

Bungendore Alluvial Groundwater Source

Introduction

This report is a summary of water accounts, volume pumped and groundwater levels for the Bungendore Alluvial Groundwater Source. The report is for the period 1 July 2019 to 30 June 2020 based on the water sharing plan that applied over the period. It will be updated on an annual basis.

For detailed information of the hydrogeology, management and past long-term water level behaviour of this water source refer to the Groundwater Resource Description Report for the Bungendore Alluvial Groundwater Sources:

www.industry.nsw.gov.au/__data/assets/pdf_file/0017/313127/appendix-a-murrumbidgee-alluvium-wrp-groundwater-resource-description.pdf

Description

The Bungendore Alluvial Groundwater Source is located within the Lake George basin, in the upper Murrumbidgee River catchment. The water source covers an area of approximately 60 km² which extends south from Lake George, including the township of Bungendore (**Figure 1**).

The alluvium is approximately 45 to 50 m thick and consists of interbedded sand, clay and gravel.

Water resource management

Water sharing plan

For the period of reporting, the Bungendore Alluvial Groundwater Source was managed by the rules defined in the Water Sharing Plan for the Murrumbidgee Unregulated and Alluvial Water Sources 2012. It was replaced by the Water Sharing Plan for the Murrumbidgee Alluvial Groundwater Sources 2020.

This water sharing plan is available for viewing on the Department of Planning Industry and Environment - Water website at: www.industry.nsw.gov.au/water/plans-programs/water-sharing-plans/status/murrumbidgee-region

Basic rights

Basic landholder rights are available in this groundwater source for domestic and stock watering requirements. While landholders don't need an access licence to take water for domestic and stock purposes from groundwater below their property, the bore must be authorised by WaterNSW. The volume of water set aside in the water sharing plan for basic landholder rights in the Bungendore Alluvial Groundwater Source is 25 megalitres (ML) per year.

The bore owner is responsible for monitoring water quality from the bore to ensure it is suitable for its intended purpose for the duration of the approval. Inherent water quality and land use activities may make the water in some areas unsuitable for use. Water from the groundwater sources should not be used without first being tested and, if necessary, appropriately treated to ensure it is fit for purpose. Such testing and treatment are the responsibility of the water user.

