adelaide Plains	Tomw(T2)	17/11/1989	122	WST	WATERLOO CORNER	276663.137	6156348
662815419		T2 High	Northern Adelaide Plains	Tomw(T2)	18/09/1990	103	WST	WATERLOO CORNER	276216.1705	6156311.044
662815534		T2 High	Northern Adelaide Plains	Tomw(T2)	10/01/1991	92	WST	WATERLOO CORNER	274767.7781	6156234.223
662815930		T2 High	Northern Adelaide Plains	Tomw(T2)	5/12/1991	103.6	FRP	WATERLOO CORNER	278420.7273	6156425.285
662816496		T2 High	Northern Adelaide Plains	Tomw(T2)	1/12/1992	97.5	PVC	WATERLOO CORNER	277341.7094	6156018.339
662816792		T2 High	Northern Adelaide Plains	Tomw(T2)	13/04/1993	103.6	PVC	WATERLOO CORNER	277380.1406	6155773.001
662818189		T2 High	Northern Adelaide Plains	Tomw(T2)	3/02/1997	116	PVC	WATERLOO CORNER	278358.1516	6156828.005
662818248		T2 High	Northern Adelaide Plains	Tomw(T2)	20/11/1996	200.5	FRP+PVC	MAWSON LAKES	281641.8695	6145323.256
662818249		T2 High	Northern Adelaide Plains	Tomw(T2)	25/11/1996	180	FRP+PVC	MAWSON LAKES	281626.8001	6145333.331
662818250		T2 High	Northern Adelaide Plains	Tomw(T2)	1/12/1996	198	FRP+PVC	MAWSON LAKES	281631.8087	6145388.279
662818572		T2 High	Northern Adelaide Plains	Tomw(T2)	31/03/1997	117.3	PVC	WATERLOO CORNER	275685.1883	6156184.026
662818787		T2 High	Northern Adelaide Plains	Tomw(T2)	20/11/1997	122	PVC	WATERLOO CORNER	279417.1269	6154318.007
662818949		T2 High	Northern Adelaide Plains	Tomw(T2)	27/03/1998	114	PVC	WATERLOO CORNER	277765.1327	6154593

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662819034	PTA 94	T2 High	Northern Adelaide Plains	Tomw(T2)	26/06/1998	170	PVC	WATERLOO CORNER	276627.9235	6154111.302
662819035		T2 High	Northern Adelaide Plains	Tomw(T2)	20/06/1998	170.8	PVC	WATERLOO CORNER	276739.922	6154246.322
662819134		T2 High	Northern Adelaide Plains	Tomw(T2)	24/09/1998	171.5	PVC	WATERLOO CORNER	276978.5717	6154411.271
662819180		T2 High	Northern Adelaide Plains	Tomw(T2)	13/10/1998	156.8	PVC	WATERLOO CORNER	276578.9636	6154063.385
662819181		T2 High	Northern Adelaide Plains	Tomw(T2)	16/10/1998	139	PVC	WATERLOO CORNER	276582.8853	6154060.373
662819182		T2 High	Northern Adelaide Plains	Tomw(T2)	20/10/1998	124	PVC	WATERLOO CORNER	276586.8986	6154057.362
662819183		T2 High	Northern Adelaide Plains	Tomw(T2)	23/10/1998	109	PVC	WATERLOO CORNER	276589.9045	6154054.328
662819442		T2 High	Northern Adelaide Plains	Tomw(T2)	14/12/1998	171.2	PVC	WATERLOO CORNER	276505.9115	6153962.384
662819443		T2 High	Northern Adelaide Plains	Tomw(T2)	18/12/1998	171.3	PVC	WATERLOO CORNER	276494.9079	6154068.337
662819444		T2 High	Northern Adelaide Plains	Tomw(T2)	22/12/1998	171	PVC	WATERLOO CORNER	276609.9463	6153972.347
662819445		T2 High	Northern Adelaide Plains	Tomw(T2)	1/03/1999	170	PVC	WATERLOO CORNER	276600.9587	6154078.348
662819446		T2 High	Northern Adelaide Plains	Tomw(T2)	5/03/1999	156	PVC	WATERLOO CORNER	276526.9662	6153978.324
662819447		T2 High	Northern Adelaide Plains	Tomw(T2)	9/03/1999	139	PVC	WATERLOO CORNER	276522.8855	6153980.333
662819448		T2 High	Northern Adelaide Plains	Tomw(T2)	12/03/1999	124	PVC	WATERLOO CORNER	276518.9639	6153983.346
662819449		T2 High	Northern Adelaide Plains	Tomw(T2)	15/03/1999	109	PVC	WATERLOO CORNER	276514.9506	6153986.356
662819450		T2 High	Northern Adelaide Plains	Tomw(T2)	24/03/1999	170	PVC	WATERLOO CORNER	276554.9081	6154016.295
662819894		T2 High	Northern Adelaide Plains	Tomw(T2)	11/11/1999	102	PVC	WATERLOO CORNER	275013.1413	6155460.004
662821144		T2 High	Northern Adelaide Plains	Tomw (T2)		200		MAWSON LAKES	281681.434	6145349.392
662821682		T2 High	Northern Adelaide Plains	Tomw(T2)	15/04/2004	122		WATERLOO CORNER	275818.1353	6156423.011
662825989		T2 High	Northern Adelaide Plains	Tomw(T2)	23/10/2011	123		WATERLOO CORNER	275641.1372	6155788.007
662826868		T2 High	Northern Adelaide Plains	Tomw(T2)	18/02/2013	120		WATERLOO CORNER	276140.1079	6156517.972
662828077		T2 High	Northern Adelaide Plains	Tomw(T2)	24/11/2007	130		WATERLOO CORNER	276952.1383	6155736.005



Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662828702		T2 High	Northern Adelaide Plains	Tomw(T2)	25/11/2016	122		WATERLOO CORNER	277407.1104	6156163.987
662828767		T2 High	Northern Adelaide Plains	Tomw(T2)		108		WATERLOO CORNER	278358.1314	6154205.968
662829589		T2 High	Northern Adelaide Plains	Tomw (T2)		180		BOLIVAR	278927.1579	6150855.98
662829592		T2 High	Northern Adelaide Plains	Tomw (T2)	4/07/2018	168		BOLIVAR	278534.4995	6151526.481
662829593		T2 High	Northern Adelaide Plains	Tomw (T2)	23/05/2018	168		BOLIVAR	278683.1622	6150836.013
662829620		T2 High	Northern Adelaide Plains	Tomw (T2)	20/07/2018	168		BOLIVAR	278306.1274	6151489.989
662829889		T2 High	Northern Adelaide Plains	T2	10/12/2018	174.5		BOLIVAR	279287.136	6150606.999
662829890		T2 High	Northern Adelaide Plains	T2	18/12/2018	186		BOLIVAR	278961.1372	6151507.99
652800432		T1 High	Central Adelaide	Tomw(T1)	21/11/1959	189.02		GRANGE	271094.7569	6136819.233
652800442		T1 High	Central Adelaide	Tomw(T1)	26/07/1934	143.26		GRANGE	271009.765	6136151.324
652800454		T1 High	Central Adelaide	Tomw(T1)	20/07/1951	173.13		SEMAPHORE PARK	269594.7583	6139244.264
652800507		T1 High	Central Adelaide	Tomw(T1)	14/12/1960	128.02		WEST LAKES	271221.7932	6138477.312
652800508		T1 High	Central Adelaide	Tomw(T1)	19/10/1962	125.58		WEST LAKES	271465.7404	6138299.257
652800511	YAT 116	T1 High	Central Adelaide	Tomw(T1)	17/09/1974	124		WEST LAKES	270786.1607	6138378.991
652800516		T1 High	Central Adelaide	Tomw(T1)	27/05/1927	412.7		WEST LAKES SHORE	270023.7377	6137974.317
652800776		T1 High	Central Adelaide	Tomw(T1)	7/08/1981	201		GRANGE	270706.156	6135689.003
652801125	YAT 122	T1 High	Central Adelaide	Tomw(T1)	6/05/1987	200		GRANGE	271073.982	6136158.149
652801393		T1 High	Central Adelaide	Tomw(T1)	16/02/1991	194		WEST LAKES	271405.7306	6137365.247
652801731		T1 High	Central Adelaide	Tomw(T1)	19/05/1994	194	FRP+WST	GRANGE	271198.1579	6136846.006
652802050		T1 High	Central Adelaide	Tomw(T1)	15/08/1997	198	FRP	GRANGE	271269.1615	6136053.008
652802365		T1 High	Central Adelaide					HENLEY BEACH	271405.2029	6134158.988
652802456		T1 High	Central Adelaide	Tomw(T1)	1/09/2000	192	FRP	GRANGE	270936.6111	6137151.718

