SIMEC

MEMBER OF GFG ALLIANCE

Tahmoor Coal Pty Ltd

2024 ANNUAL REVIEW AND ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

September 2025

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Document Control

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1 Title Block

Table 1-1 Title Block

Name of operation	Tahmoor Coal – SIMEC Mining
Name of operator	Tahmoor Coal Pty Ltd
Development consent / project approval #	DA 1975, DA 1979, DA 57/93, DA 67/98, DA 190/85, DA 162/76, SSD8445, EPBC 2017/8084
Name of holder of development consent / project approval	Tahmoor Coal Pty Ltd
Mining lease #	Tahmoor Coal Holdings - ML1376, ML1308, ML1539, ML1642 & CCL716 Bargo Coal Holdings - CCL747
Name of holder of mining leases	Tahmoor Coal Pty Ltd Bargo Collieries Pty Ltd
	This document has been prepared on behalf of Tahmoor Coal Pty Ltd and Bargo Collieries Pty Ltd. The following recitals pertain to documents for which Bargo Collieries is a signatory for any activities listed in clause 27 of the Mining Regulations (and relating to CCL747): A. Bargo Collieries Pty Ltd (Bargo Collieries) is the holder of Consolidated Coal Lease 747 (CCL 747). B. Mining in part of the approved Tahmoor South Coal Mine Project will take place within land covered by CCL 747 C. The development consent No. SSD8445 for the Tahmoor South Coal Mine Project was obtained by Tahmoor Coal Pty Ltd which is a related entity to Bargo Collieries. D. Subject to the terms of this Agreement and in accordance with s81(1)(a) of the Mining Act the Landholder consents to Bargo Collieries, its employees, agents (including Tahmoor Coal Pty Ltd and its employees) or Bargo Collieries' contractors to enter the Landholder's Land to undertake the proposed activity(ies) on the Landholder's Land. E. Bargo Collieries proposes to appoint Tahmoor Coal Pty Ltd as the mine operator pursuant to the relevant provisions of the Work Health and Safety (Mines and Petroleum sites) Act 2013 (WHS (M&P) Act) and the Work Health and Safety (Mines and Petroleum sites) Regulation 2022 (WHS(M&PS) Regulation.
Water licence #	WAL 36442, WAL 25777, WAL 43631, WAL 43655, WAL 43656, WAL 43657, WAL 43659, WAL 45204, SWC868868 (Leased), SWC871469 (leased)
Name of holder of water licence	Tahmoor Coal Pty Ltd
RMP Start Date	02/07/2022
RMP End Date	19/10/2032
Annual Review start date	01/01/2024
Annual Review end date	31/12/2024
I, Zina Ainsworth, certify that this audit report is a true and accurate record of the compliance status of Tahmoor Coal Mine for the period 1 January 2024 and 31 December 2024 and that I am authorised to make this statement on behalf of Tahmoor Coal Pty Ltd. *Note.* *a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report*	

produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000. b) *The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or $22,000, or both).*	
Name of authorised reporting officer	**Zina Ainsworth**
Title of authorised reporting officer	**Environment and Community Manager**
Signature of authorised reporting officer	
Date	*30/09/25*

2 Statement of Compliance

Table 2-1 outlines the statement of compliance with the relevant conditions for the reporting period.

Table 2-2 provides a statement of compliance for Tahmoor Coal for 2024.

Table 2-1 Statement of Compliance (2024)

Were all the conditions of the relevant approvals complied with?	Compliance
ML1376	Yes
ML1308	Yes
ML1539	Yes
ML1642	Yes
CCL716	Yes
CCL747	Yes
EPL 1389	Yes
WAL36442	Yes
WAL25777	Yes
WAL43631	Yes
WAL43655	Yes
WAL43656	Yes
WAL43657	Yes
WAL43659	Yes
WAL45204	Yes
SWC868868 (Leased)	Yes
SWC871469 (Leased)	Yes
DA 1975	Yes
DA 1979	Yes
DA 190/85	Yes
DA 57/93	Yes
DA 67/98	Yes
SSD 8445	No (please see below, Table 2-2)
EPBC 2017/8084	Yes

Table 2-2 Non-Compliance Summary (2024)

Relevant Approval	Condition #	Condition Description (summary)	Compliance status	Comment	Section addressed in Annual Review
SSD 8445	A11 (c)	Truck Movements	Non-Compliant	Transportation of Coal Washery rejects to Council Project location	Section 19
SSD 8445	B2 & E10	Noise Exceedance	Non-compliant	Noise exceedance during quarterly Noise Assessment and notification of exceedance reported on day 11 instead of day 7	Section 9.2

Table 2-3 Compliance status key to Table 2-2 Non-Compliance summary

Risk Level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

2.1 Tri-ennial Independent Audit

The next Triennial Independent Environmental Audit will be undertaken during May 2026 in accordance with Conditions 50 and E15 of Development Consent DA 67/98 and SSD 8445 respectively.

3 Introduction

3.1 Background

Tahmoor Coal Mine (Tahmoor Mine) is an underground coal mine located approximately 80 kilometres (km) south-west of Sydney between the towns of Tahmoor and Bargo, New South Wales (NSW). Tahmoor Coal, as the operator of Tahmoor Mine, is approved to extract up to 4 million tonnes of Run of Mine (ROM) coal per annum from the Bulli Coal Seam. Tahmoor Mine produces a primary hard coking coal product and a secondary higher ash coking coal product that are used predominantly for coke manufacture for steel production. Product coal is transported via rail to Port Kembla and Newcastle for Australian domestic customers and export customers.

Tahmoor Mine has been operated by Tahmoor Coal Pty Ltd (Tahmoor Coal) since the mine commenced in 1979 using bord and pillar mining methods, and via longwall mining methods since 1987. Tahmoor Coal is a wholly owned entity within the SIMEC Mining Division of the GFG Alliance group.

In April 2021, Tahmoor Coal received Development Application Approval (SSD 8445) for the extraction of up to 4 Mtpa of ROM coal in the 'Tahmoor South Domain', with a total of up to around 33 Mt of ROM coal proposed to be extracted over a 10-year period. Tahmoor Coal also received conditions of approval (EPBC 2017/8084) under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) in October 2021.

OVERVIEW OF OPERATIONS

Tahmoor Coal has previously mined 37 longwalls to the north and west of the mine's current pit top location and is currently mining in the Tahmoor South Domain. The Tahmoor South Domain is located south of the Bargo River and east of Remembrance Driveway and north-east of the township of Bargo. Longwall mining is used to extract coal from the Bulli coal seam within the bounds of Consolidated Coal Lease (CCL) 716 and CCL 747. Twelve longwalls are proposed in this domain which are divided into a series of six northern (A series) and six southern (B series) longwalls. An Extraction Plan for the A series, Longwalls' South 1A to South 6A (LW S1A-S6A), was approved on 20 September 2022. The first longwall (LW S1A) was completed in July 2023, the second longwall (LW S2A) was completed in April 2024, and the third longwall (LW S3A) was completed in December 2024.

In May 2024, a modification was submitted to DPHI for the extraction of one additional longwall LWS7A and approved in May 2025.

With regards to this Annual Review, the Department of Planning, Housing and Infrastructure (DPHI) and the Department of Regional NSW – Resources Regulator (Resources Regulator) approved that the Annual Review prepared under Condition 45 of Development Consent DA 67/98 can also fulfil the requirement of the Annual Environmental Management Report (AEMR). This was to reduce duplication of reported information to both Government authorities.

In addition, Mining Lease 1376 was varied on the 17 October 2022 and excludes the need to include a Rehabilitation Report as part of the Annual Review report as this was replaced with the reporting required for the Resources Regulator new rehabilitation reforms. The Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW) also confirmed on 16 June 2022 that the Annual Compliance Reports requirement will align with the due date of

this report (31 March annually), and these reporting requirements will be covered off in this report.

This Annual Review or Annual Environmental Management Report (AEMR) is for the reporting period of 1 January 2024 to 31 December 2024. DPHI approved the delayed submission of this report from 31 March to 30 September 2025.

Tahmoor Coal has been approved to align their reporting period for the Rehabilitation Reforms Annual Rehabilitation Report and Forward program with the AEMR reporting period in order to streamline reporting.

A plan of Tahmoor Mine showing the regional context, development consent boundary and mining lease boundaries is shown in **Figure 1**.

Contact information for Tahmoor Coal is listed in **Table 3-1** below.

Table 3-1 Tahmoor Coal Contacts

Name	Position	Contact details
Peter Vale	Executive General Manager Coal Operations	(02) 4640 0100
Clint Mason	Head of Tahmoor Coal Operations	(02) 4640 0150
Zina Ainsworth	Environment & Community Manager	(02) 4640 0100
Ross Barber	Project Manager Subsidence	(02) 4640 0028
Nick Le Baut	Environment Projects Manager	(02) 4640 0090
Thomas O'Brien	Environment Specialist	(02) 4640 0018
Natalie Brumby	Environmental Specialist	(02) 4640 0048
Amanda Bateman	Community Liaison Specialist	(02) 4640 0025
Amanda Fitzgerald	Environment & Community Officer	(02) 4640 0079
24 Hour Contact Number	Community Call Line	1800 154 415

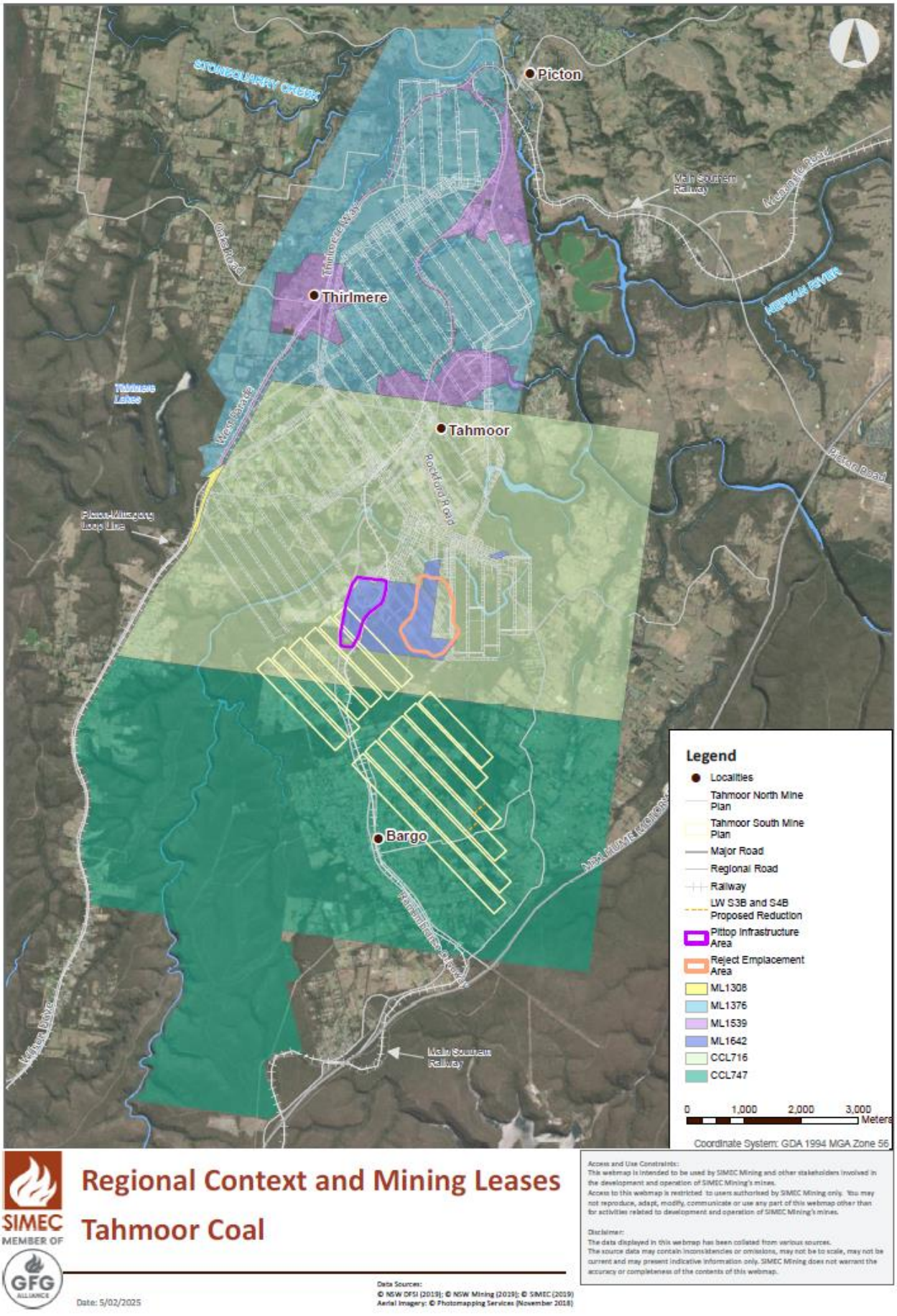


Figure 1 Mining Area and Tenure

4 Approvals

Development consents, mining tenures and environmental licences held by Tahmoor Coal Pty Ltd and Bargo Collieries Pty Ltd are outlined in **Table 4-1** below.

Table 4-1 Consents and Licences

Consent Number	Consent Description	Date Granted	Expiry Date
Development Consents			
DA 1975	Underground Mine	26/03/1975	No expiry
DA 162/76	Bargo Consent	21/04/1976	This Consent was surrendered on 05/10/2022
DA 1979	Coal Preparation Plant Stockpiles and Refuse Emplacement Area	23/08/1979	No expiry
DA 1979 (Mod 1)	Modification for road haulage of trial coal shipments	16/09/1985	No expiry
DA 190/85	Surface Works for Gas Extraction	16/12/1985	No expiry
DA 1979 (Mod 2)	Modification for Upgrades for Longwall Mining	05/11/1986	No expiry
DA 1979 (Mod 3)	Modification for Road haulage in Wollondilly Shire and when rail unavailable	1988	No expiry
DA 1979 (Mod 4)	Modification for Road haulage to Corrimal and Coal Cliff Coke Works	13/12/1994	No expiry
DA 57/93	Tahmoor North Project	07/09/1994	No expiry
DA 57/93 (Mod 1)	Modification for heritage approval condition	07/06/2007	No expiry
DA 67/98	Tahmoor North Extension Project	25/02/1999	The approval for extraction of coal expired on 16/06/2024
DA 67/98 (Mod 1)	Modification for additional areas to be subsided	26/11/2006	As above
DA 67/98 (Mod 2)	Modification for Redbank Tunnel Subsidence Management	08/04/2012	As above
DA 67/98 (Mod 3)	Modification for Redbank Tunnel Rail Deviation –Subdivision of Land	25/11/2012	As above
DA 67/98 (Mod 4)	Modification for subsidence area update	15/10/2018	As above
DA 67/98 (Mod 5)	Modification for subsidence area update	03/11/2020	As above
SSD 8445	Tahmoor South Project	23/04/2021	Ten (10) years from commencement of second workings, ie 19 October 2032)

Consent Number	Consent Description	Date Granted	Expiry Date
SSD 8445 (MOD 1)	Extension of time to commission Water Treatment Plant	19/07/2022	As above
SSD 8445 (MOD 2)	Underground brine disposal and transfer of mine water	13/06/2023	As above
EPBC 2017/8084	Conditions of approval under the *Environment Protection and Biodiversity Conservation Act 1999*	01/10/2021	01/09/2061
Mining Tenure – Mining Leases & Exploration Authorisations			
Consolidated Coal Lease 716	Tahmoor Mining Lease	15/06/1990, renewed 16/08/2023	13/03/2042
Mining Lease 1376	Tahmoor North Mining Lease	28/08/1995, renewed 28/03/2023	28/08/2043
Mining Lease 1308	Mining Lease to west of CCL716	02/03/2014	02/03/2035
Mining Lease 1539	Tahmoor North Extension Mining Lease	16/06/2003	16/06/2035
Mining Lease 1642	Pit-top and REA surface Mining Lease	27/08/2010	27/08/2031
Consolidated Coal Lease 747	Bargo Mining Leases	23/05/1990, renewed 21/11/2005	06/11/2025
Environmental Licences			
EPL 1389	Environmental Protection Licence	01/05/1994, latest variation 28/6/2024	No expiry
WAL36442	Water Access Licence	06/12/2013	No expiry
WAL25777	Water Access Licence	27/10/2014	No expiry
WAL43631	Water Access Licence	8/3/2021	No expiry
WAL43655	Water Access Licence	9/3/2021	No expiry
WAL43656	Water Access Licence	01/8/2022	No expiry
WAL43657	Water Access Licence	9/3/2021	No expiry
WAL43659	Water Access Licence	9/3/2021	No expiry
WAL45204	Water Access Licence	7/8/2024	No expiry
SWC871469	Water Access Licence (Lease)	11/07/2025	1/7/2026
SWC868868	Water Access Licence (Lease)	01/07/2024	30/06/2025 (Lease in process of renewal for FY26)
XSTR200005	Licence to store explosives	02/02/2017	02/02/2027
5061521	Radiation Management Licence	29/10/2024	29/10/2025

5 Operations Summary

5.1 Mining Operations

Mining activities during the reporting period have been conducted in accordance with the Rehabilitation Management Plan and Extraction Plan approvals. An Extraction Plan for Longwalls South 1A to South 6A was approved on 20 September 2022.

The dates for mining in the Tahmoor South domain "A series" is given below in **Table 5-1** and longwall layout is given in Figure 2.

Table 5-1 A-Series Longwall Mining Schedule

Longwall Block	Proposed Start	Proposed Completion (subject to change)
Tahmoor South – Longwall S1A	19/10/2022 (actual)	18/06/2023 (actual)
Tahmoor South – Longwall S2A	02/08/2023 (actual)	06/04/2024 (actual)
Tahmoor South – Longwall S3A*	08/05/2024 (actual)	17/12/2024 (actual)
Tahmoor South – Longwall S4A*	January 2026	August 2026
Tahmoor South – Longwall S5A	September 2026	April 2027
Tahmoor South – Longwall S6A	May 2027	December 2027

* LW S3A and LW S4A were shortened by 104m from the initial start position with approval from relevant stakeholders.

Tahmoor Coal wrote to DPHI in July 2023, initiating the process of lodging a Modification to SSD8445 (Modification 3) to seek an additional Longwall in the 'A series', ie. LWS7A. Modification 3 was lodged in May 2024 and the outcome will be reported in the 2025 Annual Report. LWS7A is planned to be extracted after completion of LWS6A.

An exploration program commenced in July 2024 consisting of drilling and investigation of up to 9 boreholes in the Tahmoor South-West area. Two boreholes drilled and rehabilitated and the projects put on hold in October 2024.

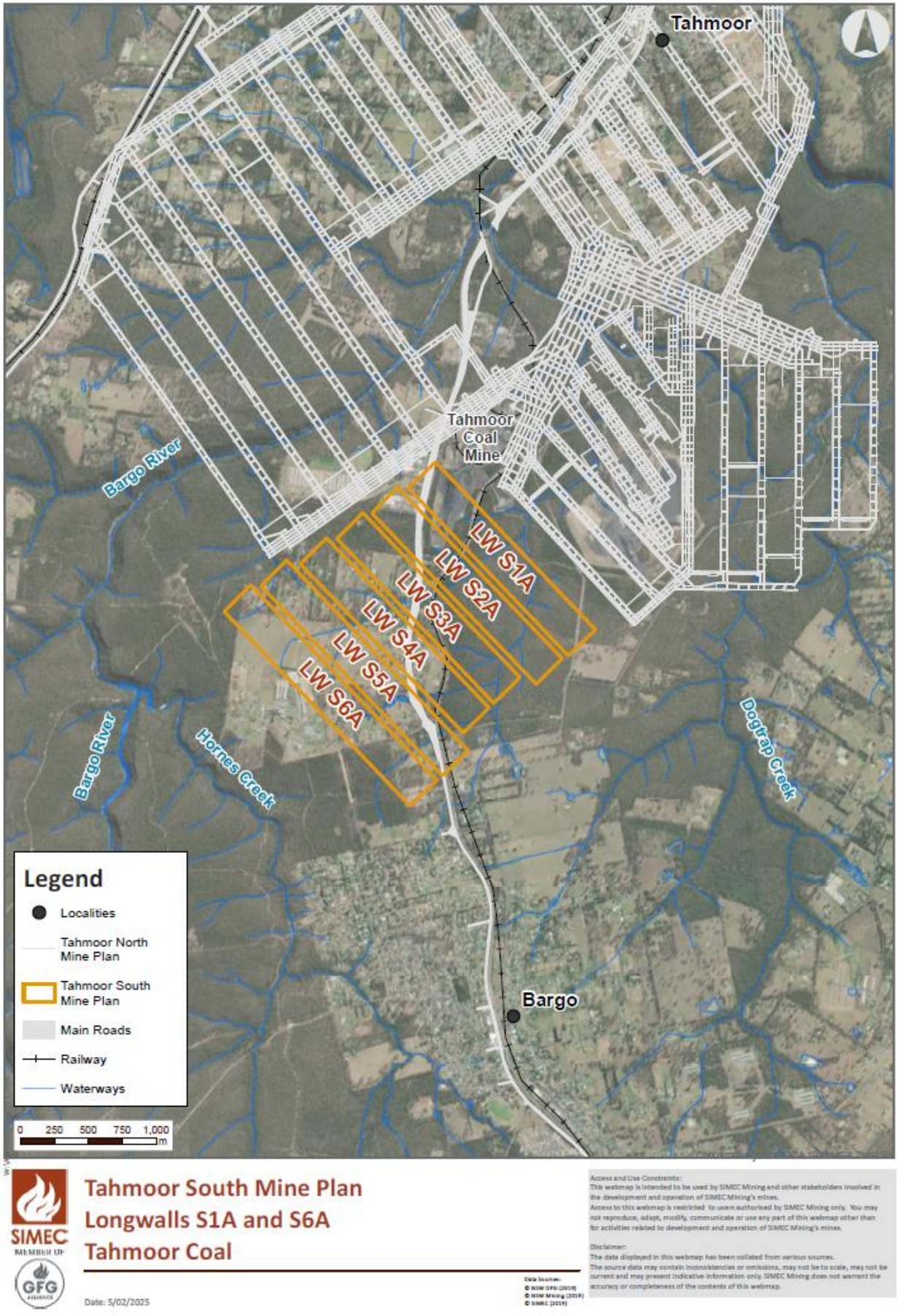


Figure 2 Tahmoor South Domain A-Series Longwalls

Table 5-2 outlines a summary of operational performance at Tahmoor Mine.

Table 5-2 Production Summary

Material	Approved Limit (Specify Source)	Previous Reporting Period (2023) (Actual)	This Reporting Period (2024) (Actual)	Next Reporting Period (2025) (Forecast)
Waste rock/Overburden /Oversize Tonnes	Maximum of 200,000 tonnes of material transported to and from site each year (SSD 8445)	4,021	2,716	-
ROM Feed Tonnes	4,000,000 tonnes (SSD 8445)	2,733,692	2,998,583	2,550,000
Refuse Tonnes	-	1,141,264	1,331,540	1,235,854
Fine Refuse (Tailings) Tonnes	-	148,364	182,995	150,000
Saleable Product Tonnes	3,500,000 tonnes (EPL 1389)	1,672,504	1,646,540	1341389

5.2 Actions Required from Previous 2023 Annual Review

As required under Schedule 2 Condition 52 of Development Consent DA 67/98 and Schedule 2 Condition E23 of the Development Consent SSD 8445, a copy of the 2023 Annual Review Report was made available on the Tahmoor Coal Website following submission on 28 March 2024, and can be found at: Annual Environmental Management Reports - Tahmoor Colliery.

In accordance with Schedule 2 Condition 46 of the Development Consent DA 67/98 and Schedule 2 Condition E7 of Consent SSD8445, the related Management Plans were reviewed and updated where required within three months following the submission of the AEMR. Approved updates of these documents have been posted on the Tahmoor Coal Website.

Following submission of the 2023 Annual Review, comments received from Department of Primary, Housing and Industries (DPHI) on 10 May 2024, included updating the 2023 Annual Review to include monitoring commitments as per “Table 3 EIS Commitments” in the Tahmoor South Air Quality Greenhouse gas Management Plan. The 2023 Annual Review was updated to include these commitments and uploaded to the Tahmoor Coal website within 30 days. Refer to **Table 5-3** below for additional information.

No further actions were required from stakeholders for the 2023 Annual Review Report.

Table 5-3 Actions from previous Annual Review

Action required from previous Annual Review	Requested by	Action taken by the Operator	Where discussed in Annual Review
Include monitoring commitments as per "Table 3 EIS Commitments" in the Tahmoor South Air Quality Greenhouse gas Management Plan.	Department of Primary, Housing and Industries (DPHI)	Additional Section 8.2.6 added	Section 5.2 and Section 8.2.6

6 Environmental Performance

Environmental performance and implemented and/or proposed management activities at Tahmoor Mine are outlined in **Table 6-1** below. Further details regarding environmental performance are given in **Sections 9** to **18**.

Table 6-1 Environmental Performance

Aspect	Approval Criteria/EIS Prediction	Performance during the Reporting Period	Trend/key management implications	Implemented / proposed management actions
Noise	Pre- SSD8445 Noise Assessment Criteria: Maximum L10 reading of 45 dBA within 3 m of a residence Maximum L10 reading of 37 dBA at the REA	Monitoring results all within approved criteria	Noise levels were generally compliant throughout the reporting year.	Continue regular monitoring of noise levels and continue implementation of noise mitigation activities
	Post -SSD8445 Noise Assessment Criteria: Variable location criteria	During the Q3 Noise Assessment Sound pressure level contributions reported for sites P2 and P3 exceeded the noise goal for each of these sites.		
Blasting	Tahmoor Coal does not conduct surface blasting activities			
Air quality	Maximum deposited dust annual average of 4 g/m^2/month (DA 67/98 MOD5)	Monitoring results all within approved criteria. Site 8 & 10 depositional dust gauges were contaminated by insects, polysaccharide slimes and vegetation during September, October and November 2024 and March, October and December 2024 respectively.	Air quality levels within approved criteria	Continue regular monitoring of air quality levels
	Maximum increase in deposited dust level over an annual period of 2 g/m^2/month (DA 67/98 MOD5)	Monitoring results all within approved criteria	Air quality levels within approved criteria	Continue regular monitoring of air quality levels
	Maximum total suspended particulate (TSP) matter annual average of 90 µg/m^3 (DA 67/98 MOD3)	Monitoring results all within approved criteria	Air quality levels within approved criteria	Continue regular monitoring of air quality levels
	Maximum particulate matter (PM10) annual average of 25 µg/m^3 (SSD8445)	Monitoring results all within approved criteria	Air quality levels within approved criteria	Continue regular monitoring of air quality levels

Aspect	Approval Criteria/EIS Prediction	Performance during the Reporting Period	Trend/key management implications	Implemented / proposed management actions
	Maximum particulate matter (PM10) 24-hour average of 50 µg/m^3 (SSD8445)	Monitoring results all within approved criteria	Air quality levels within approved criteria	Continue regular monitoring of air quality levels
	Maximum particulate matter (PM2.5) annual average of 8 µg/m^3 (SSD8445)	Monitoring results all within approved criteria	Air quality levels within approved criteria	Continue regular monitoring of air quality levels
	Maximum particulate matter (PM2.5) 24-hour average of 25 µg/m^3 (SSD8445)	Monitoring results all within approved criteria	Air quality levels within approved criteria	Continue regular monitoring of air quality levels
Biodiversity	-	Monitoring results all within approved criteria for Aquatic Habitat and Macroinvertebrate, Amphibians populations, riparian vegetation and threatened species, threatened populations and endangered ecological communities.	N/A	Continue current management and monitoring activities
Heritage	-	Monitoring results all within approved criteria for Aboriginal and cultural Heritage sites and Historical Heritage Items	N/A	Continue current management and monitoring activities
Water Quality	EPL 1389 Conditions	Monitoring results all within approved criteria	Water quality compliant with EPL	Construction of Water Treatment Plant completed December 2023. Commissioning continued for 2024. E2 Ecotoxicity Monitoring continued quarterly monitoring during 2024. E3 Aquatic Health monitoring program continuing. Continue current management and monitoring activities.
Subsidence	Subsidence Management Plan and Extraction Plan approvals	Myrtle and Redbank Creek Remediation works completed in accordance with approvals	Subsidence monitoring results generally within predictions	Continue current management and monitoring activities.

Aspect	Approval Criteria/EIS Prediction	Performance during the Reporting Period	Trend/key management implications	Implemented / proposed management actions
	Subsidence Management Plan and Extraction Plan approvals	Subsidence monitoring results generally within predictions for Cliffs, Natural Steep slopes, Farm Dams and Agricultural Land.	Subsidence monitoring results generally within predictions	Continue current management and monitoring activities.
	Water Management Plan	Water Quality, Water Levels, Groundwater Pressure, Physical features and Natural Behaviour, Channel Stability, Sedimentation and Erosion.	Results within predictions	Continue current management and monitoring activities including implementation of TARPs
	Subsidence Management Plan and Extraction Plan approvals	Subsidence monitoring results generally within predictions for Railway track, Railway Culverts and Embankments, Cuttings, Bridges and Coal conveyor Crossing.	Subsidence monitoring results generally within predictions	Continue current management and monitoring activities.

7 Operational Noise

7.1 Environmental Management

Noise is managed across Tahmoor Mine in accordance with the approved Noise Management Plan (available on the Tahmoor Coal website), which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South. The management plan provides a framework for Tahmoor Coal personnel to ensure that compliance is achieved with relevant internal and external regulatory requirements related to noise management at Tahmoor Mine. The plan ensures that noise impacts on the community are minimised and managed efficiently and effectively within a structured framework.

In May 2024, the noise criteria of the 1994 Consent was superseded by the noise criteria conditions provided with in the SSD 8445.

Up until 16 May 2024, noise criteria is listed in Conditions 73 and 74 (DA 57/93 Tahmoor North development consent) as follows:

> *Condition 73: The noise level emanating from Tahmoor Mine and any associated facilities, including the Washery, stock pile area and rail loading facility, shall not exceed an L10 level of 45 dBA when measured within 3 m of any residence.*
>
> *Condition 74: The noise emanating from operations at the refuse emplacement site shall not exceed an L10 of 37 dBA or background +5 dBA whichever is the greater when measured within 3 m of any residence.*

The DA 57/93 consent conditions reference a distance of three (3) metres (m) from any residence that was constructed or approved prior to 1994.

From 16 May 2024, noise criteria is listed below as per Condition B2 of Consent SSD8445 and Table 2 of SSD8445:

> B2: Within two years of the commencement of development, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 (of SSD8445) at any receiver on privately-owned land.

Operator-attended noise monitoring locations around the mine are provided in **Figure 3**. These locations are representative of potentially impacted residences surrounding the Tahmoor Mine surface operations and generally consistent with historical noise compliance monitoring locations.

Tahmoor Coal operates a real-time noise monitoring system which includes a Trigger Action Response Plan (TARP) and alarm system, linked back to the mine's 24-hour control room.

Attended due diligence monitoring and assessment is conducted quarterly during the reporting period as part of ongoing noise compliance.

7.2 Environmental Performance

Tahmoor Mine's real-time noise monitoring data and due diligence assessments continued to demonstrate compliance with the sites' development consent noise criteria, with all monitoring results satisfying the noise assessment goals for the mine pit-top, No.2 ventilation shaft and REA operational areas with one non-compliance. During the Q3 Noise Assessment Sound pressure level contributions reported for assessment location P2 and P3 exceeded the noise goal for each monitoring location. The non-compliance was reported to DPHI 3 days outside the requirement of 7 days after being aware of non-compliance.

Actions taken to address the non-compliance included the following:

- Investigation to seek to understand the potential causes of the exceedance which did not reveal any unusual mining operations on the relevant date;
- Investigation to seek to understand the potential causes of the exceedance which did not reveal any unusual mining operations on the relevant date;
- Notification to the affected landholders was provided within the required timeframe;
- Discussions with landholders regarding the exceedance; and
- Ensure non-compliance notification timeframes are noted in Tahmoor's systems to effectively manage completion of notification to the Planning Secretary within the required timeframes being seven days after Tahmoor Coal becomes aware of any noise non-compliance.

Figure 4 outlines the positions of the quarterly noise monitoring assessment locations and **Appendix 1** contains a summary of noise monitoring completed from 2014 to 2024.

Tahmoor Coal received one (1) complaint in 2024 relating to noise and vibration. Further information regarding the complaint and actions taken is given in **Section 20 Community**.

7.3 Further Improvements

Tahmoor Coal will continue to operate and monitor the sites real-time noise monitoring network and alarm system, which includes a monitor at the mine pit-top facility (SX48) and one at a residence along Olive Lane (SX47) (refer to **Figure 4**). The site also hosts an additional portable noise monitor which is utilised at times to investigate off site noise issues, SX25. This noise monitor is usually situated to the north of the stockpile area and is kept active and can be utilised as an additional onsite noise monitor however during 2024 the monitor has been located at the REA to monitor noise and differences in weather conditions.

As part of the Tahmoor South consent SSD 8445 and to comply with Condition B2, Tahmoor Coal implemented several significant and capital-intensive noise mitigation measures to reduce the impact of noise from the mine site activities as follows:

Noise mitigation works completed on the Coal Handling Preparation Plant (CHPP) include:

1. Installation of acoustic cladding;
2. Installation of acoustic roller doors; and
3. Fitting of noise reduction material to windows.

Additional noise mitigation works that have been undertaken across site include the following:

1. Dozer sound suppression kits;

2. Stockpile Extension for increased operation on the Eastern Side;
3. Refuse Haul Truck fitted with new automatic transmission motor and upgraded sound kit;
4. 3C to 4C Transfer building doors; and
5. Double cladding of refuse bin.

Please see **Figure 3** below for CHPP identified areas to be mitigated (top-left), Noise Cladding material used (top-right) and CHPP noise mitigation works being implemented (bottom).



Figure 3 Images of Noise Cladding installed for the CHPP Building

Tahmoor Coal will continue to operate and monitor the sites noise levels in accordance with the approved Noise Management Plan.

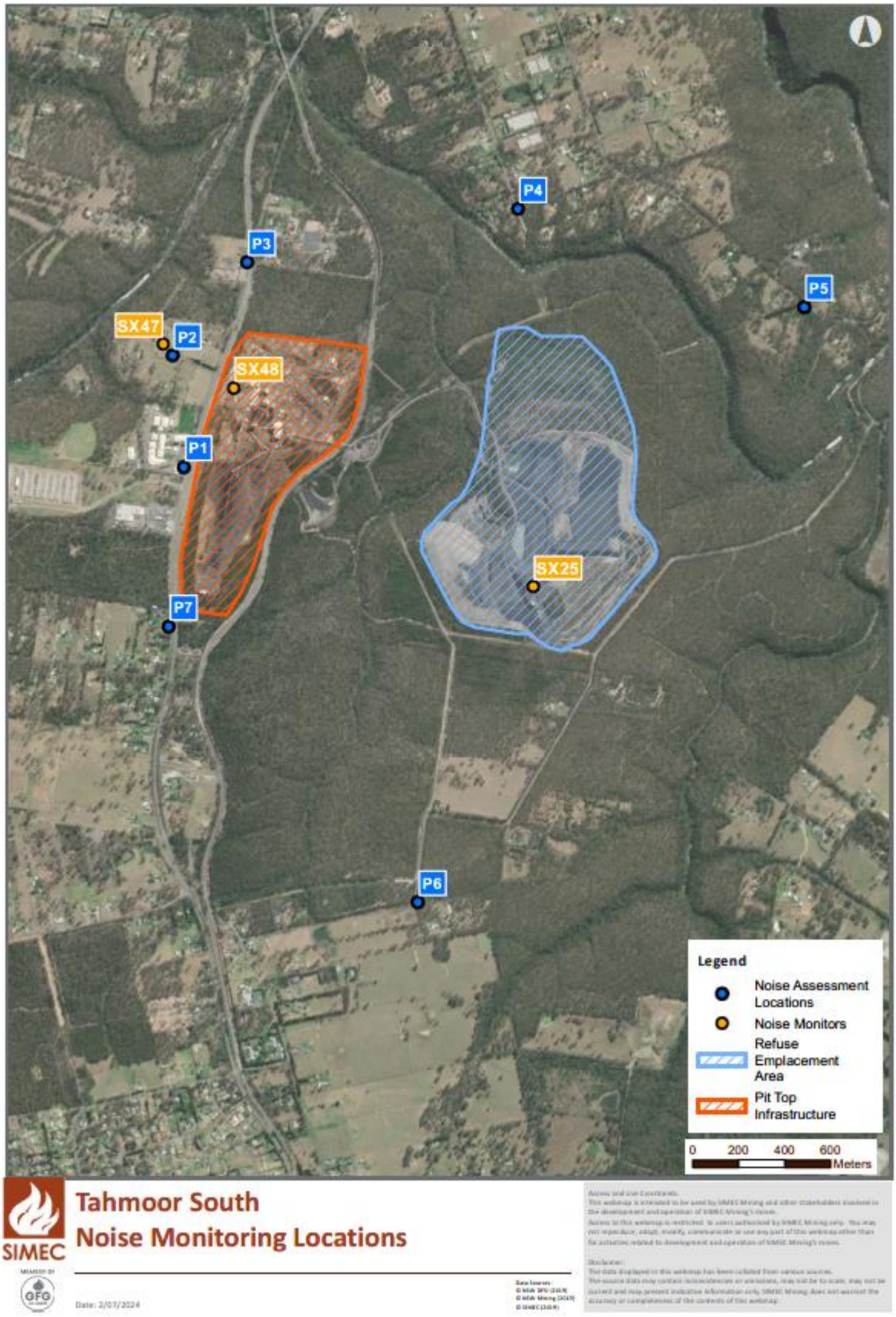


Figure 4 Locations of Noise Monitors and Noise Assessment Locations

8 Air Quality

8.1 Environmental Management

Air quality is managed in accordance with the approved Air Quality and Greenhouse Gas Management Plan (available on the Tahmoor Coal website), which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South. The management plan provides a framework for Tahmoor Coal personnel to ensure that compliance is achieved with relevant internal and external regulatory requirements related to air quality management at Tahmoor Mine.

A comprehensive system of controls is detailed for managing particulate matter on-site, including dust suppression sprays on the coal stockpiles (automatically triggered by pre-defined meteorological conditions), and visual triggers for operators and site personnel. Water carts are used at the REA and Pit-top hardstand areas to reduce wheel generated dust from mobile equipment. Unsealed access ways are controlled through the daily and additional on-call deployment of water carts to control dust. An organic dust suppressant 'Dustloc' is mixed into the water carts for additional effectiveness and an Early Warning Network (EWN) was implemented during the last reporting period to create a daily awareness on site of potential dust enhancing conditions and influence work activities on site.

8.2 Environmental Performance

8.2.1 Depositional Dust

The depositional dust monitoring results for the reporting period, expressed as insoluble solids (g/m^2/month), are compared against those from previous reporting periods and reviewed monthly. Monitoring results indicate that all recorded dust levels were monitored in accordance with Tahmoor Coal's Environmental Protection Licence (EPL) and were within the annual average of 4 g/m^2/month and has been within the maximum increase in deposited dust level over an annual period of 2 g/m^2/month as allowed by consent DA 67/98. The annual average for all Depositional Dust Monitoring Gauges was 0.98 g/m^2/month for the reporting period, which has decreased slightly from 1.00 g/m^2/month from the previous reporting period.

Depositional dust results during the reporting period are outlined in **Table 8-1** and **Figure 5** and have remained comparatively similar when compared to results of the last reporting period. There were six (6) occurrences of samples being contaminated by Insects, Polysaccharide Slime and/or Vegetation during the reporting period these include at Site 8 during September, October and November 2024 and at Site 10 during March, October and December 2024.