Bungendore Alluvial Groundwater Source

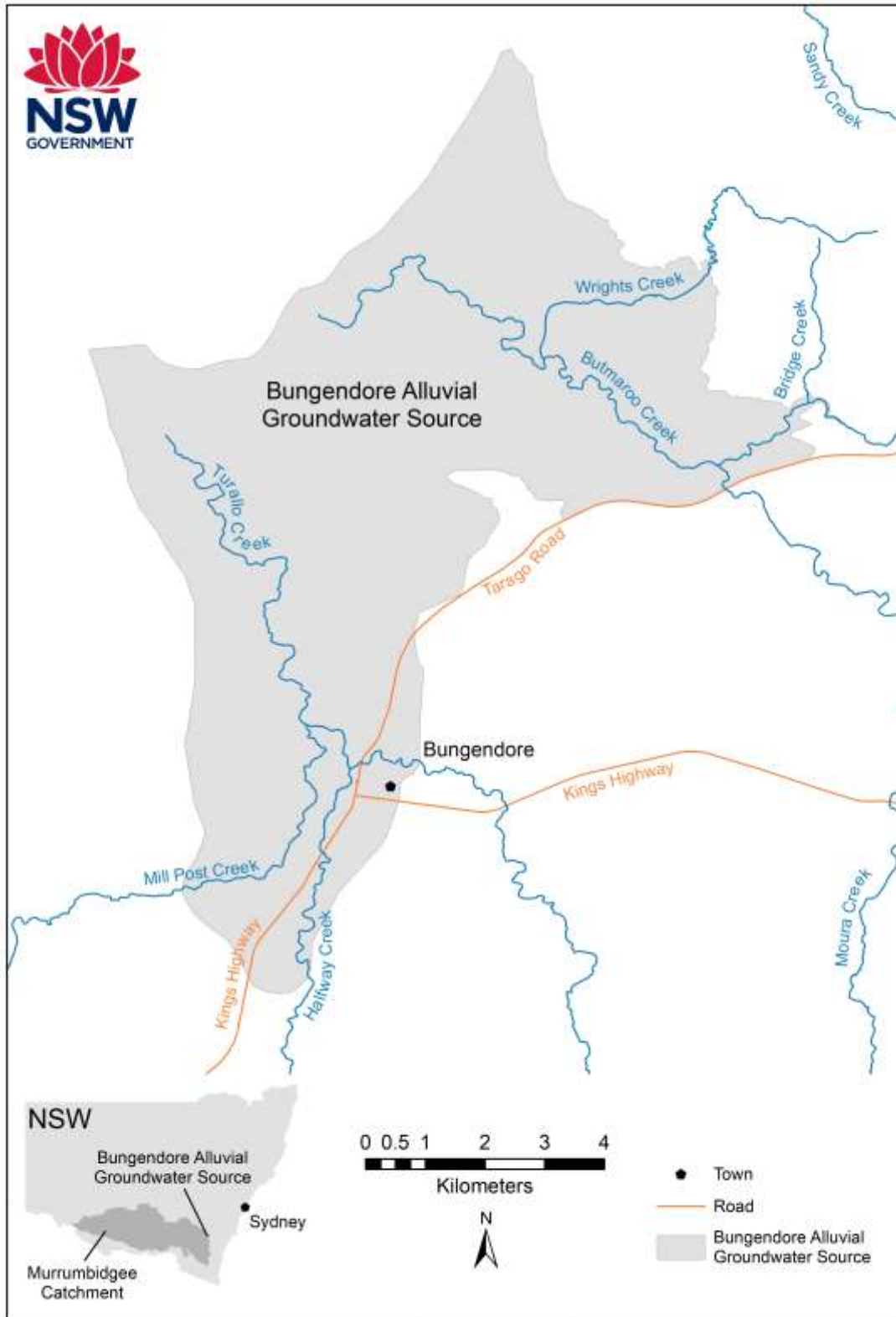


Figure 1: Location Map

Bungendore Alluvial Groundwater Source

Groundwater access licences

Groundwater access licence share components for 2019 - 2020 are presented in **Table 1**.

Table 1: Bungendore Alluvial Groundwater Source share component 30 June 2020

Access Licence Category	Number of Licences	Total Volume
Local Water Utility ¹	2	472
Aquifer ²	4	766

¹Megalitres/year (ML)

²Megalitres per unit share

Extraction limit

All groundwater sharing plans have rules to manage extraction in a water source to the long-term average annual extraction limit.

The extraction limit for Bungendore Alluvial Groundwater Source is 1,268 ML/year. Extraction in the Bungendore Alluvial Groundwater Source is not compliant if the **5 years** average annual extraction (known as the assessment period) is more than **105%** of the extraction limit (known as the compliance trigger). If average extraction exceeds the compliance trigger, then the available water determination made for aquifer access licences for the following water year, may be reduced by an amount that would return subsequent total water extraction to the extraction limit.

The period for assessing compliance with the extraction limit changed in 2020, from 3 to 5 years, with the start of the water sharing plan that commenced on 1 July 2020. The available water determination for the 2020-21 water year is the first year based on the 5-year assessment period. Compliance against the extraction limit for the Bungendore Alluvial Groundwater Source are illustrated in **Figure 2**.