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
652802570		T1 High	Central Adelaide	Tomw(T1)	14/07/2006	198.2		GRANGE	271325.6752	6136633.976
652802722		T1 High	Central Adelaide	Tomw(T1)	12/01/2009	199		GRANGE	271194.7027	6136418.024
662701618		T1 High	Central Adelaide	Tomw(T1)		79.25		SOMERTON PARK	273989.6385	6124110.332
662701627		T1 High	Central Adelaide	Tomw(T1)		82.3		NORTH BRIGHTON	274419.6833	6123928.295
662701630		T1 High	Central Adelaide	Tomw(T1)		76.2		NORTH BRIGHTON	274162.6422	6123918.264
662701632		T1 High	Central Adelaide	Tomw(T1)		90.22		NORTH BRIGHTON	273255.157	6123799.994
662701640		T1 High	Central Adelaide					HOVE	273549.7529	6123056.225
662701641		T1 High	Central Adelaide	Tomw(T1)	24/08/1914	92.05		HOVE	273393.753	6122774.176
662706490	NOA 25	T1 High	Central Adelaide	Tomw(T1)	1/03/1982	77		NORTH BRIGHTON	273090.1722	6123665.726
662707172		T1 High	Central Adelaide	Tomw(T1)	20/02/1983	100.5		HOVE	273352.7729	6122751.178
662709216		T1 High	Central Adelaide	Tomw(T1)	2/06/1995	90	PVC	NORTH BRIGHTON	273111.926	6123753.071
662711246		T1 High	Central Adelaide	Tomw(T1)		81.7		NORTH BRIGHTON	273566.0193	6123790.566
662714267		T1 High	Central Adelaide	Tomw(T1)	29/05/2010	98		HOVE	273432.1458	6122769.026
662715031		T1 High	Central Adelaide					NORTH BRIGHTON	273797.1413	6123453.982
662807369		T1 High	Central Adelaide	Tomw(T1)	1/01/1937	134.11		SEATON	272690.7058	6135341.22
662807370		T1 High	Central Adelaide	Tomw(T1)	1/01/1951	141.43		SEATON	272206.704	6135185.21
662807371		T1 High	Central Adelaide	Tomw(T1)	1/01/1969	183.49		SEATON	272298.6957	6135288.289
662807378		T1 High	Central Adelaide	Tomw(T1)	14/08/1946	139.29		SEATON	272154.7155	6134640.237
662807611		T1 High	Central Adelaide					WEST BEACH	272775.7828	6129947.306
662807617		T1 High	Central Adelaide	Tomw(T1)	2/05/1956	143.26		WEST BEACH	272430.7545	6130534.228
662807618		T1 High	Central Adelaide					WEST BEACH	272670.7909	6130728.242
662807619		T1 High	Central Adelaide	Tomw(T1)	5/02/1946	137.16		WEST BEACH	272595.7491	6130816.284

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662807664		T1 High	Central Adelaide	Tomw(T1)	1/10/1962	213.36		ADELAIDE AIRPORT	274672.7007	6130617.25
662807665		T1 High	Central Adelaide	Tomw(T1)	20/12/1934	140.21		ADELAIDE AIRPORT	274928.7114	6130328.199
662807782		T1 High	Central Adelaide	Tomw(T1)	23/11/1945	144.78		NETLEY	275761.6819	6130463.246
662807785		T1 High	Central Adelaide	Tomw(T1)	27/08/1934	174.35		ADELAIDE AIRPORT	275897.6865	6130206.185
662807789		T1 High	Central Adelaide					ADELAIDE AIRPORT	275845.6637	6130002.227
662807790		T1 High	Central Adelaide	Tomw(T1)		95.4		ADELAIDE AIRPORT	275892.7246	6129939.226
662807791		T1 High	Central Adelaide	Tomw(T1)		141.73		NETLEY	276024.7436	6130466.262
662807839		T1 High	Central Adelaide	Tomw(T1)	1/01/1933	90.53		ADELAIDE AIRPORT	275462.7424	6129886.258
662807845		T1 High	Central Adelaide	Tomw(T1)	15/12/1949	160.02		GLENELG NORTH	273319.7542	6128226.235
662807849		T1 High	Central Adelaide	Tomw(T1)	7/12/1956	79		NOVAR GARDENS	274409.1833	6128473.017
662807850		T1 High	Central Adelaide	Tomw(T1)	1/09/1909	88.7		GLENELG NORTH	274339.7778	6127422.248
662807866		T1 High	Central Adelaide	Tomw(T1)		95.4		GLENELG	272823.6548	6126337.318
662807869	NOA 13	T1 High	Central Adelaide	Tomw(T1)	16/02/1954	106		GLENELG EAST	273837.1518	6126063.037
662807890		T1 High	Central Adelaide	Tomw(T2)+Tomw(T1)	1/10/1932	78		GLENGOWRIE	274776.7018	6125096.295
662807895		T1 High	Central Adelaide	Tomw(T1)	1/01/1959	62.48		SOMERTON PARK	274120.702	6124825.315
662807913		T1 High	Central Adelaide					GLENGOWRIE	274876.6819	6125671.299
662807915		T1 High	Central Adelaide	Tomw(T2)+Tomw(T1)		85.34		GLENGOWRIE	275267.7704	6125941.242
662807916		T1 High	Central Adelaide	Tomw(T1)	1/01/1972	79.24		MORPHETTVILLE	275482.7005	6125949.313
662807920		T1 High	Central Adelaide	Tomw(T1)	1/01/1934	48.77		GLENGOWRIE	275326.7363	6125483.272
662807922		T1 High	Central Adelaide					MORPHETTVILLE	275621.7108	6125453.243
662808039		T1 High	Central Adelaide					ADELAIDE AIRPORT	275008.7736	6129364.266
662808044		T1 High	Central Adelaide	Tomw(T1)	30/04/1951	91.44		NOVAR GARDENS	274796.7979	6128803.268

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662808046		T1 High	Central Adelaide	Tomw(T1)		86.26		NOVAR GARDENS	274675.7328	6127378.273
662808048		T1 High	Central Adelaide	Tomw(T1)	30/03/1946	140.51		NETLEY	275812.6712	6129682.188
662808050		T1 High	Central Adelaide	Tomw(T1)		90		NORTH PLYMPTON	275246.7624	6128651.306
662808051		T1 High	Central Adelaide					CAMDEN PARK	275223.7274	6128503.222
662808074		T1 High	Central Adelaide					NETLEY	276382.7462	6129679.19
662808077		T1 High	Central Adelaide	Tomw(T1)		81.69		NORTH PLYMPTON	276487.6549	6129093.254
662808078		T1 High	Central Adelaide	Tomw(T1)		76.2		NORTH PLYMPTON	276464.676	6128841.283
662808630		T1 High	Central Adelaide	Tomw(T1)	1/04/1972	182.88		WEST LAKES	271670.7729	6137286.283
662808631		T1 High	Central Adelaide					WEST LAKES	271824.7361	6137300.225
662808632		T1 High	Central Adelaide	Tomw(T1)	16/06/1965	194.21		GRANGE	271668.7704	6137150.259
662808639		T1 High	Central Adelaide	Tomw(T1)		111.25		SEATON	272482.7627	6137168.203
662808657		T1 High	Central Adelaide	Tomw(T1)	12/04/1915	118.57		SEATON	272352.7665	6136349.236
662808662		T1 High	Central Adelaide	Tomw(T1)	1/01/1949	161.54		GRANGE	271720.7623	6135796.246
662808664		T1 High	Central Adelaide	Tomw(T1)	1/01/1932	158.5		SEATON	272096.7229	6135947.258
662808666		T1 High	Central Adelaide	Tomw(T1)	1/12/1914	104.55		SEATON	272310.7179	6135988.218
662808670	YAT 34	T1 High	Central Adelaide	Tomw(T1)	16/10/1945	128.02		SEATON	272807.1446	6135748.927
662808672		T1 High	Central Adelaide	Tomw(T1)	1/01/1931	146.3		SEATON	272448.7607	6135619.25
662808675		T1 High	Central Adelaide	Tomw(T1)	1/04/1917	128.02		SEATON	272845.7445	6136102.197
662811161	ADE 44	T1 High	Central Adelaide	Tomw(T1)	15/11/1979	226		WEST BEACH	272370.6928	6128691.341
662811505		T1 High	Central Adelaide	Tomw(T1)		103.63		CAMDEN PARK	275183.7852	6127962.231
662811542	YAT 70	T1 High	Central Adelaide	Tomw(T1)	24/11/1980	202		SEATON	272791.764	6135764.307
662815323		T1 High	Central Adelaide	Tomw(T1)	2/07/1990	228		WEST BEACH	272198.733	6129349.281