Air quality monitoring site locations are shown in **Figure 10.**

Table 8-1 Depositional Dust Gauge Data

Month/Site	1	2	3	4	7	8	9	10	11	12
EPL Monitoring site	DD G1	DDG2	DDG3	DDG4	DDG7	DDG8				
Jan-24	0.8	0.6	0.9	1.1	1.0	0.9	0.5	0.9	0.5	1.2
Feb-24	0.5	0.4	1.7	1.1	0.4	1.0	0.4	1.6	0.7	0.7
Mar-24	0.6	0.6	1.4	3.9	1.0	0.6	0.5	9.1*	2.1	1.1
Apr-24	1.2	1.0	1.7	1.4	1.1	3.4	0.5	2	1.2	0.9
May-24	0.7	0.2	0.3	0.4	0.2	3.1	0.3	1.9	0.8	1.4
Jun-24	0.7	0.4	0.8	0.5	0.3	1.8	0.4	1.4	0.8	0.8
Jul-24	0.4	0.4	0.8	0.7	0.4	1.3	0.1	0.9	0.8	0.7
Aug-24	0.6	1.3	1.2	0.8	0.5	2.9	0.1	0.3	1.6	0.2
Sep-24	0.7	0.3	0.7	1.1	0.4	4.6*	0.1	2.8	0.9	0.2
Oct-24	0.8	0.8	0.9	0.9	0.5	8.0*	0.5	4.6*	0.9	1.1
Nov-24	0.4	0.8	1.1	1.6	0.5	6.9*	0.8	1.3	0.6	2.0
Dec-24	0.8	0.7	1.1	2.1	1.1	1.4	0.9	5.9*	1.1	2.5

*** Dust Gauge contaminated by insects, polysaccharide slimes and vegetation.**

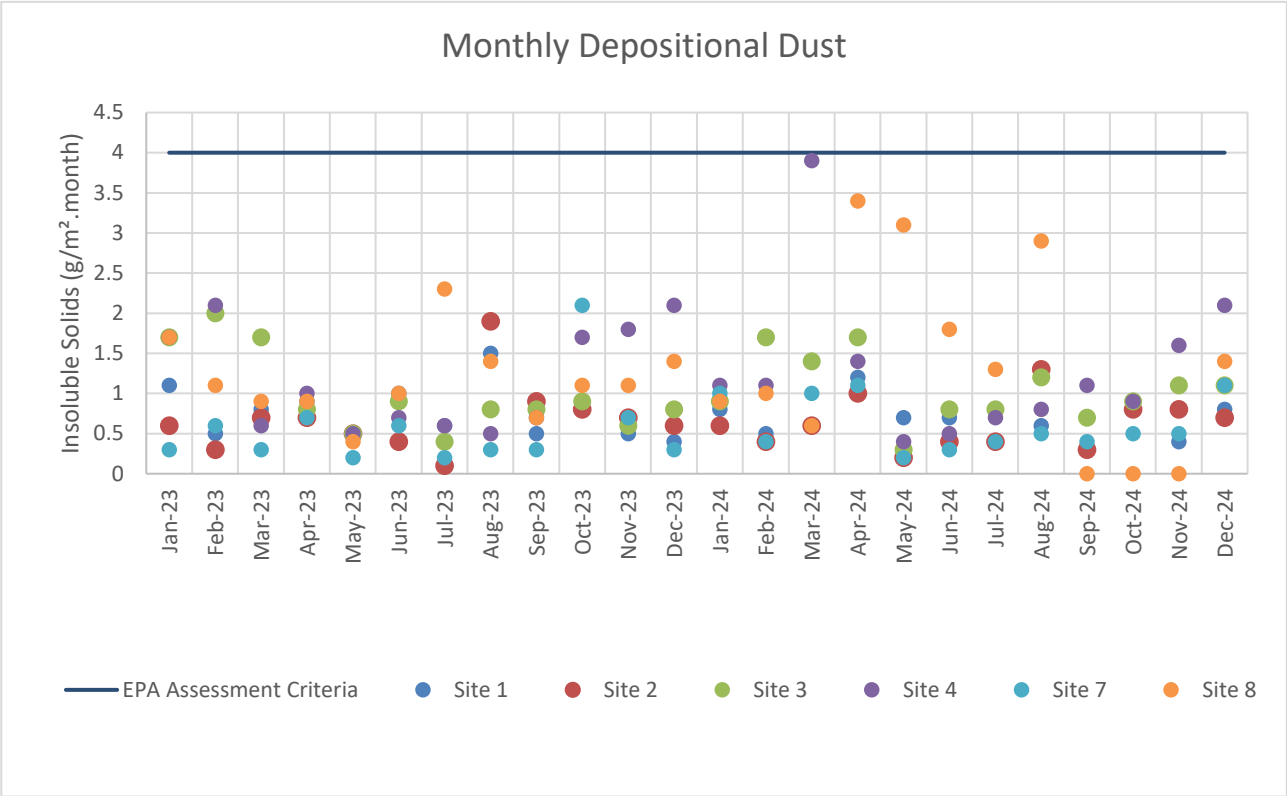


Figure 5: Comparison in pit-top Depositional Dust monitoring between the current reporting period (2024) and previous reporting period (2023).

Figure 5 illustrates all sites are in accordance with Tahmoor Coal's Environmental Protection Licence (EPL) and within the annual average of 4 g/m^2/month as allowed by consent DA 67/98. In general, all Depositional Dust monitoring site levels fluctuated on average between 0.5 to 1.8g/m^2/month with an annual average for all sites of 0.98g/m^2/month for 2024. **Figure 6** illustrates the historical annual average of each site over the past 15 years.

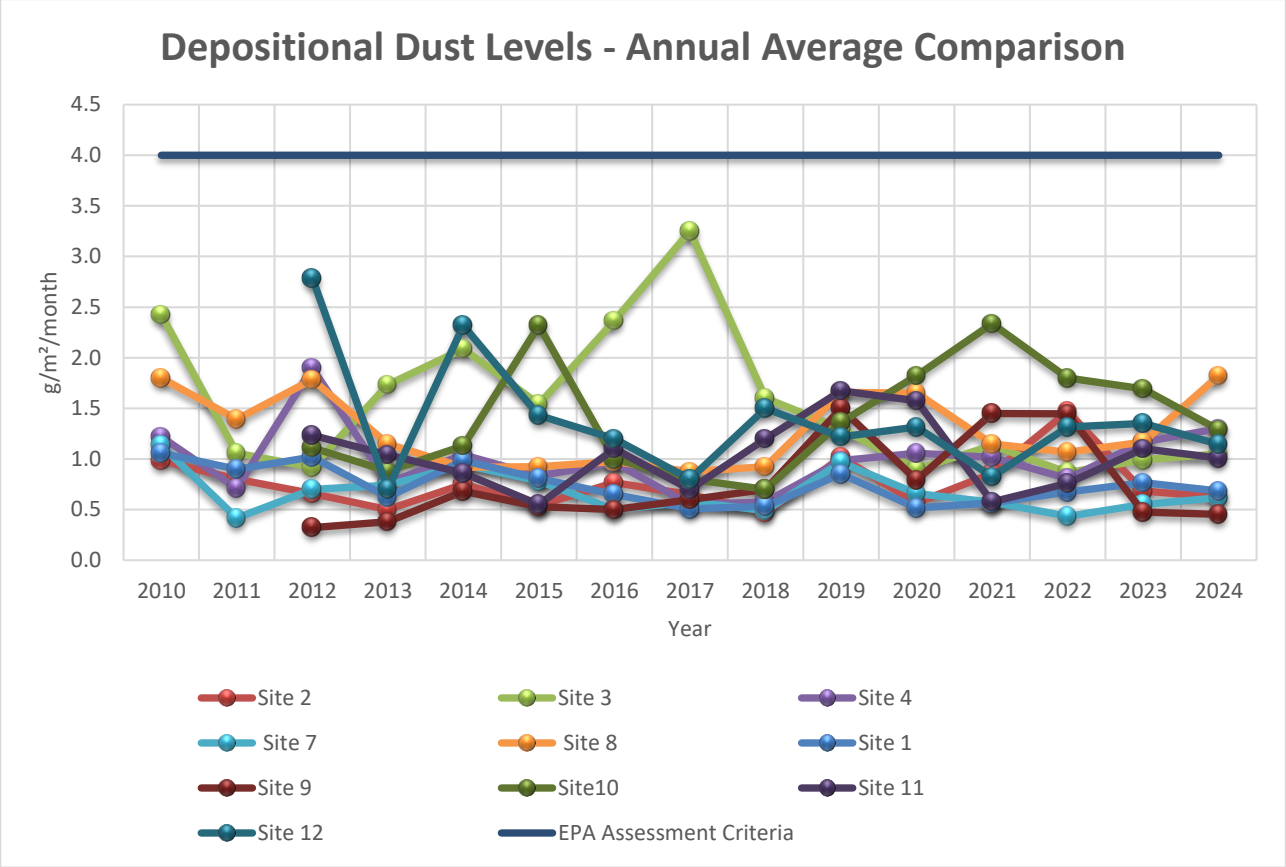


Figure 6 Depositional Dust Monitoring Annual Average Comparison

8.2.2 Continuous and Hi Vol Dust Monitoring

Figure 7 and **Figure 8** demonstrate the results of the particulate matter (PM_{10}) monitoring at Charlies Point Road and quarterly High Volume (Hi Vol) dust monitoring at Olive Lane and Hodgson Grove in Tahmoor located to the North-east and west of the pit-top facilities. PM_{10} particles have a diameter of 10 micrometers or smaller and are found in dust and smoke as a common air pollutant. These monitoring sites have been established since August 2013, with a continuous TEOM (Tapered Element Oscillating Microbalance) dust monitor located at Tahmoor Coal's Charlies Point Road property.

During the reporting period, PM_{10} results from Tahmoor Coal's TEOM have remained low and well below the 24 hour maximum average level of 50 µg/m³ and below the maximum PM_{10} annual average of 25 µg/m³ as allowable by development consent SSD8445 (refer to **Figure 8)**. High Volume monitoring conducted quarterly during the reporting period has also remained below the 24-hour maximum average level of 50 µg/m³ as allowable by development consent SSD8445 (refer to **Figure 7**).

As shown in **Figure 7 and 8**, bushfires and hazard reduction burns impacted on the air quality significantly during November and December 2019 causing a steep increase in the PM_{10} annual average. However, during 2020 levels considerably declined and returned to baseline levels during 2021. **Figure 8** shows a very similar annual average to last reporting period.

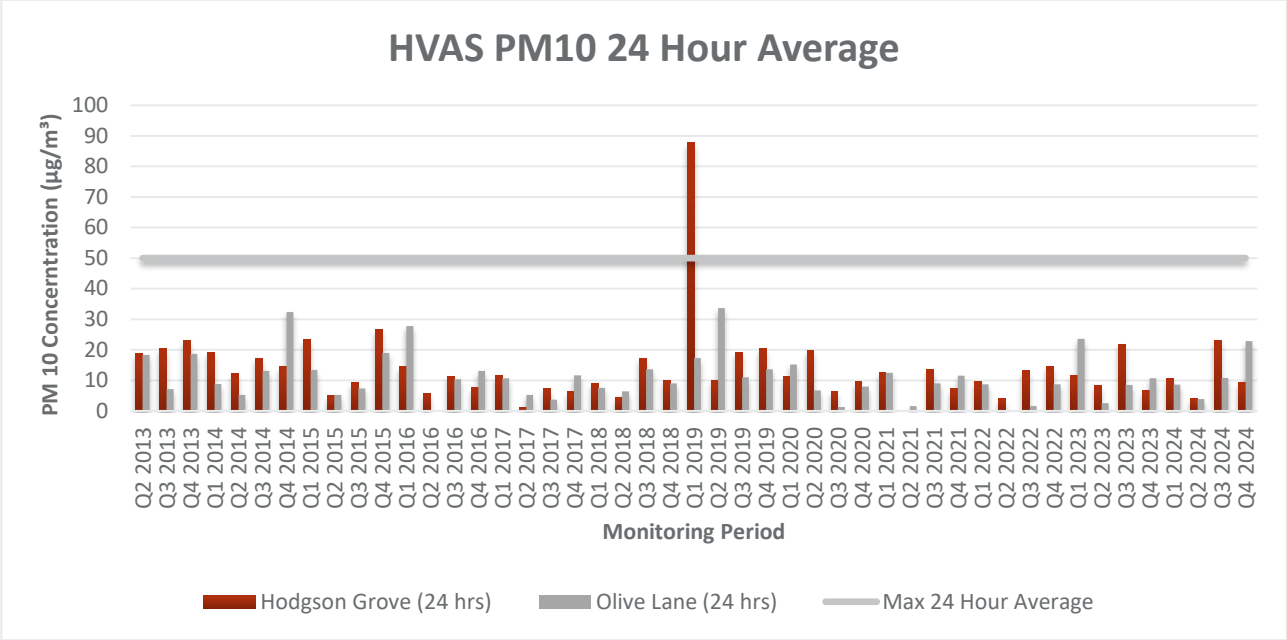


Figure 7 Air Quality monitoring results for PM10 from 24hr High Volume dust monitors located at Olive Lane and Hodgson Grove.

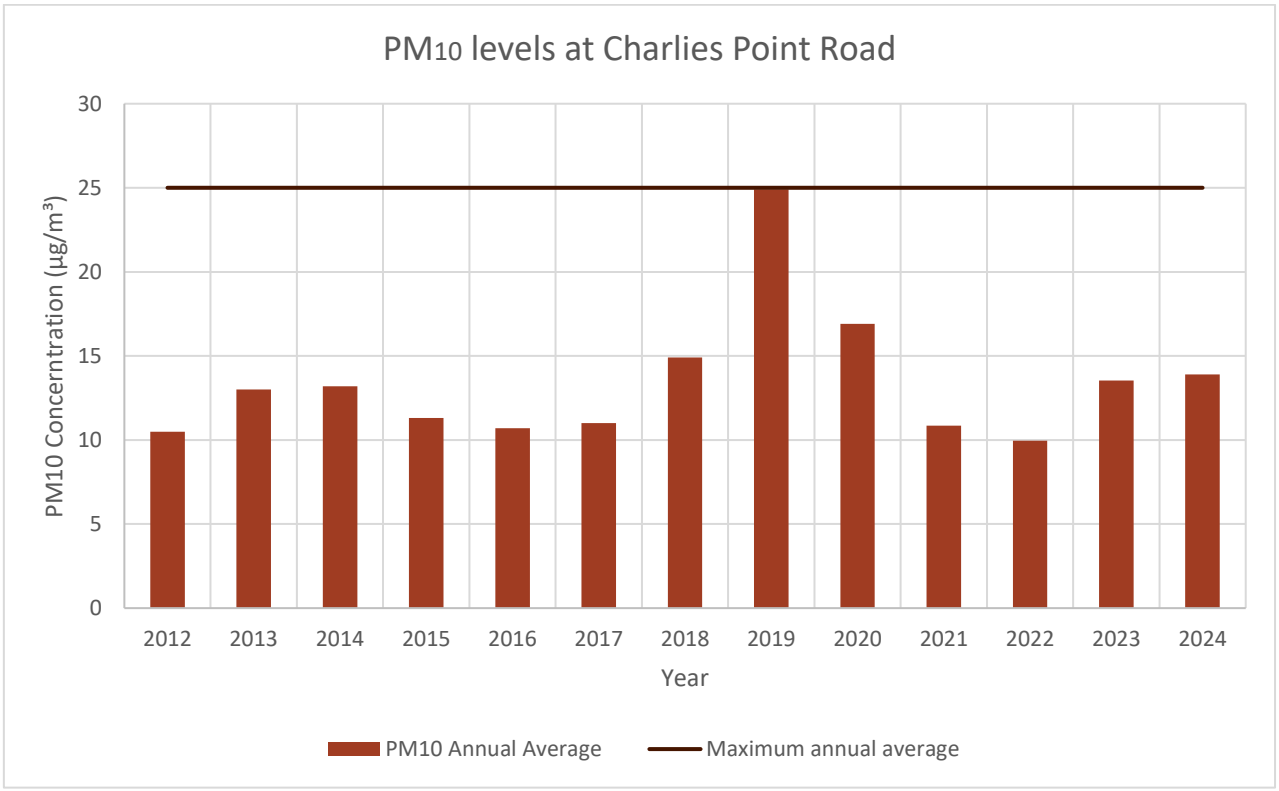


Figure 8 Continuous PM10 annual average results from Charlies Point Road TEOM dust monitor.

8.2.3 Total Suspended Particulate

Total suspended particulate (TSP) refers to the totality of small solid matter released, documented and/or otherwise observed in the atmosphere. TSP is sampled every 6 days by a third-party contractor and sent to a laboratory for analysis. The TSP gauge is located on a mine owned property south of the REA with the TEOM monitoring station on Charlies Point Road. The below data in **Table 8-2** was captured for the reporting period and recorded an average annual concentration of 16.59 µg/m^3, this has decreased from the previous reporting period average of 17.10 µg/m^3 for 2023 (refer to **Figure 9**) and is within the 90 µg/m^3 annual average as stated in Condition 37, DA 67/98.

Table 8-2 Total Suspended Particulates recorded for 2024.

2024	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Jan	16.4	14.1	12.5	26	19.8	*
Feb	23.8	22.2	18.9	27.3	35.8	*
Mar	34.6	30	11.1	15.7	20.5	*
Apr	6.6	12.4	19.7	23.1	22.8	*
May	5.1	5.4	23.5	14	24.5	*
June	8.5	11	3.7	5.5	12.4	*
July	7.2	7	3.6	10.3	6.4	*
Aug	14.1	18	7.6	14.9	17	*
Sept	27.8	18.3	12.3	15.7	5.2	*
Oct	16.8	14.4	17.7	14.5	16.3	*
Nov	15.7	27.5	13.8	18.5	37	*
Dec	14	14	27.9	18.8	15	17.8

*6th sample not required in this month

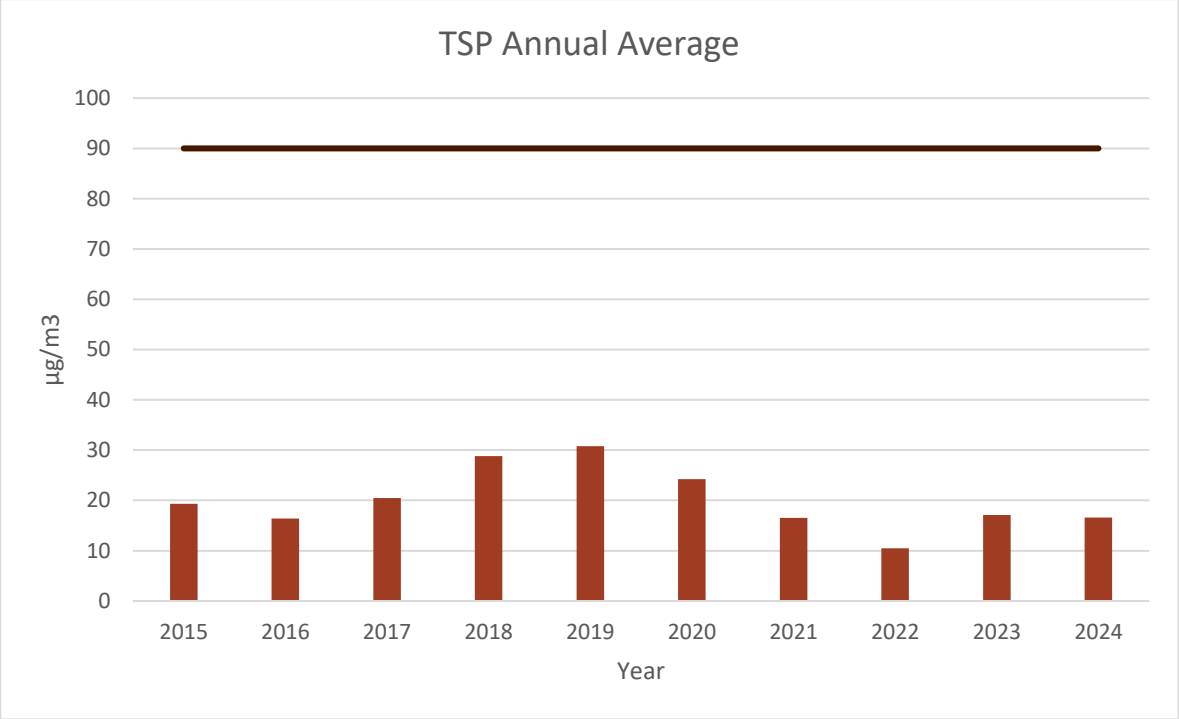


Figure 9 Total Suspended Particulates Annual Average

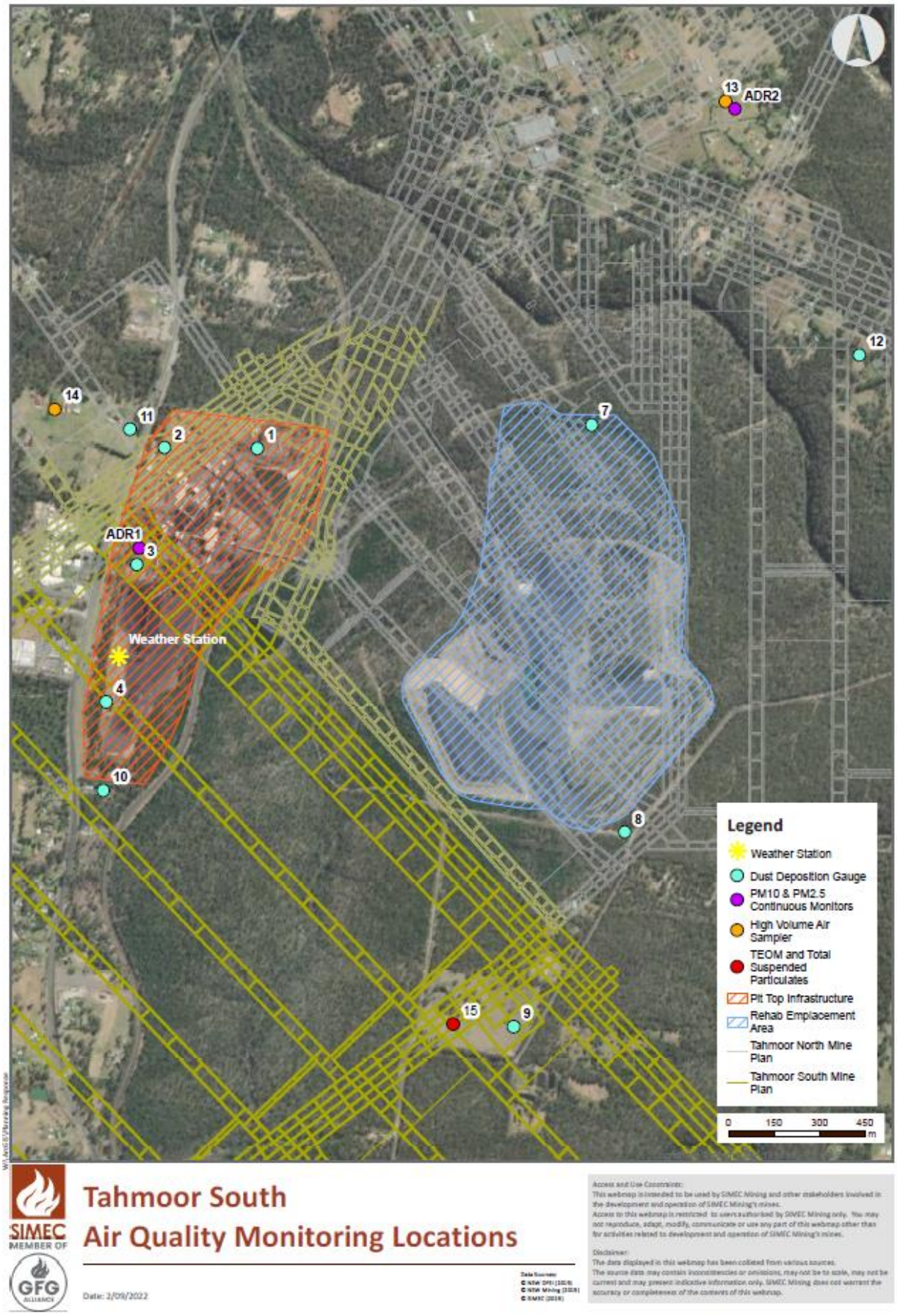


Figure 10 Air Quality monitoring locations

8.2.4 Greenhouse Gas Emissions

Greenhouse gas emissions (GHG) are recorded every six (6) months and reported every twelve (12) months in the National Greenhouse and Energy Reporting (NGERS) scheme as a requirement under the National Greenhouse and Energy Reporting Act 2007 (NGER Act). NGER provides information about GHG emissions, energy production and energy consumption. Tahmoor Coal NGER Reports can be accessed via the Tahmoor Coal website here Tahmoor Colliery – Tahmoor Coking (metallurgical) Mine

Carbon Dioxide Emissions (CO2-e) for the Financial Year 2024 and previous years are shown in **Table 8-3** below, as well as further explanation of the data.

Table 8-3 Annual Greenhouse Gas Emissions for Financial Year

Year	Scope 1 (Mt CO2-e)	Scope 2 (Mt CO2-e)	Total Scope 1+2 (Mt CO2-e)	Explanation for results
FY16	1.643	0.085	1.727	Finished Longwall LW29 and commenced LW 30. A 78 day changeout between longwalls occurred versus a budget of 28 days. The cause of delays included 12 days lost due to surface dam subsidence risk management.
FY17	1.625	0.085	1.710	-
FY18	1.396	0.082	1.478	Decrease in emissions with use of more accurate gas composition (SICK Analyser) on Shaft 2 Ventilation Air Methane (VAM) emissions. In Dec 17 there was a Pit bottom roof fall which delayed mining for 12 days.
FY19	1.260	0.083	1.343	Decrease in Greenhouse emissions driven by plant outage for 10 weeks at Tahmoor due to Number 3 shaft safety incident (shaft winder), however 4 weeks of this period was a Longwall changeover, so the additional impact was 6 weeks. The Net Energy Consumed increased in main due to a higher ratio of CH4 to CO2 in mine gas flaring at Tahmoor due to longwall gas geology.
FY20	1.239	0.088	1.326	In H1 FY20 – Reduction in normal VAM emissions Sept-Nov 19 due to a longwall non-production period, due to extended LW changeout (discontinuity). Ramp up of longwall production within the new, more highly CH4 rich Domain has been significantly slower than forecast. Dec 19 - Bushfire site power outage.
FY21	1.124	0.079	1.222	Approx. 110,000 t CO2-e Scope 1 reduction due to decreases in VAM emissions primarily driven by • Increase in gas drainage plant capacity and post-drainage capture efficiency (PDCE) with waste gas sent to EDL and flares. • 2 x LW non-production periods in Nov 20 and Jun 21 relating to LW changeout. • Partial extraction in a virgin LW environment (ie. 1st LW in new domain i.e. Western Domain)
FY22	0.964	0.091	1.055	Main data variances identified when compared to the previous corresponding period are a reduction in normal free-vented emissions. These reductions are believed to be contributed to by: 1. Significant reduction in CH4 VAM (15-20%). Equivalent CO2 VAM. CH4 VAM reduced 16.4% from FY21 (the methane component of VAM was 873,040 tCO_2e in FY21 and 729,570 tCO_2e in FY22) 2. In general, trend towards increases in carbon dioxide fugitive emissions when compared to FY21 (note – emissions of carbon dioxide, not carbon dioxide equivalent emissions):

				• CO_2 vented increased 192.4% from FY21 (303 tonnes in FY21 to 886 tonnes in FY22) • CO_2 sent to EDL increased 114.2% from FY21 (6,131 tonnes in FY21 to 13,135 tonnes in FY22) • CO_2 sent to flare increased 65.8% from FY21 (10,126 tonnes in FY21 to 16,786 tonnes in FY22) 3. Composition of methane and carbon dioxide as expected due to the above variation has shifted: • CO_2: total mass in total mass of gas generated from the mine during the year before capture and storage (measured per NGERs requirement) has increased 10.6% from FY21 (140,262 tCO_2e in FY21, 155,088 tCO_2e in FY22) • CH_4: total mass in total mass of gas generated from the mine during the year before capture and storage (measured per NGERs requirement) has decreased 11.59% from FY21 (1,623,825 tCO_2e in FY21, 1,435,567 tCO_2e in FY22) 4. VAM reductions due to reduced LW SGE and improved post-drainage capture efficiency (PDCE). 5. 2 x extended LW non-production periods in Jul-Aug 21 and Mar-Apr 22 relating to Longwall relocation. Combined non-production timeframe marginally exceeds that of previous period.
FY23	0.992	0.079	1.072	Main data variances identified when compared to the previous corresponding period are discussed below: • A marginal overall increase VAM gas (~6% total gas). This included an 8% reduction in CH_4 VAM and a corresponding increase % in CO_2 VAM. It is believed that this is contributed to by: ○ a 7% increase in ROM production output; ○ the partial sealing of Tahmoor North workings, the decommissioning of the Tahmoor North booster fans in late September and early October 2022 – an area of the mine with higher CH_4 gas make – this marginally lowered the shaft CH_4 composition; and ○ a subsequent transition to a CO_2 dominant LW operating environment from mid Oct 22 • A 30% increase in total gas capture through the Gas Drainage Plant (16kt combined CH_4 and CO_2 gas), driven primarily by a 50% increase in CO_2 capture. Of the gas captured year on year, the additional gas was distributed between flaring (6kt), cogen (4kt) and free-venting (6kt). ○ Free-venting at the Gas Drainage Plant increased 400-500% due to elevated O_2, low CH_4 and associated operational constraints relating to Cogen (EDL) operability, and flare configuration/capacity. ○ The additional CO_2 flared is a function of the increased CO_2 capture in the Gas Drainage Plant and the proportional distribution of gas to flares. Of the additional 16kt through the Gas Drainage plant, 6kt reported to the Flares (~40% compared to historical figure of ~60%, and also noting the Cogen % distribution was lower than normal and free-venting significantly higher (as explained above) • The increase in gas capture through the gas drainage plant may have otherwise emitted through VAM.
FY24	1.084	0.777	1.162	• A marginal increase in combined ventilation CH_4 and CO_2 emissions in FY24 (VAM). This ~2-3% increase is believed to be driven primarily by

				○ ~10% increase in ROM production FY24 2.8M vs FY23 2.6M. Longwall non-production periods consistent with FY23 ○ Higher concentration of CH4 within VAM - The ratio of (CH4/(CH4+CO2)) in shaft VAM increased from 0.32 in FY23 vs 0.36 in FY24. The increase in CH4 make is contributed to by ▪ Increase in outbye CH4 make following the full sealing of Tahmoor Nth in Nov 23, and ▪ Increase in LW Vent specific gas emissions driven by an increase in underlying seam CH4 content • A 20% increase in total gas capture into the GD plant (15kt combined CH4 and CO2 gas) ○ The gas captured year on year consisted of ~40% more CO2 (18kt), and ~10% less CH4 (3kt) driven by; ▪ ~10% increase in total flow through GD plant ▪ higher CO2:CH4 ratio in the working and underlying seams. ○ The gas entering the GD plant was distributed as follows ▪ Venting 5% vs FY23 8% - ~20% less overall free-venting at the Gas Plant, including 40% reduction in CH4 vented (1kt) due to increased flaring capacity as a result of higher flow rate of Flare 1 vs Flare 2/3 (changing composition/thermal capacity of the flare). ▪ Flares 58% vs FY23 51% - ~40% increase in gas sent to flares, driven by an increase in CO2 composition within the GD plant ▪ FY24 Cogen 37% vs FY23 41% - ~10% increase in gas sent to Cogen, driven by a marginal increase in flow and a higher CO2 composition leading to an overall increase in CO2 and a reduction in CH4 to Cogen

8.2.5 Tahmoor South Project specific reporting

In accordance with Condition B19 (d) of the consent SSD 8445, the below **Table 8-4** and **8-5** demonstrates the reporting of annual and 3-year rolling average GHG emissions for the Tahmoor South Project.

Table 8-4 Calculated Scope 1 and 2 GHG Emissions

Project Year	Scope 1 GHGE (t CO2-e) (flaring and power generation occurring)	Scope 2 GHGE (t CO2-e)	Total Scope 1+ Scope 2 GHGE (t CO2-e)	Comments
1 (2021)	97,571	9,106	106,678	Compliant
2 (2022)	432,000	38,993	470,994	Compliant
3 (2023)	1,037,312	79,783	1,117,094	Compliant
4 (2024)	1,146,290	78,078	1,224,368	Compliant
Total	2,713,173	205,960	2,919,134	Compliant
3-year rolling average	871,867	65,618	937,485	Compliant

The emissions have not exceeded the predicted Scope 1 and 2 emissions as detailed in Appendix 9 of SSD8445 and given below in **Table 8.5** below.

Table 8-5 Predicted Scope 1 and 2 GHG Emissions (Appendix 9 from SSD 8445 consent)

Project Year	Scope 1 GHGE (t CO2-e) (flaring and power generation occurring)	Scope 2 GHGE (t CO2-e)	Total Scope 1+ Scope 2 GHGE (t CO2-e)
1 (2021)	230,041	14,764	244,805
2 (2022)	1,003,246	64,389	1,067,635
3 (2023)	1,636,849	105,054	1,741,903
4 (2024)	2,054,557	131,863	2,186,420
5 (2025)	1,843,089	118,291	1,961,380
6 (2026)	2,065,327	132,555	2,197,882
7 (2027)	2,070,977	132,917	2,203,894
8 (2028)	2,301,721	147,727	2,449,448
9 (2029)	1,859,357	119,335	1,978,692
10 (2030)	2,016,949	129,450	2,146,399
11 (2031)	1,761,824	113,076	1,874,900
12 (2032)	466,314	29,928	496,242
Total	19,310,249	1,239,350	20,549,599
Annual Average	1,609,187	103,279	1,712,466

8.2.6 EIS Commitments

Condition A2 (g) of the Consent states that the development may only be carried out generally in accordance with the Tahmoor South EIS. The relevant Tahmoor South EIS documents include:

a) Tahmoor South Project Environmental Impact Statement (EIS), Volumes 1 and 7, dated January 2019;
b) Tahmoor South Project Amendment Report (PAR), including Appendices A to R and response to submissions, dated February 2020;
c) Tahmoor South Project Second Amendment Report, Appendices A to O and response to submissions, dated August 2020;
d) Additional information responses dated 14 September 2020, 23 October 2020 and 4 November 2020; and
e) Submission to the Independent Planning Commission (IPC) February 2021.

Tahmoor South EIS commitments relevant to the Tahmoor South Air Quality Greenhouse Gas Management Plan are outlined in **Table 8-6** below.

Table 8-6 EIS Commitments

Instrument	Reference	Commitment	Where Addressed
Air Quality			
EIS/ RTS	AQ-1	**Potential impact:** Impacts of construction of the Project on air quality sensitive receptors **Management and mitigation measures:** Develop and implement an Air Quality Management Plan for inclusion in the CEMP.	The Tahmoor South Air Quality Greenhouse Gas Management Plan is utilised to manage construction and ongoing

		The Air Quality Management Plan would include management and mitigation measures to minimise dust generation.	operation of Tahmoor Coal.
RTS	AQ-2	**Potential impact:** Impacts of construction of the Project on air quality sensitive receptors **Management and mitigation measures:** Consult nearest residents to the proposed ventilation shaft sites during detailed design.	Construction of new ventilation sites not to be undertaken at this point.
RTS	AQ- 6	**Potential impact:** Impacts of the operation of the Project on air quality sensitive receptors **Management and mitigation measures:** Installation and monitoring of additional real-time PM10 monitors to target the most sensitive receptors likely to be affected by dust.	Two new PM10 and PM2.5 dust monitors installed in locations according to condition B18 (f)(i) of Consent SSD 8445.
Greenhouse Gas			
EIS/ RTS	GHG-3	**Potential impact:** Generation of GHG from operation of the Project **Management and mitigation measure:** Monitor the upcast ventilation shaft sites to enable accurate measurements of ventilation emissions. Monitoring to be reported within the Annual Review.	Emissions monitoring is reported above in **Section 10.2.4**
EIS/ RTS	GHG-4	**Potential impact:** Generation of GHG from operation of the Project **Management and mitigation measure:** Prepare an Energy Savings Action Plan in accordance with the NSW Energy Administration Amendment (Water and Energy Savings) Act, 2005 and the Guidelines for Energy Savings Action Plans (DEUS, 2005). The plan will include standards to minimise energy use and GHG emissions from the Project's operations.	Management and mitigation measures undertaken in accordance with Table 13 of the AQGHGMP. Completed in association with Condition B19 (a) of Consent SSD8445.
EIS/ RTS	GHG-5	**Potential impact:** Generation of GHG from operation of the Project **Management and mitigation measure:** Ensuring maintenance, calibration and record keeping is undertaken on the main ventilation shafts and fans to enable GHG emission calculations. Maintaining records for monthly electricity use and monthly ROM coal production to allow calculation of greenhouse gas emissions. Monitoring to be reported annually within the Annual Review.	Emissions monitoring is reported above in **Section10.2.4** Maintenance, calibration and record keeping is undertaken in accordance with operating requirements to maintain equipment efficiency and reliability.
EIS/ RTS	EHR-1	**Potential impact:** Potential impact of diesel emissions on the health of individuals **Management and mitigation measures:** Undertake monitoring programs and regular maintenance and servicing of diesel vehicles on site to reduce risks to the exposed community.	Management and mitigation measures undertaken in accordance with Table 13 of the AQGHGMP. Diesel vehicles on site serviced according to service program and Work Order system.
PAR	NA	In relation to Scope 3 emissions, Tahmoor Coal's current end customers include: 1. Australian consumers of metallurgical coking coal (notably the two steelmakers in Australia: BlueScope and OneSteel Manufacturing, which is an affiliated company of Tahmoor Coal); 2. Consumers of metallurgical coking coal located in Germany, Japan, India, United Kingdom and Netherlands; and 3. End customers in other locations from time to time. Tahmoor Coal's current end customer base is located in countries that are signatories to the Paris Agreement within the United Nations Framework Convention on Climate Change. Tahmoor Coal would continue to manage the reduction of the Scope 3 emissions from the Amended Project to the greatest extent possible by continuing to sell its coal to customers with end users located in	Refer to Section 8.2 of the AQGHGMP for further information.

		countries that are parties to the Paris Agreement, or countries with equivalent domestic policies for reducing greenhouse gas emissions.	
Submission to IPC	2(a)	To support the CN30 program, and to support the objectives of the NSW Climate Change Policy Framework, Tahmoor Coal will continue to investigate opportunities for the reduction of Scope 1 and Scope 2 emissions from this Project as part of an Energy Savings Action Plan (or 'Air Quality and Greenhouse Gas Management Plan'). Tahmoor Coal is willing to make specific references to carbon neutrality commitments in any standalone Statement of Commitments.	Refer to Table 13 of the AQGHGMP for further information.
Submission to IPC	2(b)	Tahmoor Coal is willing to accept a Recommended Condition identical to conditions B32, B34, B35 and B36 'Management of Scope 3 Greenhouse Gas Emissions' of Part B 'Specific Environmental Conditions' of the United Wambo Open Cut Coal Mine (SSD 7142) Approval granted by the IPC on the 29 August 2019, relating to the preparation of an Export Management Plan, as described in 4.6.1.	Noted

8.3 Further Improvements

Tahmoor Coal will continue to operate and monitor the sites dust and air quality levels in accordance with the approved Tahmoor South Air Quality and Greenhouse Gas Management Plan reviewed annually following the submission of this AEMR.

Tahmoor Coal continue to utilise the two (2) photometers installed during 2022 to analyse particulate matter for 2.5µm and 10µm in real-time equipped with alarms triggered by the approved Air Quality Trigger Action Response Plan for Tahmoor Coal.

Tahmoor Coal also continue to utilise the 24/7 remote access to real-time monitoring for PM_{10} data from the TEOM (Tapered Element Oscillating Microbalance) monitor at Charlie Point Road.