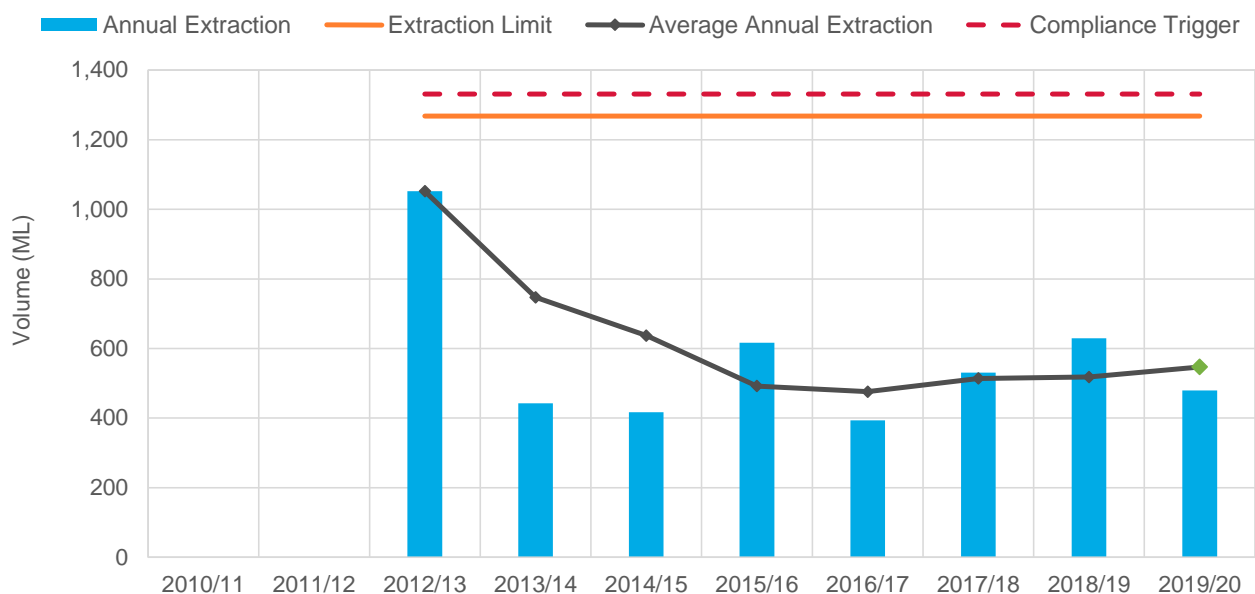


Figure 2: Bungendore Alluvial extraction compared to the extraction limit compliance trigger

Bungendore Alluvial Groundwater Source

Available water

Carryover of unused account water from one water year to the next is not available in this groundwater source. Total water availability in a water year is controlled by the available water determinations credited to an access licence account.

The maximum amount of water that can be debited from an account in any one water year can't exceed the available water determination (AWD) plus any allocation transferred in (temporary trade), and minus any allocation transferred out. This means that metered extraction plus transfers out cannot exceed the AWD, unless water is transferred in.

Total account water is displayed in **Figure 3** showing the proportion available for use. Total yearly extraction is also displayed. Note, all access licence categories have been combined in **Figure 3**.

There has been no reduction in the available water determination (AWD) for aquifer access licences in the Bungendore Alluvial Groundwater Source since the water sharing plan first started in 2012.

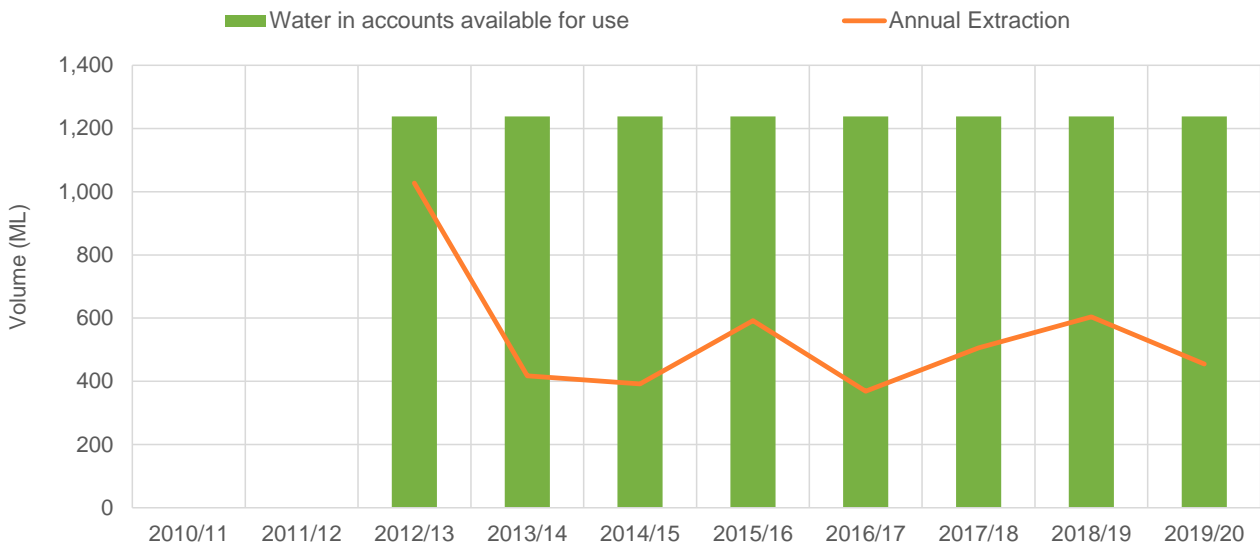


Figure 3: Account water availability and usage summary for the Bungendore Alluvial Water Source

Access licence account summary for the 2019/2020 water year

The following section summarises the water accounting information applicable to the access licences in the Bungendore Alluvial Groundwater Source for the period 1 July 2019 to 30 June 2020.