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662815556		T1 High	Central Adelaide	Tomw(T1)	24/01/1991	211		NOVAR GARDENS	274046.1754	6128556.053
662816746		T1 High	Central Adelaide	Tomw(T1)	5/08/1994	203	FRP+PVC	SEATON	272456.6225	6135608.346
662817278		T1 High	Central Adelaide	Tomw(T1)	12/05/1995	57	PVC	GLENGOWRIE	275051.8244	6124763.322
662817513		T1 High	Central Adelaide	Tomw(T1)	6/09/1995	108	PVC	GLENELG NORTH	273717.1911	6126888.009
662818391		T1 High	Central Adelaide	Tomw(T1)	30/12/1996	100	PVC	GLENELG	273357.1331	6125943.001
662818567		T1 High	Central Adelaide	Tomw(T1)	6/04/1997	82	PVC	MORPHETTVILLE	275621.933	6127033.309
662818789		T1 High	Central Adelaide	Tomw(T1)	8/08/1997	196	FRP	GRANGE	271775.5029	6136589.708
662819722	YAT 37	T1 High	Central Adelaide	Tomw(T1)	18/12/1934	198		GRANGE	271608.935	6134649.263
662819725	ADE 5	T1 High	Central Adelaide	Tomw(T1)	29/10/1949	122		HENLEY BEACH SOUTH	271692.1693	6131399.024
662819728		T1 High	Central Adelaide	Tomw(T1)	16/03/1955	143.56		WEST LAKES	271522.7467	6137342.307
662822596		T1 High	Central Adelaide	Tomw(T1)	28/07/2006	196.1		GRANGE	271691.1347	6137225.408
662823539		T1 High	Central Adelaide	Tomw(T1)	6/06/2007	215		WEST BEACH	272889.1222	6128948.016
662824760		T1 High	Central Adelaide	Tomw(T1)	3/09/2007	201		SEATON	272365.569	6135599.642
662826395		T1 High	Central Adelaide	Tomw(T1)	27/09/2008	110		NOVAR GARDENS	274880.7535	6127397.211
662827008		T1 High	Central Adelaide	Tomw(T1)		124		NOVAR GARDENS	274834.0469	6127412.708
662827039		T1 High	Central Adelaide	Tomw(T1)	9/10/2013	80		SOMERTON PARK	273649.1836	6124578.96
662829437		T1 High	Central Adelaide	Tomw(T1)	9/04/2018	107.5		NOVAR GARDENS	274772.1105	6126934.993
662830249		T1 High	Central Adelaide					GLENGOWRIE	275138.1474	6126334.999
662803308		T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1962	143.26		GREEN FIELDS	280288.7651	6147585.346
662803311		T1 High	Northern Adelaide Plains	Tomw(T1)		100.58		GREEN FIELDS	280397.7529	6146937.33
662803419	PTA 30	T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1960	97.54		GLOBE DERBY PARK	278734.7746	6147864.245



Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662803420		T1 High	Northern Adelaide Plains					GLOBE DERBY PARK	278773.775	6147872.177
662803422		T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1934	101.5		GLOBE DERBY PARK	279910.7059	6147936.345
662803424		T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1962	147.83		GLOBE DERBY PARK	279456.7694	6147537.32
662803427		T1 High	Northern Adelaide Plains					GLOBE DERBY PARK	279248.7165	6148410.37
662803428		T1 High	Northern Adelaide Plains					GLOBE DERBY PARK	280046.7684	6147191.308
662803430		T1 High	Northern Adelaide Plains	Tomw(T1)			STL	GLOBE DERBY PARK	279923.106	6148442.98
662803431		T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1962	134		GLOBE DERBY PARK	279915.1276	6148646.012
662803433	PTA 76	T1 High	Northern Adelaide Plains	Tomw(T1)	12/01/1973	123.44	STL	GLOBE DERBY PARK	279943.0968	6148545.015
662804330		T1 High	Northern Adelaide Plains					MAWSON LAKES	280532.7658	6146008.352
662805154		T1 High	Northern Adelaide Plains	Tomw(T1)	26/09/1947	152.4		PARAFIELD GARDENS	281851.8046	6147841.262
662805167		T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1958	141.73		PARAFIELD GARDENS	280884.1237	6148100.002
662805171		T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1959	144.78		PARAFIELD GARDENS	280625.101	6147986.958
662805178		T1 High	Northern Adelaide Plains	Tomw(T1)		133.5		PARAFIELD GARDENS	280755.7729	6148443.249
662805179		T1 High	Northern Adelaide Plains	Tomw(T1)	10/05/1951	144.17		PARAFIELD GARDENS	280963.7746	6148422.351
662805203		T1 High	Northern Adelaide Plains					MAWSON LAKES	281486.7684	6146720.249
662806956	YAT 21	T1 High	Northern Adelaide Plains	Tomw(T1)	1/01/1953	128.02		POORAKA	283968.7574	6144777.231
662808000		T1 High	Northern Adelaide Plains	Tomw(T1)	17/08/1976	142	STL	PARAFIELD GARDENS	280286.1792	6147746.997
662813020		T1 High	Northern Adelaide Plains	Tomw(T1)	24/07/1984	149	FRP+STL	DRY CREEK	278890.15	6146769.949
662817267		T1 High	Northern Adelaide Plains	Tomw(T1)	12/12/1994	106.6	PVC	PARAFIELD GARDENS	280687.1397	6147731.942
662817761		T1 High	Northern Adelaide Plains	Tomw(T1)	30/06/1996	155	FRP+PVC	MAWSON LAKES	281693.8687	6145315.393
662821675	PTA 159	T1 High	Northern Adelaide Plains	Tomw(T1)	10/06/2004	140		DRY CREEK	278815.2621	6147263.723
662823489		T1 High	Northern Adelaide Plains	Tomw(T1)	8/02/2008	132		MAWSON LAKES	281403.1261	6146487.955

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662701691		T2 Medium	Central Adelaide	Tomw(T2)	10/04/1976	252		MITCHELL PARK	277259.6811	6123054.255
662701713		T2 Medium	Central Adelaide	Tomw(T2)+Tomw(T1)	1/01/1934	76.2		MITCHELL PARK	277153.7462	6123823.207
662701865		T2 Medium	Central Adelaide	Tomw(T2)		111.25		DOVER GARDENS	274982.7088	6122041.242
662807503		T2 Medium	Central Adelaide					FLINDERS PARK	275885.8056	6133779.22
662807701		T2 Medium	Central Adelaide					UNDERDALE	276415.7527	6132736.18
662807710		T2 Medium	Central Adelaide					UNDERDALE	276227.7969	6133572.266
662807726		T2 Medium	Central Adelaide					BROOKLYN PARK	276298.7318	6132527.196
662808851		T2 Medium	Central Adelaide					MANSFIELD PARK	275852.7514	6140670.264
662813206		T2 Medium	Central Adelaide					ASCOT PARK	277276.7624	6125845.252
662814005		T2 Medium	Central Adelaide	Tomw(T2)	8/09/1987	223		REGENCY PARK	277517.1408	6139963.991
662819804		T2 Medium	Central Adelaide	Tomw(T2)+Tomw(T1)	1/01/1934	74.07		MARION	277056.7484	6124230.192
662802340		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1966	91.44		WATERLOO CORNER	275959.1041	6158383.012
662802350		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	275072.7591	6158992.304
662802358		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	273824.6915	6158020.202
662802361		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274200.7635	6158135.202
662802364		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274176.6989	6157875.221
662802365		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274419.7329	6157927.236
662802368		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1961	106.68		VIRGINIA	276623.8142	6159867.34
662802373		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1961	106.68		VIRGINIA	276696.1169	6160028.031
662802376		T2 Medium	Northern Adelaide Plains	Tomw(T2)	30/10/1967	30		VIRGINIA	276734.8101	6159740.28
662802381		T2 Medium	Northern Adelaide Plains	Tomw(T2)	16/06/1977	114	STL	VIRGINIA	276629.7616	6159894.344
662802394		T2 Medium	Northern Adelaide Plains					BUCKLAND PARK	273784.7244	6157975.268

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662802395	PTA 21	T2 Medium	Northern Adelaide Plains					BUCKLAND PARK	273850.8068	6157759.23
662802396		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1956	105.16		WATERLOO CORNER	276055.1098	6157706.962
662802472		T2 Medium	Northern Adelaide Plains	Tomw(T2)	19/11/1965	186.71		VIRGINIA	278537.8321	6160176.224
662802555		T2 Medium	Northern Adelaide Plains	Tomw(T2)		119.48		VIRGINIA	279557.0918	6159714.962
662802558		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/11/1965	106.68		VIRGINIA	278697.1302	6160203.989
662802580		T2 Medium	Northern Adelaide Plains	Tomw(T2)	13/03/1975	121.9	WST	VIRGINIA	277022.8012	6160161.245
662802589		T2 Medium	Northern Adelaide Plains	Tomw(T2)		82		VIRGINIA	278184.7961	6160116.239
662802592		T2 Medium	Northern Adelaide Plains	Tomw(T2)		109.73		VIRGINIA	278344.1811	6160077.008
662802593		T2 Medium	Northern Adelaide Plains	Tomw(T2)		91.44		VIRGINIA	278038.7872	6160148.242
662802597		T2 Medium	Northern Adelaide Plains	Tomw(T2)		93.57		PENFIELD GARDENS	279540.1717	6159417.996
662802600		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1964	130		PENFIELD	280156.1072	6158886.976
662802601		T2 Medium	Northern Adelaide Plains	Tomw(T2)	27/06/1956	108.51		VIRGINIA	277659.8228	6159323.334
662802607		T2 Medium	Northern Adelaide Plains	Tomw(T2)		109.73		VIRGINIA	276939.7827	6159863.336
662802608		T2 Medium	Northern Adelaide Plains	Tomw(T2)	21/08/1973	102.11	WST	VIRGINIA	277124.8196	6159950.276
662802609		T2 Medium	Northern Adelaide Plains	Tomw(T2)		91.44		VIRGINIA	278484.7886	6159262.283
662802613		T2 Medium	Northern Adelaide Plains					VIRGINIA	278890.8154	6158606.318
662802624		T2 Medium	Northern Adelaide Plains	Tomw(T2)	17/09/1957	98		VIRGINIA	277104.1635	6159318.018
662802628		T2 Medium	Northern Adelaide Plains	Tomw(T2)		100.58		VIRGINIA	277307.828	6159043.355
662802650		T2 Medium	Northern Adelaide Plains	Tomw(T2)		92.96		VIRGINIA	277411.7859	6158622.325
662802651		T2 Medium	Northern Adelaide Plains	Tomw(T2)+Tomw(T1)		111.56		VIRGINIA	277466.8086	6158348.286
662802657		T2 Medium	Northern Adelaide Plains		1/01/1959			MUNNO PARA WEST	286692.7248	6162188.243
662802667		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1962	109.73		MUNNO PARA WEST	286511.8049	6162683.256