Tahmoor Coal will continue to implement control strategies identified in Tahmoor Mine's Air Quality and Greenhouse Gas Management Plan and continue to identify areas for improvement over the next reporting period.

9 Erosion and Sediment Control

9.1 Environmental Management

Tahmoor Coal operates under a Water Management Plan (available on Tahmoor Coal website) and site Erosion & Sediment Control Plan (available on Tahmoor Coal website), prepared generally in accordance with the requirements of *Managing Urban Stormwater* (OEH, 2008), including *Volume 2E Mines and Quarries* (2008) (also known as 'the Blue Book'). Both documents have been approved by DPHI in accordance with the Tahmoor South Consent (SSD 8445) conditions.

A number of drive-in sumps are positioned around pit-top to capture and hold sediment laden water. A network of drains across pit-top direct runoff waters into the settling dams, which allow the capture and settling of sediment laden waters prior to discharge via Tahmoor Coal's Licence Discharge Point 1 (LDP1).

The unsealed equipment storage area between dams M1, M2, M3 and M4 is treated regularly with a dust suppressant to seal the roadways and reduce wind blown dust activity. The sealing agent is also useful in reducing sediment mobilisation during stormwater runoff.

Continued use of flocculent in surface water dams enables a reduction in turbidity and an increased settling of mobilised particles during rain events. Flocculent dosing rates are adjusted depending on Turbidity readings and daily visual inspections of turbidity of the pit-top dams. A Water Treatment Plant is currently being commissioned for treatment of discharge waters from site. The real-time Turbidity monitor has been relocated to the overflow outlet on M4 for controlled monitoring of turbidity during release of rain waters. This is connected to the Tahmoor Coal's real time monitoring software system, Citect. This system is linked to alarms and SMS notifications based on the related Trigger Action Response Plan levels.

9.2 Environmental Performance

Dust gauge and water quality sampling are carried out monthly by third party licenced contractors while continuous water and continuous dust data is accessed remotely via telemetry by the environmental team onsite as required. The continuous dust monitors are connected to a telemetry service which issue alarms based on trigger levels reached in accordance with Tahmoor Coal's Air Quality TARP. Results obtained during the reporting period reflect Tahmoor Coal has operated in accordance with and within maximum limits as required by Environmental Protection Licence 1389 (EPL 1389) and have remained within maximum allowable Dust levels required by Consent SSD8445 and that the current dust suppression activities are sufficient in continued dust control for site.

Routine water quality monitoring of total suspended solids (TSS) across Tahmoor Mine has not identified any issues associated with erosion and sedimentation. The site is operating within the licence limits for TSS.

9.3 Further Improvements

Tahmoor Coal will continue to implement control strategies identified in Tahmoor Coal's Water Management Plan and Erosion & Sediment Control Plan which incorporate site-wide erosion and sediment controls and their effective implementation.

10 Waste Management

10.1 Environmental Management

Tahmoor Mine's waste management system currently operates in accordance with the developed Waste Management Plan. This plan aids in ensuring waste streams generated at Tahmoor Mine are minimised and managed effectively and that all waste is collected, disposed of and tracked in accordance with regulatory requirements and in a way that does not compromise the health or safety of our personnel or impact the environment. This Waste Management Plan applies to all waste generated or stored at Tahmoor Coal and is part of the Tahmoor Coal's Environmental Management System (EMS).

In accordance with Consent SSD 8445 condition B48(e), Tahmoor Coal monitors and reports annually on the effectiveness of the waste minimisation and management measures undertaken onsite and included in this section.

According to the Waste Classification Guidelines Part 1: Classifying Waste (EPA 2014), waste is classified using six classes:

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible).

These classes are documented with their corresponding waste stream in Appendix A of the Waste Management Plan.

Tahmoor Coal recognises the importance of segregating the six groups of waste so they can be treated separately. Various bins are placed across the site to assist with waste segregation, refer to **Figure 12** for their locations at Tahmoor Mine. Waste produced on site is placed in the appropriate bin and if no bin fits the description of that waste, it is placed in a bunded area and covered in case of a rainfall event for correct disposal in consultation with an appropriate waste disposal contractor.

All wastes that have the potential to cause environmental harm (e.g. hazardous waste) are placed in secure areas on site. Adequate containment (bunding) is provided to minimise the potential for spillage or leaching which could affect surface water quality or cause soil contamination. Bunded areas are constructed and operated generally in accordance with the EPA's Technical Guideline "Bunding and Spill Management" and Australian Standard (1940-2004) "The Storage and Handling of Flammable and Combustible Liquids". Particular waste streams, such as waste oil, are also managed to provide that they are safe from likely ignition sources to minimise the risk of fire. All bins and waste storage areas are clearly identified, designed to meet the storage requirements, and maintained to contain any spillages.

10.2 Environmental Performance

During the reporting period waste generated on site has been managed in accordance with Tahmoor Mine's Waste Management Plan with the table below quantifying the waste generated during 2024. Main trends from the data show General Waste and recyclables have reduced from the previous reporting period, with Paper and Cardboard waste showing a slight increase during the reporting period. (refer to **Table 10-1** below).

Table 10-1 Waste Streams for Tahmoor Coal

Waste Stream	2021	2022	2023	2024
General Waste (tonnes)	1104.95	1226.43	1108.07	1077.54
Paper and Cardboard (tonnes)	19.59	14.7	11.78	11.96
Comingled Recyclables (tonnes)	-	0.06	0.17	0.13
Metal Recycling (tonnes)		539.03	368.73	268.08
Oil Filters (units)	1507	742	900	409.5
Oil Drums empty 20L (units)	4578	4628	8898	5380
Diesel Particulate Filters (tonnes)	60.19	55.84	15.3	30.28

10.2.1 Onsite Sewage Management

Tahmoor Coal operates a *Smith & Loveless* Sewage Treatment Plant (STP) onsite, illustrated in **Figure 11** below and utilises two (2) maturation treatment ponds to treat its effluent waters. Water Quality samples on pit top dams have continued to be taken to further understand the water quality and any potential affect on the new Water Treatment Plant.



Figure 11: Smith & Loveless Sewage Treatment Plant (STP) onsite

10.2.2 Coal Washery Refuse (CWR)

During 2022, Tahmoor Coal's CWR obtained certified compliance with the EPA Coal Washery Rejects Order and Exemption 2014. The use of CWR is controlled by the NSW State Government Environmental Planning Authority (EPA), under the Protection of the Environment Operations (Waste) Regulation 2014.

This has provided Tahmoor Coal the opportunity to utilise its CWR for potential offsite purposes including but not limited to general construction fill, construction of public facilities (such as playing fields, tennis courts, golf courses and general landscaping), road construction usually as embankment fill, or subgrade for unsealed road surfacing. Further uses include topdressing, haul roads, drainage blankets, capping (e.g. tailings dams prior to application of topsoil layer), retaining wall backfill, cattle tracks and earthwall dams.

Due to the relatively consistent nature of the coal seam and surrounding geology; and the coal washing process (i.e. crusher and sieve sizing), the CWR material characteristics are consistent over time.

During 2024, CWR was trucked to Bargo Waste Management Centre for a Council related project. The monitoring and transportation of CWR is recorded in **Appendix 9** in accordance with Condition B61 of Consent SSD8445.

10.3 Further Improvements

Tahmoor Coal will continue to implement control strategies identified in Tahmoor Mine's Waste Management Plan and continue to identify areas for improvement over the next reporting period.

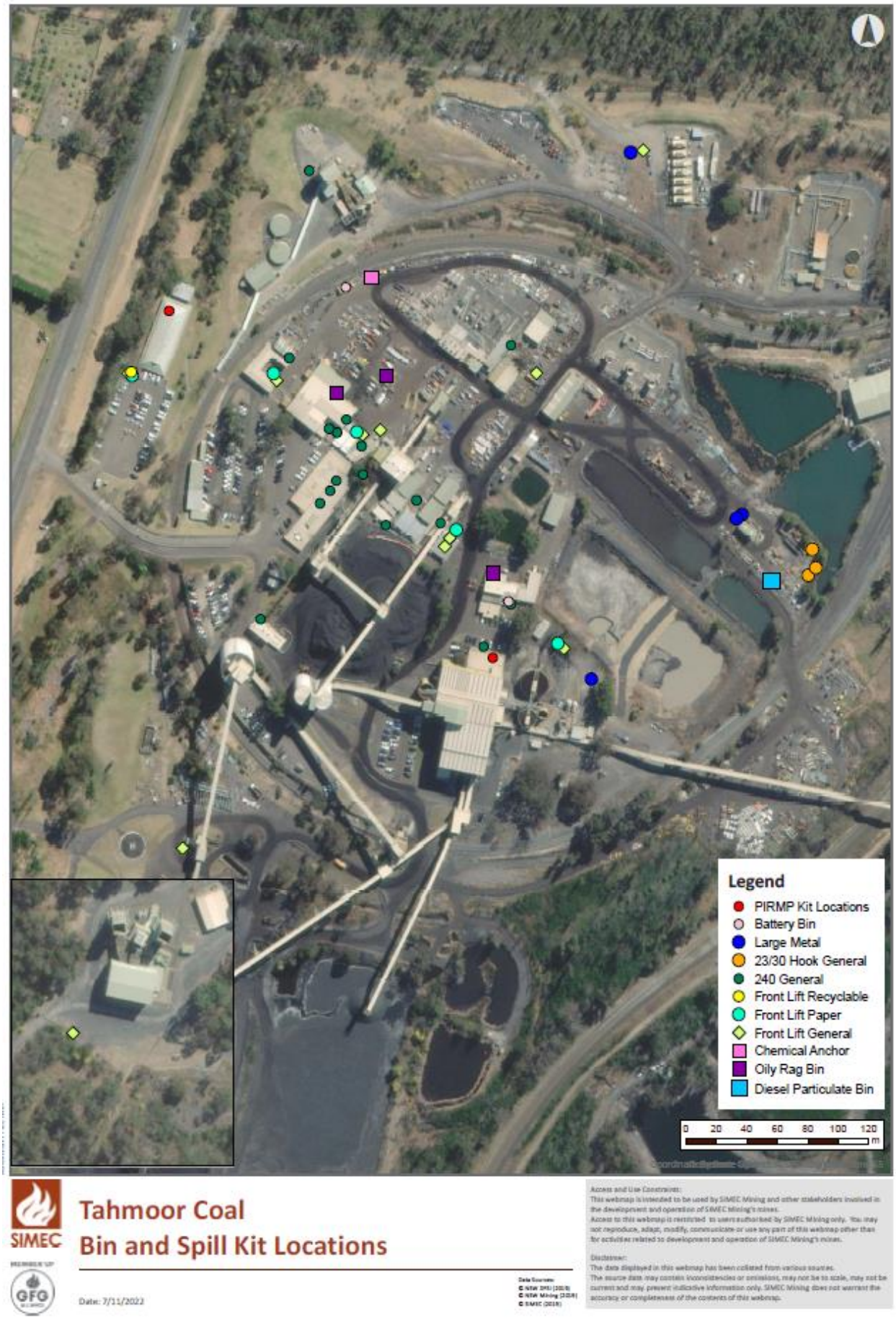


Figure 12 Bin and Spill Kit Locations

11 Contaminated Land

11.1 Environmental Management

Following a Stage 1 Preliminary Contamination Investigation completed by GHD in 2017 the following actions were completed including removal of former underground storage tanks (USTs) and remediation works around the waste oil tanks and diesel above ground storage tanks (ASTs).

Groundwater monitoring around the UST area is ongoing as part of the quarterly water quality sampling and monitoring program for pit-top groundwater.

11.2 Environmental Performance

A Hazardous Building Material audit and inspection was undertaken by GHD in 2018.

The audit focused on:

- Asbestos containing materials (ACM);
- Lead based paint systems;
- Lead Dust;
- Synthetic Mineral Fibre (SMF);
- Polychlorinated Biphenyls (PCBs) in light fittings; and
- Ozone depleting substances (ODS).

The Hazardous Materials Audit identified several actions that were completed during 2019 and there remains one outstanding action as outlined in **Table 11-1** below.

Table 11-1 Hazardous Building Material Audit Actions

Action	Proposed Completion Date
Remove vinyl floor tiles from 5 offices and replace with new tiles	Complete
Labelling of all asbestos	Complete
Seal or encapsulate the eaves of BU001 which were found to contain asbestos	Works delayed – to be addressed in the future.
Remove dust on upper surface of ceiling panels in muster area	Complete
Remove dust in Washery HV switch room SR 105 and SR106- low level lead contamination	Complete
Remove dust from No3 Switch room SR103 – high lead on top of st169	Complete

There were no reportable incidents related to contaminated land during the reporting period.

11.3 Further Improvements

Tahmoor Coal will continue to monitor potential areas of contaminated lands across the site and have one (1) outstanding action to complete from the 2018 Hazardous Building Materials Audit (refer to **Table 11-1**).

12 Subsidence

12.1 Environmental Management

12.1.1 Western domain

LW W4 extraction was completed on 13 September 2022. All subsidence related impacts were managed in accordance with the LW W3-W4 Extraction Plan approval. The post-mining monitoring period for the Western domain has also ceased, no further remediation or monitoring is required in accordance with the LW W3-W4 Extraction Plan.

Tahmoor Coal submitted an application and received approval to store brine in the Western Domain (Modification 2). A Residual Subsidence Management Plan has been developed by Tahmoor Coal in consultation with the NSW Resources Regulator to measure ongoing residual subsidence movements that occurs on selected natural features and built features following completion of active subsidence directly resulting from extraction of LW W1-W4, and during the refilling of mine workings in the Western Domain with groundwater and brine.

12.1.2 Tahmoor South Domain

During the reporting period, the LW S1A-S6A Subsidence Monitoring Program have been implemented to monitor subsidence impacts within the Study Area. The Subsidence Monitoring Program includes twenty-eight (28) Global Navigation Satellite System (GNSS) units measuring absolute horizontal and vertical positions in real time installed directly above and adjacent to LW S1A-S6A. Ground surveys and inspections have also been completed during the reporting period as per LW S1A-S6A Subsidence Monitoring Program. Extraction of coal from Longwall South 1A (LW S1A) commenced on 18 October 2022 and was completed on 4 July 2023. The extraction of Longwall South 2A (LW S2A) commenced on 2 August 2023 and was completed on 6 April 2024. Extraction of Longwall South 3A (LW S3A) commenced on 8 May 2024 and was completed on 17 December 2024. Longwall South 4A (LW S4A) is scheduled to commence extraction in January 2026.

All subsidence related impacts are managed in accordance with the Tahmoor South LW S1A-S6A Extraction Plan approval.

A weekly review of the subsidence survey results was completed by Tahmoor Coal and MSEC during the extraction period.

12.2 Environmental Performance

12.2.1 Western domain

12.2.1.1 Review of Environmental Monitoring

A detailed review of subsidence monitoring data and impacts is provided in the quarterly Western Domain Residual Subsidence Reports (refer to **Appendix 13** for 2024 MSEC Western Domain quarterly reports and **Appendix 14** for SLR Western Domain groundwater review). These reports fulfil the reporting requirements of the Residual Subsidence Monitoring Plan – Tahmoor Western Domain – Longwall West 1 – West 4. The reports provide a summary of the subsidence and

environmental monitoring results, subsidence impacts and management actions undertaken during the reporting period.

12.2.1.2 Subsidence Monitoring

Subsidence Monitoring has been completed during the monitoring period in accordance with the Residual Subsidence Monitoring Plan – Tahmoor Western Domain – Longwall West 1 – West 4, specifically as summarised in the Monitoring Plan. Key features to be monitored include LW W4 centreline, Main Southern Railway (including Picton Tunnel and Picton Viaduct), Picton-Mittagong Loop Line, Victoria Bridge and groundwater monitoring.

The maximum observed vertical subsidence relating to the extraction of LW W1 to LW W4 was 725mm recorded along the centreline of LW W4.

Environmental monitoring observations during the reporting period are discussed in the following sections for Built Features and Groundwater monitoring Sections of this report.

12.2.1.3 Subsidence Event Notifications

There was one TARP triggered under the Western Domain Residual Subsidence Management Plan.

GNSS site 10 at 89.000 km recorded changes in subsidence exceeded 20mm trigger intermittently between 30 October 2024 and 15 December 2024 (blue trigger) but has since risen upwards and has not exceed the trigger level since (green trigger).

The following actions were completed as part of the Western Domain Residual Subsidence Management Plan. Following a review of the data with the IMG, the following measures were implemented as per Western Domain Residual Subsidence monitoring TARP:

- Notification to the asset owner (Transport Heritage NSW)
- Adjust the trigger by 20mm (step change) and keep monitoring

12.2.2 Tahmoor South Domain

12.2.2.1 Review of Environmental Monitoring

A detailed review of subsidence monitoring data and impacts is provided in the Tahmoor Coal Six Monthly Subsidence Impact Reports. These reports fulfil the reporting requirement of the Extraction Plans approved for LW S1A-S6A and cover the period from 1 January 2024 – 31 December 2024. These requirements are outlined in Section 7.1 of the LW S1A-S6A Extraction Plan, which are derived from Section 6 of the DPIE *Draft Guidelines for the Preparation of Extraction Plans V5* (DPE, 2015). These reports provide the Secretary of DPHI with a summary of subsidence and environmental monitoring results, subsidence impacts and management actions undertaken during the reporting period. The following Reports are found in the Appendix to this AEMR:

Appendix 11 – Tahmoor South Six Monthly Subsidence Impact Report 4; and
Appendix 12 – Tahmoor South Six Monthly Subsidence Impact Report 5.

12.2.2.2 Subsidence Monitoring

Subsidence monitoring has been completed during the reporting period in accordance with the approved Tahmoor South S1A-S6A Extraction Plan, specifically as summarised in the LW S1A-S6A Subsidence Monitoring Programs. On completion of a Longwall, the active subsidence zone is resurveyed, and comparative analysis of predicted and actual subsidence forecasts are reported in the 6 Monthly Subsidence Impact Reports.

A maximum of 1087mm of vertical subsidence relating to the extraction of LW S3A was recorded at GNSS S26 during the calendar year. Subsidence has been developing within the predictions.

Notable environmental monitoring observations during the reporting period are discussed in the following Sections for Biodiversity, Aboriginal Cultural Heritage, Historical Heritage, Built Features monitoring, Public Safety, Surface water, Groundwater, Flooding and Landscape Features.

12.2.2.3 Subsidence Event Notifications

Notifications of subsidence events to Government agencies is required in accordance with the Tahmoor South LW S1A-S6A Extraction Plan, and TARPs under the relevant Infrastructure and Environmental Management Plans. During the reporting period, there were twenty (20) TARP triggers relating to Surface water, Groundwater, Physical Features and Natural Behaviour and Infrastructure. The TARP triggers are summarised below:

- **Surface Water Quality TARP (WMP1):**
    - During the second half of the year, Level 1 TARP triggered for monitoring site TT13-QLa for dissolved Aluminium. Elevated dissolved zinc concentrations, in excess of the SSGV, have been recorded historically at TT13-QLa. The elevated dissolved zinc concentrations recorded at pool TT13 are likely to be related to the interaction of underflow with subsurface geology (following the high rainfall event in June 2024) and re-emergence of elevated dissolved zinc underflow as surface flow in the vicinity of pool TT13;
- **Surface Water Level TARP (WMP3):**
    - During the first half of the year, reduction in pool water level at various sites resulted in Level 1, 2 and 3 triggers during this reporting period. This included Level 3 TARP triggers at monitoring sites TT2, TT3, TT7, TT9, TT12 and TT13. Observations of water level decline at these monitoring sites were confirmed to be associated with direct or indirect mining impacts, in addition to influence from prevailing climatic conditions. A WCAMP will be prepared and implemented (if required) following the cessation of subsidence movements associated with Tahmoor South mining;
    - During the second half of the year, reduction in pool water level at various sites resulted in Level 2 and 3 triggers during this reporting period. This included Level 3 TARP triggers at monitoring sites TT2, TT3, TT7, TT12 and TT13. Observations of water level decline at these monitoring sites were confirmed to be associated with direct or indirect mining impacts, in addition to influence from prevailing climatic conditions. A WCAMP will be prepared and implemented (if required) following the cessation of subsidence movements associated with Tahmoor South mining;
- **Physical Features and Natural Behaviour TARP (WMP5):**
    - During the first half of the year, Reduction in pool water level and the development of new or existing fractures resulted in Level 1 and 3 TARP triggers during this reporting period. This included Level 3 TARP triggers at monitoring sites TT2, TT3, TT11 and TT12. Changes to physical features and natural behaviour of these pools and reaches were confirmed to be associated with direct or indirect mining impacts, in addition to influence from prevailing climatic conditions. WCAMP will be prepared and implemented (if required) following the cessation of subsidence movements associated with Tahmoor South mining;

      Reduction in pool water level and the development of new or existing fractures resulted in Level 1, 2 and 3 TARP triggers during this reporting period. This included

a Level 3 TARP trigger at monitoring site TT9. Changes to physical features and natural behaviour of this pool and reaches were confirmed to be associated with indirect mining impacts, in addition to influence from prevailing climatic conditions. WCAMP will be prepared and implemented (if required) following the cessation of subsidence movements associated with Tahmoor South mining;

- **Channel Stability, Sedimentation and Erosion (WMP7):**
  - Erosion at knickpoint sites resulted in Level 1 and 2 triggers during this reporting period. This included a Level 2 TARP trigger at knickpoint site K64 due to a combination of high rainfall / flow event and mining-induced subsidence. At this time, Corrective Management Actions have not been considered to be reasonable or feasible;
  - A site visit was offered to DPIE and NRAR in relation to Level 2 TARP trigger of TARP WMP7 for site K64. This offer was extended via letter dated 4 October 2024.
- **Groundwater Level TARP (WMP8) for Shallow Standpipes:**
  - Reduction in bore water level was noted at various sites during this reporting period, resulting in Level 1, 2 and 3 TARP triggers, with a Level 3 TARP trigger observed at P55B. This includes a reduction at P51B, P53 nested sites, P55B, P55C, P56C, private bore GW104659 and private bore GW109257. Groundwater level decline at P53 and P55 is likely due to ongoing mining effect. However, at the remaining locations, it cannot definitely be attributed to extraction activities. No further actions other than ongoing monitoring is required;
  - During the second half of the year, Reduction in bore water level was noted at various sites during this reporting period, resulting in nine (9) sites obtaining a Level 1, 2 or 3 TARP trigger, with Level 3 TARP triggers observed at P55B and P55C. The drawdown experienced at P55B and P55C suggests a potential mining related influence. No further actions other than ongoing monitoring is required;
- **Groundwater Level TARP for Shallow Groundwater Pressure (VWPs; WMP9):**
  - Reduction in pressure was noted at various sensor depths at TBC032 during the reporting period. This resulted in Level 1 and 3 TARP triggers, with a Level 3 TARP trigger observed at sensor depth 131m. The groundwater decline is likely a regional groundwater drawdown in response to mining activity. No further actions other than ongoing monitoring is required;
  - During the second half of the year, four (4) TARP triggers were identified during the reporting period. The triggers included one Level 1 trigger, one Level 2 trigger, and two Level 3 triggers. TBC032 sensors at 95 m and 131 m reached Level 3 status indicating water level reductions greater than maximum modelled drawdown for periods exceeding six months. The groundwater decline is likely a regional groundwater drawdown in response to mining activity. The continued exceedances reflect ongoing regional drawdown patterns, likely linked to longwall progression. No further actions other than ongoing monitoring is required;
- **Groundwater Quality TARP (WMP11):**
  - During the reporting period, three (3) TARP triggers occurred as a result of Barium exceedances where three or more consecutive exceedances occurred across more than three locations. This occurred at sites REA4, P53B and P53C. Further investigation into the potential link between mining impacts and barium is recommended;

- **Groundwater – Surface Water Interaction TARP (WMP12):**
    - During the first half of the year, a review of groundwater – surface water interaction between P55C (Level 1 triggered for TARP WMP8) and associated surface water monitoring site TT1-QRLa did not find any apparent correlation between the two sites. No further actions other than ongoing monitoring is required;
    - During the second half of the year, a review of groundwater – surface water interaction between P53 nested bores (Level 1 and 2 triggered for TARP WMP8) and associated surface water monitoring site TT13-QRLa did not find any apparent correlation between the two sites. No further actions other than ongoing monitoring is required;
- **Groundwater – Surface Water Interaction TARP (WMP12):**
    - During the first half of the year, a review of groundwater – surface water interaction between P53 and P55 nested bores and associated surface water monitoring site TT13-QLa and TT1-QLa, respectively, was completed. Reduction in bore water level was noted at various sites during this reporting period, resulting in Level 1, 2 and 3 TARP triggers, with a Level 3 TARP trigger observed at P55B. The review did not find any apparent relationship between the groundwater and surface water responses to extraction, and consequently no further actions other than ongoing monitoring is required;
    - During the second half of the year, seven (7) TARP triggers occurred at multiple sites during the reporting period corresponding to WMP8, exceedances at bores aligned with surface water monitoring sites. The triggers included four Level 1 triggers, one Level 2 trigger, and two Level 3 triggers. however, no corresponding surface water exceedances were observed. Significant vertical separation persists, and available data do not suggest measurable mining-related impacts on surface water conditions during this period;
- **Aquatic Habitat and Macroinvertebrate Indicators TARP (BMP1):**
    - During Autumn 2024 monitoring season, Level 2 triggered at aquatic ecology monitoring sites TTH16 and TTHt17 due to reduced aquatic pool habitats (dry pools) compared to baseline observations for three consecutive sampling occasions. These monitoring sites correlate to surface water monitoring sites where reduction of water levels is related to both mining-induced impacts in combination with prevailing dry weather conditions. No further actions other than ongoing monitoring is required;
- **Land – Farm Dam TARP (LMP3)**
    - Level 1 triggered for development of isolated seepage without suspended solids from the toe of the farm dam embankment at farm dam FD18 during the October 2024 inspection. Isolated seepage was identified from existing erosion rills near the middle of the dam embankment following recent rainfalls. Subsequent inspections in November and December 2024 revealed that no seepage was present;
- **Historical Heritage TARP (HMP2):**
    - During the reporting period a Level 1 triggered for detectable environmental consequences observed at Tahmoor Mine Site. A review of the cracks by a qualified archaeologist noted that they were minor and, if required, could be repaired in a manner that preserves the heritage value of the mine. No further actions other than ongoing monitoring is required;

- **Main Southern Rail TARP:**
    - During the reporting period, a Blue trigger due a measured extension across the crest between Pegs B99360 and C99360, which has been attributed to heavy vehicle movement along the crest. This trigger was resolved by the Rail Management Group. No further actions other than ongoing monitoring is required;

      A Yellow trigger due to non-conventional subsidence that developed neat 99.62km and 99.56km resulting in change in rail alignment. A temporary speed restriction was imposed on both tracks from 99.5km to 99.8km. The temporary speed restriction was removed following improvement of the track geometry by tamping. No further actions other than ongoing monitoring is required;
- **Telecommunication TARP:**
    - Telstra direct buried IEN/CAN optical fibre cable trigger exceedance for OTDR loss on fibre (greater than 0.3dB). Tahmoor Coal was notified by Telstra of a loss of signal strength that was observed by remote monitoring on Telstra's optical fibre cable on 10 September. Tahmoor Coal uncoupled and exposed the buried cable at both locations on 11 September 2024. A kink was found in the cable and was relieved manually. OTDR testing by Telstra on 11 September identified that the signal was back to baseline with no ongoing losses detected;
- **Tahmoor Mine Site TARP:**
    - During the first half of the year, Blue trigger due to ground shortening on the rail loop and cracking in the 6C Tunnel, as a result of mining. An inspection by a structural engineer of the 6C Tunnel noted no immediate concerns. Ongoing monitoring is required;
- **3030 Remembrance Drive TARP:**

  Non-conventional subsidence movements occurred along Remembrance Driveway potentially resulting in misalignment of several internal doors and tilting of one vehicle hoist at the Prestige Care Restorations Workshop. Proposed action have not been able to be completed due to refusal of entry to the workshop by the owners;
- **Australian Wildlife Sanctuary TARP:**
    - During the reporting period, a Level 4 TARP trigger was sustained relating to pool water level reduction and fracturing in Wirrimbirra Creek. This trigger is largely managed by the Water Management Plan TARPs. A WCAMP will be prepared (if required) and implemented following the cessation of subsidence movements associated with Tahmoor South mining;

      A trigger due to impacts to gates and gravel path was also reached. Ground movement impacted the functionality of gates within the Tasmanian Devil Enclosure and created a trip hazard in the gravel footpath at the Australian Wildlife Sanctuary. Tahmoor Coal repaired the gates and removed the trip hazard on the gravel footpath;
- **Wollondilly Shire Council TARP:**
    - Non-conventional subsidence movements occurred resulting compression humps on Remembrance Drive. Meetings with all infrastructure owners are ongoing during the reporting period, and actions from these meetings have been implemented;
- **Wollondilly Anglican College TARP:**
    - Non-conventional subsidence movements occurred resulting in impacts to gates, pavements, brick walls and stairs at the site. Repairs at the site have been

completed and these triggers were resolved at the end of the LW S2A monitoring period (and no new triggers have been observed during the extraction of LW S3A). No further actions other than ongoing monitoring is required; and

- **Tahmoor Garden Centre TARP:**
    - TARP Trigger due to impact to floor coating from expansion joint opening (3mm). Tahmoor Coal carried out repairs to the expansion joint using flexible sealant.

During the reporting period, there were no exceedances of environmental performance measures or indicators, as adopted from Condition C1 and Condition C5 of SSD 8445.

12.2.3 Further Improvements

Tahmoor Coal committed to the installation of a pre-mining and post-mining height of fracture (HoF) hole as stated in accordance with the LW W1–W2 and LW W3-W4 Water Management Plans, to be located over LW W2 and associated headings. The pre-mining HoF hole was completed before the commencement of LW W1 extraction and the post-mining HoF hole was completed following the completion of LW W4.

In accordance with the Tahmoor South LW S1A-S6A Water Management Plan, pre-mining HoF holes were completed in the vicinity of LW S1A and LW S4A. Post-mining HoF holes will be completed above LW S1A and LW S4A following the completion of the majority of mining subsidence. Further pre and post mining HoF holes are planned for the B-series upon approval of the future LW S1B-S6B Extraction Plan.

12.3 Biodiversity

12.3.1 Tahmoor Mine Site

Biodiversity is managed across Tahmoor Mine in accordance with the approved Biodiversity Management Plan (available on the Tahmoor Coal website), which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South. Tahmoor Coal undertakes ecological assessments and due diligence vegetation assessments prior to undertaking activities likely to require vegetation clearing as documented in our approved Biodiversity Management Plan. Several threatened plant species have previously been identified on the surface mining lease areas, including *Grevillea parviflora* and *Persoonia bargoensis,* which have been identified at the REA, near the No.2 Shaft area, and along Charlies Point Road. *Grevillea parviflora* is listed as vulnerable on both the *Biodiversity Conservation Act 2016* (BC Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). *Persoonia bargoensis* is listed as endangered under the Biodiversity Conservation Act and vulnerable under the EPBC Act.

12.3.2 Tahmoor North Domain

Mining related subsidence in Myrtle and Redbank Creek had resulted in reduced pool holding capacity. Water flow in affected pools was diverted through the subsurface via cracks and fissures in the bedrock, this resulted in a reduced pool holding capacity in impacted pools.

Remediation works have been completed in August 2022 at Myrtle Creek and in November 2024 at Redbank Creek. The work was completed in accordance with the approved Corrective Action Management Plan by the Resources Regulator and in consultation with a variety of stakeholders. The remediation process consists of drilling a series of boreholes and injecting an expanding hydrophobic polyurethane grout material. This creates a “curtain wall” or subsurface dam wall across the creek bed to a depth where the fracture network has been detected, which seals the fractures and helps redirecting the stream flow back to the surface. This remediation technique is also used in combination with a grid pattern grouting process that acts as a liner to improve the water retention capability of the pool. All remediated sites at Redbank and Myrtle Creek are currently in a monitoring phase for aquatic ecology, surface water and groundwater level monitoring.

The grout material has also been used successfully for creek rehabilitation in Sydney Catchment Authority areas as it has minimal ecotoxicological effects and has proven to be highly effective in remediating subsurface fractures. To assess the remediation effectiveness, aquatic ecology monitoring is undertaken biannually in Autumn and Spring with specific reference to the recovery of stream health in pools that have been rehabilitated.

Monitoring was conducted using the Australian River Assessment System (AUSRIVAS) method, aquatic habitat assessment, quantitative macroinvertebrate survey and physiochemical water quality results in autumn and spring of 2019 before remediation commenced, and during autumn and spring of 2020, 2021, 2022, 2023 and 2024. Sites unaffected by subsidence are also monitored for aquatic health in the creek systems and act as a benchmark for comparison.

12.3.2.1 Myrtle Creek Aquatic Ecology Monitoring

Bi-annual aquatic ecology monitoring is conducted) at Myrtle Creek to assess the outcomes of post-mining stream health monitoring before and after remediation. Monitoring was conducted in Autumn 2024 and spring 2024 at Pool 20, Pool 18, Pool 14, Pool 12a, Pool 11, Pool 10 and Pool 30

(un-impacted site, seasonal benchmark) using Standard Australian River Assessment System (AUSRIVAS) methods and quantitative macroinvertebrate surveys (refer to **Figure 13** for location of the sampling sites). The reports (Niche, 2024a and Niche, 2024b available on request) include monitoring results undertaken in 2019, before remediation commenced and seasons from 2020 to 2024.



Figure 13 Myrtle Creek Aquatic Ecology Monitoring Sites

Myrtle Creek - Autumn 2024 Survey

Table 12-1 presents the summary of the aquatic ecology assessment for all the pools sampled in Autumn 2024. The report indicates that all sampled pools were holding water at the time of the survey. In general, the aquatic habitat within the sample reaches had higher water levels than the previous season. Water quality was overall consistent with previous monitoring results with the exception of the elevated electrical conductivity readings at Pool 10 and 11.

The AUSRIVAS Band for all the remediated pool was ranging from Band B (Pools 10, 11, 12a and 20) and Band C (Pools 14 and 18). Pool 30 (benchmark site) scored Band B.

The results indicate that the taxa recorded at the remediated pools were low ranging from 9 to 15. However, the results are comparable to the benchmark site (Pool 30) and considered nominal for low flowing pool edge habitat in the locality. Limited EPT index taxa were detected at the remediated sites, Pool 30 only recorded two EPT taxa indicating that few sensitive families were represented at the monitoring sites.

The Autumn 2024 results indicate that water was retained at most the remediated sites for four or more sampling seasons (except for Pool 14 in Spring 2023) which provided aquatic habitat. Pools 14 and 18 recorded “moderate” indicative recovery levels, pools 10, 11, 12a and 20 recorded “good” indicative ecological recovery levels which were comparable to Pool 30 (seasonal benchmark).

The report suggests that the variation in levels of ecological recovery at some of the remediated sites may be due to the natural flow status of similar pools in bedrock dominated sections of intermittent streams within the locality. Niche also indicates that these intermittent flowing bedrock dominated pool sections in Myrtle Creek may naturally not support extensive aquatic habitats even under long term recovery and are likely to be more sensitive to environmental fluctuations, such as rainfall patterns.

The report recommends that continued monitoring (bi-annual surveys) is carried out at Pool 14 and Pool 18 in addition to benchmark site, Pool 30. On the basis of previous monitoring results, Niche suggests that a review of rehabilitation success, in conjunction with the results of pool water level monitoring, may be considered for Pool 10, Pool 11, Pool 12a and Pool 20 to review the need for further monitoring at these sites.

Further monitoring would assist in determining whether levels of recovery continue to improve and indicate the relative importance of prevailing conditions on stream health within the remediated pools.

Table 12-1 Myrtle Creek Indicative Ecological Recovery Summary – Autumn 2024

Season	Pool holding capacity	Aquatic habitat present	Aquatic invertebrates present (no. of taxa)	Sensitive aquatic invertebrates (EPT taxa)	AUSRIVAS Band	Indicative ecological recovery level
Pool 10						
Autumn 24	Yes	Yes	13	2	B	Good
Pool 11						
Autumn 24	Yes	Yes	10	1	B	Good
Pool 12a						
Autumn 24	Yes	Yes	15	1	B	Good
Pool 14						
Autumn 24	Yes	Yes	9	1	C	Moderate
Pool 18						
Autumn 24	Yes	Yes	9	1	C	Moderate
Pool 20						
Autumn 24	Yes	Yes	11	3	B	Good
Pool 30 – Seasonal Benchmark (equivalent recovery indicator)						
Autumn 24	Yes	Yes	13	2	B	N/A

Myrtle Creek - Spring 2024 Survey

Table 12.2 presents the summary of the aquatic ecology assessment for all the pools sampled in Spring 2024. The report indicates that all sampled pools were holding water at the time of the survey. The water was visually turbid with low flow recorded at each site. Pool conditions were consistent between remediated pools and the seasonal benchmark Pool 30.

Water quality was generally consistent across all remediated pool sites and the reference (Pool 30). The key findings include:

- Dissolved oxygen saturation was below the default guideline value (DGV) in all pools other than the seasonal benchmark pool 30. Though generally most sites recorded Dissolved oxygen saturation close to the DGV threshold.
- Turbidity exceeded DGV's at Pools 12a and 14, as well as the seasonal benchmark Pool 30.
- The pH levels were within DGV's and observed to generally decline with distance downstream.
- Alkalinity levels were consistent across pools.

The AUSRIVAS Band for all the remediated pool was ranging from Band B (Pools 10, 11 and 12a) and Band C (Pools 14, 18 and 20). Pool 30 (benchmark site) scored Band C.

The results indicate that the taxa recorded at the remediated pools were ranging from 10 to 17. The results are comparable to the benchmark site Pool 30, recording 14 taxa and considered nominal for low flowing pool edge habitat in the locality. Limited EPT index taxa were detected at the remediated sites, including Pool 30 seasonal benchmark indicating that few sensitive families were represented at the monitoring sites.

Niche has developed ecological recovery targets to establish a descriptive ranking of the level of ecological recovery and considers the following factors:

- AUSRIVAS Band scores
- Pool water level (aquatic habitat), aquatic habitat observations, the number of taxa and EPT taxa scores provide additional supporting information to interpret the Band scores in terms of ecological recovery.
- These indices are benchmarked against Pool 30, providing a seasonal reference.

Table 12.2 summarises the indicative ecological recovery levels for each sites including seasonal benchmark. In spring 2024, good ecological recovery was recorded at Pools 10, 11 and 12a, while moderate recovery levels were observed at Pools 14, 18 and 20, with these sites recording results comparable to the seasonal benchmark site, Pool 30.

The Spring 2024 results indicate that water was retained at most of the remediated sites for five or more sampling seasons (except for Pool 14 in Spring 2023) which provided aquatic habitat at all sites

The report suggests that the variation in levels of ecological recovery at some of the remediated sites may be due to the natural flow status of similar pools in bedrock dominated sections of intermittent streams within the locality. Niche also indicates that these intermittent flowing bedrock dominated pool sections in Myrtle Creek may naturally not support extensive aquatic habitats even under long term recovery and are likely to be more sensitive to environmental fluctuations, such as rainfall patterns.The report recommends that continued monitoring (bi-annual surveys) is carried out at Pool 14, Pool 18 and pool 20 in addition to benchmark site, Pool 30. On the basis of previous monitoring results, Niche suggests that following two further seasons of demonstrated consecutive good or moderate recovery for Pool 10, 11 and 12a, a review of rehabilitation success, in conjunction

with the results of pool water level monitoring may meet the expectation of recovery and allow these sites to be successfully rehabilitated.

Further monitoring would assist in determining whether levels of recovery continue to improve and indicate the relative importance of prevailing conditions on stream health within the remediated pools.