The data is presented in **Table 2**. Account summary components have been rounded to the nearest megalitre.

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Table 2: Bungendore Alluvial Groundwater Source access licence account summary 2019-20, volumes in ML or shares

Access licence category	Share 30 June 2020	Opening balance	AWD	Assignments (Temporary Trades)		Account usage	End of year balance		End of year forfeit	Carry forward
				In	Out		Available	Unavailable		
Aquifer	766	0	766	0	0	188	578	0	578	0
Local Water Utility	472	0	472	0	0	267	206	0	206	0

Explanatory information for Table 2

Heading		Description
Share		This is the total share component (entitlement) in the specific licence category and the end of the relevant water year
Opening balance		The volume of water that has been carried forward from previous years access licence accounts for the relevant licence category.
AWD		Increase to total account water as a result of available water determinations (a process which distributes a volume of water to access licence accounts at the commencement of each water year)
Assignments	In	Increase in account water as a result of allocation assignments (temporary trade) in.
	Out	Decrease in account water as a result of allocation assignments (temporary trade) out.
Account usage		Decrease in account water due to account usage
End of year balance	Available	The available (accessible for use) account balance reported and the end of the relevant water year. The total account balance is equal to the available plus unavailable volumes. The volume stated is prior to any end of year forfeits.
	Unavailable	The amount in accounts that is unavailable for use at the time of reporting due to account usage limits defined in the relevant water sharing plan. The volume is reported at the end of the relevant water year. The total account balance is equal to the available plus unavailable volumes. The volume stated is prior to any end of year forfeits.
End of Year Forfeit		Account water that is forfeited at the end of the water year as a result of carryover rules defined in the relevant water sharing plan that may restrict the volumes allowed to be carried forward.
Carry Forward		This represents the account water that is permitted to be carried forward into the next water year as determined by the carryover rules.
(123)		Denotes a negative value

Bungendore Alluvial Groundwater Source

Groundwater trading

Trades are permitted within but not between Bungendore Alluvial and any other groundwater source.

To date there have been no applications for temporary dealings in the Bungendore Alluvial Groundwater Source.

Assignment or transfer of rights (permanent trade)

To date there have been no applications for permanent dealings in the Bungendore Alluvial Groundwater Source.

Bores

There are approximately 44 registered bores across the Bungendore Alluvial Groundwater Source (**Figure 4**). The majority of these bores being used for stock and domestic purposes (Basic Landholder Rights). However, most groundwater extraction is for irrigation and town water supply (**Figure 5**).

Table 3: Number of licensed water supply bores in the Bungendore Alluvial Groundwater Source (at June 2020).

Water Source	Registered Bore Type		
	Basic Landholder Rights	Production	Local Water Utility
Bungendore Alluvial Groundwater Source	31	7	6

Water level monitoring

WaterNSW monitors groundwater levels at 6 monitoring bores at 3 sites in the Bungendore Alluvial Groundwater Source (**Figure 6**). At the majority of monitoring sites there are two or more pipes monitoring different depths. The depth monitored by each pipe reflects the depth where the casing is slotted to allow groundwater entry into the pipe.

A hydrograph is a plot of groundwater level or pressure from a monitoring bore over time. A representative sample of hydrographs from monitoring bores have been selected and are presented in (**Figure 7 to Figure 9**).

Data for the monitored bores as well as private bore information can be obtained from the WaterNSW real time data portal (realtimedata.waternsw.com.au/). You can also request information via: Customer.Helpdesk@waternsw.com.au

The manually monitored sites are read every four to eight weeks.