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662802700	MPA 83	T2 Medium	Northern Adelaide Plains					DAVOREN PARK	286743.778	6158514.25
662802729		T2 Medium	Northern Adelaide Plains	Tomw(T2)	23/01/1952	91.44	STL	MUNNO PARA WEST	285416.7911	6162108.272
662802734		T2 Medium	Northern Adelaide Plains	Tomw(T2)	12/03/1970	106.68		MUNNO PARA WEST	285890.0825	6162929.994
662802739		T2 Medium	Northern Adelaide Plains	Tomw(T2)	29/07/1976	116	STL	MUNNO PARA WEST	285744.7814	6163010.303
662802741		T2 Medium	Northern Adelaide Plains		1/01/1960			ANGLE VALE	284649.7835	6162650.314
662802762		T2 Medium	Northern Adelaide Plains					ANDREWS FARM	285640.7868	6161087.331
662802782		T2 Medium	Northern Adelaide Plains					PENFIELD GARDENS	281989.8369	6161608.298
662802791	MPA 21	T2 Medium	Northern Adelaide Plains					PENFIELD GARDENS	282506.7923	6161276.334
662802793		T2 Medium	Northern Adelaide Plains					PENFIELD GARDENS	282515.8225	6160372.346
662802802		T2 Medium	Northern Adelaide Plains	Tomw(T2)	7/09/1959	291		PENFIELD	282063.8556	6159617.179
662802808		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1962	112.78		PENFIELD GARDENS	280334.1257	6160145.939
662802819		T2 Medium	Northern Adelaide Plains	Tomw(T2)	19/09/1961	124.97		PENFIELD	282005.094	6159613.015
662802832		T2 Medium	Northern Adelaide Plains		1/01/1959			DAVOREN PARK	286318.8054	6159918.325
662802833		T2 Medium	Northern Adelaide Plains		1/01/1962			ANDREWS FARM	285213.8336	6160376.317
662802834	MPA 1	T2 Medium	Northern Adelaide Plains	Tomw(T2)	16/12/1971	128.02		ANDREWS FARM	284804.1521	6160452.001
662802866		T2 Medium	Northern Adelaide Plains	Tomw(T2)	3/10/1954	134		EYRE	284478.8183	6159582.278
662802880		T2 Medium	Northern Adelaide Plains		1/01/1962			PENFIELD	282989.758	6159523.374
662802881	MPA 66	T2 Medium	Northern Adelaide Plains	Tomw(T2)	25/01/1974	114.3		PENFIELD	282192.1212	6158337.996
662803043		T2 Medium	Northern Adelaide Plains	Tomw(T2)	17/01/1947			EDINBURGH	281417.8308	6156716.218
662803064		T2 Medium	Northern Adelaide Plains					EDINBURGH NORTH	284700.7962	6157603.289
662803095		T2 Medium	Northern Adelaide Plains	Tomw(T2)	28/02/1958	356.62		ELIZABETH	285874.778	6155147.28
662803816		T2 Medium	Northern Adelaide Plains	Tomw(T2)+Tomw(T1)		91.44		VIRGINIA	277764.135	6157131.014

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662803820		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1956	114.3		WATERLOO CORNER	278319.1333	6156919
662803822		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1966	108.2		WATERLOO CORNER	278414.1316	6157012.996
662803824		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1960			WATERLOO CORNER	279322.1317	6156992.996
662804008		T2 Medium	Northern Adelaide Plains	Tomw(T2)	6/03/1967	106.68		WATERLOO CORNER	276829.1381	6157034.001
662804012		T2 Medium	Northern Adelaide Plains	Tomw(T2)	2/12/1965	112.78		WATERLOO CORNER	277553.1119	6157238.022
662804016		T2 Medium	Northern Adelaide Plains	Tomw(T2)	31/08/1971	118.26		WATERLOO CORNER	275629.1437	6156705.003
662804020		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274881.8019	6156500.287
662804051		T2 Medium	Northern Adelaide Plains	Tomw(T2)	15/04/1964	100.58		WATERLOO CORNER	275649.1405	6157497
662804057		T2 Medium	Northern Adelaide Plains					BUCKLAND PARK	274024.8359	6157182.225
662804058		T2 Medium	Northern Adelaide Plains					BUCKLAND PARK	273949.7867	6157435.226
662804059		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274048.8518	6157466.293
662804062		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274306.6956	6157538.21
662804063		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274515.7286	6157608.26
662804064		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274060.8536	6157201.201
662804065		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274588.7352	6157378.181
662804083		T2 Medium	Northern Adelaide Plains					WATERLOO CORNER	274152.7708	6157531.219
662804915		T2 Medium	Northern Adelaide Plains					PARALOWIE	282315.695	6151041.288
662804936		T2 Medium	Northern Adelaide Plains					PARALOWIE	283150.7014	6151308.302
662804969		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/01/1962			SALISBURY	285042.757	6151245.191
662804992		T2 Medium	Northern Adelaide Plains					ELIZABETH VALE	286112.8272	6151668.361
662805030		T2 Medium	Northern Adelaide Plains					SALISBURY	282468.7358	6150647.243
662805046		T2 Medium	Northern Adelaide Plains					SALISBURY	283212.6984	6150528.305



Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662805047	YAT 68	T2 Medium	Northern Adelaide Plains					SALISBURY	283135.7414	6150921.271
662805055		T2 Medium	Northern Adelaide Plains					SALISBURY	284153.7464	6150764.213
662805076		T2 Medium	Northern Adelaide Plains					SALISBURY	283947.7328	6149935.299
662805078		T2 Medium	Northern Adelaide Plains					SALISBURY	284073.7096	6150007.293
662805225		T2 Medium	Northern Adelaide Plains					SALISBURY DOWNS	283495.7702	6149309.239
662805232		T2 Medium	Northern Adelaide Plains					SALISBURY DOWNS	283592.838	6149107.31
662805234		T2 Medium	Northern Adelaide Plains					SALISBURY DOWNS	283513.7491	6149712.212
662805251		T2 Medium	Northern Adelaide Plains					SALISBURY SOUTH	284967.8418	6148505.202
662805252		T2 Medium	Northern Adelaide Plains					SALISBURY SOUTH	284967.8418	6148505.202
662805253		T2 Medium	Northern Adelaide Plains	Toc(T2)	19/09/1977	400	STL	SALISBURY SOUTH	284723.0831	6148083.049
662805290		T2 Medium	Northern Adelaide Plains	Tomw(T2)	6/05/1953	169.16		SALISBURY EAST	285544.693	6148679.174
662806105		T2 Medium	Northern Adelaide Plains	Tomw(T2)	27/10/1976	129	WST	PENFIELD	280756.7006	6158963.213
662806108		T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/05/1978	125	STL	VIRGINIA	278834.1042	6158643.026
662810986		T2 Medium	Northern Adelaide Plains	Tomw(T2)	26/03/1979	127	WST	VIRGINIA	277904.139	6158722.996
662811193		T2 Medium	Northern Adelaide Plains	Tomw(T2)	26/04/1978	126	WST	VIRGINIA	278229.1842	6158579.987
662811541		T2 Medium	Northern Adelaide Plains	Tomw(T2)	3/01/1981	100	WST	PENFIELD GARDENS	283588.1616	6162630.03
662811544		T2 Medium	Northern Adelaide Plains	Tomw(T2)	11/06/1980	122	WST	VIRGINIA	276781.1007	6159790.015
662812076		T2 Medium	Northern Adelaide Plains	Tomw(T2)	23/11/1982	125	WST	WATERLOO CORNER	276268.7724	6157311.362
662812079		T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/07/1982	128	WST	WATERLOO CORNER	278801.0984	6157676.959
662812107		T2 Medium	Northern Adelaide Plains	Tomw(T2)	3/03/1982	121	WST	PENFIELD GARDENS	280330.1421	6160139.961
662812167		T2 Medium	Northern Adelaide Plains	Tomw(T2)	11/12/1982		WST	VIRGINIA	278473.178	6159279.985
662812356		T2 Medium	Northern Adelaide Plains	Tomw(T2)	20/07/1982	95	WST	WATERLOO CORNER	276826.1509	6157047.958