Table 12-2: Myrtle Creek Indicative Ecological Recovery Summary – Spring 2024

Season	Pool holding capacity	Aquatic habitat present	Aquatic invertebrates present (no. of taxa)	Sensitive aquatic invertebrates (EPT taxa)	AUSRIVAS Band	Indicative ecological recovery level
Pool 10						
Spring 24	Yes	Yes	12	2	B	Good
Pool 11						
Spring 24	Yes	Yes	17	2	B	Good
Pool 12a						
Spring 24	Yes	Yes	14	2	B	Good
Pool 14						
Spring 24	Yes	Yes	12	1	C	Moderate
Pool 18						
Spring 24	Yes	Yes	10	0	C	Moderate
Pool 20						
Spring 24	Yes	Yes	16	2	C	Moderate
Pool 30 – Seasonal Benchmark (equivalent recovery indicator)						
Spring 24	Yes	Yes	14	3	C	N/A

12.3.2.2 Redbank Creek Aquatic Ecology Monitoring

Biannual aquatic ecology monitoring is carried out at Redbank Creek to identify to impacts from longwall mining and to monitor the outcome of the remediation works to restore habitat (Niche, 2024a and Niche, 2024b available on request). Monitoring was conducted using standard Australian River Assessment System (AUSRIVAS) methods and quantitative macroinvertebrate surveys. Surveys were carried out in Autumn 2024 and Spring at Pool RR16 (Spring only), Pool 28, Pool 37, Pool RB5, Pool RB6, Pool RR11, Pool RR19, Pool RR26 (remediated sites) and RB33 (benchmark non-impacted site), refer to **Figure 14** for locations of the sampling sites.

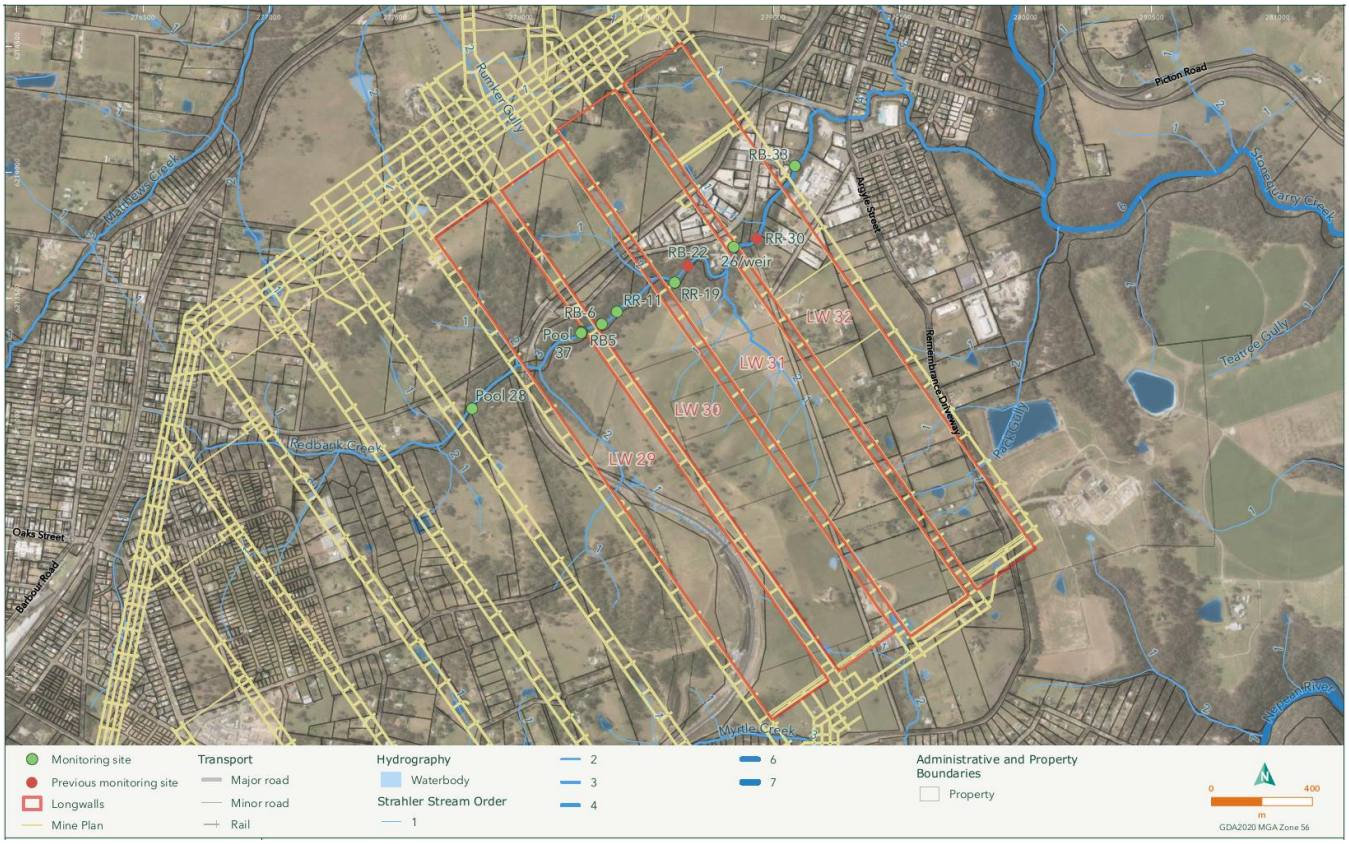


Figure 14 Redbank Creek Aquatic Ecology Monitoring sites

Redbank Creek - Autumn 2024 survey

Table 12.3 presents the summary of the aquatic ecology assessment for all the pools sampled in Autumn 2024.

The results show all sampled pools were holding water except for Pool 37 (dry at the time of the survey). Water levels were observed to be higher than the previous season. The water at most sites was turbid, iron flocculant was observed at Pools RB5, RB6, RR11 and RB33. Water quality was consistent with previous monitoring results, all sites were within DGVs for electrical conductivity during the Autumn 2024 survey.

The AUSRIVAS Band for all the remediated pool was ranging from Band A to Band C. Pool RR26 recorded Band A indicating macroinvertebrae assemblages similar to “reference conditions”. Pool RB5, RB6, RR19 recorded Band B, while pool RR11, Pool 28 and Pool RB33 recorded Band C (benchmark un-impacted site). The variability of the results could indicate that the intermittent flowing bedrock and boulder dominated pool sections in Redbank Creek may naturally not support extensive aquatic habitats even under long term recovery.

The number of taxa recorded at the remediated sites were low ranging between 4 and 10, comparable to the benchmark site, Pool RB33, which recorded 5 taxa. The relatively low number of taxa scores may reflect the recent significant rain event and that macroinvertebrate assemblages may be in a re-establishment stage following this disturbance event. Limited EPT index taxa were detected at the remediated sites, Pool 30 only recorded two EPT taxa indicating that few sensitive families were represented at the monitoring sites.

The Autumn 2024 aquatic ecology results suggest improved stream health across all remediated pools compared to the 2023 monitoring results (except for Pool 37 which was dry). Pool RR26 recorded an “excellent” indicative recovery level, and Pool 28 and RR11 recorded “moderate” level

of ecological recovery. Pools RB5, RB6 and RR19 recorded "good" indicative ecological recovery levels which were greater to Pool 30 (seasonal benchmark).

The 2024 autumn monitoring results demonstrate that the remediated pools have the capacity to support more sensitive macroinvertebrate assemblages (and improved stream health results) especially under more favourable environmental conditions (above average rainfalls based on recent sampling between 2022 to 2024).

On the basis of previous monitoring results, Niche suggests that a review of rehabilitation success, in conjunction with the results of pool water level monitoring, may be considered for Pool RR26 to review the need for further monitoring at this site.

Further monitoring would assist in determining whether levels of recovery continue to improve and indicate the relative importance of prevailing conditions on stream health within the remediated pools (Pools 28, 37, RB5, RB6m RR11 and RR19).

Table 12-3 Redbank Creek Indicative Ecological Recovery Summary – Autumn 2024

Season	Pool holding capacity	Aquatic habitat present	Aquatic invertebrates present (no. of taxa)	Sensitive aquatic invertebrates (EPT taxa)	AUSRIVAS Band	Indicative ecological recovery level
Pool 28						
Autumn 24	Yes	Yes	5	1	C	Moderate
Pool 37						
Autumn 24	No - Dry	-	-	-	-	-
Pool RB5						
Autumn 24	Yes	Yes	8	3	B	Good
Pool RB6						
Autumn 24	Yes	Yes	6	0	B	Good
Pool RR11						
Autumn 24	Yes	Yes	4	1	C	Moderate
Pool RR19						
Autumn 24	Yes	Yes	6	2	B	Good
Pool RR26						
Autumn 24	Yes	Yes	10	2	A	Excellent
Pool RR33 – Seasonal Benchmark (equivalent recovery indicator)						
Autumn 24	Yes	Yes	5		C	N/A

Redbank Creek - Spring 2024 survey

Table 12.4 presents the summary of the aquatic ecology assessment for all the pools sampled in Spring 2024.

The results show that all sampled pools were holding water at the time of the survey and had some aquatic habitat present to sample. The water at most sites was either turbid or had iron flocculant present which has been common at both remediated sites and seasonal benchmark site across previous monitoring. Water quality was consistent across all sites with most water quality parameters consistent across remediated sites. Water quality parameters were observed to be poorer at the seasonal benchmark site, Pool RB33.

- Electrical conductivity readings were above default trigger values (DGVs) at all sites, though was highest at the seasonal reference site RB33. High electrical conductivity reading at RR19 is likely due to the combination high iron bacteria flocculation building in a low flow pool.
- The remediated pools RB5, RB6, RR11, and RR26 all had dissolved oxygen levels below DGV's, as was the reference site RB33. Pools 28 and 37, as well as RR19, recorded dissolved oxygen levels above the guideline
- pH levels were below DGV's at sites RB5, RB6 and RR19. These levels were also below that recorded at reference Pool RB33.

The AUSRIVAS Band for all the remediated pool was ranging from Band C to Band D, with Pool 28 and Pool 37 scoring Band D and Pool RB33 (seasonal benchmark) scoring Band C along with Pool RR26, RR19, RR11, RB5 and RB6. The Ausrivas results are noted to be poorer than the previous monitoring survey in Autumn 2024. The number of taxa recorded at the remediated sites were low ranging between 3 and 10, comparable to the benchmark site, Pool RB33, which recorded 7 taxa. The variability of the results could indicate that the intermittent flowing bedrock and boulder dominated pool sections in Redbank Creek may naturally not support extensive aquatic habitats even under long term recovery.

Niche has developed ecological recovery targets to establish a descriptive ranking of the level of ecological recovery and considers the following factors:

- AUSRIVAS Band scores
- Pool water level (aquatic habitat), aquatic habitat observations, the number of taxa and EPT taxa scores provide additional supporting information to interpret the Band scores in terms of ecological recovery.
- These indices are benchmarked against RB33, providing a seasonal reference.

Table 12.4 summarises the indicative ecological recovery levels for each sites including seasonal benchmark. In spring 2024, limited ecological recovery was recorded at Pools 28 and 37, while moderate recovery levels were observed at RB5, RB6, RR11, RR19, and RR26, with these sites recording results comparable to the seasonal benchmark site, RR33. Pool 37 held water for the first time during the Spring 2024 survey and supported some aquatic habitat.

Recent sampling (between 2022 to 2024) of these pools has typically been completed under above average (favourable) or below average (unfavourable) rainfall conditions during period of highly variable seasonal rainfall conditions. The sampled macroinvertebrate assemblages are likely to reflect these factors. It is less clear what stream health results may be returned under 'nominal' (average) rainfall conditions. The Spring 2024 results demonstrate that the remediated pools have

the capacity to support more sensitive macroinvertebrate assemblages (and improved stream health results) under more favourable environmental conditions.

On the basis of previous monitoring results, Niche suggests that a review of rehabilitation success, in conjunction with the results of pool water level monitoring, may be considered for Pool RR26 to review the need for further monitoring at this site.

Further monitoring would assist in determining whether levels of recovery continue to improve and indicate the relative importance of prevailing conditions on stream health within the remediated pools (Pools 28, 37, RB5, RB6 RR11 and RR19).

Table 12-4: Redbank Creek Indicative Ecological Recovery Summary – Spring 2024

Season	Pool holding capacity	Aquatic habitat present	Aquatic invertebrates present (no. of taxa)	Sensitive aquatic invertebrates (EPT taxa)	AUSRIVAS Band	Indicative ecological recovery level
Pool 28						
Spring 24	Yes	Yes	5	1	D	Limited
Pool 37						
Spring 24	Yes	Yes	3	0	D	Limited
Pool RB5						
Spring 24	Yes	Yes	5	0	C	Moderate
Pool RB6						
Spring 24	Yes	Yes	8	1	C	Moderate
Pool RR11						
Spring 24	Yes	Yes	10	3	C	Moderate
Pool RR19						
Spring 24	Yes	Yes	10	2	C	Moderate
Pool RR26						
Spring 24	Yes	Yes	9	1	C	Moderate
Pool RR33 – Seasonal Benchmark (equivalent recovery indicator)						
Spring 24	Yes	Yes	7	1	C	N/A

12.3.3 Tahmoor South Domain

Terrestrial and aquatic monitoring is currently conducted in the Tahmoor South Domain as a requirement of the LW S1A-S6A Biodiversity Management Plan (BMP). The BMP identifies the monitoring and management measures for aquatic and terrestrial biodiversity that are required to

be implemented to demonstrate that the relevant performance measures are achieved for various sites in Teatree Hollow Creek, Bargo River, Dogtrap Creek and Hornes Creek. The BMP focuses on aquatic and terrestrial biodiversity, with particular focus on threatened species, populations and their habitats, and Endangered Ecological Communities (EECs) and water dependent ecosystems.

Baseline monitoring results of pre-mining conditions have been completed over a 3 years period previous to LW S1A commencement for Tahmoor South Longwalls, which has focused on riparian vegetation, watercourses, and amphibian monitoring, as these areas were previously determined to be more susceptible to impacts from subsidence.

During 2023, Baseline Monitoring has commenced for the B-series Extraction Plan preparation, with the establishment of four future impact sites (referred to as "B-series" monitoring sites), along Dog Trap Creek during the Spring 2023 biodiversity monitoring program. The four terrestrial monitoring sites (comprised of riparian vegetation and amphibian monitoring locations), were established along Dog Trap Creek to collect baseline data to inform the "B-Series" Extraction Plan to be prepared for the future longwalls proposed in the locality. Baseline monitoring of these sites has continued to be been carried out in Autumn 2024 and Spring 2024.

12.3.3.1 Aquatic Ecology Monitoring

Monitoring was conducted at sites using standard (Australian River Assessment System (AUSRIVAS)) methods and quantitative benthic macroinvertebrate surveys. Physiochemical water quality sampling is also completed at aquatic monitoring sites to provide context for the assessment of biological data. A total of thirteen locations were sampled within Teatree Hollow, Hornes Creek and Moore Creek. These sites comprised eight impact sites (TTHt9, TTH12, TTH13, TTH13 (d/s), TTH16, TTH17, TTHt17 (d/s), BRt6) and five control sites (HC6, HC7, HC8, MC14, MC15). The locations of monitoring sites are illustrated in **Figure 15**.

Control sites HC6 and impact sites BRt6 and TTHt9 were added to the program in the spring 2023 round of monitoring in order to assess potential impacts to these sections of a waterway associated with potential future longwall panels.

Autumn 2024

The following results were observed for the Autumn 2024 aquatic ecology monitoring:

- Autumn 2024 surveys were preceded by above average seasonal rainfall, although much of this rainfall occurred in one rain event. Observed habitat conditions at the impact sites represented a continuation of low flow conditions, observed during recent monitoring. This was reflected in the observations of low flows, limited organic debris and low flow levels across the monitoring sites.
- Impact sites TTH16, TTHt9, TTHt17, TTHt17 (d/s) and BRt6 were dry during the autumn 2024 surveys, with TTH12 and TTH13 (d/s) holding water. All control sites were holding water.
- Dry conditions at site TTH13 have not spanned consecutive monitoring surveys but do indicate an ongoing pattern of harsh environmental conditions at this pool since autumn 2023. Further monitoring will be required to establish whether additional time will result in macroinvertebrate assemblage recovery at this site.
- The additional AUSRIVAS sample collected at site TTH13 (d/s) indicate that mining induced changes upstream at TTH13 do not appear to have translated into acute impacts to macroinvertebrate assemblages downstream.

- Site TTH12 recorded quantitative monitoring data that did not identify any significant differences between the autumn 2024 survey data and that of previous surveys that indicate a decline in ecosystem health associated with mining induced change.

TARP Trigger

The following TARP trigger occurred during the reporting period according to the TARP BMP1 - Aquatic Habitat and Macroinvertebrate Indicators (Stream Health)

- A level 2 TARP trigger exceedance (TARP BMP1) was reported for sites TTH16 and TTHt17 in autumn 2024 in relation to a reduction in aquatic pool habitat being observed over three consecutive sampling occasions. It should be noted that the Surface Water Report concluded that the reduction of water levels at TTH16 (surface water monitoring site TT3) and TTHt17 (surface water monitoring site TT12) was related to both mining-induced impacts in combination with prevailing dry weather conditions.

  Therefore, the decline in water level at TTH16 and TTHt17 is considered to be related to mining effects and also prevailing climatic conditions.

Action in Response to TARP Trigger

The following actions and responses have been completed in accordance with a Level 2 TARP trigger for aquatic habitat and macroinvertebrate indicators (stream health) (TARP BMP1).

- *Continue monitoring and review of data as per monitoring program* - Bi-annual seasonal monitoring (spring and autumn) and review of data is ongoing according to the monitoring program.
- *Undertake an investigation of BACI quantitative macroinvertebrate data to assess Level 1 observations and determine if mining related or the response to environmental conditions (e.g. drought) within the catchment* - An investigation of BACI quantitative macroinvertebrate data to assess Level 1 observations and determine if mining related or the response to environmental conditions (e.g. drought) within the catchment could not be completed as no samples could be collected from TTH16 and TTH17
- *Discuss findings and obtain other relevant information from key specialists* - The surface water level data was reviewed and it was concluded that the reduction of water levels at TTH16 (surface water monitoring site TT3) and TTHt17 (surface water monitoring site TT12) were related to both mining-induced impacts in combination with prevailing dry weather conditions.
- *Consider and decide on reasonable and feasible options for remediation, where relevant* - Reasonable and feasible options for remediation were considered, however, no corrective management actions are proposed as there are no actions that can currently be completed to correct water level decline. In accordance with C12 of SSD 8445 and as detailed in the Water Management Plan, a Watercourse Corrective Action Management Plan (WCAMP) will be prepared (if required) for watercourses damaged by subsidence impacts in consultation with relevant government agencies, as defined in the WMP. The WCAMP will be prepared and implemented (if required) at the cessation of subsidence movements associated with Tahmoor South mining.

- *Consider increasing monitoring and review of data frequency where Level 2 or 3 has been reached* - An increase in the monitoring program and review of the data frequency was considered. Monitoring is completed bi-annually in line with AUSRIVAS monitoring protocols and collection of baseline data. As mining induced change has so far manifested in pool-drying, rather than water quality decline, there is limited value in increasing biological sampling frequency.
- *Consider the inclusion of additional sites within impact area* - The inclusion of additional sites within the impact area was considered. Additional AUSRIVAS sites downstream of areas of mining induced change observed, TTH13 (d/s) and TTH17 (d/s), have been included in the program since autumn 2023 when impacts were first observed. These additional sites have been established as part of an adaptive monitoring approach to provide an indication of potential impacts downstream of areas of observed mining induced change. Due to the intermittent nature of the Teatree Hollow stream network and prevailing dry conditions, there is limited scope to include additional monitoring sites. Data from related program sites may be called upon as relevant, to assist in the interpretation of impacts. This has not been completed to date as the potential impacts to data have so far been primarily via pool drying/reduced flows rather than declining water quality.
- The Level 2 trigger exceedance was reported to DPHI and key stakeholders.

The current monitoring program will continue in accordance with the LW S1A-S6A Biodiversity Management Plan.

Additional details can be found the Tahmoor South Six Monthly Subsidence Impact Report 4 in **Appendix 11**.

Spring 2024

The following results were observed for the spring 2024 aquatic ecology monitoring:

- Spring 2024 surveys were preceded by close to typical rainfall pattern, demonstrated by rainfall data;
- Impact sites were found to be dry during the Spring 2024 survey except for small, isolated pools at BRt6 and TTH13 (d/s), meanwhile control sites had sufficient aquatic habitat for sampling;
- The observations made during the Spring 2024 monitoring support the conclusions from previous monitoring and related surface water reviews that there has been mining-induced change to aquatic habitat within the locality of the A series longwalls;
- Only one impact site, TTH13(d/s) was sampled for AUSRIVAS in Spring 24. The results indicate a general impoverishment of macroinvertebrate assemblage at TTH13(d/s), this trend was also observed at the control sites;
- No quantitative sampling was undertaken at the two impact sites containing any water, TTH13(d/s) and BRt6, due to insufficient water depth;
- Quantitative analysis shows that Control sites have maintained similar levels of variability to the Before period while also maintaining sufficient aquatic habitat for sampling in the During period. Impact sites have conversely followed a downward trend since the commencement of mining, resulting in an increased frequency of dry conditions being recorded and subsequently no macroinvertebrate samples being collected.

TARP Trigger

The following TARP trigger occurred during the reporting period according to the TARP BMP1 - Aquatic Habitat and Macroinvertebrate Indicators (Stream Health)

- A level 1 TARP trigger exceedance (TARP BMP1) was reported for sites TTH13 and BRt6 in spring 2024 in relating to a reduction in aquatic pool habitat being observed over two consecutive sampling occasions.

  It should be noted that the surface water data shows that pools within Bargo River Tributary (sites monitored up and downstream of BRt6) typically hold little to no water during periods of low rainfall (ATC Williams, 2025). The observed dryness is therefore likely to be within the expected variability of this waterway and unrelated to mining of the A series longwalls.

- A level 2 TARP trigger exceedance (TARP BMP1) was reported for site TTHt9 in autumn 2024 in relating to a reduction in aquatic pool habitat being observed over three consecutive sampling occasions.

- A level 3 TARP trigger exceedance (TARP BMP1) was reported for sites TTH16 and TTHt17 in autumn 2024 in relating to a reduction in aquatic pool habitat being observed over four consecutive sampling occasions.

Action in Response to TARP Trigger

The following actions and responses have been completed in accordance with a Level 1, Level 2 and Level 3 TARP triggers for aquatic habitat and macroinvertebrate indicators (stream health) (TARP BMP1).

Level 1, Level 2 and Level 3 TARP Triggers

- *Continue monitoring and review of data as per monitoring program* - Bi-annual seasonal monitoring (spring and autumn) and review of data is ongoing according to the monitoring program.
- *Undertake an investigation of BACI quantitative macroinvertebrate data to assess Level 1, 2 and 3 observations and determine if mining related or the response to environmental conditions* - An investigation of BACI quantitative macroinvertebrate data to assess Level 1, 2 and 3 observations and determine if mining related or the response to environmental conditions (e.g. drought) within the catchment could not be completed as no samples could be collected
- *Discuss findings and obtain other relevant information from key specialists* – A meeting was held on 5th August 2025 between Tahmoor Coal, Stantec and ATC Williams to discuss findings.
  - **TTH13:** It is noted that surface water level data concluded that the water level at this site are related to the cessation of surface water flow in Teatree Hollow tributary due to mining induced fracturing upstream in conjunction with the prevailing climatic conditions
  - **BRt6:** The surface water data shows that pools within Bargo River Tributary (sites monitored up and downstream of BRt6) typically hold little to no water during periods of low rainfall. The observed dryness is therefore likely to be within the

expected variability of this waterway and unrelated to mining of the A series longwalls.

- **TTHt9:** TTHt9 has been monitored as part of this program since Spring 2023 and has not yet been found to contain water in three total surveys. ATC Williams (2025) note this pool experiences fluctuations in water level above and below trigger levels in response to rainfall conditions, but that the pool has experienced an increase in the rate of water recession compared to historical conditions.
- **TTH16 & TTHt17:** The surface water review by ATC Williams (2025) concluded that these sites have experienced atypical declines in water level due to mining induced fracturing in combination with prevailing climatic conditions (TTHt17) and the diversion of surface flow via upstream fractures (TTH16).

- *Consider and decide on reasonable and feasible options for remediation, where relevant* - No corrective management actions are proposed as there are no actions that can currently be completed to correct water level decline.

  In accordance with C12 of SSD 8445 and as detailed in the Water Management Plan, a Watercourse Corrective Action Management Plan (WCAMP) will be prepared (if required) for watercourses damaged by subsidence impacts in consultation with relevant government agencies, as defined in the WMP. The WCAMP will be prepared and implemented (if required) at the cessation of subsidence movements associated with Tahmoor South mining.
- *Following investigation, any declines detected that are not attributable to mining impacts (e.g. are a result of environmental conditions or stochastic events) are to be considered 'normal condition' and are continued to be included in the ongoing development of the ecological monitoring dataset* – This is only relevant to BRt6. The surface water data shows that pools within Bargo River Tributary (sites monitored up and downstream of BRt6) typically hold little to no water during periods of low rainfall (ATC Williams, 2025b). The observed dryness is therefore likely to be within the expected variability of this waterway and unrelated to mining of the A series longwalls. Therefore, the decline should be considered "normal condition".

Level 2 and Level 3 TARP Triggers

- *Consider increasing monitoring and review of data frequency where Level 2 or 3 has been reached and at other relevant sites, subject to land access* - Monitoring is completed bi-annually in line with AUSRIVAS monitoring protocols and collection of baseline data. As mining induced change has so far manifested in pool-drying, rather than water quality decline, there is limited value in increasing biological sampling frequency.
- *Consider the inclusion of additional sites within impact area* - Additional AUSRIVAS sites downstream of areas of mining induced change observed, TTH13 (d/s) and TTH17 (d/s), have been included in the program since autumn 2023 when impacts were first observed. These additional sites have been established as part of an adaptive monitoring approach to provide an indication of potential impacts downstream of areas of observed mining induced change.

  Due to the intermittent nature of the Teatree Hollow stream network and prevailing dry conditions, there is limited scope to include additional monitoring sites.

  Data from related program sites may be called upon as relevant, to assist in the interpretation of impacts. This has not been completed to date as the potential impacts to

data have so far been primarily via pool drying/reduced flows rather than declining water quality.

- *Review CMAs in light of findings from further investigations and consider additional reasonable and feasible options* - No corrective management actions are proposed as there are no actions that can currently be completed to correct water level decline.

  In accordance with C12 of SSD 8445 and as detailed in the Water Management Plan, a Watercourse Corrective Action Management Plan (WCAMP) will be prepared (if required) for watercourses damaged by subsidence impacts in consultation with relevant government agencies, as defined in the WMP. The WCAMP will be prepared and implemented (if required) at the cessation of subsidence movements associated with Tahmoor South mining.
- *Review Biodiversity Management Plan and modify if necessary* - No further updates are required in line with the above outcomes.

Level 3 TARP Triggers

- *Increase monitoring frequency for sites where Level 3 has been reached and at corresponding reference sites, subject to land access* - Monitoring is completed bi-annually in line with AUSRIVAS monitoring protocols and collection of baseline data. As mining induced change has so far manifested in pool-drying, rather than water quality decline, there is limited value in increasing biological sampling frequency.
- *Add additional monitoring sites as required* - Additional AUSRIVAS sites downstream of areas of mining induced change observed, TTH13 (d/s) and TTH17 (d/s), have been included in the program since autumn 2023 when impacts were first observed. These additional sites have been established as part of an adaptive monitoring approach to provide an indication of potential impacts downstream of areas of observed mining induced change.

  Due to the intermittent nature of the Teatree Hollow stream network and prevailing dry conditions, there is limited scope to include additional monitoring sites.
- *Undertake a detailed investigation to assess if the change in behaviour is related to mining effects* - A detailed investigation was undertaken by ATC Williams. The surface water review by ATC Williams (refer to **Appendix 12**, Section 3.5.1.2) concluded that these sites have experienced atypical declines in water level due to mining induced fracturing in combination with prevailing climatic conditions (TTHt17) and the diversion of surface flow via upstream fractures (TTH16).
- *Undertake an investigation to determine if an exceedance of the performance measure is likely* - A detailed investigation was undertaken by ATC Williams (refer to **Appendix 12**, Section 3.5.1.2).

  No corrective management actions are proposed as there are no actions that can currently be completed to correct water level decline.

  In accordance with C12 of SSD 8445 and as detailed in the Water Management Plan, a Watercourse Corrective Action Management Plan (WCAMP) will be prepared (if required) for watercourses damaged by subsidence impacts in consultation with relevant government agencies, as defined in the WMP. The WCAMP will be prepared and implemented (if required) at the cessation of subsidence movements associated with Tahmoor South mining.

- The Level 1, Level 2 and Level 3 triggers exceedance was reported to DPHI and key stakeholders. A site visit was offers to DPHI and relevant stakeholder for the Level 3 trigger

The current monitoring program will continue in accordance with the LW S1A-S6A Biodiversity Management Plan.

Additional details can be found the Tahmoor South Six Monthly Subsidence Impact Report 5 in **Appendix 12**.

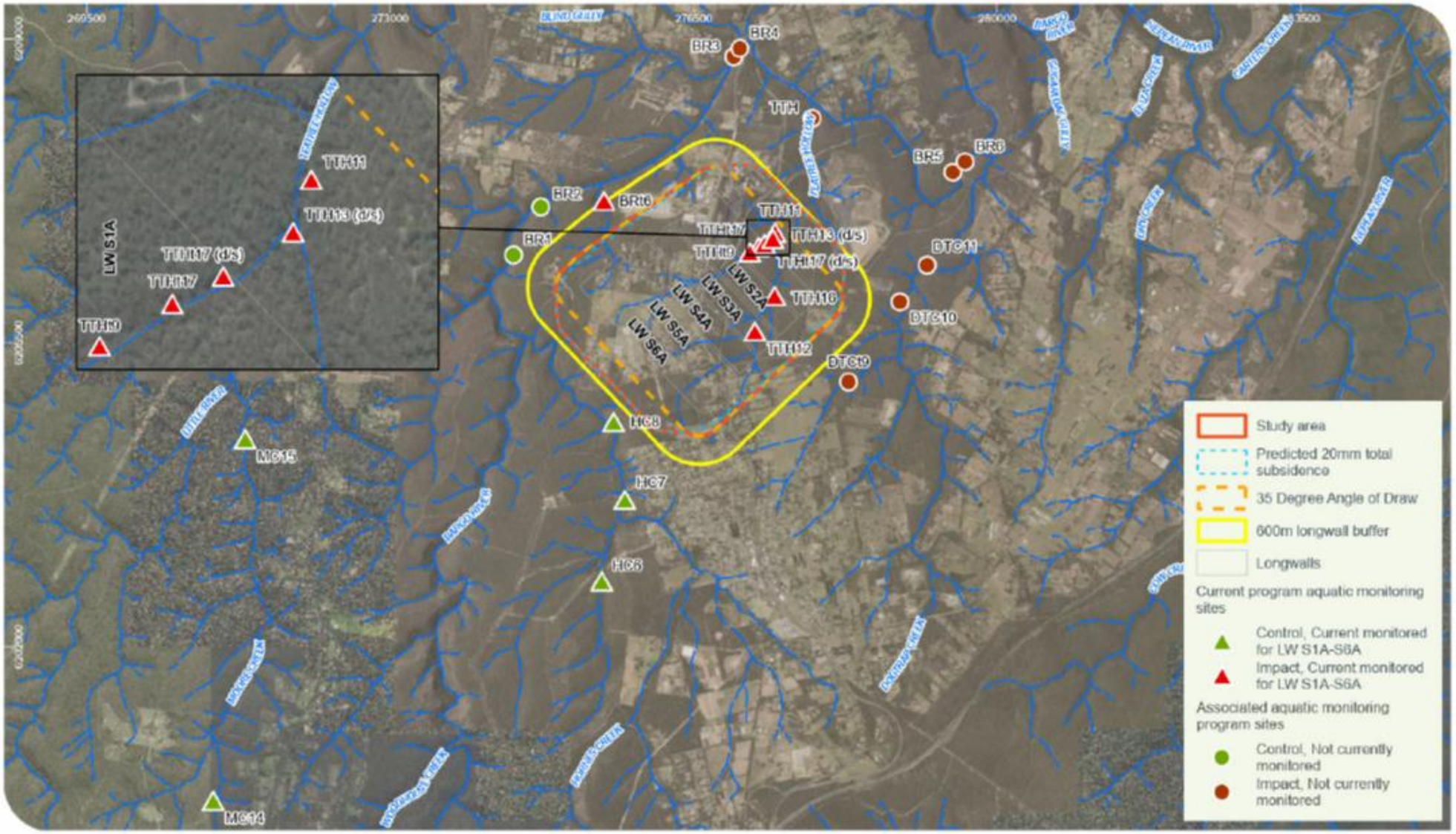


Figure 15 Tahmoor South Aquatic Ecology Monitoring (A-series)

12.3.3.2 Terrestrial Monitoring

A Before, After, Control, Impact (BACI) monitoring program was designed to identify ecological change within the Study Area because of mine subsidence by permitting comparisons of population trends between control and impact areas before and after the impact. The aim of the BACI monitoring program is to collect data that will enable comparison of environmental variables pre- and post-mining in Tahmoor South via the collection of empirical data, mapping, and establishment of a photographic record for the sites. Refer to **Figure 16** for Terrestrial monitoring sites for Tahmoor South.

Two years of baseline biodiversity monitoring was completed in Autumn 2022 and the mining of Tahmoor South commenced 18 October 2022. This report presents the findings of riparian vegetation, Threatened Ecological Community (TEC), and threatened flora and fauna (amphibian) monitoring.

Six monitoring sites were established in Spring 2020 for both riparian and amphibian monitoring (12 monitoring sites in total) (referred to as the Tahmoor South "A-Series Sites"), including three impact and three control Sites. Riparian vegetation monitoring involved establishing vegetation monitoring plots within each site for repeat survey. Amphibian monitoring targeted two threatened frog species (Giant Burrowing Frog [*Heleioporus australiacus,* Vulnerable, NSW *Biodiversity Conservation Act* 2016 (BC Act) and Commonwealth *Environmental Protection Biodiversity Conservation Act* 1999 (EPBC Act) and Red-crowned Toadlet [*Pseudophryne australis,* Vulnerable, BC Act]) and included spotlighting, call provocation, listening for diagnostic frog calls and tadpole identification along established transects.

In Spring 2023, three additional riparian and amphibian monitoring sites (two control sites and one impact site) were established along Teatree Hollow Creek (impact Site 9) and within a tributary of the Bargo River (control Site 8) and Hornes Creek (control Site 7).

In addition to the new A-Series sites, four future impacts sites were established on Dog Trap Creek in Spring 2023, for both riparian and amphibian monitoring (referred to as "B-Series sites").

Monitoring has been ongoing at these sites during the Autumn 2024 and Spring 2024 seasons.

Riparian Vegetation Monitoring

Autumn 2024 Monitoring

There was a significant effect of Control-Impact and Before-After for vegetation cover across Spring sampling events, but no significant BACI interaction. The VI scores have increased between autumn sampling seasons across all Sites, which indicates an overall improvement in vegetation condition across Impact and Control Sites.

Dominant species in terms of percent cover for Autumn 2024 riparian plots include Pteridium esculentum (particularly dominant at Control Site 7), Eucalyptus piperita, Cynodon dactylon (particularly at Impact Site 2), Acacia terminalis (particularly dominant at Control Site 7), Acacia longifolia and Schoenus melanostachys Most dominant exotic species included Senna pendula, Cyperus congestus and Setaria verticillata.

Across all sampling seasons, native species richness at riparian Control Sites has decreased overall since monitoring commenced in Spring 2020. However, it appears to be increasing slightly over the last three monitoring seasons, trending towards baseline native species richness. Native species richness at Impact Sites has remained relatively stable throughout monitoring and there was a substantial increase in Spring 2023 and Autumn 2024.

Overall, the average native vegetation was considerably higher at Impact Sites than Control Sites before mining started whereas the native vegetation cover has become more similar in the last two years after mining with Control Sites predicted to continue to increase in future years.

The Vegetation Integrity (VI) of the six original riparian plots (1-6), across sampling seasons ranged between 21.6 (Control Site 4, Autumn 2023) and 83.7 (Control Site 5, Spring 2023) in VI score (low to high condition) (Table 3-4). The three new riparian plots that were established in Spring 2023 (Site 7-9) has VI scores ranging from 60.1 to 75.6 (moderate to high condition). The VI scores for Autumn 2024 ranged between 28.2 (Impact Site 3) to 74 (Impact Site 9). The fluctuation in VI scores is attributed to seasonality, reduced structural condition, and shifts in exotic species, which is likely due to stochastic events observed in previous seasons.

Spring 2024 Monitoring

During Spring 2024, mean native species richness at all four Impact sites was within or above the ranges recorded during the baseline monitoring period and has shown a mean increasing trend. Between Spring 2023 and Spring 2024, mean native species richness increased by 3.8% for the Impact sites, compared to a 37.4% decline observed for the Control sites. A higher variation in native species richness has been observed at the Control sites over the life of the monitoring project.

Overall, a higher native species richness has typically been recorded at Control Sites. The mean native vegetation cover at the Impact sites increased between the Spring 2023 and Spring 2024 monitoring periods, while a slight decrease was observed at the Control sites. In Spring 2024, a total of 31 exotic species were recorded across all monitoring sites. This included a range of 6-19 individuals at Impact Sites and 1-4 individuals at Control Sites. Mean exotic vegetation cover has decreased overall, compared to Spring 2020, at the Impact and Control sites and has remained relatively stable since Spring 2022.

The mean VI scores for Spring 2024 reflected an improved vegetation condition at the Impact sites and a minor decline in condition of the Control sites. Statistical analysis found the PERMANOVA and PCO analyses do not provide any evidence of an existing or developing project-related impact on vegetation assemblages at the Impact sites.

Threatened Flora Monitoring

The threatened flora monitoring was established in September 2022, and the baseline number of threatened individuals at each site was recorded within a fixed 10 x 10 m plot (prior to the commencement of mining) at each monitoring site. Five rounds of monitoring have occurred after the commencement of mining (Spring 2022, Autumn 2023, Spring 2023, Autumn 2024 and Spring 2024).

The six plots were designed to monitor a subset of individuals of the following species, Brown Pomaderris (Pomaderris brunnea), Bargo Geebung (Persoonia bargoensis), and small-flowered Grevillea (Grevillea parviflora subsp. parviflora).

Autumn 2024

During autumn 2024 monitoring, the highest number of individuals was identified at the impact Sites TF3 and TF6, followed by impact Sites TF1 and TF5.

Overall, the number of threatened flora individuals across impact and control Sites is considered stable, with minor fluxes in the number of individuals across sampling seasons.

Monitoring to date has indicated that the control and impact Sites are sufficiently similar (species and abundance) to be suitable for long-term monitoring.

Spring 2024

During this round of monitoring (Spring 2024) there was an increase at all the control sites (TF4, TF5 and TF6). At TF4, the counts of *Persoonia bargoensis* increased from Autumn 2024 (14) to Spring 2024 (28). At TF5, *Pomaderris brunnea* increased from Autumn 2024 (73) to Spring 2024 (103). TF6, *Grevillea parviflora* subsp. *Parviflora,* saw an increase from Autumn 2024 (159) to Spring 2024 (173). The number of individuals at all control sites (TF1, TF2 and TF3) decreased in Spring 2024. Spring 2024 was the first monitoring period that *Persoonia bargoensis* was below the Spring 2022 (Before) data. The mean count of individuals shows that sites TF2, TF4 and TF6 have a greater mean than the original individual count in September 2022, prior to mining disturbance.