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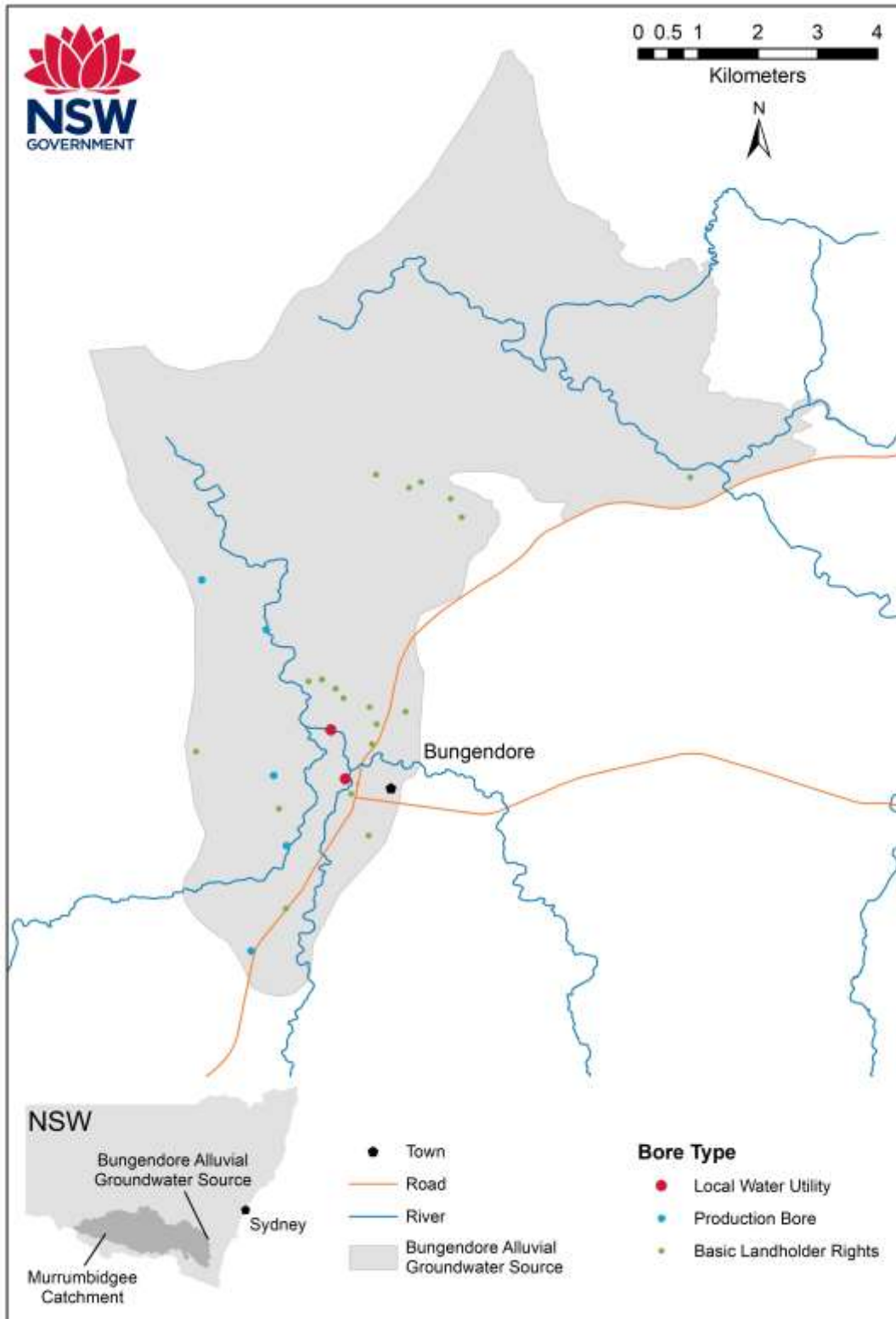