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662813184	PTA 83	T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/02/1985	121	WST	VIRGINIA	277249.7846	6158831.292
662813552		T2 Medium	Northern Adelaide Plains	Tomw(T2)		97	STL	MUNNO PARA WEST	285383.1387	6162116.035
662813704		T2 Medium	Northern Adelaide Plains	Tomw(T2)	2/07/1986	103	WST	MUNNO PARA WEST	286461.1466	6163319.009
662813705		T2 Medium	Northern Adelaide Plains	Tomw(T2)	13/06/1986	103.6	WST	MUNNO PARA WEST	286454.128	6163225.955
662813719		T2 Medium	Northern Adelaide Plains	Tomw(T2)	27/06/1986	115	WST	WATERLOO CORNER	274532.1895	6157534.963
662813808		T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/07/1986	106	WST	MUNNO PARA WEST	286079.1626	6163133.037
662813830		T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/12/1986	173	PVC+STL	WATERLOO CORNER	274045.8096	6157478.205
662814012		T2 Medium	Northern Adelaide Plains	Tomw(T2)	13/08/1987	122	WST	VIRGINIA	277906.1579	6157695.94
662814202		T2 Medium	Northern Adelaide Plains	Tomw(T2)	17/02/1988	109	WST	WATERLOO CORNER	276015.149	6158725.008
662814307		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/02/1989	122	WST	PENFIELD	280902.1647	6158813.953
662815145		T2 Medium	Northern Adelaide Plains	Tomw(T2)	14/07/1989	122	WST	WATERLOO CORNER	277606.7513	6157032.319
662815351		T2 Medium	Northern Adelaide Plains	Tomw(T2)	7/10/1989	97	WST	WATERLOO CORNER	275804.1783	6158932.984
662815369		T2 Medium	Northern Adelaide Plains	Tomw(T2)	12/09/1990	97.54	WST	WATERLOO CORNER	275275.1387	6158392.997
662815374		T2 Medium	Northern Adelaide Plains	Tomw(T2)	7/10/1990	115.82	PVC	VIRGINIA	278197.1052	6159394.991
662815646		T2 Medium	Northern Adelaide Plains	Tomw(T2)	7/02/1991	121.92	STL	PENFIELD GARDENS	280634.1463	6160233.991
662815894		T2 Medium	Northern Adelaide Plains	Tomw(T2)	31/01/1992	109	PVC	VIRGINIA	278321.1013	6160094.988
662816073		T2 Medium	Northern Adelaide Plains	Tomw(T2)	7/08/1992	122	PVC	BUCKLAND PARK	275375.1172	6159131.98
662816113		T2 Medium	Northern Adelaide Plains	Tomw(T2)	8/05/1992	122	PVC	VIRGINIA	277432.1521	6159289.981
662816165		T2 Medium	Northern Adelaide Plains	Tomw(T2)	16/09/1992	115.8	PVC	WATERLOO CORNER	278436.7561	6158049.232
662816275		T2 Medium	Northern Adelaide Plains	Tomw(T2)	3/05/1993	112	FRP+PVC	MUNNO PARA	287315.1009	6162149.006
662816276		T2 Medium	Northern Adelaide Plains	Tomw(T2)	6/04/1993	100.8	FRP+PVC	MUNNO PARA	287481.911	6162503.217
662816494		T2 Medium	Northern Adelaide Plains	Tomw(T2)	24/11/1993	97.5	PVC	VIRGINIA	276812.102	6159657.021

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662816588		T2 Medium	Northern Adelaide Plains	Tomw(T2)	17/02/1994	115.8	PVC	WATERLOO CORNER	277281.1547	6156960.965
662816790		T2 Medium	Northern Adelaide Plains	Tomw(T2)	20/08/1993	100	PVC	WATERLOO CORNER	275467.1525	6158094.002
662817255		T2 Medium	Northern Adelaide Plains	Tomw(T2)	7/05/1995	122	PVC	WATERLOO CORNER	277441.0976	6156835.971
662817289		T2 Medium	Northern Adelaide Plains	Tomw(T2)	26/07/1995	128	PVC	ANDREWS FARM	284821.1203	6159732.001
662817523		T2 Medium	Northern Adelaide Plains	Tomw(T2)	1/11/1995	122	PVC	WATERLOO CORNER	275394.1346	6158393.012
662817919		T2 Medium	Northern Adelaide Plains	Tomw(T2)	4/01/1996	100	PVC	WATERLOO CORNER	274984.166	6158141.046
662817920		T2 Medium	Northern Adelaide Plains	Tomw(T2)	19/02/1996	97	PVC	ANGLE VALE	285130.13	6163073.036
662817921		T2 Medium	Northern Adelaide Plains	Tomw(T2)	4/03/1996	114	PVC	MUNNO PARA WEST	285734.1314	6161972.035
662818153	YAT 136	T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/12/1996	203	PVC	SALISBURY SOUTH	284791.9543	6148383.327
662818165		T2 Medium	Northern Adelaide Plains	Tomw(T2)	26/04/1996	123	PVC	VIRGINIA	277122.1537	6159120.001
662818422		T2 Medium	Northern Adelaide Plains	Tomw(T2)	20/03/1997	117.3	PVC	VIRGINIA	278621.9628	6158433.268
662818571		T2 Medium	Northern Adelaide Plains	Tomw(T2)	7/04/1997	117.3	PVC	WATERLOO CORNER	275936.929	6158518.327
662818580		T2 Medium	Northern Adelaide Plains	Tomw(T2)	27/06/1996	122	PVC	VIRGINIA	278211.1044	6160127.971
662818581		T2 Medium	Northern Adelaide Plains	Tomw(T2)	2/11/1996	122		WATERLOO CORNER	277302.133	6157227.995
662818621		T2 Medium	Northern Adelaide Plains	Tomw(T2)	27/06/1997	84	PVC	BUCKLAND PARK	274636.1043	6159261.008
662818776		T2 Medium	Northern Adelaide Plains	Tomw(T2)	23/05/1997	116	PVC	ANGLE VALE	285011.8258	6162663.306
662819044		T2 Medium	Northern Adelaide Plains	Tomw(T2)	9/05/1998	111	PVC	WATERLOO CORNER	275503.1068	6157954.028
662819163		T2 Medium	Northern Adelaide Plains	Tomw(T2)	27/06/1998	96	PVC	WATERLOO CORNER	275412.1895	6157986.997
662819390		T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/12/1998	102	PVC	VIRGINIA	278304.1719	6159555.949
662819500		T2 Medium	Northern Adelaide Plains	Tomw(T2)	12/02/1999	117	PVC	VIRGINIA	276728.1587	6159908.936
662819820		T2 Medium	Northern Adelaide Plains					MUNNO PARA WEST	286433.9321	6163262.445
662820140		T2 Medium	Northern Adelaide Plains	Tomw(T2)	6/12/1999	105	PVC	MUNNO PARA WEST	287029.104	6162596.99

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662820171		T2 Medium	Northern Adelaide Plains	Tomw(T2)	9/11/1999	111	PVC	WATERLOO CORNER	278342.1074	6157270.026
662820254		T2 Medium	Northern Adelaide Plains	Tomw(T2)	31/05/1980	109		VIRGINIA	277091.1034	6158860.975
662820292		T2 Medium	Northern Adelaide Plains	Tomw(T2)	10/09/1999	105	PVC	PENFIELD GARDENS	280558.1778	6160316.978
662820294		T2 Medium	Northern Adelaide Plains	Tomw(T2)	3/09/1999	99	PVC	WATERLOO CORNER	276687.1565	6156728.041
662820482		T2 Medium	Northern Adelaide Plains	Tomw(T2)	31/05/2000	105	PVC	VIRGINIA	277336.1737	6159240.049
662820485		T2 Medium	Northern Adelaide Plains	Tomw(T2)	14/09/2000	93	PVC	PENFIELD GARDENS	282305.1339	6161241.943
662820558		T2 Medium	Northern Adelaide Plains	Tomw(T2)	23/06/2000	115	PVC	WATERLOO CORNER	275884.1109	6159156.023
662820725		T2 Medium	Northern Adelaide Plains	Tomw(T2)	24/02/2000	110	PVC	VIRGINIA	277916.1719	6157888.972
662820770		T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/01/2002	122	PVC	PENFIELD GARDENS	279501.1563	6159216.95
662820777		T2 Medium	Northern Adelaide Plains	Tomw(T2)	9/01/2002	115	PVC	PENFIELD GARDENS	280268.1044	6160427.051
662820831		T2 Medium	Northern Adelaide Plains	Tomw(T2)	12/02/2002	123	PVC	PENFIELD	283502.1663	6159078.052
662821315		T2 Medium	Northern Adelaide Plains	Tomw(T2)	21/03/2003	122		PENFIELD	280330.1401	6157855.052
662821344		T2 Medium	Northern Adelaide Plains	Tomw(T2)		105		VIRGINIA	277349.1304	6159682.992
662821543		T2 Medium	Northern Adelaide Plains	Tomw(T2)	21/02/2002	123		VIRGINIA	277647.1755	6157807.011
662821791		T2 Medium	Northern Adelaide Plains	Tomw(T2)	21/07/2004	122		WATERLOO CORNER	278338.9236	6157120.446
662821792		T2 Medium	Northern Adelaide Plains	Tomw(T2)	30/07/2004	122		PENFIELD GARDENS	279245.1503	6158869.975
662821833		T2 Medium	Northern Adelaide Plains	Tomw(T2)	10/08/2004	107		MUNNO PARA WEST	286988.1264	6162945.969
662821964		T2 Medium	Northern Adelaide Plains	Tomw(T2)	14/12/2004	110		MUNNO PARA WEST	286504.1032	6163139.102
662821970		T2 Medium	Northern Adelaide Plains	Tomw(T2)	10/02/2005	118		ANGLE VALE	285134.1467	6162935.955
662821998		T2 Medium	Northern Adelaide Plains	Tomw(T2)	20/11/2003	102		MACDONALD PARK	284393.1449	6162274.968
662822076		T2 Medium	Northern Adelaide Plains	Tomw(T2)	18/02/2005	122		PENFIELD GARDENS	280716.131	6160163.999
662822080		T2 Medium	Northern Adelaide Plains	Tomw(T2)	11/04/2005	116		MUNNO PARA WEST	286085.1044	6162361.959



Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662822307		T2 Medium	Northern Adelaide Plains	Tomw(T2)	30/10/2004	128		VIRGINIA	276721.6418	6159943.297
662823057		T2 Medium	Northern Adelaide Plains	Tomw(T2)	21/06/2007	116		VIRGINIA	278806.0959	6159710.959
662823131		T2 Medium	Northern Adelaide Plains	Tomw(T2)	14/08/2007	132		EYRE	284487.0867	6159161.952
662823142		T2 Medium	Northern Adelaide Plains	Tomw(T2)	8/11/2006	100		VIRGINIA	276669.0998	6159810.944
662823833		T2 Medium	Northern Adelaide Plains	Tomw(T2)	19/11/2008	120		VIRGINIA	279615.1522	6159736.993
662824634		T2 Medium	Northern Adelaide Plains	Tomw(T2)	5/03/2009	110		ANGLE VALE	285243.1002	6163207.957
662824985		T2 Medium	Northern Adelaide Plains	Tomw(T2)	12/08/2009	120		WATERLOO CORNER	275011.1466	6158024.996
662824987		T2 Medium	Northern Adelaide Plains	Tomw(T2)	24/08/2009	108		MUNNO PARA WEST	287640.0617	6163066.979
662825279		T2 Medium	Northern Adelaide Plains	Tomw(T2)	26/07/2010	108		MUNNO PARA WEST	286279.1354	6163028.019
662825313		T2 Medium	Northern Adelaide Plains	Tomw(T2)	17/08/2010	121		VIRGINIA	277279.4662	6158854.984
662825461		T2 Medium	Northern Adelaide Plains	Tomw(T2)	17/02/2010	114		VIRGINIA	277428.0819	6158494.192
662826191		T2 Medium	Northern Adelaide Plains	Tomw(T2)	16/09/2011	122		PENFIELD	280729.1461	6159054.011
662826206		T2 Medium	Northern Adelaide Plains	Tomw(T2)	27/03/2010	120		WATERLOO CORNER	275437.3971	6158242.894
662826627		T2 Medium	Northern Adelaide Plains	Tomw(T2)	5/10/2012	122		WATERLOO CORNER	278163.1714	6157594.028
662827010		T2 Medium	Northern Adelaide Plains	Tomw(T2)	12/08/2013	123		PENFIELD	279613.094	6158274.003
662827041		T2 Medium	Northern Adelaide Plains	Tomw(T2)	2/09/2013	123		WATERLOO CORNER	276260.1073	6157369.977
662827042		T2 Medium	Northern Adelaide Plains	Tomw(T2)	5/10/2013	114		VIRGINIA	277683.1611	6160230.021
662827205		T2 Medium	Northern Adelaide Plains					VIRGINIA	278037.1549	6160117.015
662827209		T2 Medium	Northern Adelaide Plains					SALISBURY	285180.0724	6150982.037
662827439		T2 Medium	Northern Adelaide Plains	Tomw(T2)	2/05/2014	99		WATERLOO CORNER	275308.1458	6156785.994
662829222		T2 Medium	Northern Adelaide Plains					EDINBURGH NORTH	285295.9755	6157361.915
662829223		T2 Medium	Northern Adelaide Plains					EDINBURGH NORTH	285254.0535	6157296.568

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662830376		T2 Medium	Northern Adelaide Plains	Tomw(T2)	26/05/2019	122		SMITHFIELD	288057.4785	6160203.481
662830430		T2 Medium	Northern Adelaide Plains					SALISBURY SOUTH	283682.4924	6148875.483
652800392		T1 Medium	Central Adelaide	Tomw(T1)	1/03/1947	137.16		HENLEY BEACH	271567.7305	6134073.251
652800404		T1 Medium	Central Adelaide	Tomw(T1)	21/11/1949	129.24		HENLEY BEACH	271358.7111	6132841.244
662701664		T1 Medium	Central Adelaide	Tph(T1)	1/01/1944	56.08		WARRADALE	275402.6876	6124188.234
662701666		T1 Medium	Central Adelaide	Tomw(T1)		60.66		WARRADALE	275463.6801	6123922.23
662701668	NOA 12	T1 Medium	Central Adelaide	Tomw(T1)	26/07/1967	64.62		WARRADALE	275393.1338	6123709.993
662701707		T1 Medium	Central Adelaide	Tomw(T1)	1/05/1915	86.87		OAKLANDS PARK	276095.1341	6124148.003
662707453		T1 Medium	Central Adelaide					HOVE	274062.7426	6123236.243
662707764		T1 Medium	Central Adelaide	Tomw(T1)	7/10/1987	97		HOVE	273763.7085	6122862.296
662807376		T1 Medium	Central Adelaide	Tomw(T1)	22/09/1934	149.96		SEATON	272712.6866	6134534.246
662807386		T1 Medium	Central Adelaide	Tomw(T1)	1/03/1947	140.51		HENLEY BEACH	271768.6687	6133174.283
662807388	YAT 42	T1 Medium	Central Adelaide	Tomw(T1)	9/10/1945	148		FULHAM GARDENS	272770.9229	6133420.26
662807400		T1 Medium	Central Adelaide					FULHAM GARDENS	273080.7293	6134365.235
662807401		T1 Medium	Central Adelaide	Tomw(T1)	21/06/1934	137.16		FULHAM GARDENS	273172.6937	6134270.393
662807402		T1 Medium	Central Adelaide	Tomw(T1)	3/07/1946	140.82		FULHAM GARDENS	273046.7233	6134221.202
662807403		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1933	146.3		FULHAM GARDENS	272998.7369	6134095.247
662807404		T1 Medium	Central Adelaide	Tomw(T1)	11/01/1938	144.78		FULHAM GARDENS	273342.7259	6133752.25
662807417	YAT 43	T1 Medium	Central Adelaide	Tomw(T1)	7/12/1945	126		HENLEY BEACH	272209.1533	6132416.042
662807418		T1 Medium	Central Adelaide	Tomw(T1)		141.73		FULHAM GARDENS	272819.7511	6133155.297
662807425		T1 Medium	Central Adelaide					FULHAM GARDENS	273243.7491	6132700.298
662807433		T1 Medium	Central Adelaide					FULHAM GARDENS	273390.7093	6132831.26

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662807575		T1 Medium	Central Adelaide					FULHAM	272489.6983	6131892.231
662807576		T1 Medium	Central Adelaide	Tomw(T1)	23/02/1970	131.67		FULHAM	272970.701	6131893.321
662807577		T1 Medium	Central Adelaide					FULHAM	273144.7026	6131840.257
662807579		T1 Medium	Central Adelaide	Tomw(T1)	14/04/1934	122.53		FULHAM	273062.675	6132095.295
662807580		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1929	135.64		FULHAM	273172.6602	6132275.292
662807583		T1 Medium	Central Adelaide	Tomw(T1)	11/06/1932	140.82		LOCKLEYS	273286.6865	6131692.268
662807584		T1 Medium	Central Adelaide	Tomw(T1)		143.26		FULHAM	273297.673	6132067.275
662807586		T1 Medium	Central Adelaide	Tomw(T1)	11/02/1946	134.11		FULHAM	272923.6948	6132497.212
662807588		T1 Medium	Central Adelaide	Tomw(T1)		158.5		FULHAM	273141.6684	6132426.259
662807591		T1 Medium	Central Adelaide	Tomw(T1)	25/10/1945	128.02		FULHAM	273386.744	6132508.265
662807592		T1 Medium	Central Adelaide	Tomw(T1)		128.02		FULHAM	273415.6698	6132396.207
662807596		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1931	198.12		LOCKLEYS	274019.7238	6132871.258
662807597		T1 Medium	Central Adelaide					LOCKLEYS	273988.7283	6132860.279
662807606		T1 Medium	Central Adelaide					LOCKLEYS	273419.6518	6131561.259
662807607		T1 Medium	Central Adelaide	Tomw(T1)	14/05/1928	147.83		LOCKLEYS	274016.1214	6131583.03
662807656		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1948	213.36		LOCKLEYS	274789.7566	6131656.195
662807659		T1 Medium	Central Adelaide	Tomw(T1)	9/02/1928	174.35		LOCKLEYS	274302.1116	6132020.997
662807660	ADE 7	T1 Medium	Central Adelaide	Tomw(T1)	5/12/1949	256.5		ADELAIDE AIRPORT	275639.6942	6131429.256
662807661	ADE 38	T1 Medium	Central Adelaide	Tomw(T1)	29/10/1962	206		ADELAIDE AIRPORT	275267.6939	6131190.233
662807662		T1 Medium	Central Adelaide	Tomw(T1)	19/04/1949	147.83		ADELAIDE AIRPORT	274908.7174	6130961.283
662807667		T1 Medium	Central Adelaide	Tomw(T1)	11/09/1934	161.54		ADELAIDE AIRPORT	274781.6817	6131357.189
662807732		T1 Medium	Central Adelaide					BROOKLYN PARK	276228.7	6131542.272