Given the fluctuations in the data, it is unlikely that these species would be significantly impacted by mining, therefore these results are more likely due to differences in site location and response to weather events such as high or low rainfall.

Amphibian Monitoring

Autumn 2024

There was a significant effect of Control-Impact on frog detections for all data (frog numbers are significantly higher at Control Sites when compared to Impact Sites), but no significant Before-After and BACI interaction effects. There was a significant BACI interaction for frog communities for Autumn 2024 data. Meaning, frog numbers at control and impact Sites are shifting in different ways before and after mining. Impact site frog abundance is significantly lower than control Sites, however, there is an overall increase in frog numbers at impact Sites, whereas frog numbers at control Sites are relatively stable.

At the time of Autumn 2024 monitoring, there was a significant rainfall event preceding surveys which sustained moderate to high flow at all watercourses.

Frog detection rates were variable across Autumn monitoring events. The species driving this variation was the Common Eastern Froglet (Crinia signifera).

A total of six frog species were detected across the Autumn 2024 monitoring event, with two species detected across Impact Sites and six species across Control Sites. This represents an increased level of species detection observed across both Control and Impact monitoring Sites in comparison to the Autumn 2023 surveys.

The targeted threatened frog species has not been detected within the Study Area during the monitoring program. While the Study Area contains superficially suitable habitat, it is possible that these species would no longer be able to survive in the area due to number of factors such as:

- Past disturbance events (e.g. black summer bushfires, and significant flooding events)
- Increased urban encroachment resulting in habitat removal, altered hydrological flows, water quality and nutrient loads.
- Potential predation pressures from two introduced predators: Eastern Gambusia (Gambusia holbrooki) and the Yabby (Cherax destructor), both of which were detected at all Sites.

Spring 2024

A high rainfall event occurred on or preceded surveys and sustained suitable waterways for the duration of Spring 2024 monitoring for amphibian surveys.

No threatened frogs, including Red-crowned Toadlet (*Pseudophryne australis)* and Giant Burrowing Frog (*Heleioporus australiacus),* were detected during Spring 2024. These species have not been detected for the life of the monitoring project. Both Red-crowned Toadlet and Giant Burrowing Frog are highly susceptible to predation and erratic fluctuations in water levels in the early stages of their lifecycle. Giant Burrowing Frog is known to have a long tadpole stage, which would make the species vulnerable to predators such as the Eastern Gambusia (*Gambusia holbrooki)* and the Freshwater Crayfish (*Cherax destructor),* which are widespread and have been recorded at most monitoring Sites.

Spring 2024 surveys recorded 128 individual amphibians across nine species. The most commonly detected species was the Common Eastern Froglet (*Crinia signifera),* which was the only species recorded within the Impact sites. In contrast, nine species were detected within the Control sites. Amphibian abundance was lower at Impact Sites compared to Control Sites, which is a consistent trend.

Statistical analysis did not detect any significant interactions with amphibian assemblages, but did detect a significant difference between amphibian assemblages in Autumn and amphibian assemblages in Spring, indicating that any changes in vegetation assemblages through the monitoring period were influenced by seasonal variability, but occurred similarly at the Impact and Control sites through time.

No thresholds in relevant TARPs from the Biodiversity Management Plan have been triggered for amphibians and riparian vegetation. It is recommended that annual monitoring continue in Spring and Autumn of 2025. This will allow comparison between impact and control sites, Before and After mining impacts, and to allow for temporal changes to be assessed as the project progresses while increasing the power of the statistical analyses.

12.3.4 Further Improvements

Ecological survey assessments will continue to be undertaken as required to manage compliance and assess potential impact across all Tahmoor Coal's mining domains and in accordance with the Redbank and Myrtle Creek Corrective Management Action Plan, the LW S1A-S6A Biodiversity Management Plan, and preparation for the Tahmoor South B series longwalls.

This information has been retracted
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12.4 Aboriginal Cultural Heritage

For the Tahmoor South mining area, an Extraction Plan for LW S1A- S6A was developed and approved by DPHI in 2022 with an accompanying Heritage Management Plan (HMP) identifying 3 Aboriginal sites recorded in the A-series study area, comprising 2 artefact sites and a rockshelter with art and artefacts (Teatree Hollow 2013.1 (#52-2-4471)). The HMP has been developed to provide direction on the management of Aboriginal cultural materials that may interact with the proposed development activities.

One of the requirements as part of the HMP was the proactive investigation of a documented rockshelter, Teatree Hollow 2013.1 (AHIMS #52-2-4471), situated on the eastern bank of Teatree Hollow Creek. While the site was considered of very low risk of being adversely affected by the undermining of the locale, discussions with Heritage NSW and the registered Aboriginal parties sought to obtain some archaeological information from the site prior to the development activities should harm and/or destruction ultimately result. An archival recording of the site was completed during the previous reporting period, which fulfilled the requirement to collect additional archaeological information prior to potential impacts from mining.

In accordance with the Aboriginal heritage monitoring program as set out in the LW S1A-S6A HMP, an inspection was undertaken by a qualified archaeologist on the 12 April 2024 following the end of extraction of LW S2A and on 3 December 2024 following the end of extraction of LW S3A. Outcomes of the inspection revealed the rockshelter condition appeared in a similar condition to when previously visited by these personnel as part of archaeological excavations in November 2022. The site inspection did not identify any observable impacts such as cracks, exfoliation, or collapse, as a result of subsidence or other activities. Further, the floor of the rockshelter showed no evidence of recent rockfall or other moved material that may suggest collapse or movement has occurred. As no subsidence related impacts were observed, no additional management strategies are required.

12.4.1 Further Improvements

Aboriginal cultural due diligence assessments will continue to be undertaken by qualified Aboriginal cultural consultants as required to identify items of significance and propose mitigation measures to ensure compliance with statutory requirements across all mining domains. In addition, the Tahmoor South Aboriginal heritage monitoring program will continue to be implemented in accordance with the LW S1A-S6A Heritage Management Plan. Tahmoor Coal aims to maintain valued working relationships with local Registered Aboriginal Parties (RAPS) throughout the mining process.

12.5 Historical Heritage

The LW S1A-S6A Heritage Management Plan (HMP) for the Tahmoor South Domain has been developed which identifies the monitoring and management measures for historical heritage items within the Extraction Plan Study Area that are required to be implemented to demonstrate that the relevant performance measures are achieved. The HMP focused on Aboriginal and historical heritage items listed on heritage databases, and Aboriginal and historical heritage items identified in the Study Area during site investigations.

Within the Study Area one heritage item, Wirrimbirra Sanctuary (now known as the Australian Wildlife Sanctuary) is of State heritage significance and is listed on the State Heritage Register for its historical heritage values, research potential, rarity and associative values (refer to **Figure 17**). Wirrimbirra Sanctuary is also listed on the National Trust Register and the Wollondilly Local Environment Plan (WLEP) (2011). A site-specific management plan for the Sanctuary was developed as a stand-alone document. The *Australian Wildlife Sanctuary Management Plan* includes a Statement of Heritage Impact (EMM, 2020) that was prepared in consultation with the National Trust and NSW Heritage Council.

Wirrimbirra Sanctuary and Bargo Cemetery are the two registered items of local heritage significance (WLEP 2011) within the Study Area and there are three additional items of local heritage significance that are outside the Study Area but may be subject to far field movement, (i.e. Picton Weir, Bargo Railway Bridge North (known as the Wellers Road Overbridge) and Bargo Railway Viaduct). Bargo Railway Bridge North is also listed on the CRN S170 Register.

Two unregistered heritage sites were identified by Niche (2020): the Great Southern Road in Bargo (c.1820) and Tahmoor Colliery (c.1972) (also known as the Tahmoor Mine site). Approximately 550 m of the Great Southern Road at its northern end are located within the Study Area. The road has had many subsequent upgrades and parts of the original road are no longer in use. Tahmoor Colliery was identified in the *Macarthur Heritage Study* (1986) as Item #509 but is not listed on any of the heritage registers.

The following changes were observed at the Tahmoor Mine Site during the reporting period:

- *A new cracking observed in the* eastern and southern walls of the 6C tunnel from 22 January 2024 onwards at location of cracking identified during LW S1A. The eastern wall crack measured to be approximately 3 m long. The most significant cracks on the western wall adjacent to the ventilation shaft are approximately 1.2 mm wide
- and minor growth in ground shortening between BL600 and BL700 to 14 mm in the rail loop long bay length survey.
- Additionally, a new vertical crack was identified on 6 November 2024 on the surface of the northern facing reinforced concrete element of the 1200t raw coal bins that the two silos together. The vertical crack width varies from hairline to approximately 1.5mm. The length of the crack extends from approximately 3m above ground level to 5m below the top of the silo wall (refer to Appendix H for detailed inspection report). It should be noted that a number of pre-existing vertical cracks were identified on the silos and unreinforced concrete element during the pre-mining inspection.

During the reporting period, the Tahmoor Mine Site remained safe and serviceable.

The impacts noted above resulted in Level 1 TARP triggers of the TARP HMP2 (historical heritage items) as per LW S1A- LW S6A Heritage Management Plan:

- *Historical heritage site monitoring indicates potential detectable environmental consequences with negligible impacts to the heritage value of the heritage site.*

The level 1 triggers required that a qualified archaeologist or heritage architect be consulted in order to determine whether impacts to heritage sites have occurred, which was completed during the reporting period. A review of hairline cracks in the 6C Tunnel and vertical crack on the 1200t raw coal bins were considered to be minor and, if required, could be repaired in a manner that preserves the heritage value of the mine. Furthermore, the Tahmoor Mine Site is a working site and minor impacts such as hairline cracks are unlikely to affect its heritage values. In addition, Tahmoor Coal restressed the rail loop track at the completion of LW S2A.

During the reporting period, no other impacts to historical heritage items were reported in relation to LW S2A and LW S3A mining. Monitoring and management measures are detailed within the Extraction Plans and assessment of monitoring results reviewed in the two (2) Six Monthly Reports: Tahmoor South Six Monthly Report 4 and Tahmoor South Six Monthly Report 5 (**Appendix 11** and **Appendix 12** respectively).

12.5.1 Further Improvements

Historical heritage due diligence assessments will continue to be undertaken by qualified consultants as required to identify items of significance and propose mitigation measures to ensure compliance with statutory requirements across all mining domains. In addition, the Tahmoor South Domain historical heritage monitoring program will continue to be implemented in accordance with the LW S1A-S6A Heritage Management Plan.

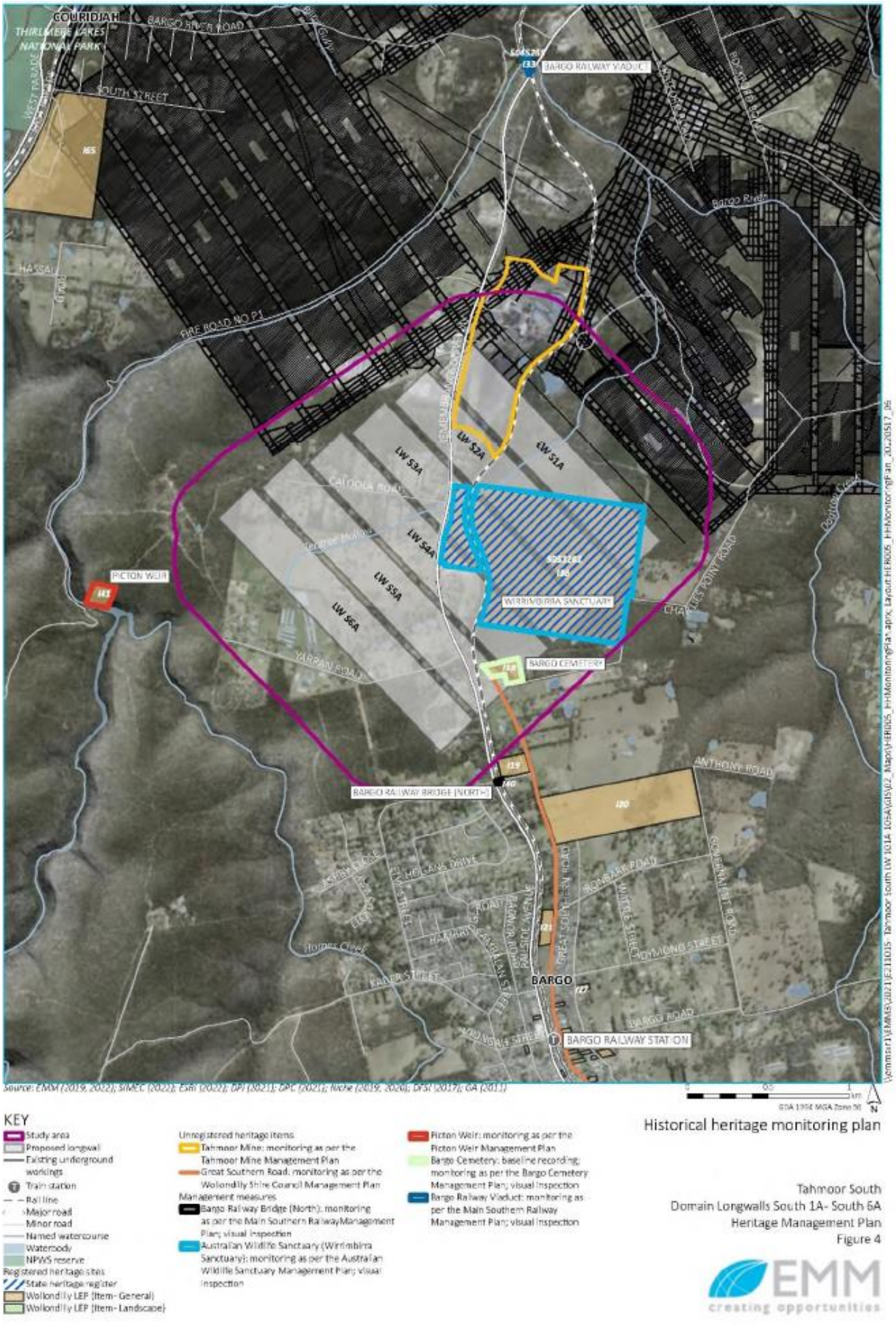


Figure 17 Historical heritage sites identified within the Tahmoor South Study Area.

12.6 Built Features Monitoring

12.6.1 Western Domain

The Tahmoor Western Domain Residual Subsidence Monitoring Plan has been implemented following the extraction of Longwall West 1 to West 4 to monitor residual subsidence on infrastructure owned by Wollondilly shire Councils (roads), ARTC (rail infrastructure), Transport Heritage NSW (rail infrastructure) and Transport for NSW (Victoria Bridge). Monitoring of the above assets was completed during the reporting period.

Further details of subsidence data and residual subsidence movements relating to the above are provided in the Quarterly Western Domain Residual Subsidence Monitoring Reports in **Appendix 13**.

12.6.1.1 Main Southern Railway

Continuous GNSS monitoring was conducted during the monitoring period along the main southern railway at the Picton Tunnel (site 1), Picton Viaduct (site 0 and site 2), 88.78 km (site 26) and 88.60 km (site 27) per residual subsidence monitoring plan. The results indicated small to very minor changes in subsidence for all monitoring sites, with all changes being less than the respective triggers of 20mm in change in subsidence or 5mm in change in distance.

12.6.1.2 Transport Heritage NSW - Picton Mittagong Loop Line

Continuous GNSS monitoring was conducted during the monitoring period along the Picton Mittagong Loop Line, including at 87.500 km culvert (site 7), above LW W1 at 88.550km (site 9) and above LW W2 at 88.110km (site 8), 89.000 km (site 10), 89.629 km (site 11) and 89.440 km (site 19) as per residual subsidence monitoring plan. The results showed very minor changes in subsidence for all monitoring sites with all changes being less than the respective triggers of 20mm in change in subsidence or 5mm in change in distance, except for GNSS site 10 at 89.000 km,

GNSS site 10 at 89.000 km recorded changes in subsidence exceeded 20mm trigger intermittently between 30 October 2024 and 15 December 2024 (blue trigger) but has since risen upwards and has not exceed the trigger level since (green trigger).

In accordance with the Western Domain Residual Subsidence Management Plan, the following a review of the data with the IMG, the following measures were implemented as per Western Domain Residual Subsidence monitoring TARP:

- Notification to the asset owner (Transport Heritage NSW)
- Adjust the trigger by 20mm (step change) and keep monitoring

12.6.1.3 Transport for NSW – Victoria Bridge

Continuous GNSS monitoring was conducted during the monitoring period on the eastern abutment (site 3) and western abutment (site 25) of Victoria Bridge over Stonequarry Creek as per residual subsidence monitoring plan. The results indicated minor to very minor changes with the change in subsidence less than 20mm trigger. Very minor ongoing change in distance was noted with the changes less than 5mm trigger.

It was noted that GNSS unit site 25 on the western abutment was offline since 17 December 2024 and was repaired on 7 January 2025.

12.6.1.4 Centreline of Longwall West 4

Continuous GNSS monitoring was conducted during the monitoring period on the on the centreline of LW W4 (site 24) as per residual subsidence monitoring plan. The results indicated a trend of ongoing subsidence with rates reducing since November 2023 with a total subsidence 0f 725mm.

It was noted that the GNSS unit was producing erratic results in March 2024, the GNSS chip was replaced in April 2024.

12.6.2 Tahmoor South Domain

The LW S1A-S6A Built Features Management Plan and associated sub-plans were prepared to manage the potential environmental consequences of LW S1A-S6A extraction on built features in accordance with Condition C8 of SSD 8445.

During this reporting period, the LW S1A-S6A Subsidence Monitoring Program was implemented to monitor subsidence impacts on infrastructure owned by Wollondilly Shire Council (roads, bridges and culverts), ARTC (rail infrastructure), Sydney Water (potable water infrastructure and sewer infrastructure), Endeavour Energy (electrical infrastructure), Jemena (gas infrastructure), Telstra (telecommunications infrastructure), NBN (telecommunications infrastructure), TPG (telecommunications infrastructure) and private property owners.

A weekly review of the subsidence survey results during the reporting period has been completed during mining of LW S2A and LW S3A. In addition, weekly reports are prepared for specific built features including the Main Southern Railway, Tahmoor Mine Site, 3030 Remembrance Driveway (Petrol Station), MKD Machinery, Tahmoor Garden Centre, Wollondilly Anglican College, and Australian Wildlife Sanctuary.

12.6.2.1 Main Southern Railway

Weekly surveys have been conducted on the Main Southern Railway during LW S2A and LW S3A. Rates of change have reduced to very low levels. During the reporting period, the following changes were noted:

- Minor changes observed during the absolute 3D survey of the embankment and culvert at 99.338 km on 6 March 2024. This minor change consisted of minor closure on the Upside and minor extension across the crest at this location
- Non-conventional subsidence developed near 99.62 km and 99.56 km in August 2024 resulting in up to 1.8mm/m compressive ground strains. This caused a change in rail alignment observed from visual inspection at 99.625km to 99.635km resulted in a Yellow trigger and requiring track speed restriction. This resulted in a Yellow trigger. Rates of change have reduced to low levels along the railway. The temporary speed restriction has been removed on both tracks since 24 November after track geometry was adjusted. A final survey for LW S3A was conducted on 20 December 2024.

During the reporting period, there were no adverse impacts were observed on bridges or the Viaduct. In addition, the Main Southern Railway was maintained in a safe and serviceable conditions during mining of LW S2A and LW S3A.

12.6.2.2 Local Roads and Bridges

Monthly and weekly surveys have been conducted on local roads and bridges during LW S2A and LW S3A in accordance with the Wollondilly Shire Council Management Plan, Jemena Management Plan, Sydney Water Potable Water Management Plan, Sydney Water Sewer Management Plan and Telecommunication Management Plan. Observations have been reported in the weekly Subsidence Monitoring Reports.

12.6.2.3 Remembrance Driveway

Rates of change in compressive ground strain have reduced on Remembrance Driveway following the completion of LW S2A (including at previous impact site where non-conventional subsidence movements were observed, Peg R46 to R48). Tahmoor Coal completed the resurfacing of the road adjacent to peg R47 on 5 February 2024 and 9 April 2024 to remove the bump.

On 26 February 2024 (during the mining of LW S2A), increase compressive strain was observed between Pegs R54 and R55, accompanied by a small bump in the observed subsidence profile at Peg R54. This bump extended across the southbound land and into the northbound lane, however, did not represent a safety hazard on the road. No significant changes were observed during a visual inspection on 30 April 2024.

On 22 April 2024, a very minor bump was observed in the northbound land of Remembrance Drive near Peg R61. No significant changes were observed during a visual inspection on 30 April 2024.

Due to the extraction of LW S3A, Remembrance Drive has experienced the most active period of subsidence with rates of change reducing. The observed subsidence profile is relatively smooth, with compressive strains developing broadly above the central section of LW S3A (Refer to **Figure 18**). A final survey was conducted on 21 January 2025, the data confirmed that the rate of change have reduced to low levels.

Remembrance Driveway remained safe and serviceable during the monitoring period.

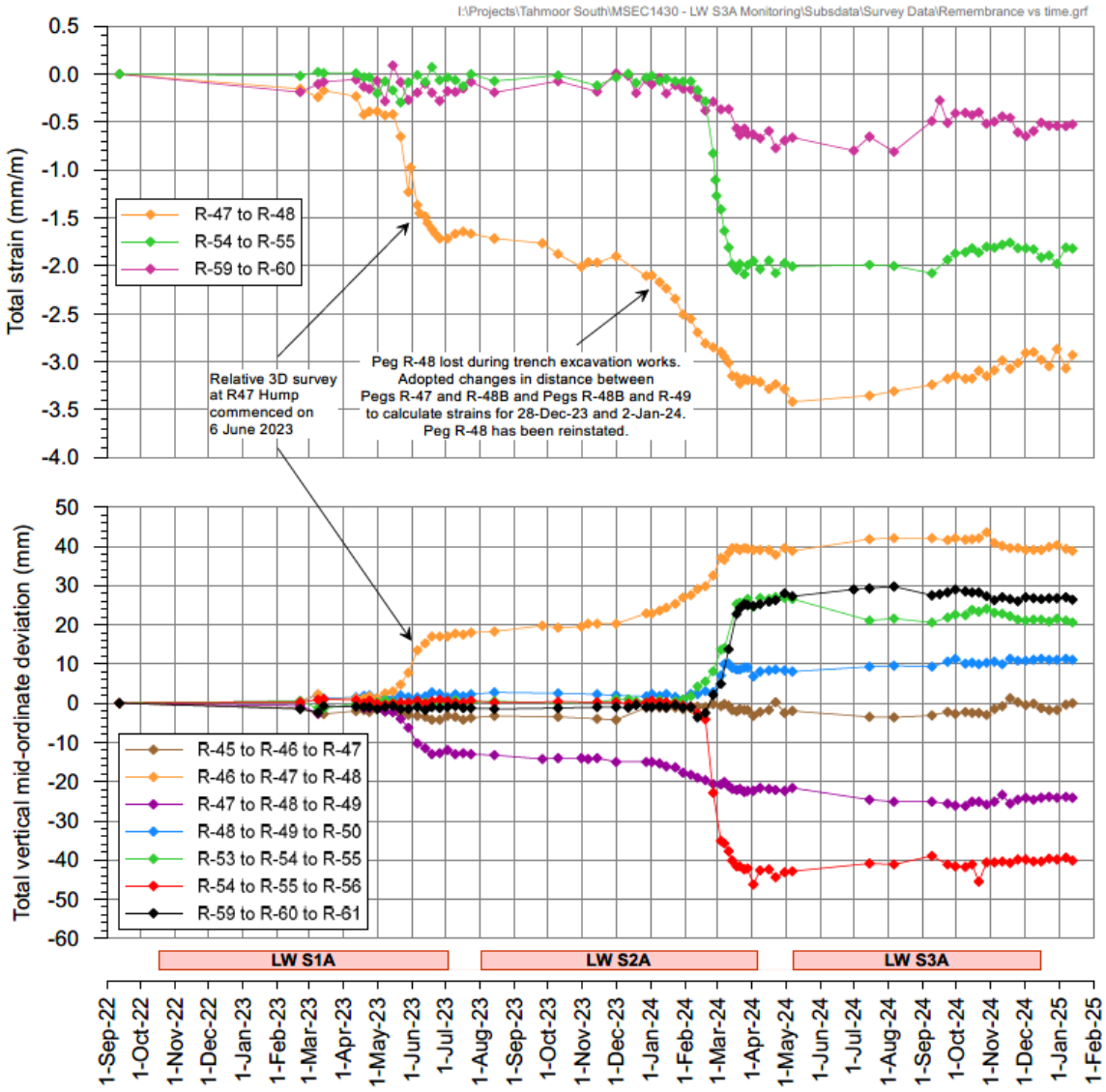


Figure 18 Observed development of ground strain and changes in vertical alignment at previously observed impact sites along Remembrance Drive.

Charlies Point Road

Ground surveys have been conducted along Charlies Point Road and completed on 2 July 2024 with very minor changes observed. An end of panel visual inspection was completed on 13 December 2024. Visual inspections have not identified any issues.

Caloola Road

Caloola Road has experienced the most active period of subsidence due to the extraction of LW S3A, with rates of change reducing. The observed subsidence profile is relatively smooth, with minor ground strains currently observed (Report MSEC 1430 R34, **Appendix A**). No issues were observed from visual inspections.

Bridges

Surveys of Arina Road Bridge and Rockford Road Bridge on 23 August 2024 measured very minor changes. Visual inspections of Arina Road Bridge and Rockford Road Bridge on 9 October 2024 found no issues.

12.6.2.4 Potable Water Infrastructure

Monthly and weekly surveys have been conducted on local roads and bridges during LW S2A and LW S3A in accordance with the Wollondilly Shire Council Management Plan, Jemena Management Plan, Sydney Water Potable Water Management Plan, Sydney Water Sewer Management Plan, and Telecommunication Management Plan (Telstra, NBN and TPG). Observations have been reported in the weekly Subsidence Monitoring Reports.

During mining of LW S2A, Compressive strain was observed between Pegs R54 and R55 on 26 February 2024, accompanied by a small bump at Peg R54. A very minor bump was also observed near Peg R61 on 22 April 2024. Compressive ground strains have developed during mining of LW S3A, adjacent to the 450mm diameter DICL water main (near Remembrance Drive Embankment at Caloola Road), rates of change have reduced to low levels. Minor changes have been observed on the four Gibault joints of the 100 mm water main on Caloola Road.

Ground survey data of Remembrance Drive embankment at Caloola Road in late September 2024 measured increased closure between Pegs R-76C and R-78C, which exceeded the combined increased closure measured at the Gibault joints. This observation suggested that existing pipe joints had been closing in addition to the Gibault joints. Minor changes have been observed since early October, with a very small jump in closure detected at the end of November and another in mid-January. Whilst non-conventional subsidence movements have not been identified, Tahmoor Coal have been conducting twice weekly focussed ground surveys along the C-Line and increased visual inspections three times a week with no concerns observed. Tahmoor Coal has also notified the landowner where the pipeline crosses through the private property outside Pegs R-79C and R-80C. The survey frequency returned to weekly as rates of change reduced. The frequency of visual inspections reduced from three times a week to weekly.

No impacts to Sydney Water potable water infrastructure were observed during the reporting period.

12.6.2.5 Sewer Infrastructure

Monthly and weekly surveys have been conducted on local roads and bridges during the mining of LW S2A and LW S3A in accordance with the Wollondilly Shire Council Management Plan, Jemena Management Plan, Sydney Water Potable Water Management Plan, Sydney Water Sewer Management Plan and Telecommunication Management Plan (Telstra, NBN and TPG). Observations have been reported in the weekly Subsidence Monitoring Reports. No impacts to Sydney Water sewer infrastructure was observed during the reporting period.

12.6.2.6 Gas Infrastructure

Monthly and weekly surveys have been conducted on local roads and bridges during LW S1A and LW S2A in accordance with the Wollondilly Shire Council Management Plan, Jemena Management Plan, Sydney Water Potable Water Management Plan, Sydney Water Sewer Management Plan, and Telecommunication Management Plan (Telstra, NBN and TPG). Observations have been reported in the weekly Subsidence Monitoring Reports.

During mining of Longwall LW S2A, compressive strain was observed between Pegs R54 and R55 on 26 February 2024, accompanied by a small bump at Peg R54. A very minor bump was also observed near Peg R61 on 22 April 2024. It is noted that no odours were detected during visual inspections.

During the extraction of LW S3A Remembrance Drive has experienced the most active period of subsidence with rates of change reducing. The gas pipeline was exposed along the section of Remembrance Drive embankment where it crosses Teatree Hollow, as planned. Monitoring has

been conducted during the period of active subsidence. The measured compressive ground strains have exceeded 1.5 mm/m (however remains below the TARP trigger of 2mm/m), between Pegs R76 and R78, which are located at either end of the trench causing the pipe to bow outward and to press against the trench wall. Following a review of the inspection finding with Jemena the following additional management measures were implemented:

- Widen to the trench to remove the second bow. Tahmoor Coal widen the trench on 9 October 2024 under supervision of Jemena and successfully removed the second bow;
- Undertake twice weekly strain focused ground surveys and visual inspection during the period of most active subsidence;
- Regular meeting with Jemena (once a week during most active period of subsidence) to discuss survey and visual inspection findings;
- The pipe was repositioned in December 2024 and January 2025 and has been buried as per approved methodology by Jemena in January 2025;
- Engineering analyses have confirmed that pipeline stresses have reduced and are within acceptable levels for managing potential future impacts due to the extraction of LW S4A.

The gas infrastructure remained safe and serviceable during the monitoring period.

12.6.2.7 Electrical Infrastructure

Ground surveys of critical power poles are conducted when Endeavour Energy electrical poles are within the active subsidence zone. Observations have been reported in the weekly Subsidence Monitoring Reports. Observations on Remembrance Drive not adversely affect Endeavour Energy infrastructure during the reporting period. No impacts to Endeavour Energy electrical infrastructure was observed during the reporting period.

12.6.2.8 Telecommunications Infrastructure

Monthly and weekly surveys have been conducted on local roads and bridges during LW S2A and LW S3A in accordance with the Wollondilly Shire Council Management Plan, Jemena Management Plan, Sydney Water Potable Water Management Plan, Sydney Water Sewer Management Plan, and Telecommunication Management Plan (Telstra, NBN and TPG). Observations have been reported in the weekly Subsidence Monitoring Reports.

non-conventional subsidence developed near 99.62 km and 99.56 km on the rail corridor in August 2024 resulting in compressive ground strains. Visual inspections indicated that surface cracks were present intersection the Telstra's optical fibre cable. The following changes were observed during the monitoring period:

On 27 august 2024, Tahmoor Coal advised Telstra of an increased ground strain (below the 1.5mm/m trigger level as per Telecommunication Management Plan TARP) in the rail corridor at 99.625 km. Telstra advised on 27 August 2024 that a minor indication of loss (0.2dB) was observed from OTDR monitoring. Cracking and shearing has be observed on the ground surface to intersect the buried cable. Tahmoor Coal excavated a narrow trench on 3 September 2024 to relieve the stress on the fibre optic cable. After the cable was free to move in within the trench, Telstra recorded an improvement in performance of approximately 0.3dB when compared to previous test. The trench was then backfilled as per Telstra specifications.

On 9 September 2024, additional cracks were observed across the Telstra optical fibre cable at 99.56 km. A loss of signal strength was observed by remote monitoring on Telstra's optical fibre cable on 10 September 2024 and was followed by a notification to Tahmoor Coal.

The loss of signal strength exceeded trigger levels in the Telecommunication Management Plan.

In accordance with the Telecommunication Management Plan, Tahmoor Coal completed the following actions:

- Tahmoor Coal IMG met on 10 September to review subsidence and strain data in the locations where surface cracks were observed in the rail corridor (locations 99.400-99.460 km and 99.560-99.568km). The review did not identify high strains at the locations.
- Tahmoor Coal uncoupled and exposed the buried cable at both locations on 11 September 2024. A kink was found in the cable and was relieved manually.
- OTDR testing by Telstra on 11 September identified that the signal was back to baseline with no ongoing losses detected
- Tahmoor Coal backfilled the exposed section of buried cable as per Telstra procedure.
- A debrief meeting was held with Tahmoor Coal and Telstra regarding the uncoupling. It was noted that a Red alarm was identified on 7 September, however it was not reported to Tahmoor Coal. It was agreed that Telstra would review internal communications to ensure prompt notifications on any loss in critical areas.
- Tahmoor Coal to continue to keep Telstra informed on the status of ground movements, visual inspections and OTDR.

The telecommunication infrastructure remained safe and serviceable during the monitoring period.

12.6.2.9 Built Structures (General)

During this reporting period, there have been no triggers under this TARP.

12.6.2.10 Wollondilly Anglican College

Subsidence Status Reports have been prepared for the Wollondilly Anglican College, which summarise monitoring and inspection results for the Remembrance Driveway, monitoring lines between college buildings, structures, fence lines, dams, and sensitive equipment. Visual inspections were conducted weekly at the property during the extraction of LW S2A and from 1400m extraction until end of LW S3A panel as per Amendment 1 to Wollondilly Anglican College Management Plan.

During the reporting period and the mining of LW S2A and LW S3A, the following observations were made:

- A gate to side of Clifford Warne Auditorium was noted to have jammed in February and March 2024, having already been repaired as a result of similar impacts observed during LW S1A mining;
- A gate on the opposite side of the Clifford Warne Auditorium was also noted to have slightly pulled apart;
- Impacts to pavement and brick walls between the Shoulder to Shoulder Shelter and Canteen were observed. A depression in the walkway pavement outside the Assembly Awning on the canteen side was also observed;
- Cracking in the brick retaining structures at a set of stairs and an observed dip in the pavement leading to the stairs were noted;
- Ground cracking was observed along the southern wall of Clifford Warne Auditorium;
- The Johnson Building was reported to develop cracking, however this was noted not to be associated with mining impacts;

- The garden access gate at Quarmby Cottage was noted to have jammed; and
- A gate at the northeastern corner of White Cottage was noted to be self-closing intermittently.

The above observations exceeded the trigger level in the Wollondilly Anglican College Management Plan.

In accordance with the Wollondilly Anglican College Management Plan, Tahmoor Coal completed the following actions:

- The gate to the side of Clifford Warne Auditorium was removed, resized and reinstalled on 5 February 2024, and repaired again on 21 March 2024. The gate on the opposite side of Clifford Warne Auditorium was repaired on 28 February 2024. The gate on the north-eastern corner of White Cottage was repaired;
- A TARP Trigger Notification was provided to Wollondilly Anglican College, Resources Regulator and Subsidence Advisory NSW on 13 February 2024;
- A structural inspection of the depression and cracking near the set of stairs was completed on 15 February 2024 and noted that impacts were cosmetic in nature. A temporary barrier at the steps was installed to ensure no further access. Tahmoor Coal's Structure Review Committee (SRG) attended and observed the location for the damage and potential mechanism from mining impact; and
- Tahmoor Coal completed concrete pavement and brickwork repairs and the installation of expansion joints on 26 April 2024.

These triggers were resolved at the end of the LW S2A monitoring period (3 May 2024), and no new triggers have been observed during the extraction of LW S3A.

12.6.2.11 Tahmoor Mine Site

Monthly and weekly surveys were conducted at the Tahmoor Mine Site during LW S2A in accordance with the Tahmoor Mine Site Management Plan. Weekly Subsidence Status Reports have been prepared for the Tahmoor Mine site, which summarise monitoring and inspection results for general mine site monitoring, the stockpile area (including conveyor 5C and reclaim tunnel conveyor 6C), overhead conveyors, drift, winder, rail loop, mine site structures, overhead crane and monorails, shaft No. 3, dams, embankments and site services, and the refuse emplacement area. During extraction of LW S3A, inspections and monitoring were conducted at the Tahmoor Mine Site in accordance with the Tahmoor Mine Site Management Plan and additional monitoring commitments as outlined in an email to the NSW Resources Regulator on 6 May 2024 (available on request). The monitoring program included the following:

- Continuous GNSS monitoring, including at the Gantry and Site S16 (shaft site);
- Continuous tilt monitoring at the Gantry;
- Continuous expansion joint monitoring by displacement sensor and tilt monitoring at Trestle T4 on the 5C conveyor;
- Continuous stress monitoring at Trestle T4;
- Continuous tilt monitoring at Winder, Raw Coal Bins and Shaft Site;
- Weekly surveys along the Main Southern Railway, Remembrance Drive when within the active subsidence zone;
- Weekly inspections and reporting when within the active subsidence: 6C tunnel, 5C, 7C, 4C and 4S conveyors;
- End of Panel survey of the mine site after the mining of LW S3A.

During the reporting period, the following changes were observed:

- Minor new cracking observed in the eastern and southern walls of the 6C tunnel from 22 January 2024 onwards at location of cracking identified during LW S1A. The eastern wall crack measured to be approximately 3 m long. The most significant cracks on the western wall adjacent to the ventilation shaft are approximately 1.2 mm wide; and
- Minor growth in ground shortening between BL600 and BL700 to 14 mm in the rail loop long bay length survey.
- A vertical crack was identified on 6 November 2024 on the surface of the northern facing reinforced concrete element of the 1200t raw coal bins that links the two silos together. The vertical crack width varies from hairline to approximately 1.5mm. The length of the crack extends from approximately 3m above ground level to 5m below the top of the silo wall. It should be noted that a number of pre-existing vertical cracks were identified on the silos and unreinforced concrete element during the pre-mining inspection.

These observations exceeded the trigger level according to the Tahmoor Mine Site Management Plan. The following actions and responses were completed:

- Minor cracks observed in 6C Tunnel: A structural engineer inspected the cracks in the 6C Tunnel on 25 March 2024 and reported no immediate or safety concerns.
- Ground shortening between BL600 and BL700 in the rail loop: Tahmoor Coal engage a rail contractor to restress the rail loop at the completion of LW S2A.
- Crack observed on the 1200t Raw Coal bin unreinforced concrete web: Structural inspection by Structural Engineer on 15 November 2024. No safety concerns reported.

The mine site remained safe and serviceable during LW S2A and LW S3A extraction.

12.6.2.12 Australian Wildlife Sanctuary

Weekly Subsidence Status Reports have been prepared for the Australian Wildlife Sanctuary during active subsidence, which summarises monitoring and inspection results from relevant GNSS units, ground survey (Tahmoor Mine Boundary line (V line), survey and visual inspections of Main Southern Railway, local streets, structures; and natural features observations.

During the reporting period and the mining of LW S3A, the following impacts to fences and gates have been observed at this property.

- On 28 August 2024, cracks observed in adjacent railway cutting have extended into the Australian Wildlife Sanctuary property, where a compression hump is developing to the northeast and through the new Tassie Devil enclosures affecting the functionality of the gates. Four gates have been repaired to ensure that they remain safe and serviceable.
- On 11 September 2024, A new timber and steel-framed gate between animal enclosures is out of alignment and cannot be properly closed. Ground movement has been observed in this location and Colorbond fences have buckled. Additional repairs were carried out to gates. Trip hazards formed in gravel footpaths have also been repaired.
- On 18 September 2024, the Northern gate of the Tasmanian Devil enclosure was found to be catching and has been repaired.

These observations exceeded trigger level in the Management Plans for the Australians Wildlife Sanctuary (refer to trigger "Impacts Observed Generally"). All gates and trip hazard have been repaired, The Australian Wildlife Sanctuary remained safe and serviceable during the reporting period.

12.6.2.13 Bargo Petroleum

Weekly Subsidence Status Reports have been prepared for the Bargo Petroleum (3030 Remembrance Drive), which summarise monitoring and inspection results from survey and visual inspections on Remembrance Driveway and structures, fuel balance monitoring and pressure testing of fuel tanks and fuel lines, hydrocarbon testing and visual inspections of groundwater, and alignment survey of vehicle hoists.

During the reporting period and the mining of LW S2A and LW S3A, the following observations were made:

- On 16 April 2024, a vehicle hoist was measured to be out of alignment and was tagged "out of use"; and
- On 22 April 2024, several internal doors were observed to be misaligned and close to jamming.