Figure 4: Bungendore Alluvial Groundwater Source bore type

Bungendore Alluvial Groundwater Source

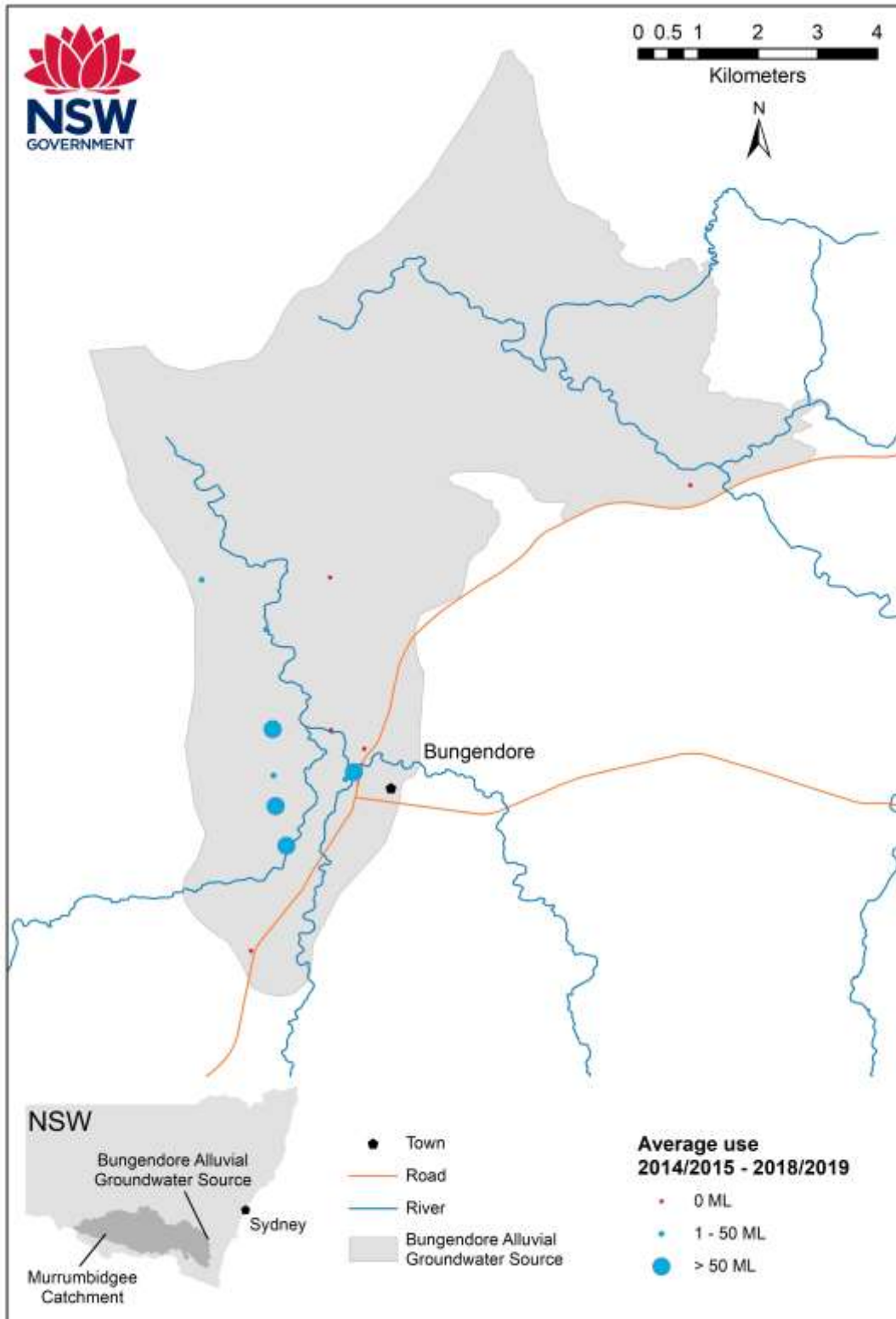


Figure 5: Bungendore Alluvial Groundwater Source water supply bores and distribution of extraction