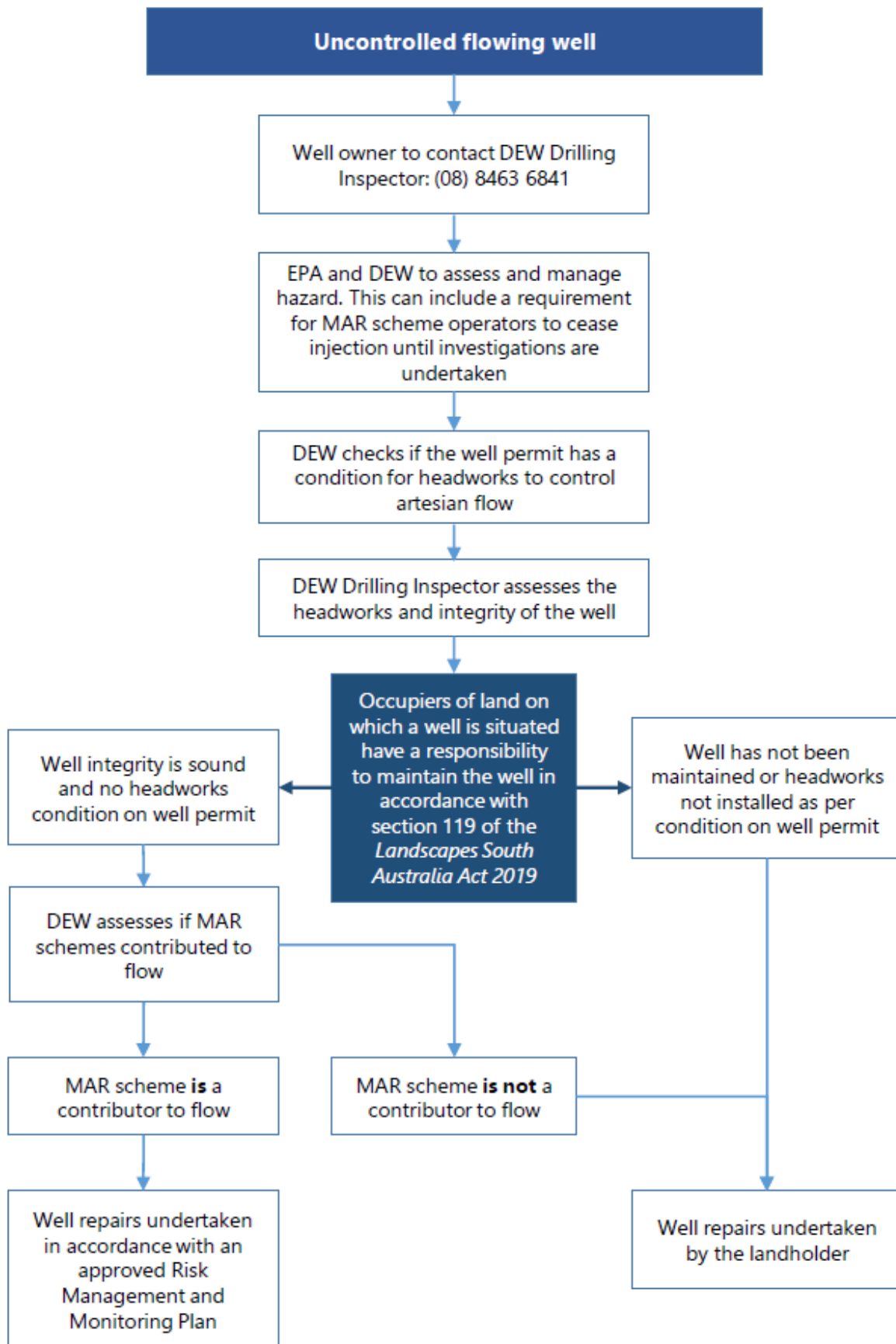
Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662807734		T1 Medium	Central Adelaide					BROOKLYN PARK	275865.7252	6131672.229
662807764		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1932	117.35		WEST RICHMOND	276063.7377	6131086.249
662807773		T1 Medium	Central Adelaide	Tomw(T1)		112.78		WEST RICHMOND	276396.7	6130598.253
662807798		T1 Medium	Central Adelaide	Tomw(T1)	24/02/1938	76.2		MARLESTON	277256.705	6130158.197
662807799		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1914	100.5		MARLESTON	276937.7319	6130495.163
662807801		T1 Medium	Central Adelaide	Tph(T1)		71.02		MARLESTON	276730.7011	6130361.235
662807805		T1 Medium	Central Adelaide	Tomw(T1)		66.14		MARLESTON	277237.7076	6130326.225
662807925		T1 Medium	Central Adelaide	Tomw(T1)	12/11/1934	72.24		MORPHETTVILLE	275761.7054	6125102.27
662807935		T1 Medium	Central Adelaide	Tomw(T1)	1/09/1948	64.01		PARK HOLME	276556.7293	6125167.195
662807940		T1 Medium	Central Adelaide	Tomw(T1)		67.67		PARK HOLME	276465.7369	6124836.3
662807943		T1 Medium	Central Adelaide	Tomw(T2)+Tomw(T1)	1/01/1945	67.67		MORPHETTVILLE	275960.7527	6124745.311
662807944		T1 Medium	Central Adelaide					PARK HOLME	276422.7328	6124746.224
662808073		T1 Medium	Central Adelaide	Tomw(T1)		69.19		NETLEY	276554.742	6129645.219
662808081	ADE 15	T1 Medium	Central Adelaide	Tomw(T1)	8/09/1914	57		PLYMPTON	276701.8744	6128592.242
662808086		T1 Medium	Central Adelaide	Tomw(T1)		40.5		PLYMPTON PARK	276789.7835	6127326.253
662808093		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1945	64.01		PLYMPTON	277237.134	6129128.995
662808094	ADE 12	T1 Medium	Central Adelaide	Tomw(T1)		69		NORTH PLYMPTON	276665.1086	6129470.992
662808095		T1 Medium	Central Adelaide	Tomw(T1)		84.12		NORTH PLYMPTON	276695.6876	6129349.2
662808096		T1 Medium	Central Adelaide	Tomw(T1)	1/08/1914	83.82		NORTH PLYMPTON	276738.6596	6129251.242
662808104		T1 Medium	Central Adelaide	Tomw(T1)	13/11/1945	77.42		PLYMPTON PARK	276777.772	6127059.233
662808105	ADE 17	T1 Medium	Central Adelaide	Tomw(T1)		55.34		SOUTH PLYMPTON	276862.9118	6127093.284
662808107		T1 Medium	Central Adelaide			39.62		SOUTH PLYMPTON	277185.7976	6126917.257

Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662808112		T1 Medium	Central Adelaide	Tomw(T1)	27/06/1969	47.24		SOUTH PLYMPTON	277018.1365	6126685.004
662808621		T1 Medium	Central Adelaide	Tomw(T1)	22/11/1949	122.53		WEST LAKES	271680.7865	6138942.205
662808622		T1 Medium	Central Adelaide	Tomw(T1)	10/12/1970	107.9		WEST LAKES	271718.8139	6138558.206
662808634		T1 Medium	Central Adelaide	Tomw(T1)		114.3		ROYAL PARK	272337.7288	6137707.271
662808636		T1 Medium	Central Adelaide	Tomw(T1)	1/03/1934	176.78		ROYAL PARK	272647.785	6137554.252
662808637		T1 Medium	Central Adelaide	Tomw(T1)	2/03/1947	134.72		ROYAL PARK	272462.8139	6137492.269
662808676		T1 Medium	Central Adelaide	Tomw(T1)		143.26		SEATON	273131.7176	6135896.288
662808677		T1 Medium	Central Adelaide	Tomw(T1)	1/01/1930	220.98		SEATON	273303.75	6135870.25
662808685		T1 Medium	Central Adelaide	Tomw(T1)	4/12/1934	191.72		SEATON	273342.7384	6136441.194
662812276		T1 Medium	Central Adelaide	Tomw(T1)	28/04/1983	211	FRP+STL	HENLEY BEACH	271752.733	6133402.324
662815793		T1 Medium	Central Adelaide	Tomw(T1)	19/12/1991	125.5		ROYAL PARK	272066.7243	6138918.299
662818780		T1 Medium	Central Adelaide	Tomw(T1)	6/12/1996	216	FRP+STL	LOCKLEYS	274348.1526	6132130.003
662819739		T1 Medium	Central Adelaide	Tomw(T1)	3/10/1985	210.5		HENLEY BEACH	271714.1598	6132980.99
662819813		T1 Medium	Central Adelaide	Tomw(T1)	1/03/1947	126.49		HENLEY BEACH	271611.6759	6133767.322
662819840		T1 Medium	Central Adelaide	Tomw(T1)	1/03/1947	126.49		HENLEY BEACH	271725.656	6133377.228
662819869		T1 Medium	Central Adelaide	Tomw(T1)	26/02/1915	304.8		OAKLANDS PARK	276251.6957	6124361.303
662820552		T1 Medium	Central Adelaide	Tomw(T1)	17/11/2000	221	FRP+STL	LOCKLEYS	274357.616	6131546.74
662820854		T1 Medium	Central Adelaide	Tomw(T1)	11/01/2002	224		LOCKLEYS	274702.1492	6131816.98
662823017		T1 Medium	Central Adelaide	Tomw(T1)	22/03/2007	34		SOUTH PLYMPTON	276994.2548	6127640.381
662824910		T1 Medium	Central Adelaide	Tomw(T1)	22/11/2008	220		LOCKLEYS	274670.5404	6131664.243
662826363		T1 Medium	Central Adelaide	Tomw(T1)	23/07/2012	70		PARK HOLME	276421.7103	6124769.287
662826795		T1 Medium	Central Adelaide	Tomw(T1)	17/03/2012	60		PARK HOLME	276823.9224	6126162.951