The above observations resulted in an exceedance of the trigger level in the 3030 Remembrance Driveway Management Plan.

In accordance with the 3030 Remembrance Driveway Management Plan, Tahmoor Coal completed the following actions:

- A structural inspection of the vehicle hoist was completed on 16 April 2024. Tahmoor Coal immediately advised the tenant that the 3T vehicle hoist could not be used due to the tilt observed. On the same day, Tahmoor Coal demarcated the 3T vehicle hoist and attached an 'Out of Service' tag to cease use;
- Tahmoor Coal arranged a slab survey on 18 April 2024 which confirmed the observed strain between Pegs 10 and 14;
- Tahmoor Coal scheduled a hoist specialist to conduct an inspection on 22 April 2024 to provide a remediation scope. The recommendations were to complete core holes to determine concrete thickness and integrity; and
- A TARP Trigger Notification was provided to the landowners, Bargo Petroleum (Lessee), Prestige Car Restoration (Sub-Lessee), Resources Regulator and Subsidence Advisory NSW on 23 April 2024.

The following actions were proposed for completion:

- Complete core hole investigation to determine concrete integrity (subject to agreement);
- Review of core sampling by Structural Engineer to provide input into footing design;
- Install replacement hoist (subject to agreement).

These actions have not been able to be completed due to refusal of entry to the Prestige Care Restorations Workshop by the owners of the property for Tahmoor Coal personnel and contractors.

Where access is possible, the current monitoring program have continued in accordance with the 3030 Remembrance Driveway Management Plan.

No new triggers have been observed during the extraction of LW S3A.

12.6.2.14 Inghams Farms

During the reporting period, there were no triggers due to the mining of LW S2A and LW S3A under the Inghams Bargo Chicken Breeder Production Complex Management Plan and no impacts were observed at this property.

12.6.2.15 Tahmoor Garden Centre

Weekly Subsidence Status Reports have been prepared for the Tahmoor Garden Centre during active subsidence of LW S2A and S3A, which summarise monitoring and inspection results from the Remembrance Drive, structures, and outdoor storage racks.

During the reporting period and the mining of LW S2A and LW S3A, the following impacts have been observed at this property:

- On 23 October 2024 a 3mm opening of a concrete expansion joint was observed causing damage to the epoxy coating. The opening was repaired by Tahmoor Coal using flexible sealant.
- On 19 November 2024, further opening to the expansion joint in the café area was observed. The opening was further repaired by Tahmoor Coal using flexible sealant.

12.6.2.16 MKD Machinery

Weekly Subsidence Status Reports have been prepared for the MKD Machinery property during active subsidence of LW S2A and LW S3A, which summarises monitoring and inspection results from Remembrance Driveway, Main Southern Railway, structures, silo hopper tower, and visual inspections of the concrete plant, external pavement, fences and gates, and the pool. During the reporting period and the mining of LW S2A and LW S3A, no impacts to built features have been observed at this property.

12.6.2.17 Other Built Structures

The following built structures were located outside the active subsidence zone of LWS2A and LW S3A:

- Picton Weir;
- Bargo Cemetery;
- Bargo Valley Produce; and
- Canine Country Club.

Further details of impacts to Built Structures from LW S2A and LW 3A are found in the Tahmoor South Six Monthly Subsidence Impact Report 4 and Tahmoor South Six Monthly Subsidence Impact Report 5, **Appendix 11** and **Appendix 12** respectively.

12.7 **Public Safety**

The LW S1A-S6A Public Safety Management Plan was prepared to manage the potential consequences as a result of LW S1A-S6A extraction on public safety within the Study Area in accordance with Condition C8 of SSD 8445.

Management requirements for public safety are covered in the Built Features Management Plan and the Land Management Plan. Monitoring of cliffs, natural steep slopes and other landscape features has been conducted for the reporting period in accordance with the LW S1A-S6A Land Management Plan. In addition, monitoring of built features has been conducted for the reporting period in accordance with the LW S1A-S6A Built Features Management Plan. No subsidence impacts were identified during the reporting period that were considered to pose a risk to public safety.

12.8 Surface Water

In accordance with monitoring requirements of the Tahmoor South LW S1A-S6A Water Management Plan, Trigger Action Response Plans (TARPs) have been developed to class degrees of impact based on monitoring data and are reviewed regularly to track progression. Flow, pool level, surface water quality and visual creek inspection monitoring for natural drainage behaviour are monitored and reviewed in accordance with the relevant Water Management Plan. Review and interpretation of monitoring data, assessment against performance measures and performance indicators for surface water and groundwater, and any recommendations in relation to ongoing monitoring or corrective actions was undertaken during the reporting period.

During the reporting period the following TARP levels were triggered with further details given below and in the Tahmoor Coal Six Monthly Subsidence Impact Reports; Tahmoor South Reports 4 & 5 (**Appendix 11 and Appendix 12** respectively):

12.8.1 Tahmoor South Domain

Flow, pool water level, surface water quality and creek condition were monitored and reviewed on a monthly basis for Teatree Hollow, Teatree Hollow tributary ('Wirrimbirra Creek'), Bargo River, and Bargo River Tributary, as well as a fortnightly basis for impacted sites. Continuous surface water level data and manual monthly water level measurements have been recorded at seven monitoring sites on Teatree Hollow (and tributary) and six monitoring sites on Bargo River (and tributary).

Streamflow recorded from TT-F1 in Teatree Hollow indicate that streamflow is intermittent, with extended periods of no flow recorded prior to the commencement of mining of LW S1A. During Jan-June 2024, flow occurred intermittently in response to rainfall. The rate of streamflow decline recorded during the review period is consistent with historical declines, including the period prior to commencement of mining of LWS1A. From June to mid November 2024, generally below average rainfall conditions were recorded for the area. Above average rainfall was recorded from late November to early December 2024, followed by below average rainfall for the remainder of December 2024 (ATC Williams, 2025a).

12.8.1.1 Surface Water Quality TARP (WMP1)

Surface water quality data has been recorded at the following sites (refer to **Figure 19**)

- Teatree Hollow:
    - Reference site: TT1-QLa;
    - Potential impact sites: TT2-QLa, TT3-QLa, TT7-QLa, TT9-QLa, TT12-QLa, TT13-QLa, TT14-QLa;
- Bargo River:
    - Reference site: BR16-QLa; and
    - Potential impact sites: BR12-QLa, BR13-QLa, BR17-QLa, BR18-QLa.

Water quality data consisted of constituents which are considered to be primary indicators of mining. These constituents include pH, electrical conductivity (EC), and specific dissolved metals (aluminium, copper, iron, manganese, nickel and zinc).

Charts illustrating water quality results for monitored pools in Teatree Hollow and Bargo River are presented in Appendix B of **Appendix 12**.

The water quality characteristics of monitoring sites during the reporting period have been largely consistent with baseline conditions and / or consistent with reference site conditions.

TARP Triggers

The following TARP triggers occurred during the reporting period for surface water quality:

- During Jan-June 2024, there were no triggers under this TARP.
- During July-December 2024, a Level 1 TARP trigger occurred for monitoring site TT13-QLa for dissolved Zinc for 3 consecutive months (June-August). The elevated dissolved zinc concentrations recorded at pool TT13 are likely to be related to the interaction of underflow with subsurface geology (following the high rainfall event in June 2024) and re-emergence of elevated dissolved zinc underflow as surface flow in the vicinity of pool TT13. It is also noted that dissolved zinc concentrations recorded at TT13-QLa were only elevated from June to August 2024, declining to near baseline conditions in late 2024. Based on the water quality records for monitoring sites located downstream of TT13-QLa, there has not been a persistent effect to water quality associated with the temporary increase in dissolved zinc recorded at TT13-QLa. Accordingly, it is considered that water quality effects were limited to pool TT13 during the review period with negligible indication of material environmental harm to Teatree Hollow.

Actions in response to TARP triggers

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1, 2 and 3 TARP Triggers:

- Continue monitoring as per monitoring program - monthly monitoring is ongoing according to the monitoring program;
- Exceedance of the trigger level during the baseline period was reviewed. A Level 1 trigger was recorded for dissolved zinc at pool TT13 during the 1 July to 31 December 2024 review period. A Level 1 trigger for dissolved zinc was not recorded at pool TT13 during the baseline monitoring period;
- Continue monthly review of data and Water Quality trends along creek (upstream to downstream) to identify spatial changes with consideration to climatic conditions– completed on a monthly basis during the reporting period;
- Relevant information was obtained from key specialists necessary to inform assessment Report TARP triggers and investigation outcomes in Six Monthly Subsidence Impact Report and Annual Review;
- Reasonable and feasible options for remediation were considered. With respect to the water quality trigger exceedance recorded at TT13-QLa during the review period of 1 July to 31 December 2024, there are limited feasible corrective management actions (CMAs) that could be implemented prior to the cessation of subsidence movements associated with mining of LW S1A-S7A. Presently, there is negligible indication of a material impact to the water quality of Teatree Hollow, given that water quality effects were limited to pool TT13 during the review period. Accordingly, it is considered that there is negligible indication of

material environmental harm to Teatree Hollow. Therefore, no CMAs are not considered reasonable or feasible at this stage.

12.8.1.2 Stream Water Quality for other Water courses (Bargo River and Hornes Creek) (WMP2)

- During the reporting period there were no triggers under this TARP.

12.8.1.3 Pool Water Level for all Water courses within the Subsidence Area TARP (WMP3)

Surface water level data has been recorded at the pool monitoring sites on Teatree Hollow, Teatree Hollow Tributary (also known as Wirrimbirra Creek), Bargo River, and Bargo River Tributary. Continuous surface water level data and manual monthly water level measurements have been recorded at seven monitoring sites on Teatree Hollow (and tributary) and six monitoring sites on Bargo River (and tributary).

TARP Triggers

The following TARP triggers occurred during the reporting period for surface water level:

- **Monitoring site TT2:** Level 1 triggered in February; Level 2 triggered during March and April, 22 July-14 August and 4-6 December; Level 3 triggered during 30 August-29 November, 9-31 December 2024;
- **Monitoring site TT3:** Level 2 triggered in various periods during January, 3-4 July, 5-7 and 9-31 December; Level 3 TARP triggered between February and April, 14 July-29 November 2024:
- **Monitoring site TT7:** Level 1 triggered from March to April; Level 2 triggered during 17-29 September, 1-14 October, 27-31 December; Level 3 triggered during 30 October-29 November 2024.
- **Monitoring site TT9:** Level 1 triggered in February; Level 2 TARP triggered from March to April, 9-26 September, 7-14 October, 26 October-12 November, 22-29 November, 18-31 December 2024.
- **Monitoring site TT12:** Level 2 triggered during 22-27 July, 29 July-13 August, 5-6 and 9-31 December 2024; Level 3 triggered in various periods from January to May and 18 August-29 November 2024.
- **Monitoring site TT13:** Level 2 triggered in various periods from January to May 2024; Level 3 triggered during 30 July-30 November, 13-31 December 2024.

Water level monitoring will continue in accordance with the LW S1A-S6A Water Management Plan.

It is considered that the water level decline recorded at these monitoring sites during the review period is related to mining effects in combination with the prevailing climatic conditions.

Actions in response to TARP triggers

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1, 2 and 3 TARP Triggers:

- Continue monitoring as per monitoring program – monthly (or more frequent) monitoring is ongoing according to the monitoring program;
- Water level trends for all sites in Teatree Hollow and Teatree Hollow tributary were reviewed with consideration to climatic conditions;
- Streamflow data recorded at TT-F1 was reviewed and streamflow reduction assessment conducted. The streamflow assessment indicated that streamflow trends recorded at monitoring site TT-F1 in Teatree Hollow have been consistent with rainfall trends for the duration of the review period. It is also considered that the rate of streamflow decline recorded during the review period is consistent with historical declines, including periods prior to the commencement of mining of LWS1A;
- Relevant information was obtained from key specialists necessary to inform assessment;
- Trigger exceedance during the reporting period were notified to DPHI on 19 June 2024 (triggers for the January to March 2024 period). Notification to NRAR was required as part of the conditions of the Enforceable Undertaking (in force from 24 July 2023). Tahmoor Colliery Community Consultative Committee was advised of water level triggers on 6 June 2024 and 5 September 2024. Future meetings will include further notification of additional TARP triggers; and
- Trigger exceedances and outcomes have also been reported in the six monthly subsidence impacts reports;

Level 2 and 3 TARP Triggers:

- Causation was identified for the Level 2 and 3 triggers equated for TT2-QLa, TT3-QLa, TT7-QLa, TT9-QLa, TT12-QLa and TT13-QLa. For sites TT2-QLa and TT3-QLa, monitoring and review of data frequency occurs on a fortnightly basis as real-time telemetry data is available for these sites. The monitoring frequency was not increased for TT7-QLa, TT9-QLa, TT12-QLa and TT13-QLa as causation has been confidently identified;
- Water level trends for all sites in Teatree Hollow and Teatree Hollow tributary were reviewed with consideration to climatic conditions; and
- The LW S1A-S6A Water Management Plan was reviewed and proposed amendments were approved by DPHI on 14/08/2024. No further modifications to the Water Management Plan are currently planned.

Level 3 TARP Triggers:

- Causation was identified for the Level 3 triggers equated for TT3-QLa and TT12-QLa (related to subsidence induced fracturing and the prevailing climate, refer Section 7.3.2 of Appendix B in **Appendix 11**). As such, the monitoring frequency was not increased; and
- A detailed investigation was undertaken to assess if the change in behaviour at is related to mining effects (refer Section 6 of Appendix B in **Appendix 11**). Direct and indirect impacts from mining have been confirmed at the pools in question.

12.8.1.4 Pool Water Level for other water courses (Bargo River and Hornes Creek) TARP (WMP4)

During the reporting period there were no triggers under this TARP.

12.8.1.5 Physical Features and Natural Behaviour of Watercourses within the Subsidence Area TARP (WMP5)

Visual and photographic surveys for subsidence impacts on creeks have been completed monthly for monitoring pools and reaches in Teatree Hollow and Teatree Hollow tributary within the active subsidence zone of LW S2A and LW S3A.

The purpose of these surveys is to note whether change has occurred to pool level, drainage or overland flow, and to assist in determining if any change can be attributed to mining impacts. Surveys are carried out to identify rock bar and/or stream base cracking, changes in overland connected flow, gas release, turbidity or increased iron precipitation. Creek monitoring locations for physical features and natural behaviour are illustrated in **Figure 20** and **Figure 21**.

During this reporting period, there were numerous observed occurrences of impacts to pool water level, overland connected flow and observations of iron staining, turbidity and fracturing.

WMP5 TARP Triggers

The following TARP triggers occurred during the reporting period for creek condition:

- **Monitoring Site TT2:** Level 3 triggered during the reporting period. Pool water level observed to be visually lower than baseline conditions during February and March, July and December 2024. Pool was reported as dry during September to November inspections. Flow present over the hydraulic control during July and August. A new fracture of approximately 6m in length was observed upstream of the pool in June, and further new fractures observed in July and August. Turbidity was reported as moderate during the January to April inspections. During May to December inspections turbidity was noted as high.
- **Monitoring Site TT3:** Level 3 triggered between January to August and October to December 2024. The pool was observed as dry in from January to March, July to December. High turbidity was noted during the May and June inspections.
- **Monitoring Site TT7:** Level 2 triggered between September and October 2024; Level 1 triggered for November. Pool water level visually consistent with baseline conditions during August and October, however lower than baseline during September and November inspections. Flow was present over the hydraulic control during August and October however no flow over hydraulic control during September and November. Moderate turbidity was observed during August and September, with high turbidity noted in October and November.
- **Monitoring Site TT9:** Level 3 triggered during December 2024; Level 2 triggered during November; Level 1 triggered during October. Pool water level visually consistent with baseline conditions during August however lower than baseline during September to December inspections. Flow was present over the hydraulic control during August, however no flow over hydraulic control during September to December. Moderate turbidity was observed during August to December.
- **Monitoring Site TT10:** Level 2 triggered during November and December 2024. Level 1 triggered during October. Pool water level was observed to be lower than baseline during

October to December. Flow over hydraulic control in July, however no flow over hydraulic control during October to December. Moderate turbidity observed in July and October to December.

- **Monitoring Site TT11:** Level 3 triggered in January to March, May to December 2024. The pool was observed as dry during January to March, July to December inspections. High turbidity was observed during the May and June inspections.
- **Monitoring Site TT12:** Level 3 triggered in January to March, May to December 2024. Pool water level was observed as lower than baseline survey during the January and July to August inspections, with no flow over the hydraulic control observed in January, July and August. The pool was observed as dry mid-February, with isolated puddles noted in late February, and dry in March and September to December. Iron staining was observed, however consistent with that observed in the previous reporting period. Moderate to high turbidity was observed in May and June inspections.
- **Monitoring Site TT13:** Level 3 triggered during October and November 2024; Level 2 triggered during March and September; Level 1 triggered in February and August. Pool water level was observed as lower than baseline survey during January to March and August, with no flow over the hydraulic control during January to March and August. Pool was reported as dry during September to December inspections. Moderate turbidity was observed in during January to June, August and October to December 2024 inspections.
- **Monitoring Site TT15:** Level 1 triggered during October and December 2024; Pool water level observed as consistent in July, however lower than baseline in October to December inspections. Turbidity was reported as moderate in July and October to December. Flow was present over the hydraulic control during July however no flow over hydraulic control during October to December 2024.

Actions in response to TARP triggers

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1, 2 and 3 TARP Triggers:

- Monthly (or more frequent) monitoring and review of data is ongoing according to the monitoring program;
- Visual changes along watercourse were reviewed to observe any spatial changes with consideration to climatic conditions;
- Relevant information was obtained from key specialists necessary to inform assessment;

Level 2 and 3 TARP Triggers:

- A detailed investigation was undertaken to assess if the change in behaviour at is related to mining effects (refer Section 6 of Appendix B in **Appendix 11**). Direct and indirect impacts from mining have been confirmed at the pools in question;
- The LW S1A-S6A Water Management Plan was reviewed and proposed amendments were approved by DPHI on the 14/08/2024. No further modifications to the Water Management Plan are currently planned;

- Monitoring and review of data frequency was not increased at pools TT2, TT3, TT7, TT9, TT10, TT11, TT12 and TT13 as mining impacts were confirmed.

12.8.1.6 Physical Features and Natural Behaviour of Pools for other Watercourses (Bargo River and Hornes Creek) TARP (WMP6)

During the reporting period there were no triggers under this TARP.

12.8.1.7 Channel Stability, Sedimentation and Erosion TARP (WMP7)

Visual and photographic surveys for subsidence impacts on creeks have been completed monthly for morphology and channel stability monitoring site in Teatree Hollow and Teatree Hollow tributary within the active subsidence zone of LW S2A and LWS3A, with the exception of headwater sites which are completed on an annual basis.

The purpose of these surveys is to note whether change has occurred to channel stability, erosion and sedimentation, and to assist in determining if any change can be attributed to mining impacts. Surveys are carried out to identify any visual changes in knickpoint development and channel morphology. In addition, annual visual inspections are conducted at headwater sites to characterise erosion and sedimentation.

Creek monitoring locations for channel stability, sedimentation and erosion are illustrated in **Figure 24.**

The annual headwaters inspection was conducted on the 18 September 2024 and included the monitoring sites HW1, HW3, HW4, HW5, HW6, HW7, HW8, HW9, HW10, and HW11. During the inspection, no increase in erosion or sedimentation was observed in the headwater streams.

During this reporting period, knickpoint site K57 was observed to develop minor erosion in May, June, July and August 2024 inspections in comparison to baseline conditions. Knickpoint K57 was just within the zone of active subsidence around June 2024, during mining of longwall LW S3A. It is considered likely that erosion first occurred at this location in April 2024 when 122 mm of rainfall was recorded in a single day. In June 2024, 94 mm of rainfall was recorded in a single day, likely further contributing to erosion development. Accordingly, it is considered that the erosion development at knickpoint K57 is likely related predominately to high rainfall/flow events rather than mining effects.

At knickpoint site K64, minor erosion development was observed in May 2024 with progression to moderate erosion in June 2024, in comparison to baseline conditions. During the same period, some bank slipping and slumping was also noted. High rainfall / flow events occurred in May and June 2024, in addition to direct impacts from undermining of knickpoint site K64. Undermining at pool TT2, located downstream of K64, was reported to result in incremental subsidence of 533 mm during this reporting period. Changes at this site are considered to be associated with high rainfall / flow events in combination with mining-induced subsidence.

TARP Triggers

The following TARP triggers occurred during the reporting period for Channel Stability, Sedimentation and Erosion:

- Level 1 TARP triggered at Knickpoint site K57 during May to August 2024.
- Level 1 TARP triggered at Knickpoint site K64 in May 2024, and Level 2 TARP triggered during June to December 2024.

Further discussion of these triggers, including confirmation of direct and indirect mining impacts, is provided in Section 3.2.4.1 of the Six Monthly Subsidence Impact Report 4 (**Appendix 11**)

Actions in response to TARP triggers

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1 and 2 TARP Triggers:

- Monthly monitoring and review of data is ongoing according to the monitoring program;
- Relevant information was obtained from key specialists necessary to inform assessment;
- Monitoring and review of data frequency has not been increased in frequency as the causation of the erosion at the knickpoint sites K57 and K64 was considered to be understood (elevated water flow for K57, and a combination of elevated water flow and subsidence impacts for K64); and
- CMAs are not considered reasonable or feasible until the extent and longevity of the impacts are confirmed. Monitoring will continue at K64 to assess if remediation actions are required.

Level 2 TARP Triggers:

- Monitoring and review of data frequency has not been increased in frequency as the causation of the erosion at the knickpoint site K64 is understood to be partially due to mining. Monitoring as per the monitoring program and after large rainfall events will continue at K64 to assess if remediation actions are required;
- A detailed investigation was undertaken to assess if the change in behaviour at K64 is related to mining effects (refer Section 6 of Appendix B). Direct impacts from mining were confirmed for K64;
- Advice was obtained by specialists, as detailed in Section 6.3 and 9 of Appendix B of the Six Monthly Subsidence Impact Report 4 (**Appendix 11**);
- CMAs are not considered reasonable or feasible until the extent and longevity of the impacts are confirmed. Monitoring will continue at K64 to assess if remediation actions are required;
- There are no proposed changes to the Water Management Plan in light of the Level 2 TARP trigger at K64.

12.8.2 Further Improvements

12.8.2.1 Tahmoor South Domain

In accordance with C12 of SSD 8445 and as detailed in the WMP, a Watercourse Corrective Action Management Plan (WCAMP) will be prepared for watercourses damaged by subsidence impacts. The WCAMP will be prepared in consultation with relevant government agencies, as defined in the WMP. The WCAMP (if required) will be prepared and implemented at the cessation of subsidence movements associated with Tahmoor South mining.

The current monitoring program will continue in accordance with the LW S1A-S6A Water Management Plan. The next update will be provided as part of the next Annual Review to be provided to relevant agencies by 31st March 2026.

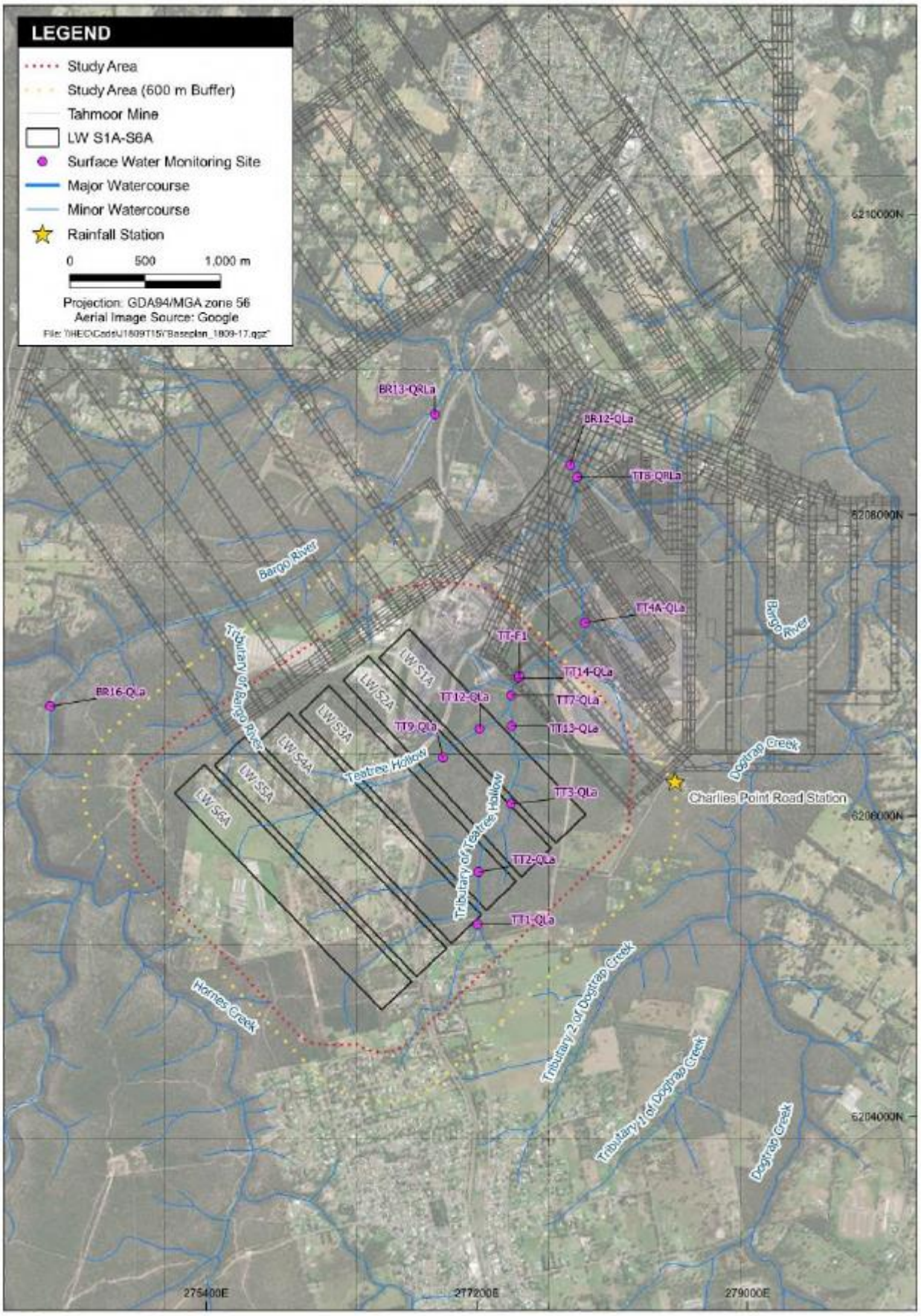


Figure 19 LW S1A-S6A Surface Water Monitoring Sites Specific to LW S1A-S6A

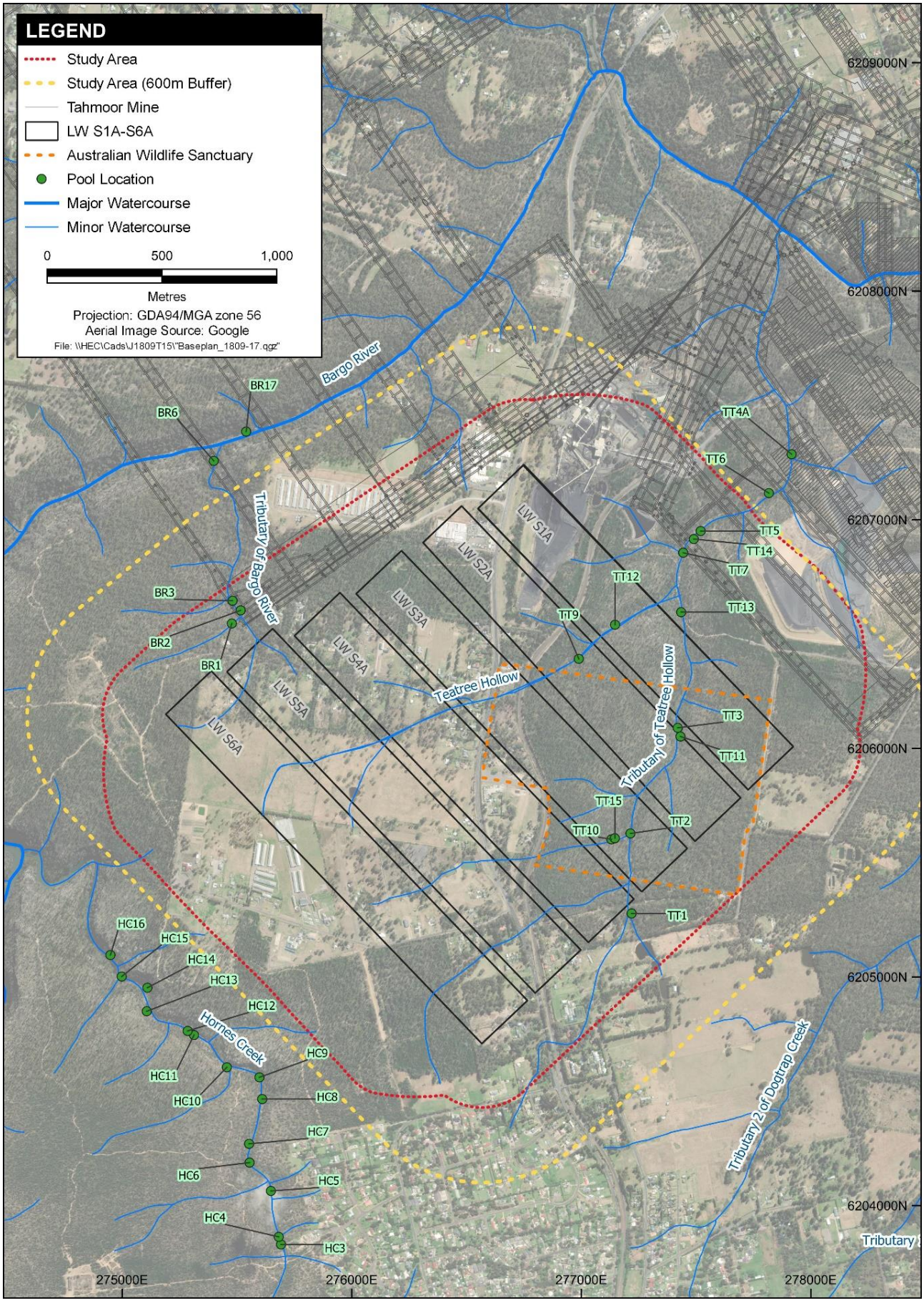


Figure 20 LW S1A-LWS6A Pool Visual Inspection Sites

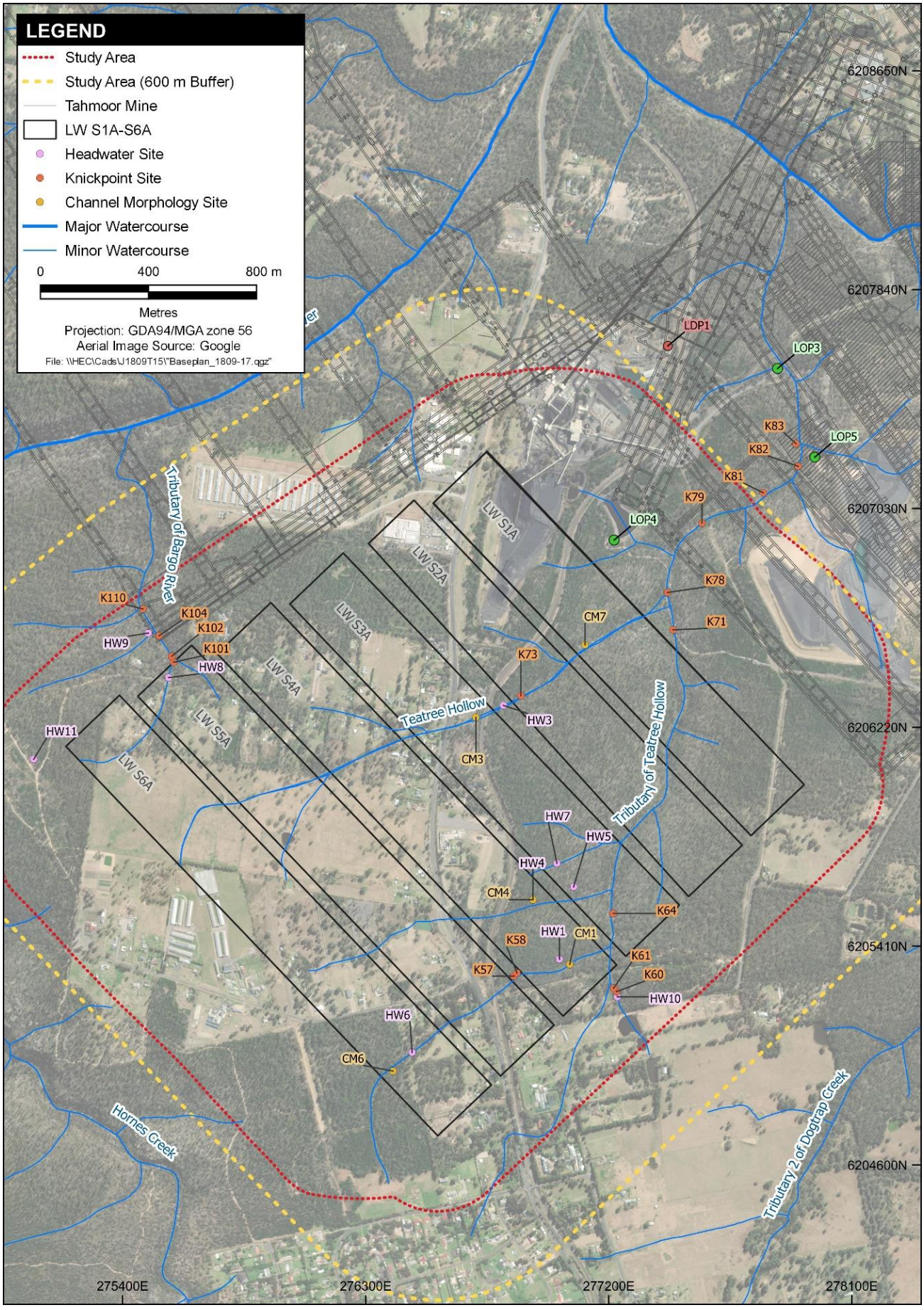


Figure 21 LW S1A-S6A Morphology and Channel Stability Monitoring Sites

12.9 Groundwater

During the reporting period (1 January 2024 - 31 December 2024), the following TARP levels were triggered with further details explained in the Tahmoor South Six Monthly Subsidence Impact Report 4 and 5 (**Appendix 11** and **Appendix 12** respectively). Locations of boreholes monitored are shown in **Figure 22**.

12.9.1 Western Domain

The Tahmoor Western Domain Residual Subsidence Monitoring Plan has been implemented following the extraction of Longwall West 1 to West 4. It is designed to monitor ongoing residual subsidence movements that occurs following completion of active subsidence from Longwall West 1 to West 4, and during the refilling of the mine workings in the Western Domain with groundwater and brine. As per the management plan requirements, groundwater monitoring at sites P14, P16, TNC40 and WD02 is carried out (continuous reading) and reported annually.

During the reporting period the following observations were recorded for groundwater levels and pressures:

- **P14** (A, B, C & D) - Water levels sit above their baselines.
- **P16** (A, B &C) - Water levels show post-mining rises, with differing degrees of residual drawdown. A statistically detectable rise has occurred at P16A since September 2022 with 59 per cent recovery toward baseline. P16B exhibiting 96.5 per cent recovery and P16C water levels indicate effective completion of recovery.
- **TNC036** -
    - HBBSS 65m results indicate full recovery and subsequent rise relative to baseline conditions.
    - HBSS 97m - exhibiting 80 per cent recovery.
    - BGSS 169m - exhibiting 91 per cent recovery.
    - BGSS 214m - exhibiting approximately 60 per cent recovery with a relatively large residual drawdown.
    - BGSS 412.5m - The maximum drawdown within the extraction window was 107.50 metres. The current residual drawdown is 134.76 metres, which exceeds the mining-period drawdown, indicating continued depressurisation after mining ceased and that the minimum head occurred in the post-mining period.
    - BUSM 463.5m - The maximum drawdown during the extraction window was 13.73 metres. The present residual drawdown is 29.69 metres, also greater than the mining-period drawdown, which is consistent with ongoing depressurisation within the coal measures, likely associated with ongoing extractive operations in Tahmoor South.
- **TNC040** -
    - HBSS 65m - The maximum drawdown during extraction was 2.38 metres. The current residual drawdown is 1.25 metres, which equates to approximately 47 per cent recovery. This intake shows a statistically detectable recent decline with a moderate residual relative to baseline.
    - WMFM 27m - exhibiting 93 per cent recovery.
- **WD02** - For WD02, the logger records begin after 15 November 2019 and therefore do not establish a pre-extraction baseline within this dataset. Maximum mining-period drawdown,

residual drawdown and percentage recovery cannot be evaluated on this basis. Trends are nonetheless informative and are reported below.

- HBSS 130m - Heads are essentially stable at this intake.
- HBSS 200m - statistically detectable rise with continued, but slower, recent increase;
- NPFM 240m - exhibiting a strong post-mining rise with a recent rate that is smaller and not statistically distinguishable from zero at the 0.05 level.
- BGSS 280m - exhibiting a continuing rise.
- BGSS 305m - exhibiting a recent acceleration upward.
- BGSS 330m - exhibiting a pronounced and continuing decline.
- BGSS 355m - showing a small, not statistically detectable, recent decline.
- BGSS 410m - exhibiting continued decline.

12.9.1.1 Summary

The post-mining Groundwater boreholes monitored during the reporting period are classified as either Stable (ie. recovered), Recovering or Continuing change. The following discusses overall behaviour in relation to spatial location.

Across the domain, behaviour varies systematically with position relative to the longwall sequence from west (W1) to east (W4). Locations up-panel and lateral to W1 (P16 and TNC036) show recovery in shallow units with continuing adjustment confined to deeper Bulgo and the coal seam. Above and adjacent to W2 and W3 (WD02, P14) the shallow units are stable, while selected deep Bulgo sensors continue to adjust. South of W4 (TNC040) the shallow system is recovered or stable. There is no clear indication of domain-wide upward propagation of depressurisation into the Hawkesbury Sandstone or shallow aquifer units (**Appendix 14** - SLR, 2025).

Analysis of active OSPs (P14, P16) and VWPs (TNC036, TNC040, WD02) shows that groundwater heads in the Hawkesbury Sandstone and Wianamatta Formation are stable or rising across assessed locations and, where a pre-extraction baseline is available, have largely reconverged toward the pre-mining envelope. Deeper intakes within the Bulgo Sandstone and the Bulli Coal seam display localised post-mining adjustment, including continued depressurisation at some depths. These deeper responses are not synchronous with rainfall residuals and are interpreted as confined to the coal measures and immediately underlying sandstones, without indications of upward transmission into the principal aquifer.

As per Western Domain Residual Subsidence Management Plan, yhere are no active TARP triggers associated with groundwater monitoring.

The current groundwater monitoring is ongoing as per the Western Domain Residual Subsidence Management Plan, until groundwater monitoring confirms that the workings have been flooded.

12.9.2 Tahmoor South

The LW S1A-S6A Water Management Plan was prepared to manage the potential environmental consequences of LW S1A-S6A extraction on groundwater in accordance with Condition C8 of SSD 8445.

During this reporting period, the LW S1A-S6A Water Management Plan has been implemented to monitor groundwater:

- Shallow groundwater levels, quality and pressures, and deep groundwater levels / pressures – monthly monitoring data reviewed and reported on a monthly basis; and

- Mine water intake – data for this reporting period reviewed and reported.

The following sections summarise the observations made during the reporting period for each groundwater category.