Bungendore Alluvial Groundwater Source

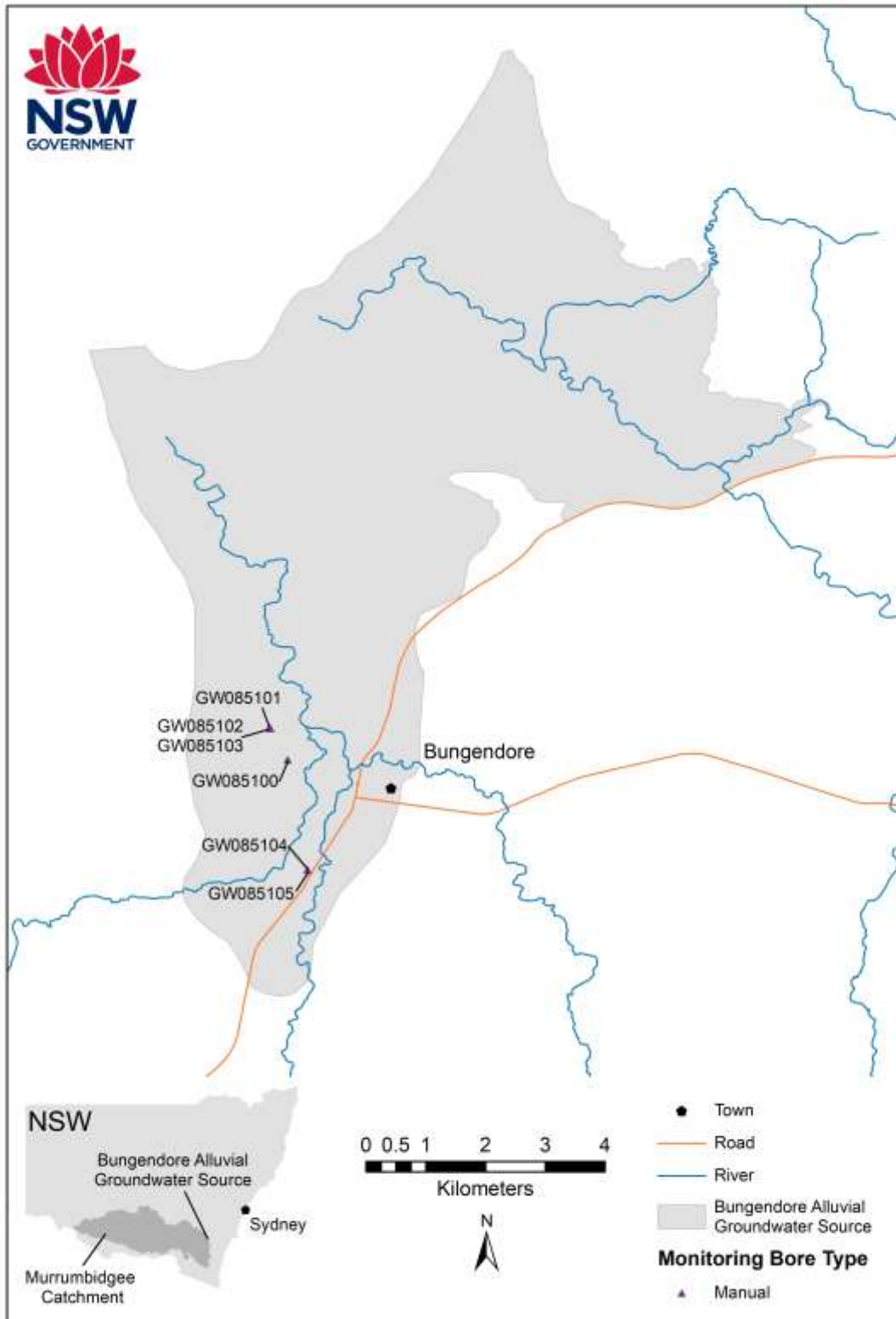


Figure 6: Bungendore Alluvial Groundwater Source monitoring bore sites

Bungendore Alluvial Groundwater Source

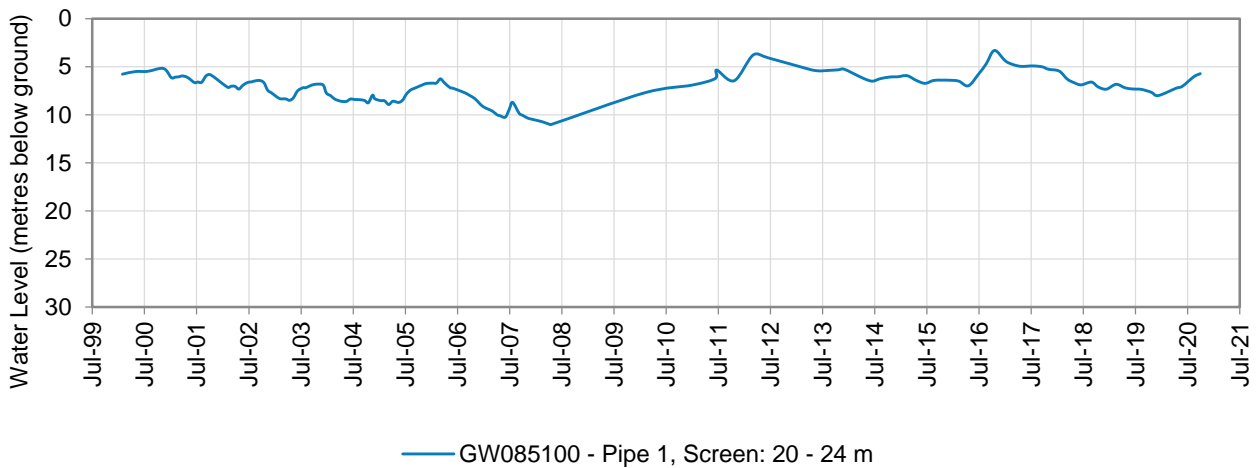


Figure 7: Hydrograph of monitoring bore GW085100