Unit Number	Obsnumber	Risk zone	Prescribed Wells Area	Aquifer monitored	Drill date	Latest depth (m)	Casing material	Suburb	Easting	Northing
662826847		T1 Medium	Central Adelaide	Tomw(T1)	21/06/2013	184		WEST LAKES	271713.3402	6138579.604
662803297		T1 Medium	Northern Adelaide Plains	Tomw(T1)	21/07/1959	144.78		PARAFIELD GARDENS	280409.7731	6149636.336
662803434		T1 Medium	Northern Adelaide Plains					BOLIVAR	279379.7343	6149105.323
662804331		T1 Medium	Northern Adelaide Plains					MAWSON LAKES	280408.8068	6144788.266
662805186		T1 Medium	Northern Adelaide Plains					PARAFIELD GARDENS	281359.7736	6148982.292
662806914		T1 Medium	Northern Adelaide Plains					MAWSON LAKES	281823.6742	6144476.294
662806915		T1 Medium	Northern Adelaide Plains					MAWSON LAKES	282073.7329	6144041.278
662806916		T1 Medium	Northern Adelaide Plains					POORAKA	283624.7564	6143897.314
662806917		T1 Medium	Northern Adelaide Plains					POORAKA	282661.7411	6143854.342
662806918		T1 Medium	Northern Adelaide Plains					MAWSON LAKES	281605.8358	6144072.324
662806928		T1 Medium	Northern Adelaide Plains	Tomw(T1)		100.58		POORAKA	282479.727	6143764.343
662806929		T1 Medium	Northern Adelaide Plains					POORAKA	282479.692	6143754.242
662806955		T1 Medium	Northern Adelaide Plains					MAWSON LAKES	281835.7494	6144738.293
662814027		T1 Medium	Northern Adelaide Plains	Tomw(T1)	20/10/1987	153		DRY CREEK	279816.1136	6145176.957
662817136		T1 Medium	Northern Adelaide Plains	Tomw(T1)	28/04/1995	117.3	PVC	GLOBE DERBY PARK	279830.1062	6149281.947
662820742		T1 Medium	Northern Adelaide Plains	Tomw(T1)	11/12/2001	150	PVC	PARAFIELD	282751.0856	6147526.953
662823460		T1 Medium	Northern Adelaide Plains	Tomw(T1)		126		GLOBE DERBY PARK	279752.0961	6149434.021
662823486		T1 Medium	Northern Adelaide Plains	Tomw(T1)	17/01/2008	138		PARAFIELD GARDENS	280817.1689	6149400.999
662823488		T1 Medium	Northern Adelaide Plains	Tomw(T1)	1/02/2008	138		PARAFIELD GARDENS	280892.1415	6149291.021

**B. Flow chart for uncontrolled flowing wells**



## 6 Units of measurement

### 6.1 Units of measurement commonly used (SI and non-SI Australian legal)

Name of unit	Symbol	Definition in terms of other metric units	Quantity
day	d	24 h	time interval
gigalitre	GL	$10^6 \text{ m}^3$	volume
gram	g	$10^{-3} \text{ kg}$	mass
hectare	ha	$10^4 \text{ m}^2$	area
hour	h	60 min	time interval
kilogram	kg	base unit	mass
kilolitre	kL	$1 \text{ m}^3$	volume
kilometre	km	$10^3 \text{ m}$	length
litre	L	$10^{-3} \text{ m}^3$	volume
megalitre	ML	$10^3 \text{ m}^3$	volume
metre	m	base unit	length
microgram	$\mu\text{g}$	$10^{-6} \text{ g}$	mass
microlitre	$\mu\text{L}$	$10^{-9} \text{ m}^3$	volume
milligram	mg	$10^{-3} \text{ g}$	mass
millilitre	mL	$10^{-6} \text{ m}^3$	volume
millimetre	mm	$10^{-3} \text{ m}$	length
minute	min	60 s	time interval
second	s	base unit	time interval
tonne	t	1000 kg	mass
year	y	365 or 366 days	time interval

# 7 Glossary

**Aquifer** — An underground layer of rock or sediment that holds water and allows water to percolate through

**Aquifer, confined** — Aquifer in which the upper surface is impervious (see 'confining layer') and the water is held at greater than atmospheric pressure; water in a penetrating well will rise above the surface of the aquifer

**Aquitard** — A layer in the geological profile that separates two aquifers and restricts the flow between them

**ArcGIS** — Specialised GIS software for mapping and analysis developed by ESRI

**Artesian** — An aquifer in which the water surface is bounded by an impervious rock formation; the water surface is at greater than atmospheric pressure, and hence rises in any well which penetrates the overlying confining aquifer

**BoM** — Bureau of Meteorology, Australia

**Cone of depression** — An inverted cone-shaped space within an aquifer caused by a rate of groundwater extraction that exceeds the rate of recharge; continuing extraction of water can extend the area and may affect the viability of adjacent wells, due to declining water levels or water quality

**Confining layer** — A rock unit impervious to water, which forms the upper bound of a confined aquifer; a body of impermeable material adjacent to an aquifer; see also 'aquifer, confined'

**DEW** — Department for Environment and Water

**GIS** — Geographic Information System; computer software linking geographic data (for example land parcels) to textual data (soil type, land value, ownership). It allows for a range of features, from simple map production to complex data analysis

**Groundwater** — Water occurring naturally below ground level or water pumped, diverted and released into a well for storage underground; see also 'underground water'

**Groundwater Data** — Interactive map and search tool for viewing information about South Australia's wells with access to well details including, graphs showing water salinity and water level. It provides a variety of search methods, including filtering the results. [[waterconnect.sa.gov.au/Systems/GD/](http://waterconnect.sa.gov.au/Systems/GD/)]

**Hydrogeology** — The study of groundwater, which includes its occurrence, recharge and discharge processes, and the properties of aquifers; see also 'hydrology'

**Impact** — A change in the chemical, physical, or biological quality or condition of a water body caused by external sources

**Infrastructure** — Artificial lakes; dams or reservoirs; embankments, walls, channels or other works; buildings or structures; or pipes, machinery or other equipment

**Injection well** — An artificial recharge well through which water is pumped or gravity-fed into the ground

**Irrigation** — Watering land by any means for the purpose of growing plants

**Irrigation season** — The period in which major irrigation diversions occur, usually starting in August–September and ending in April–May

**Land** — Whether under water or not, and includes an interest in land and any building or structure fixed to the land

**Licence** — A licence to take water in accordance with the Act; see also 'water licence'

**Licensee** — A person who holds a water licence

**m AHD** — Defines elevation in metres (m) according to the Australian Height Datum (AHD)

**MAR** — Managed aquifer recharge (MAR) is a process where water is intentionally placed and stored in an aquifer for later human use, or to benefit the environment.

**Model** — A conceptual or mathematical means of understanding elements of the real world that allows for predictions of outcomes given certain conditions. Examples include estimating storm runoff, assessing the impacts of dams or predicting ecological response to environmental change

**Monitoring** — (1) The repeated measurement of parameters to assess the current status and changes over time of the parameters measured (2) Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements and/or pollutant levels in various media or in humans, animals, and other living things

**NAP** — Northern Adelaide Plains

**Observation well** — A narrow well or piezometer whose sole function is to permit water level measurements

**Potentiometric head** — The potentiometric head or surface is the level to which water rises in a well due to water pressure in the aquifer, measured in metres (m); also known as piezometric surface

**Prescribed well** — A well declared to be a prescribed well under the Act

**Production well** — The pumped well in an aquifer test, as opposed to observation wells; a wide-hole well, fully developed and screened for water supply, drilled on the basis of previous exploration wells

**PWA** — Prescribed Wells Area

**Specific storage ( $S_s$ )** — Specific storativity; the amount of stored water realised from a unit volume of aquifer per unit decline in head; measured in  $m^{-1}$

**Tertiary aquifer** — A term used to describe a water-bearing rock formation deposited in the Tertiary geological period (1–70 million years ago)

**Water resource monitoring** — An integrated activity for evaluating the physical, chemical, and biological character of water resources, including (1) surface waters, groundwaters, estuaries, and near-coastal waters; and (2) associated aquatic communities and physical habitats, which include wetlands

**Water-use year** — The period between 1 July in any given calendar year and 30 June the following calendar year; also called a licensing year

**Well** — (1) An opening in the ground excavated for the purpose of obtaining access to underground water. (2) An opening in the ground excavated for some other purpose but that gives access to underground water. (3) A natural opening in the ground that gives access to underground water

**WWTP** — Wastewater Treatment Plant



## 8 References

DEW (2018), Northern Adelaide Plains PWA T2 aquifer 2017 Groundwater level and salinity status report, Government of South Australia, Department for Environment and Water, Adelaide.

Gerges NZ (2006), Overview of the hydrogeology of the Adelaide metropolitan area, DWLBC Technical report 2006/10, Government of South Australia, Department of Water, Land and Biodiversity Conservation, Adelaide.

Hodgkin T (2004), Aquifer storage capacities of the Adelaide region, DWLBC Technical report 2004/47, Government of South Australia, Department of Water, Land and Biodiversity Conservation, Adelaide.

Kretschmer P (2017), Managed Aquifer Recharge Schemes in the Adelaide Metropolitan Area, DEWNR Technical report 2017/22, Government of South Australia, Department of Environment, Water and Natural Resources, Adelaide.

Martin R, Whittington H and Haworth D (2018), Northern Adelaide Irrigation Scheme numerical groundwater flow model, Wallbridge Gilbert Aztec, Adelaide.

SA Water 2020, Adelaide, viewed 15 February 2021, <https://www.sawater.com.au/news/contract-changes-in-development-for-virginia-irrigators>.