12.9.2.1 Groundwater Bore Levels

The Tahmoor South Monitoring Network comprises both open standpipes (OSP) and Vibrating Wire Piezometers (VWPs). The standpipe piezometers can be used for monitoring water levels manually or with an automated datalogger (installed in 10 sites to date), as well as for collection of water samples for groundwater quality monitoring purposes. The VWPs are grouted and therefore can only be used for monitoring groundwater pressures, but do allow for multiple instruments to be installed at different depths within a single borehole. The locations of groundwater monitoring bores are provided in **Figure 22**.

Shallow OSP Bores

Groundwater depressurisation has been observed in a series of shallow monitoring bores, primarily notable at P53 and P55 (SLR, 2024). During July to December 2024, three new TARP trigger activations where existing exceedances crossed the six-month duration threshold required for formal trigger status occured (SLR, 2025).

At P51B, recorded a new TARP Level 1 trigger period commencing May to December 2024 due to a decline of water level. The bore was indicated to be responsive to climatic changes as it returned to normal water level after the large rainfall events from April to June 2024. In addition, the bore is located at the end of LW S5A, and is unlikely to be directly impacted by mining at this point in time (SLR, 2024)(SLR, 2025).

At the P53 nested bores, which are located to the north of LW S1A, all three groundwater levels displayed similar temporal trends. A decline in water level was observed to occur around April to May 2024, with relatively stable groundwater levels observed since. Given the locality of the three bores to LW S1A and the consistent reduction in water level in all three bores, it is likely that the drawdown is due to extraction activities. Subsidence and groundwater level profiles over time show similar trends, with a short period of relatively rapid decline following by stabilisation. There is potential some recovery has started to occur at these bores (SLR, 2024).

At the P55 nested bores, which are located mid-way along LW S3A, all three bores are showing a decline in groundwater levels. In comparison with the GNSS units in vicinity of the bores, groundwater response to extraction appears to be more regional, occurring over time as the regional groundwater levels drawdown.

However, the consistent decline over time in groundwater level at these bores is likely resultant from mining extraction activities (SLR, 2024).

At P56C, water level decline has been observed, however this trend is not consistent across the associated nested bores. In particular, P56A is showing stable water levels. Some minor decline has been observed in P56B but also periods of significant increase. P56C has shown periods of decline, with intermittent periods of stabilisation and minor recovery. Given the groundwater trends are not consistent across all nested piezometers and show notable fluctuations that do not appear to appear to align with longwall progression, the declining water levels in P56C are not considered to be attributable to mining operations at this point in time (SLR, 2024).

P52 and REA4 are showing some consistent decline in water level since approximately November 2022, however both are showing signs of stabilisation. Where depressurisation has been observed, a period of relative stability of reduced groundwater level has occurred (SLR, 2024).

Groundwater monitoring is undertaken within nearby vicinity of surface watering at multiple locations to assist with the review of groundwater – surface water interaction. Although P55 and P53 have depressurisation noted, the lack of connectivity between the systems indicates that the groundwater conditions are unlikely to have a causal effect on surface water conditions. Surface water losses are likely due to surface fracturing and drainage rather than baseflow losses (SLR, 2024).

Several groundwater monitoring sites recorded notable declines during the reporting period. The causation of these declines, including the potential influence of mining progression, climatic variability, and natural aquifer dynamics, is explored in the Tahmoor South Six-Monthly Subsidence Impact Reports 4 and 5 as **Appendix 11** and **Appendix 12** respectively.

Overall, shallow groundwater levels in both OSP bores and VWPs continued to show widespread departures from baseline and modelled predictions, with multiple sustained exceedances under WMP8 and WMP9. While some short-term breaches were observed at other sites, these did not meet the formal exceedance definition under the WMP (SLR, 2025).

TARP WMP8 Triggers - Shallow Groundwater Level (Open Standpipes and Private Bores)

The following TARP triggers occurred during the reporting period according to the Groundwater bore level TARP WMP8:

- Monitoring bore P51B: Level 1 TARP triggered in January to April 2024, and in December 2024;
- Monitoring bore P53A: Level 1 TARP triggered from the entire monitoring period;
- Monitoring bore P53B: Level 1 TARP triggered from the entire monitoring period;
- Monitoring bore P53C: Level 2 TARP triggered for the entire monitoring period;
- Monitoring bore P55B: Level 1 TARP triggered in January 2024, Level 2 TARP triggered in February to April, and Level 3 TARP triggered in May to December 2024;
- Monitoring bore P55C: Level 2 TARP trigger for January to November 2024, Level 3 TARP triggered in December 2024;
- Monitoring bore P56C: Level 2 TARP trigger for January to September 2024;
- Private bore GW104659: Level 1 TARP triggered from the entire monitoring period; and
- Private bore GW109257: Level 1 TARP triggered in February to December 2024.

Further discussion of these triggers is provided in the Tahmoor South Subsidence Impact Report 4 and 5 (**Appendix 11** and **Appendix 12** respectively).

Actions in response to TARP WMP8 triggers

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1, 2 and 3 TARP Triggers:

- Monthly monitoring and review of data is ongoing according to the monitoring program;
- An investigation to assess cause of the water level decline is provided in Section 3.3.1.3 and Section 4.0 of Appendix C of the Tahmoor South Subsidence Impact Report 4 (**Appendix 11**). Ground water level decline at P53, P55 and GW104659 could be due to ongoing mining effect. However, at the remaining locations, it cannot definitely be attributed to extraction activities.

- Current drawdown associated with exceedances is localised. Consequently, there is no indication that extensive regional aquifer drawdown is occurring of that any impact would be observed in existing water supply works.
- Relevant information was obtained from key specialists necessary to inform assessment;
- Regarding open standpipe monitoring bores, it is noted that WMP12 has been initiated for P53 and P55 nested bores. WMP13 (Thirlmere Lakes) has not been enacted). Regarding private bores, no private bore decline has been definitively attributed to mining. No landholder has reported impacts requiring ameliorative actions at this point in time.

Level 2 and 3 TARP Triggers:

- Review indicates the cause of the triggers is known and no cause for additional monitoring and data review is required. The current frequency of water level monitoring is sufficient for impact assessments (i.e. 15 minute readings capture minor water level fluctuations, with monthly review allowing enough temporal scale for causation analysis).
- TARP trigger levels accommodate the base case and deterministic model scenarios. With each model update, these levels will continue to be reviewed and revised as necessary.
- Update of the WMP completed in June 2024. No update required at this point, which will be reviewed upon submission of the next 6-monthly/annual report.

Level 3 TARP Triggers:

- Cause of Level 3 trigger is known, and no increase in monitoring frequency is necessary.
- Detailed investigation, including comparison to local monitored subsidence data and climate data, has been completed in Appendix C of the Tahmoor South Subsidence Impact Report 4 (**Appendix 11**).

Private Bores

Groundwater levels in private bores varied throughout the monitoring period, with a mixture of sustained TARP exceedances and short-term breaches observed across the network. GW104659 recorded a sustained Level 1 exceedance, with all six monthly measurements below the 248.36 mAHD threshold during July to December 2024. This continues an extended period of non-compliance that commenced in April 2023 and now extends for 21 consecutive months. In addition, GW104659 recorded a completed Level 2 exceedance earlier in January to June 2024 and experienced isolated short-term Level 3 breaches in August and December 2024 (SLR, 2025).

GW109257 also recorded a sustained Level 1 exceedance, with all six monthly measurements below the 276.26 mAHD threshold during the reporting period. This continues a period of sustained exceedance commencing in August 2023 and extending for 17 consecutive months. Short-term Level 2 breaches were observed in August and again in November and December 2024, but these did not meet the threshold for formal exceedance under the WMP definition (SLR, 2025).

In contrast, GW104323 only recorded short-term breaches below all three TARP levels during November and December 2024. As these declines were limited to a two-month period, they did not

satisfy the requirement for a six-month consecutive exceedance and therefore do not qualify as a formal trigger exceedance (SLR, 2025).

No landholders reported any adverse impacts to water supply use during the reporting period, and investigations have not identified direct evidence linking the observed drawdowns to mining activities. The overall exceedance patterns remain consistent with rainfall variability and historical groundwater usage trends within the region (SLR, 2025).

Shallow VWPs (<200m)

Shallow VWPs are showing variation in responses since commencement of extraction. TBC009 (HBSS – 30m) experienced a period of small steady decline since November 2022, however it is now showing some increase in water levels. The deeper sensors remained relatively stable, also recently showing some increase in water levels. TBC018 also showed minor reduction in water level over time in the three shallowest sensors (70m, 117m, 164m, 179 m) although followed by a period of stabilisation and some increase. Water levels in the deepest sensor at 198 m have shown relatively consistent very minor decline (SLR, 2024).

Formal exceedances were recorded at TBC027 (HBSS-95 m, Level 1), TBC032 (HBSS-95 m, Level 2 and Level 3), and TBC032 (HBSS-131 m, Level 3). In addition to the sustained Level 3 triggers at TBC032 (95m and 131m), TBC032 (200m) recorded a formal Level 1 exceedance throughout Jul–Dec 2024, and TBC032 (181m) escalated from Level 1 (Jul–Nov) to Level 2 in December (SLR, 2025).

The declines observed in TBC032 are relatively consistent across all sensors and show similar trends to the shallower OSPs, with periods of more rapid decline followed by some stabilisation. However, overall, there is an observed trend of declining groundwater levels in all sensors. Minimal subsidence (< 15 mm) has been observed close to the location of TBC032. The groundwater decline is likely a regional groundwater drawdown in response to mining activity (SLR, 2024).

Overall, shallow groundwater levels in both OSP bores and VWPs continued to show widespread departures from baseline and modelled predictions, with multiple sustained exceedances under WMP8 and WMP9. While some short-term breaches were observed at other sites, these did not meet the formal exceedance definition under the WMP (SLR, 2025).

TARP WMP9 Triggers - Shallow Groundwater Pressure (VWP Sensors <200m depth)

The following TARP triggers occurred during the reporting period according to the TARP WMP9:

- TBC027 (HBSS-95m): Level 1 TARP triggered for November to December 2024;
- TBC032 (BHCS-95m): Level 3 TARP triggered for November to December 2024;
- TBC032 (HBSS-131m): Level 3 TARP triggered for April to December 2024;
- TBC032 (BHCS-181m): Level 1 TARP triggered for January to November, Level 2 triggered for December 2024;
- TBC032 (BGSS-200m): Level 1 TARP triggered for the entire monitoring period; and

Further discussion of these triggers is provided in the Tahmoor South Subsidence Impact Report 4 and 5 (**Appendix 11** and **Appendix 12** respectively).

Actions completed in response to TARP WMP8 triggers:

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1, 2 and 3 TARP Triggers:

- Monthly monitoring and review of data is ongoing according to the monitoring program;
- An investigation to assess cause of the water level decline is provided in Section 3.3.1 and Section 4.0 of Appendix C of the Tahmoor South Subsidence Impact Report 4 (**Appendix 11**). The cause appears to be mining related;
- Relevant information was obtained from key specialists necessary to inform assessment;
- Notification of exceedances to DPHI is completed as part of this report;
- Completed as part of this report, and to be incorporated into forthcoming Six Monthly Subsidence Impact Report and Annual Review; and
- Changes to the WMP will be made in accordance with the regulatory guidelines, provided as track changes to the Department for review.

Level 2 & 3 TARP Triggers:

- Deeper VWP datasets were reviewed in conjunction with shallow VWP exceedances. No additional review was required beyond the ongoing monitoring and reporting program.
- Observed exceedances were compared against base case and deterministic model scenarios in Appendix C. Results remain consistent with predicted drawdown envelopes, with exceedances managed in accordance with the WMP.
- Update of the WMP completed in June 2024. No update required at this point, which will be reviewed upon submission of the next 6-monthly/annual report.

Level 3 TARP Triggers:

- Current drawdown associated with exceedances is localised. Consequently, there is no indication that regional aquifer drawdown is occurring of that any impact would be observed in existing water supply works;
- Review of all VWP sites included in this reporting. Only TBC032 reporting TARP triggers;
- Cause of TARP trigger known, no cause for increase of monitoring frequency.;
- TARP trigger levels accommodate the base case and deterministic model scenarios. With each model update, these levels will continue to be reviewed and revised as necessary;
- Update of the WMP completed in June 2024. No update required at this point, which will be reviewed upon submission of the next 6-monthly/annual report;
- Cause of Level 3 Trigger identified and discussed in Section 3.3.1 and Section 4.0 of Appendix C of the Six monthly Subsidence Impact Report (**Appendix 11**);
- Detailed investigation, including comparison to local monitored subsidence data and climate data, has been completed; and
- Review of updated model results compared to field data will be undertaken with next iteration of the Groundwater Management Plan.

Deep VWPs (>200m)

The deep VWPs overall are showing some depressurisation over the reporting period but this is not consistent spatially or across depth profiles at individual sites. Sensors that are showing drawdown / depressurisation recovery are summarised below (SLR, 2024):

- TBC009: Drawdowns of 15m at 357m, 4m at 391m, 4m at 343m, and 1m at 332m. Recovery at sensor depth 357m has been observed to baseline conditions during this reporting period;
- TBC018: Drawdown to a maximum of 3.5 m since November 2022;
- TBC020: Drawdowns of 8.5m at 211m, 3.5m at 411m, and very minor drawdowns at 293m and 375m. Recovery at sensor depth 211m of 4.5 m has been observed, and some recent recovery has been observed at 293m and 375m;
- TBC026: Drawdowns of 4m at 344m, and very minor drawdown at 211m and 278m; and
- TBC032: Drawdowns of 20m at 220m, 10m at 237m, and 10m at 294m.

Analysis of 41 deep VWP sensors confirmed that observed drawdown differences from modelled predictions remained within acceptable thresholds, with no exceedances of the ±30 m criterion for consecutive 3, 6 or 12-month periods (SLR, 2025).

TARP WMP10 Triggers - Groundwater Level/Pressure Deep VWPs (>200m depth excluding monitoring the Bulli Coal Seam)

During the reporting period, there have been no triggers under this TARP WMP10.

The current monitoring program will continue in accordance with the LW S1A-S6A Water Management Plan. The next update will be provided as part of the next Annual Review report to be provided to DPHI by 31 March 2026.

12.9.2.2 Groundwater Quality

Groundwater quality has been monitored monthly in the OSPs (monitoring network and private bores) since the commencement of extraction. The Tahmoor South Groundwater Monitoring Network, and the locations of groundwater monitoring bores is provided in **Figure 22**.

Further detail on groundwater quality results, including graphs showing progressive groundwater quality results, are provided in the Groundwater Monitoring Report (refer to Appendix C of the six-monthly Subsidence Impact Reports **Appendix 11 and Appendix 12**). Further detail and discussion of TARP triggers for groundwater level are also discussed in the sections below.

Electrical Conductivity and pH

The pH and EC across all bores show level fluctuation with no apparent trends across the full record. Several bores recorded short-term breaches of salinity (EC) and pH triggers during the reporting period. These were generally sporadic and not consistent across multiple sites. The most notable changes were observed in the P55 cluster, where progressive salinity increases coincided with groundwater level declines. However, these breaches did not meet the WMP definition for an exceedance (i.e. six or more consecutive months across three or more sites) (SLR, 2025).

Metal Concentrations

Metals across all bores have shown fluctuation over the reporting period and cannot be attributed to mining with sporadic special and depth profile distribution. Sporadic metal breaches were recorded for Fe, Mn, Cu and Pb at some standpipes and private bores (e.g. REA4, GW104008,

GW109257). These were isolated events and not consistent in space or time, and therefore are considered breaches only, not exceedances.

In contrast, Barium recorded sustained exceedances across multiple sites. Barium levels at P53B, P53C and REA4 remained above their respective trigger values for six or more consecutive months during July to December 2024. This constitutes a formal Level 2 TARP exceedance under WMP11 (SLR, 2025).

TARP WMP11 Triggers - Groundwater Quality (Open Standpipes and Private Bores)

The following TARP triggers occurred during the reporting period according to the TARP WMP11.

- P53B - Level 2 TARP triggered for July to December 2024;
- P53C - Level 2 TARP triggered for July to December 2024; and
- REA4 - Level 2 TARP triggered for July to December 2024.

Further discussion of these triggers is provided in the Tahmoor South Subsidence Impact Report 5 (**Appendix 12**).

Actions completed in response to TARP WMP8 triggers:

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1 and 2 TARP Triggers:

- Continue routine groundwater quality monitoring. Conduct internal review of groundwater quality trends at impacted sites, considering climate variability and nearby groundwater trends. Attribute cause where possible and document in Six-Monthly and Annual Reviews. No further action required unless triggers escalate or sustained deterioration is observed. Routine groundwater quality monitoring continued at all sites. Monitoring and review undertaken in accordance with the WMP.

- Investigation of Barium exceedances at P53B, P53C and REA4 undertaken. While elevated levels were sustained, causation remains uncertain with both mining and natural variability considered. Further monitoring recommended.

- Assessment indicated that current Barium exceedances do not compromise the long-term viability of water supply works. No impacts to landholder supply identified during the reporting period.

- Groundwater quality exceedances reviewed with subsidence and surface water specialists. No direct linkage identified; further monitoring will continue.

- No private bore exceedances attributable to mining during this period; make-good not required. No evidence of groundwater–surface water interaction impacts; WMP12 not initiated.
- Monitoring frequency maintained as sufficient to capture water quality trends. No increase required for this reporting period.

- Update of the WMP completed in June 2024. No update required at this point, which will be reviewed upon submission of the next 6-monthly/annual report.

- No private bore quality exceedances attributable to mining. Review of CMAs not required.

The current monitoring program will continue in accordance with the LW S1A-S6A Water Management Plan. The next update will be provided as part of the next Six Monthly Subsidence Impact Assessment report, to be provided to DPHI by 31 March 2026.

12.9.2.3 Groundwater and Surface Water Interaction

Groundwater monitoring is undertaken within nearby vicinity of surface watering at multiple locations to assist with the review of groundwater – surface water interaction. Namely to assist with defining if surface flow changes identified are attributable to baseflow loss due to groundwater depressurisation resultant from mining activities. Further detail is provided in the Tahmoor South Subsidence Impact Report 4 and 5 (**Appendix 11** and **Appendix 12** respectively).

WMP12 pertains specifically to the monitoring of potential impacts on groundwater – surface water interactions. Assessment under this TARP is initiated if a TARP WMP8 trigger is confirmed to be related to mining effects.

TARP WMP12 Triggers - Groundwater-Surface Water Interaction

Numerous triggers of TARP WMP8 occurred during this reporting period. It is enacted when one of the TARP bores (those associated with surface water monitoring units) has triggered TARP WMP8. The bores for which TARP WMP12 has been enacted include:

- P53 nested bores – associated with surface water site TT13-Qla; and
- P55 nested bores – associated with surface water site TT1-QLa.

The following TARP triggers occurred during the reporting period according to the TARP WMP12:

- Monitoring bore P51B: Level 1 TARP triggered for December 2024;
- Monitoring bore P53A: Level 1 TARP triggered for the entire monitoring period;
- Monitoring bore P53B: Level 1 TARP triggered for the entire monitoring period;
- Monitoring bore P53C: Level 2 TARP triggered for the entire monitoring period;
- Monitoring bore P55A: Level 1 TARP triggered in June to December 2024;
- Monitoring bore P55B: Level 1 TARP triggered in January 2024, Level 2 TARP triggered in February to April, and Level 3 TARP triggered in May to December 2024;
- Monitoring bore P55C: Level 2 TARP triggered for January to November 2024, Level 3 TARP triggered in December 2024;
- Monitoring bore P56B: Level 1 TARP triggered for September 2024; and
- Monitoring bore P56C: Level 2 TARP triggered for July to September 2024.

WMP12 triggers remained active at P53 and P55 clusters; however, no corresponding surface water exceedances were observed. Significant vertical separation persists, and available data do not suggest measurable mining-related impacts on surface water conditions during this period (SLR, 2025).

Actions completed in response to TARP WMP8 triggers:

The following actions have been completed in response to the TARP triggers during this reporting period:

Level 1, 2 and 3 TARP Triggers:

- Monthly monitoring and review of data is ongoing according to the monitoring program.
- An investigation to review if the trigger at WMP8 is indicative of groundwater – surface water interaction changes (WMP12) has been completed. TARP WMP12 has been initiated for P53 and P55 due to TARP triggers (WMP8) and the assessment that groundwater level decline could be due to ongoing mining effect. There are no surface water triggers at the associated sites. Detailed investigation into the site specific groundwater surface water relationship indicated there is unlikely to be a direct relationship between groundwater drawdown and surface water changes. It was determined that it is unlikely that mining activities are influencing groundwater – surface water interactions during the reporting period.
- Relevant information was obtained from key specialists necessary to inform assessment, and discussed with the Environmental Response Group;

Level 2 and 3 TARP Triggers:

- Update of network to install loggers in all P53 and P55 bores has been completed, with monthly review of the data occurring. The current frequency of water level monitoring is sufficient for impact assessments (i.e. 15- minute readings capture minor water level fluctuations, with monthly reporting allowing enough temporal scale for causation analysis).
- Compared against base case and deterministic model scenarios.
- Review of spatial trends of water level was undertaken as part of this report.
- Review of surface water data in conjunction with groundwater data at the relevant site was undertaken as part of this report. No triggers were observed at relative surface water sites.
- CMAs are not required at this point (no correlation between groundwater impacts and the surface water site noted at this point).
- Changes to the WMP will be made in accordance with the regulatory guidelines, provided as track changes to the Department for review. No required changes have been identified via this reporting.

Level 3 TARP Triggers:

- Data frequency review is sufficient, given no triggers at relative surface water sites and cause of groundwater decline is known.
- Investigation undertaken as part of this reporting, and previous detailed analysis of groundwater – surface water interaction. No further investigation required at this point.

Proposed Actions:

The current monitoring program will continue in accordance with the LW S1A-S6A Water Management Plan. The next update will be provided as part of the next Six Monthly Subsidence Impact Assessment report, to be provided to relevant agencies by 31 March 2026.

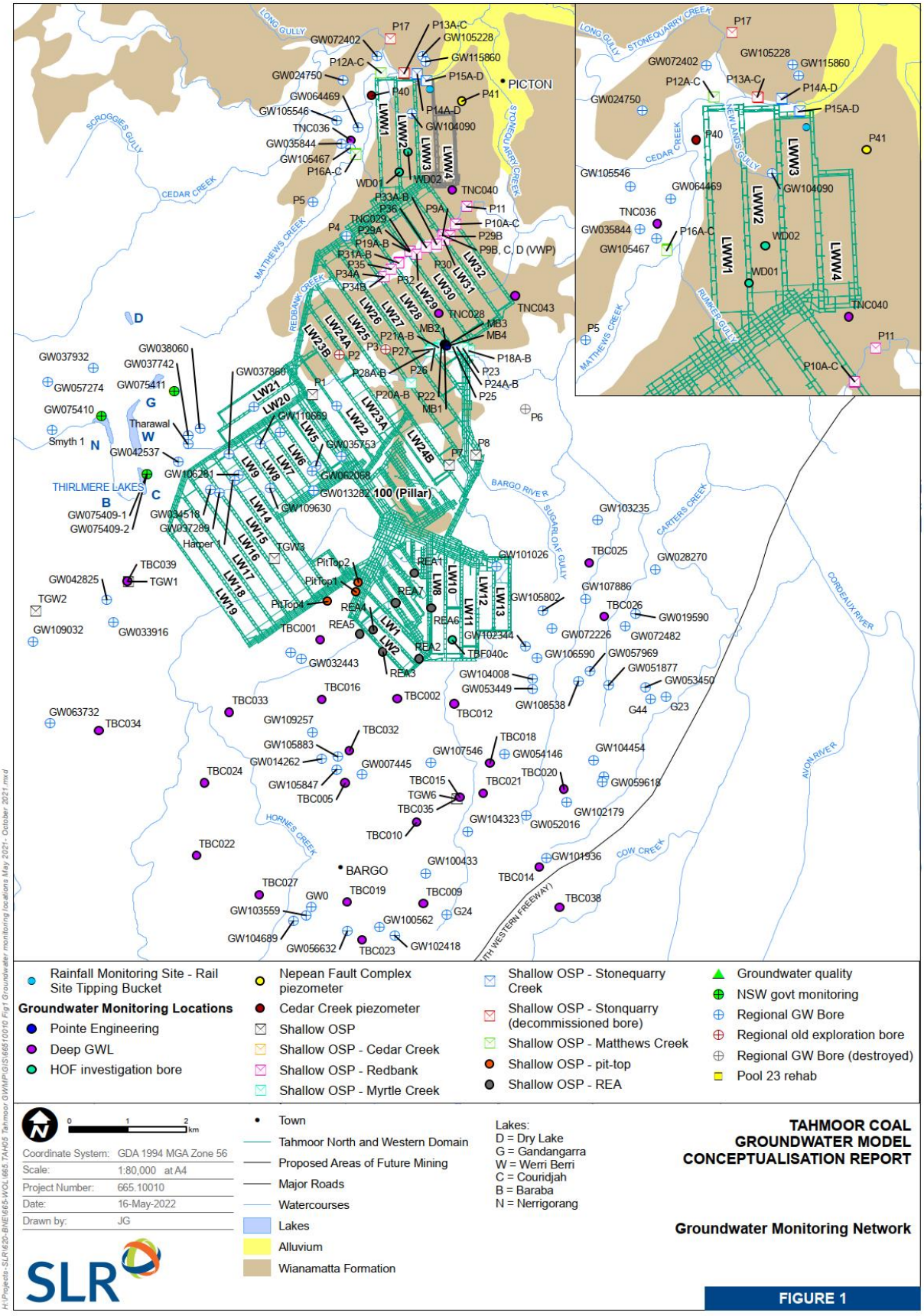


Figure 22 Groundwater Monitoring Borehole network

12.10 Landscape Features

The LW S1A-S6A Land Management Plan were prepared to manage the potential environmental consequences of LW S1A-S6A extraction on cliffs, natural steep slopes, dams, agricultural land, and land in general in accordance with Condition C8 of SSD 8445 for the Tahmoor South Domain.

During this reporting period, the LW S1A-S6A Land Management Plan was implemented to monitor the following landscape features.

12.10.1.1 Cliffs and Rock Outcrops

A visual inspection at the completion of mining by a geotechnical engineer will be undertaken for Cliff BC1 after the completion of LW S6A; Cliff BC2 after LW S3A, S4A, S5A and S6A. Inspection of Cliff BC2 is scheduled following completion of LW S3A as per LW S1A-S6A Land Management Plan, results will be reported in the next reporting period. Refer to **Figure 23** for monitoring sites.

12.10.1.2 Steep Slopes

Monthly visual inspections and reporting by geotechnical engineers, visual and photographic surveys of natural steep slopes were completed monthly for features within the LW S2A and LW S3A active subsidence zone and quarterly outside the active subsidence zone.

With the exception of steep slope WC1, no visual observations or cracks, localised ground bulging, buckling or shearing was observed at natural steep slopes.

The following describes the inspection findings at WC1:

- From August 2024 to October 2024 inspection, a new fracture measuring approximately 15 mm wide and 600 mm long was observed adjacent to one previously observed in the rocky outcrop near the 'Big Pool' in Wirrimbirra Creek at the steep slope WC1. From a geotechnical viewpoint, the current movement/cracking at the location is not considered to be detrimental to the stability of the rocky outcrop.
- During the November 2024 inspection a new fracture was observed in the base of the creek upstream of the fractured sandstone block at the steep slope WC1. Fracturing in the creek line adjacent to the Big Pool corresponds to ongoing valley closure measured by nearby GNSS units, and is likely to be due to mine subsidence. From a geotechnical viewpoint, the fractures are considered to not reduce the stability of the rocky outcrop.

From a geotechnical viewpoint, the current movement/cracking observed at WC1 is not considered to be detrimental to the stability of the rocky outcrop or the water carrying capacity of the creek. No additional movement is discernible between the two boulders / blocks since this initial observation. No TARPs have been triggered in relation to this movement.

12.10.1.3 Dams

During the reporting period, visual and photographic surveys for subsidence impacts on dams were completed on a weekly and monthly basis of dams within the LW S2A and LW S3A active subsidence zone. Refer to **Figure 24** for monitoring sites.

Visual inspections of dams from January to March 2024 observed relatively stable water level, with the exception of FD8 which was noted to have a slightly lower water level than other nearby dams in February 2024. It was unclear if the lower water level in FD8 was due to mine subsidence or to a permeable floor in the pondage area. Tahmoor Coal installed a monitoring marker near the exiting water level as a point of reference for future monitoring observations.

Following a large storm event in early April 2024, dams were noted to have increased in water level. Many dams also exhibited water pooling at the toe of embankments and downstream of the embankment, water in spillways, and at FD7 there were observations of the development of erosion rills as a result of the high flow event.

During the 3 October 2024 inspection, a Level 1 TARP trigger notification was reported by Douglas at Farm Dam FD18. The inspection revealed that seepage was observed from a couple of existing erosion rills up to 150mm deep near the middle of the dam embankment resulting in a Level 1 trigger under the Land Management Plan. At one location, the flow was a trickle, i.e. very slow. It was also noted during the inspection that the freeboard was about 150mm at its lowest point (Douglas Partners, October 2024, report available on request).

According to Douglas Partners engineer geologist, the erosion rills on the downstream face of the embankment are likely due to overtopping of the dam embankment during heavy rainfall and not due to mine subsidence. It was also noted that over 32mm of rainfall occurred in the 7 days prior to the inspection. Douglas Partners advised that the owner should seek professional advice to increase the freeboard and spillway capacity of the dam, augment the dam embankment and reinstate the erosion rills.

Possible seepage had previously been identified at the toe of the embankment during the baseline inspection; further investigation is required to assess if mine subsidence has contributed to increased seepage during the current inspection.

A subsequent inspection on 29 October 2024 revealed that no seepage was present. The Level 1 TARP trigger has returned to Normal Range during the November and December 2024 inspections.

12.10.1.4 Agricultural Land

During the reporting period, visual and photographic surveys of agricultural land have been completed as part of inspections for local roads. Refer to **Figure 25** for monitoring sites; and

A post-longwall visual inspection was completed on 10 April 2024 following the completion of LW S2A extraction and on 18 December 2024 following the completion of LW S3A extraction. The reports noted that ground surface features observed during the post-mining agricultural land monitoring were considered typical for the age, location, type of construction and climatic conditions present at the time of the inspection. There were no identified assets or land that were associated with potential hazards as a result of LW S2A and LW S3A extraction.

12.10.2 Further Improvements

Monitoring of natural landscape features will continue to be monitored in accordance with the LW S1A-S6A Land Management Plan.

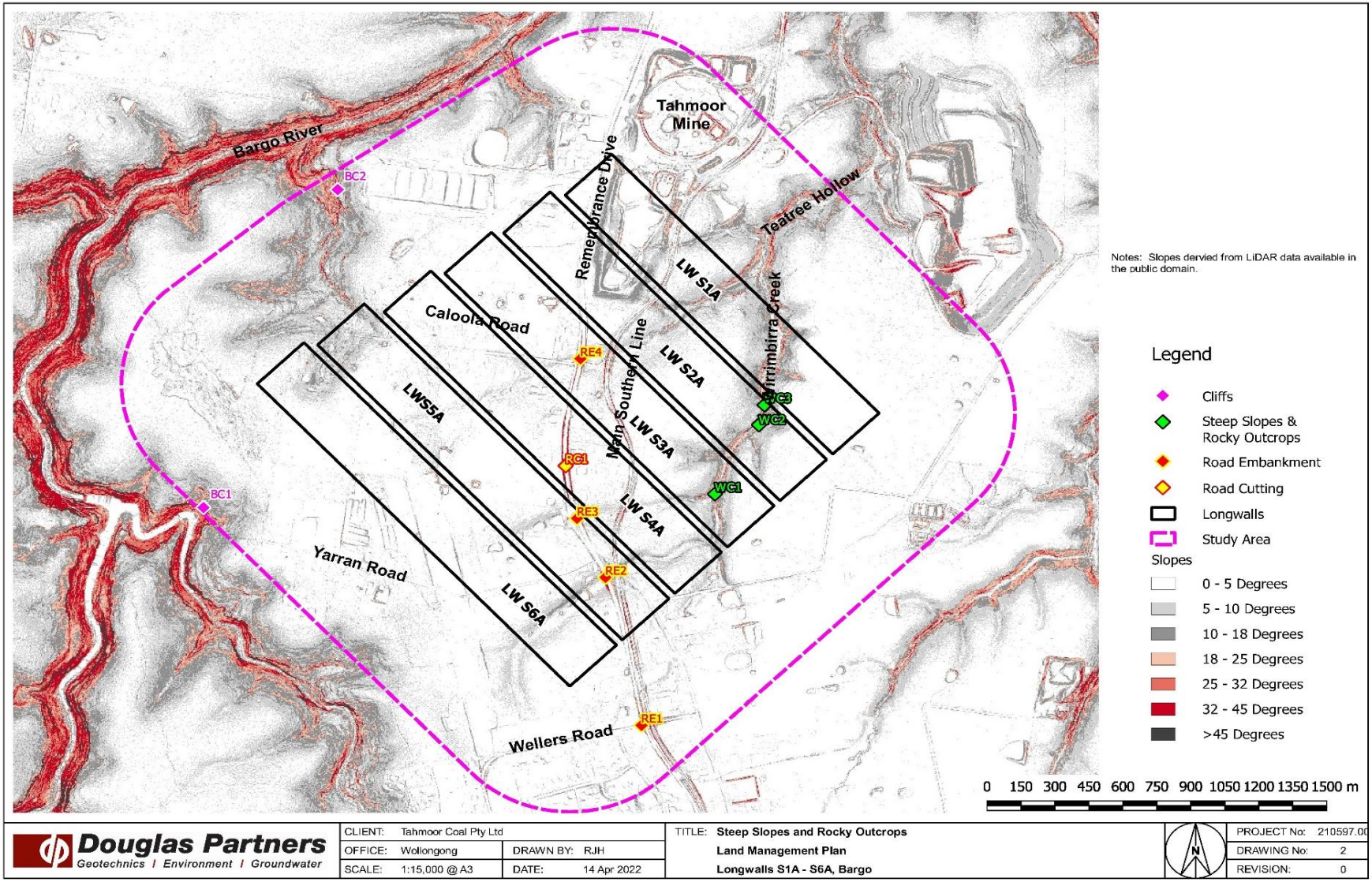


Figure 23 Cliffs and natural slopes within the LW S1A-S6A Study Area

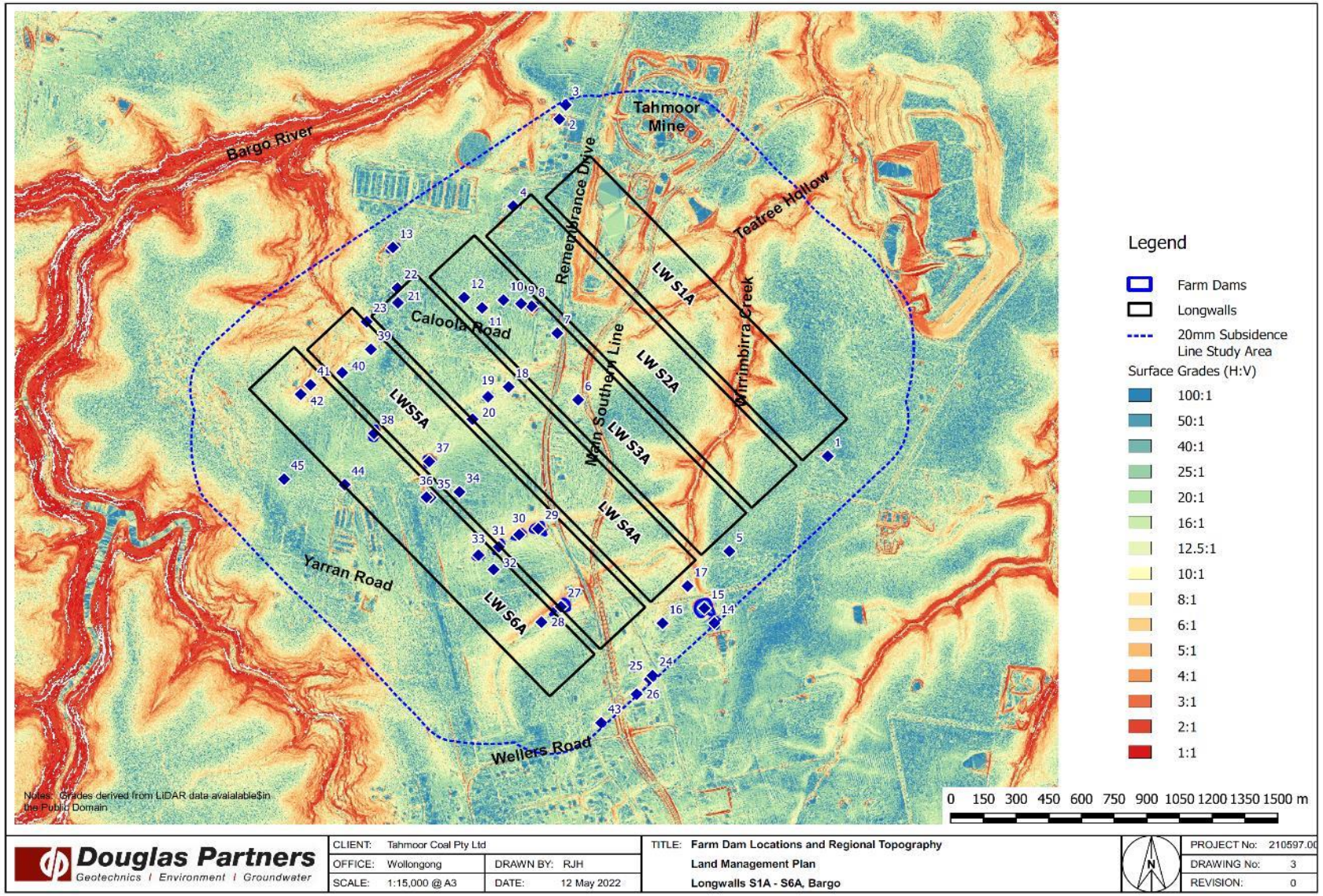


Figure 24 Dams within the LW S1A-S6A Study Area

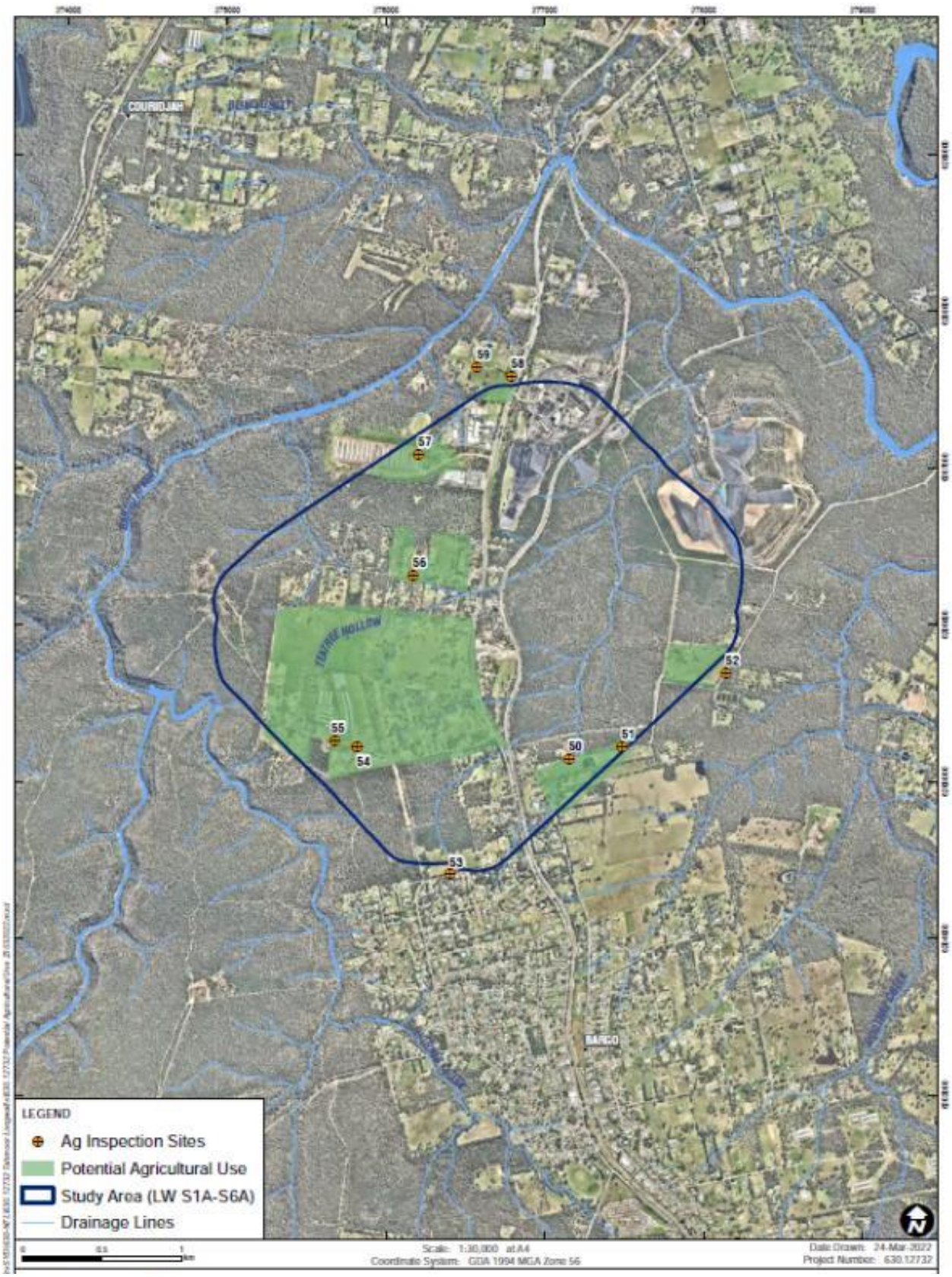


Figure 25 Agricultural land and inspection sites within the LW S1A-S6A Study Area

13 Site Water Management

13.1 Groundwater

13.1.1 Environmental Management

Groundwater is managed across Tahmoor Mine in accordance with the approved Groundwater Management Plan (available on the Tahmoor Coal website), which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South.