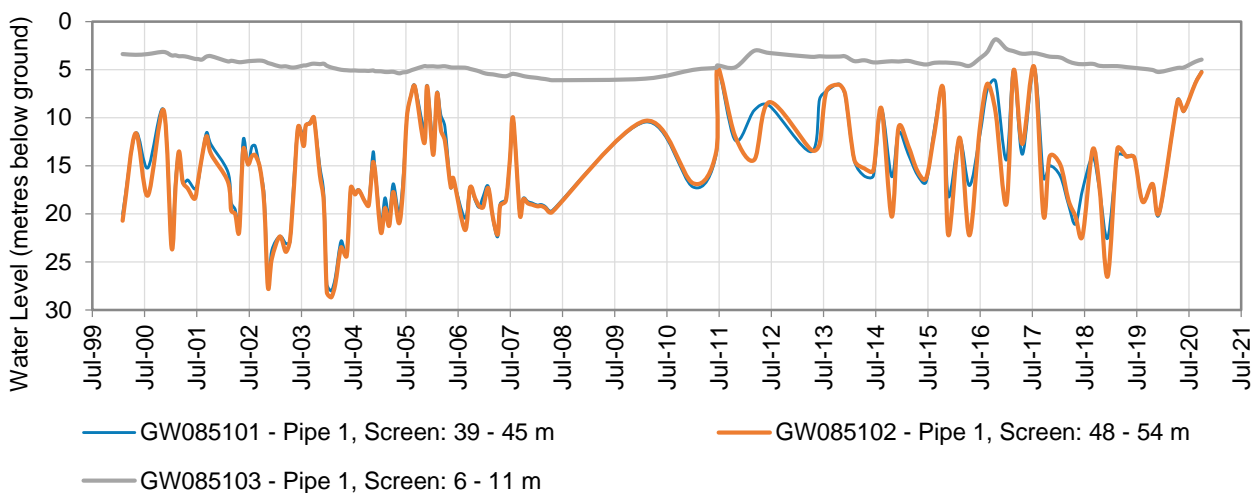


Figure 8: Hydrograph of monitoring bores GW085101, GW085102 and GW085103 (same location)

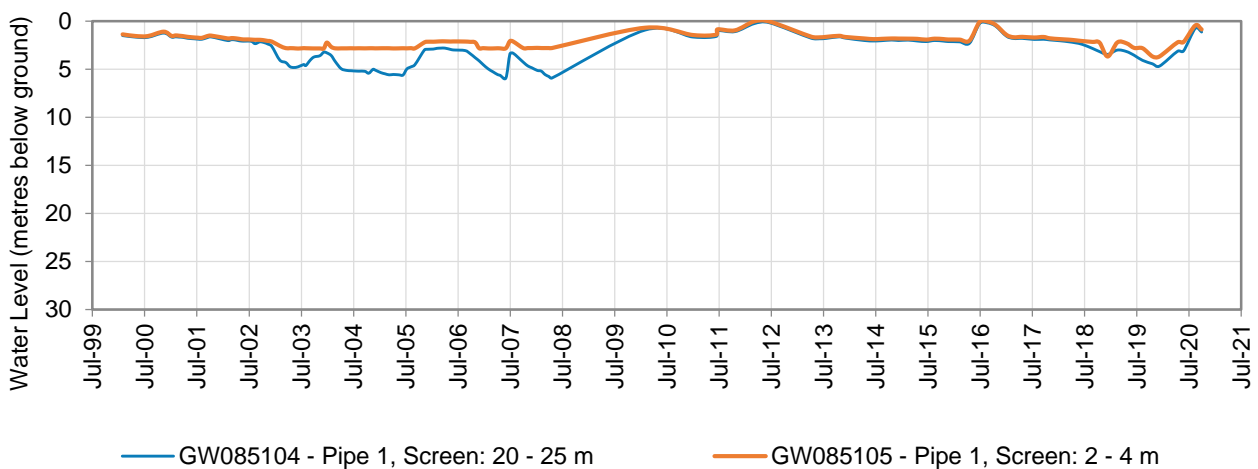


Figure 9: Hydrograph of monitoring bore GW085104 and GW085105 (same location)

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