Historically, longwalls have been extracted within the Tahmoor North and Western Domains at a depth of approximately 450m in the Bulli Coal Seam. Current longwall extraction within the Tahmoor South Domain is occurring at depths of approximately 385m in the Bulli Coal Seam.

Groundwater piezometer boreholes located across Tahmoor Mine's Pit-top and REA areas are monitored quarterly for water quality and continual water level loggers downloaded by a third party contractor (for locations refer to **Figure 26).**

During 2024, pit-top monitoring boreholes / piezometers PT1 and PT2 were deemed inaccessible due to being buried during construction activities in 2023. Works are currently on hold to re-instate them and are scheduled for the next reporting period.

It is noted that PT4 results have shown a progressive overall decrease in water level with an increase during April to July as shown in **Figure 27**. REA piezometer levels have recorded relatively stable levels throughout 2024 (see **Figure 28**). For further information, refer to **Appendix 6** for pit-top and REA water quality data.

The location of all monitoring boreholes in the Tahmoor North, Tahmoor South and Western Domain mining areas are shown in **Figure 22** and reported in the Tahmoor Coal Six Monthly Subsidence Impact Reports (refer to **Appendix 11** and **Appendix 12**).

There were no reportable incidents related to groundwater pollution during the reporting period.



Figure 26 Locations of Piezometers at Pit-top and the REA areas

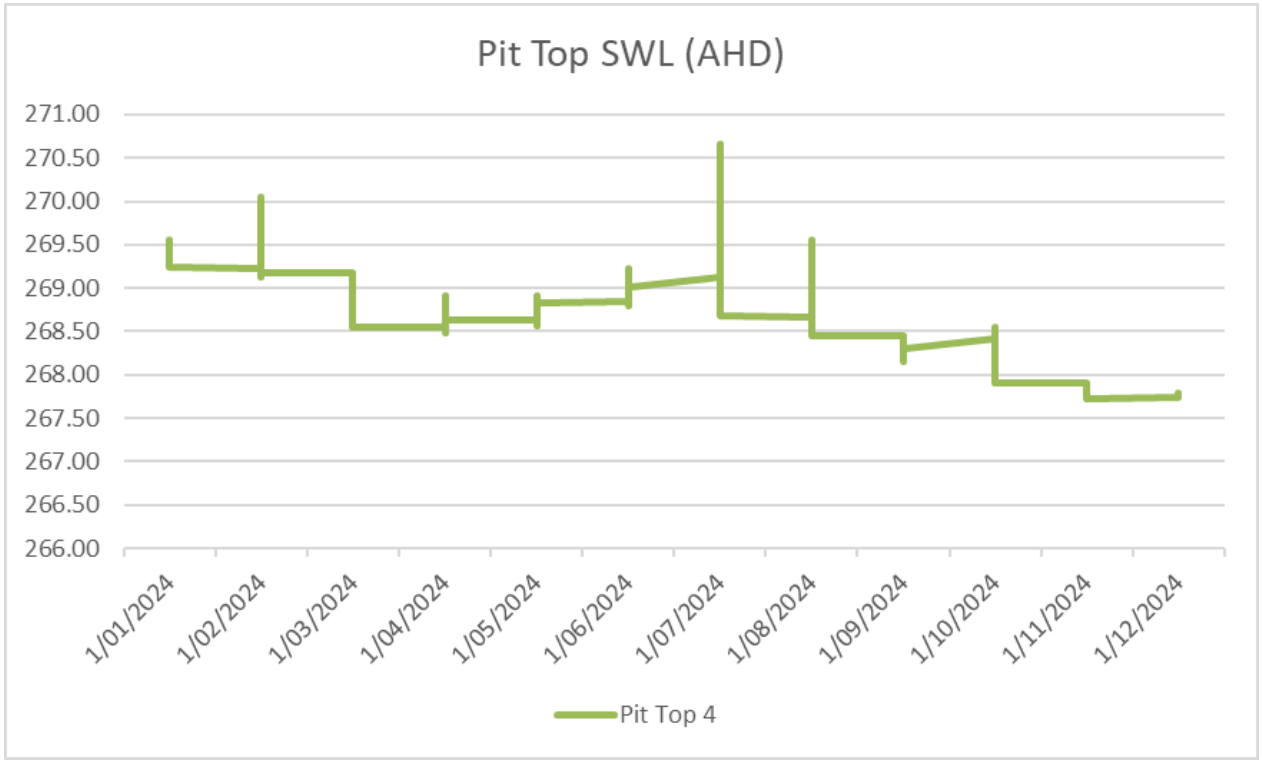


Figure 27 Piezometer groundwater levels for Pit-top for 2024.

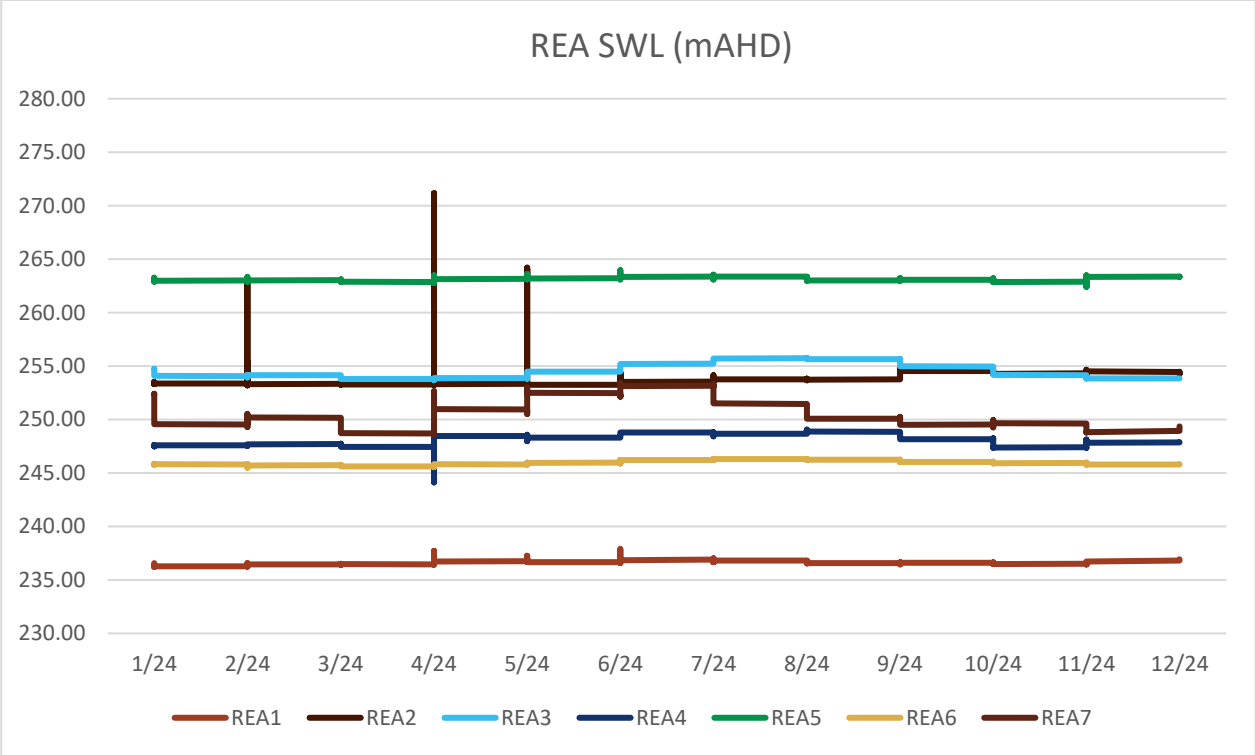


Figure 28 Piezometer groundwater levels for REA for 2024.

13.1.2 Water Access Licences Environmental Performance

During the reporting period the below water take has been calculated in accordance with condition B24 of consent SSD 8445.

Tahmoor Mine operates in accordance with Water Licence 36442, which allows an extraction limit of 1642 ML per annum (i.e. water year) of groundwater make from underground workings as part of the de-watering process.

As of 30 June 2024, the cumulative groundwater make for water year 2023/24 was 1,309ML, which is within the groundwater entitlement of 1,642 ML/y (refer to **Table 13-1** and **Figure 29**). As of 31 December 2024, the cumulative groundwater make between July to December 2024 was 586 ML, which is within the annual groundwater entitlement for the FY25 Water year. **Table 13-1** provides a summary of groundwater outflow from 2015 to 2024 and is illustrated in **Figure 29**.

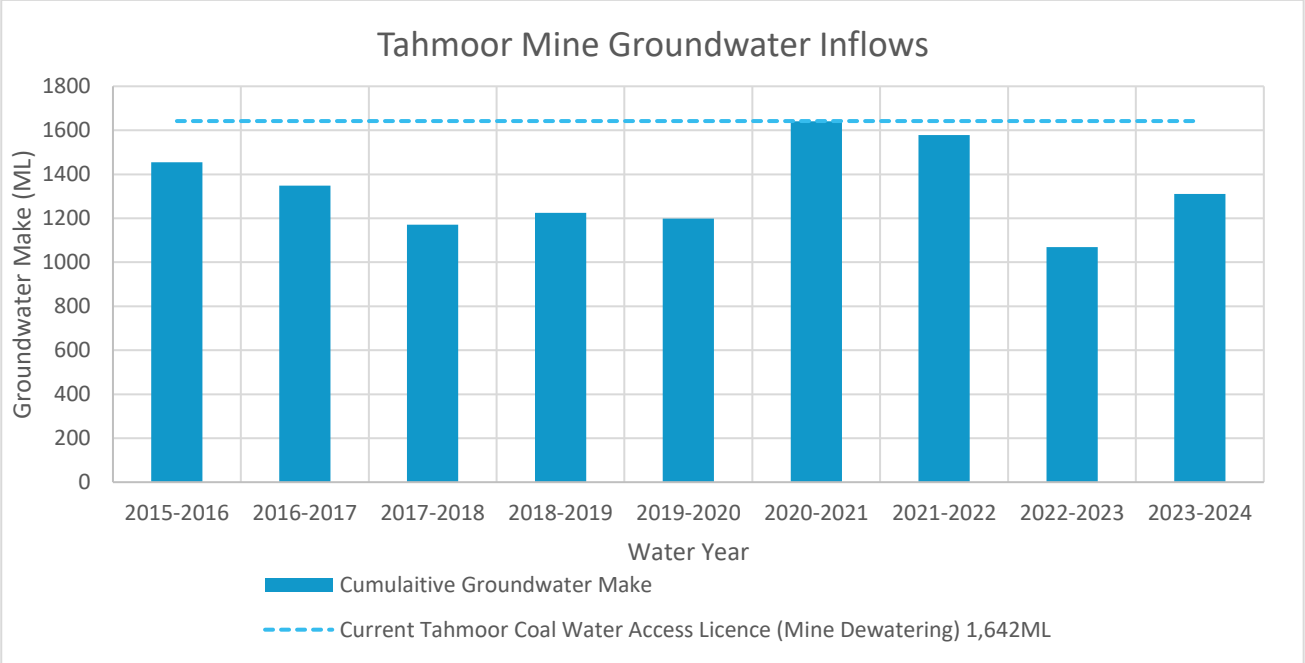


Figure 29 Calculated Groundwater Inflow Annual Volume (Water Year/Financial Year).

Table 13-1 Summary of Groundwater Outflow

Water Year/Financial Year	Water Licence #	Water Sharing plan/source and management zone (as applicable)	Entitlement per water year (ML)	Total Water Make into Underground (ML) per water year *includes vent air and water entrained in ROM
FY19 (July 18-June 19)	36442	Greater Metropolitan Region Groundwater Sources / Sydney Basin Nepean Groundwater Source	1642	1266*
FY20 (July 19-June 20)	36442	Greater Metropolitan Region Groundwater Sources / Sydney Basin Nepean Groundwater Source	1642	1348*
FY21 (July 20-June 21)	36442	Greater Metropolitan Region Groundwater Sources / Sydney Basin Nepean Groundwater Source	1642	1628*
FY22 (July 21-June 22)	36442	Greater Metropolitan Region Groundwater Sources / Sydney Basin Nepean Groundwater Source	1642	1347*
FY23 (July 22-June 23)	36442	Greater Metropolitan Region Groundwater Sources / Sydney Basin Nepean Groundwater Source	1642	1068*
FY24 (July 23 - June 24)	36442	Greater Metropolitan Region Groundwater Sources / Sydney Basin Nepean Groundwater Source	1642	1310*

An independent contractor calculated the estimated water take from surface water sources, as presented in **Table 13-2**. This water take was within entitlement of Water Access Licences held during the reporting period.

Table 13-2 Water take estimates from surface water sources for the 2024 reporting period

WAL	Water Sharing Plan	Water source	Entitlement	FY24	July-Dec 2024
25777 43656 SWC839757	Greater Metropolitan Region Unregulated River Water Sources WSP 2023	Maldon Weir	41ML	18.8ML	21.1ML
45204		Stonequarry Creek	25ML	8ML*	4ML*

*Maximum annual Water Take during active mining for Stonequarry Creek calculated from 2025 EMM Water Strategy.

13.1.3 Further Improvements

Tahmoor Coal will continue to implement the Tahmoor South Groundwater Management Plan, and ongoing monitoring and reporting will occur in accordance with the conditions in the relevant water licences.

13.2 Surface Water

13.2.1 Environmental Management

Surface water is managed across Tahmoor Mine in accordance with the approved Water Management Plan (available on the Tahmoor Coal website), which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South.

13.2.1.1 Water Quality

Tahmoor Coal is licensed to discharge water from one (1) Licenced Discharge Point (LDP) and overflow from four (4) Licenced Overflow Points (LOPs) during periods of wet weather (as per EPL 1389, which refers to more than 10 mm of rainfall within a 24 hour period at the premises). The location of the LDP and LOPs are described in **Table 13-3** below and shown in **Appendix 2.** A schematic of the surface water system is displayed in **Appendix 4.**

Table 13-3 Licensed Discharge and Overflow Points Locations

Point	Location
LDP 1	Discharge from Dam M4
LOP 3	Overflow from the REA Dam S9
LOP 4	Overflow from REA Dam S4
LOP 5	Overflow from REA Dam S8
LOP 6	Overflow from Shaft Site 2 Dam M6

13.2.1.2 Water Discharge

On average Tahmoor Mine discharged 3923 kL/day, with a total of 1,436,017 kL or approximately 1,436 ML discharged during the reporting period. This is shown in **Table 13-4, Figure 30** and **Figure 31.** The peaks shown in **Figure 31** on the 5 April and 6 June 2024 was as a result of high rainfall events and corresponds to the peaks in **Figure 32** for the total daily rainfall recorded at the Stockpile Weather Station. This is in accordance with EPL 1389 (more than 10 mm rainfall in 24 hrs, recorded from the Stockpile Weather Station).

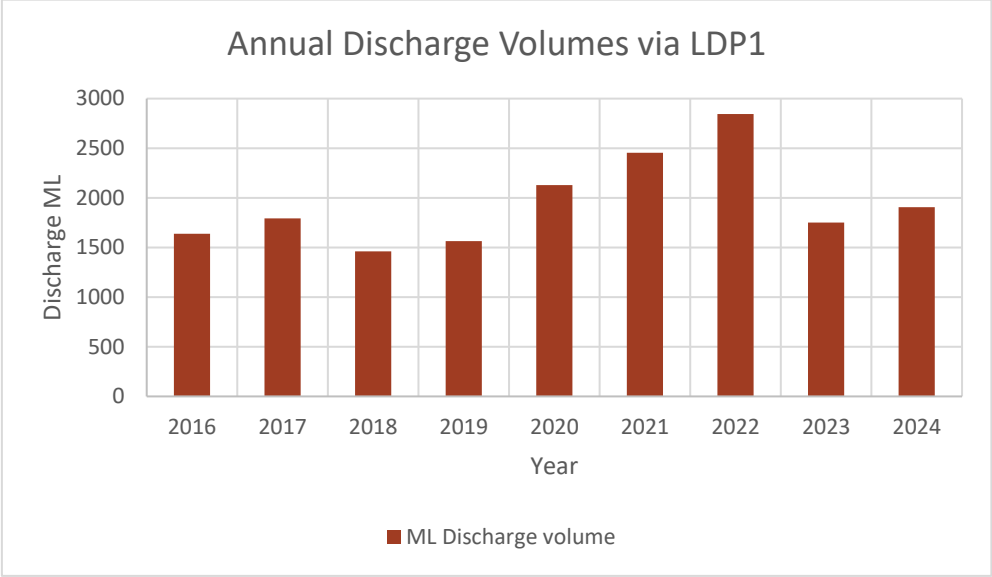


Figure 30 Volume (ML) of Discharge from LDP1 for the past 9 years.

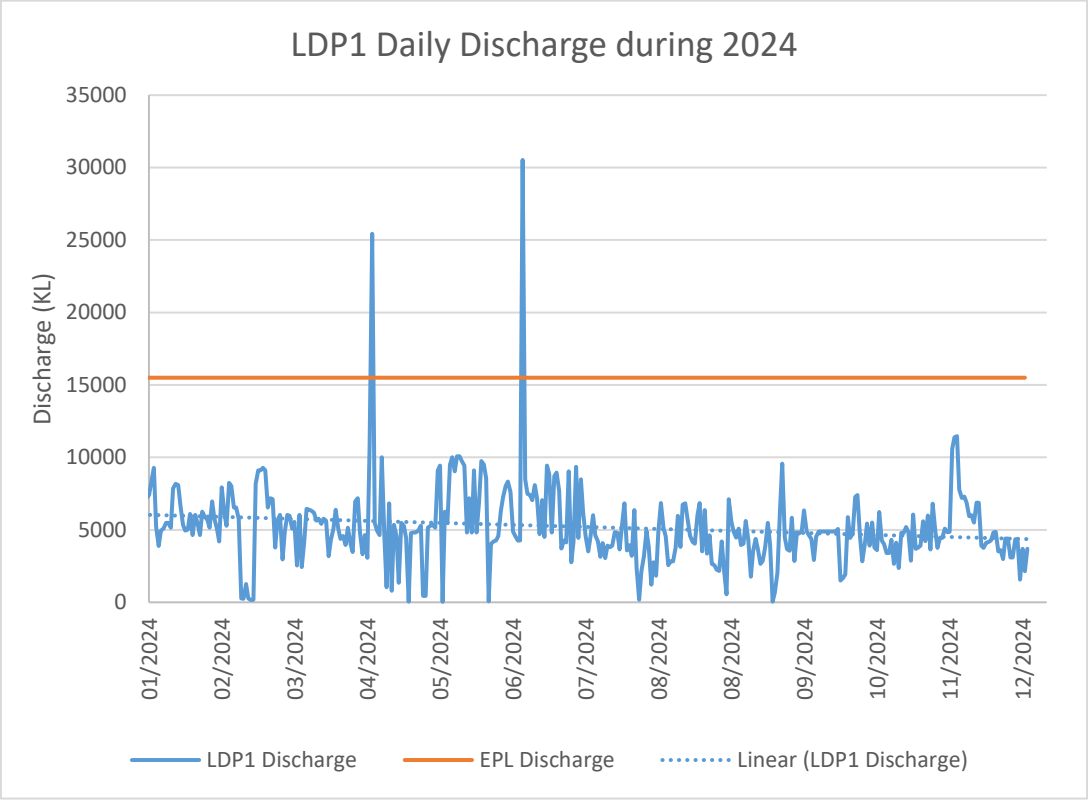


Figure 31 Daily Discharge (kL) via LDP1

*The spikes recorded in April and June was attributed to a high rainfall events (refer to **Figure 37** below **Table 15.4** for further details). This is in accordance with EPL 1389 which allows daily discharge over the prescribed limit when more than 10 mm of rainfall is recorded in 24 hours.

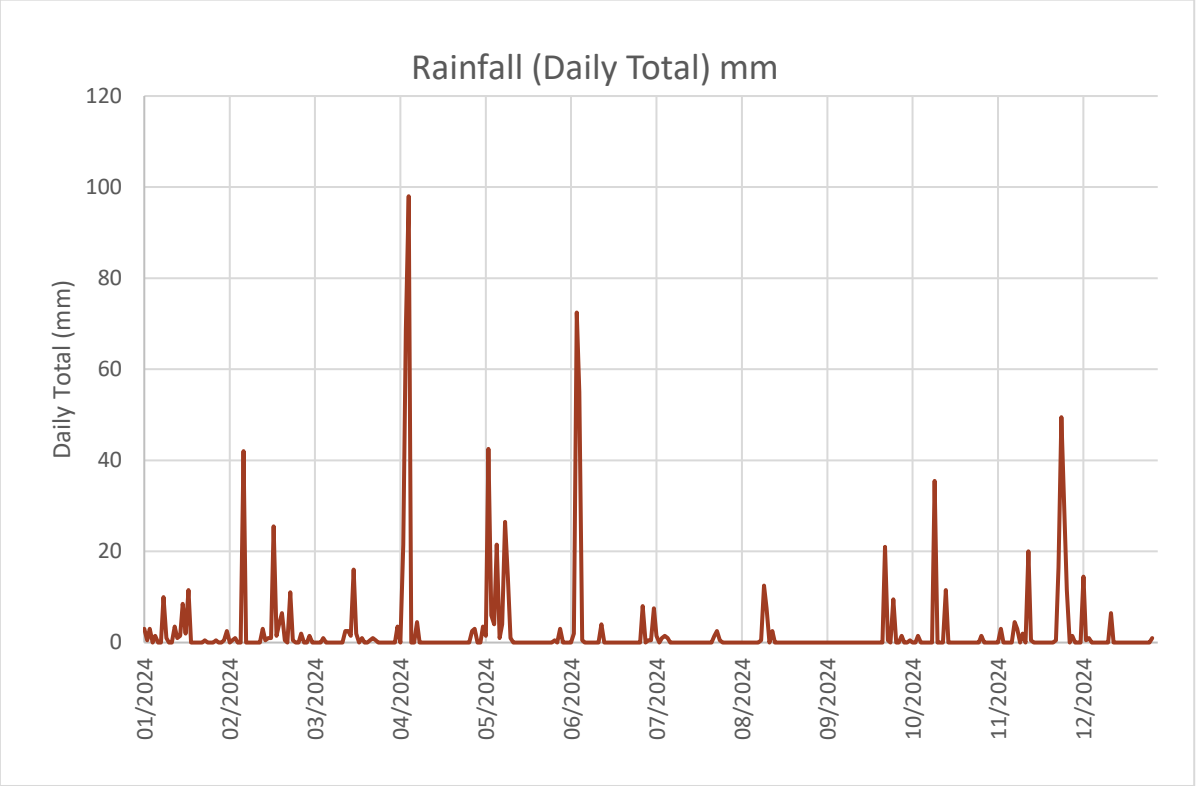


Figure 32 Daily rainfall from Stockpile weather station

Table 13-4 Daily Discharge (KL) via Licence Discharge Point 1 (LDP1).

Day	Jan (kL)	Feb (kL)	Mar (kL)	Apr (kL)	May (kL)	Jun (kL)	Jul (kL)	Aug (kL)	Sep (kL)	Oct (kL)	Nov (kL)	Dec (kL)	EPL Daily Discharge Limit (kL)
1	3536	5089	6037	3305	5155	7633	6180	4877	4878	4935	4258	11379	15500
2	7633	4196	5968	4635	9110	4893	4527	6855	4470	4639	4011	11457	15500
3	7185	7936	5089	3080	9430	4571	3514	5158	5078	4373	3413	7772	15500
4	7408	6177	5556	10840	33	4258	4525	4560	3959	2908	3413	7209	15500
5	8320	5287	2540	25420	6247	4258	6001	2566	4033	4526	4310	7292	15500
6	9270	8240	6037	5489	5489	30530	4610	2820	5604	4893	2659	6865	15500
7	5221	8010	2437	4958	9510	8480	4224	2838	4319	4893	4108	5953	15500
8	3891	6531	4258	4635	10000	7483	3146	3770	1774	4893	2359	6021	15500
9	4958	6531	6460	10000	9030	7408	4079	5963	3528	4893	4804	5498	15500
10	5089	5761	6389	4571	10080	7038	3055	3828	4366	4893	4784	6865	15500
11	5489	261	6318	1030	10080	8090	3914	6729	3674	4893	5194	6866	15500
12	5489	237	6177	6819	9750	7185	3807	6826	2646	4893	4872	3910	15500
13	5155	1271	5624	807	9430	4699	3908	5792	2841	4893	2873	3753	15500
14	7860	261	5761	5354	4828	7038	4841	4587	3848	5067	6051	4111	15500
15	8170	149	5421	4571	7185	4508	4785	4166	5471	1503	3680	4163	15500
16	8090	169	5761	1354	4828	9430	3652	4037	4008	1677	3789	4274	15500
17	6675	8170	5624	5489	9110	8870	5444	5987	50	1929	3912	4818	15500
18	5354	9110	3192	5287	4828	4828	6830	6840	679	5870	5598	4872	15500
19	4958	9110	4320	4445	6965	8710	3572	3506	2032	4435	4223	3517	15500
20	5023	9270	5089	46	9750	8950	3926	6361	6319	4735	5987	3602	15500
21	6107	9110	6389	4763	9510	7708	3198	3366	9557	7261	3644	2974	15500
22	4635	6531	5089	4828	8550	3712	6374	4622	4490	7398	6813	4404	15500
23	6037	7185	4382	4828	60	4258	2392	2660	3672	4520	4976	4405	15500
24	5489	7112	4571	4958	4012	4134	175	2563	3560	2825	3763	3091	15500
25	4635	3771	3951	5287	4196	9030	2153	2252	5826	4028	4471	3092	15500
26	6247	5624	5155	449	4258	2752	3183	2160	2860	5444	4432	4351	15500
27	5898	6037	4073	449	4571	4196	4936	4197	4830	3918	5079	4354	15500
28	5692	2969	3478	5155	6318	9350	3816	2257	4751	5513	4850	1559	15500
29	5155	4893	6965	5287	7259	4445	1216	563	4925	3774	4871	3690	15500
30	6965		7185	5354	8010	8480	2766	7104	6335	3596	10590	2150	15500
31	5761		4763		8320		1838	5600		6223		3690	15500
MIN	3536	149	2437	46	33	2752	175	563	50	1503	2359	1559.24	33
MAX	9270	9270	7185	25420	10080	30530	6830	7104	9557	7398	10590	11456.7	30530
AVERAGE	6045	5345	5163	5116	6965	7231	3890	4368	4146	4524	4593	5095	5205

The highlighted cells indicates an exceedance due to a high rainfall event with more than 10 mm of rainfall received from our stockpile weather station on site. This is in accordance EPL 1389 which allows daily discharge over the prescribed limit when more than 10 mm of rainfall is recorded in 24 hours at the premises.

13.2.2 Environmental Performance

13.2.2.1 Water Quality

Mine inflow water is pumped to the surface and directed to a series of mine pit-top treatment dams, which also captures storm water from the site. This combined water is settled through a network of dams across site and is then discharged via an approved Licence Discharge Point into Teatree Hollow Creek which flows into the Bargo River.

A Licence Discharge Point (LDP1) and multiple overflow points (refer **Appendix 2**) are sampled and tested monthly and as required by a third party contractor in accordance with Environmental Protection Licence (EPL) 1389 conditions and EPA *Approved methods for sampling and analysis of water pollutants in NSW*. Water samples from the Bargo River are also taken monthly at an upstream location, downstream location and at the confluence of Teatree Hollow Creek and Bargo River. A schematic of the Tahmoor Mine water management system and water quality infrastructure is outlined within **Appendix 4**. This schematic details main water sources and their flow paths across the mine site and eventual discharge via LDP1.

EPL 1389 states maximum discharge limits for analytes discharged via LDP1. These results are provided in **Table 13-5** for the reporting period. The water quality trend for LDP1 is outlined in **Appendix 5** and shows improvement in results this reporting period due to the operation of the new Water Treatment Plant onsite processing waters received from Underground workings. There have been no non-compliances or exceedances of limits set by the EPL during the reporting period.

During 2020, the installation of a real-time turbidity monitor was completed and has continued to form an integral part of the water management system on site. The additional use of flocculent mixed into the discharge dam series (Dams M1-M4) via a dosing pump allows controlled dosing depending on the turbidity readings received from the real-time monitor.

In accordance with EPL 1389, a new Water Treatment Plant was constructed and commissioned, and has improved water quality for mine discharge waters. Please see **Table 13-5** for Water quality results for the reporting period.

Table 13-5 LDP1 Discharge Water Quality

	pH	Electrical Conductivity	Total Suspended Solids (TSS)	Turbidity	Enterococci	Total Nitrogen	Aluminium	Arsenic	Barium	Copper	Nickel	Zinc
	pH Unit	µS/cm	mg/L	NTU	CFU/100ml	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
100th Percentile Concentration Limits	6.5-9	2,600	30	150	1700	8	110	200	6440	5	200	300
Jan-2024	8.4	1380	20	7.8	61	2.2	<10	34	3380	<1	42	71
Feb-2024	8.2	1380	14	8.5	25	2.0	10	32	2850	<1	42	46
Mar-2024	8.2	1450	6	1.1	10	2.3	<10	29	2950	<1	53	94
Apr-2024	8.35	356	<5	12	30	1.0	<10	3	624	<1	7	9
May-2024	8.39	602	8	20.5	35	0.3	20	7	1060	<1	17	28
Jun-2024	8.4	804	<5	7	38	0.1	<10	12	2000	<1	25	54
Jul-2024	7.3	79	<5	0.4	9	0.3	<10	1	122	<1	1	25
Aug-2024	8.5	1580	<5	2.8	16	2.7	<10	27	3910	<1	43	51
Sep-2024	7.8	106	<5	0.4	11	0.5	<10	<1	114	<1	<1	32
Oct-2024	7.1	108	<5	0.2	35	0.3	<10	<1	150	<1	<1	40
Nov-2024	7.9	162	<5	1.2	120	0.4	<10	2	294	<1	<1	38
Dec-2024	8.1	140	<5	0.3	82	0.3	<10	<1	183	<1	<1	26

13.2.2.2 Potable Water Supply

Sydney Water potable water is utilised across Tahmoor Mine with applications in amenities across pit-top facilities and sent underground for mining applications. Emphasis is placed on utilising recycled water and seeking to reduce Sydney Water potable water use on site where possible. The average monthly potable water usage for 2024 was 41 ML/month. This is slightly down from 2023 which was 42 ML/month and similar to the previous reporting periods for 2022 being 38ML/month and 2021 being 43 ML/month.

13.2.2.3 Recycled Water Treatment Plant

Tahmoor Coal historically recycled mine water from the sealed longwall goafs to the south of the No.3 Shaft for reuse in the mine operations underground and various surface facilities.

Due to issues with water extraction to supply the Recycled Water Treatment Plant, recycling of water for use at the site had ceased during 2023 (refer to **Table 13-6** below). However further investigations are underway for re-use of waters from the new Water Treatment Plant that was constructed during this reporting period.

Table 13-6 Recycled and Potable Water Use

Water usage	2018	2019	2020	2021	2022	2023	2024
Potable Water usage (kL)	133 389	414 115	396 435	525 301	449 600	508 773	502 237
Recycled Water usage (kL)	388 449	291 372	186 584	65 259*	48*	0	0
ROM tonnes	2 110 328	2 388 854	2 354 901	2 747 965	2,324,202	2,733,692	2998583
Potable Water Intensity (L/ROM tonne)	63	173	168	191	193	186	167

*Reduction in recycled water usage for the reporting period is attributed to the non-operational of the Recycled Water Treatment Plant.

13.2.2.4 Water Storage Volumes

Data regarding stored water volume in site dams is provided within **Appendix 3.**

Tahmoor Coal does not participate in any salinity trading scheme, and therefore is not required to report on controlled discharge water.

13.2.3 Further Improvements

Through the operation of the Water Treatment Plant (which uses Reverse Osmosis technology), improvements to the discharge water quality through LDP1 has improved during the reporting period. These results can be observed via the Water Quality results in **Table 13-5** above.

14 Rehabilitation

Rehabilitation is managed across Tahmoor Mine in accordance with the approved Rehabilitation Management Plan which has been prepared to address the requirements of the Resources Regulator and the Rehabilitation Strategy which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South (available on the Tahmoor Coal website).

The Tahmoor South Project was approved in April 2021, extending mining activities until 10 years from the commencement of second workings (ie 19 October 2032). The area for refuse emplacement will remain within the current approval extent, increasing the allowable height of the Refuse Emplacement Area (REA) to 320 RL. This has involved the stripping of top rehabilitated sections to emplace refuse material higher, which once emplacement of refuse is completed, will then be capped with topsoil and re-rehabilitated as per the Rehabilitation Management Plan by Resources Regulator and the Rehabilitation Strategy approved by the Department.

A summary of rehabilitation at the Tahmoor Mine Site is provided within **Table 14-1** and **Figure 39** below. Approximately 1.8 hectares of land in the eastern section of the REA rehabilitated during 2023 and continues to establish. Rock armoured drainage lines were also completed for this section and continue to be in good condition. Rehabilitation completed during this reporting period for 2024 included additional inter-planting of hiko cells and/or tubestock within Rehabilitation Stage 5 of the REA. No Rehabilitation is forecast for the next reporting period (2025) due to no areas being completed.

Table 14-1 Rehabilitation Summary

Mine Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2023	**2024**	**2025**
A. Total mine footprint (ha)	142.5	142.5	142.5
B. Total active disturbance (ha)	72.2	70.2	70.2
C. Land being prepared for rehabilitation (ha)	1.8	0	0
D. Land under active rehabilitation (ha) (Total rehabbed to date)	70.3	72.3	72.3
E. Completed Rehabilitation (ha)	**0**	**0**	**0**

Annual rehabilitation monitoring was conducted by Ecological Australia during December 2024. Bushfires affected the area including stages 6 and 9 and adjoining bushland containing the permanent reference sites and plots during late 2019. During the annual walkover in late 2020, evidence of epicormic growth across all affected sites were noted and regrowth of grasses and forbs as groundcover had begun to regenerate. Further growth and regeneration of vegetation has continued to date through-out the rehabilitation areas. During the reporting period, weed cover

control has been effective at controlling Andropogon virginicus (Whisky Grass) and Eragrostis curvula (African lovegrass). Weed cover in general across the rehabilitated stages has been low with continued weed control providing good on-going results for 2024. Continued regular weed maintenance activities will be undertaken this reporting period to maintain control over rehabilitated.

Generally, no major changes in the vegetation quality and structure other than expected growth. Rainfall for 2024 increased significantly from 652mm in 2023 to 944mm received at the Tahmoor Coal Coking Stockpile Weather Station during 2024.

Generally, characteristics and variations that were recorded include:

- Overall good health recorded in canopy species, especially Allocasuarina littoralis (Black She-oak) which had many healthy juveniles;
- native species richness has increased across the REA and within the reference plots since 2023;
- structural complexity of the monitoring plots is continuing to develop, though does yet not meet closure criteria with many areas still lacking adequate canopy and ground cover;
- threatened flora species Persoonia bargoensis (Bargo geebung) was noted in all Stages of the REA and Grevillea parviflora subsp. parviflora (Small-flower Grevillea) was noted in Stage 6;
- biological nutrient cycling was recorded across the REA, including the presence of decomposing vegetation, lichens, termites, ants, cicadas, spiders, macropod scats and an Pseudonaja Textilis (Eastern Brown Snake);
- rabbit herbivory impact low, but evident in some areas; herbivory by native macropods was also present, particularly in Stages 3, 4 and 5;
- remnants of plastic tree guard waste was noted in Stages 3, 4 and 5;
- overall erosion control adequate.

The reference plots and permanent monitoring plots which were burnt by fire in 2019 have recovered well and have a diversity and abundance of species similar to those species within the REA. There is continued evidence of nutrient recycling with termite mounds, ants and scats noted in those burnt plots. Litter cover has stabilised in these plots with grass, leaf litter and twigs recorded in all plots.

Most reference and permanent monitoring plots recorded no major changes in vegetation quality and structure overall since 2023.

Overall, weed cover was low but has slightly increased or remained at closure criteria levels in some areas of the REA.

Within the Grass Trial areas, weed coverage has decreased in Trial H and still remains the highest in grass cover when compared with all the other Trials. Trial E and F had the least grass coverage however good diversity in emerging seedling species. Trials A, B and C had good grass coverage with less species diversity. Low weed presence was noted for all trails during 2024 inspections.

14.1 Environmental Performance

14.1.1 Rehabilitation Performance

The Rehabilitation Improvement Plan TARP includes a classification status of each assessed area forming the basis for the TARP for each stage showed in **Table 14-2** and **Table 14-3**. This is used in the Annual Rehabilitation walkover to categorise the successfulness of the rehabilitation in **Appendix 7**. During 2023, Stages 7, 8 and 10 were re-utilised for refuse emplacement within the approved REA profile. These stages have been excluded from the Rehabilitation Walkover Assessment for 2024. Stage 8 was rehabilitated during 2023 and once rehabilitation has matured this stage with be re-incorporated in the walkover assessment. All stages have maintained their status rating from 2023 results, with Stage 12 status rating improving from a NC1 status to a C status with improvements to erosional issues undertaken. (see **Figure 33** for location of stages).

Table 14-2 TARP Classification

Annual Rehabilitation Status	Description	Action
VC	Generally, exceeds the good practice standards and regulatory requirements by a significant margin.	No further action. Continue to maintenance activities as scheduled.
C	Generally good practice standards and regulatory requirements subject to normal variance.	No further action. Continue to maintenance activities as scheduled.
NC1	Not complying with some regulatory requirements and improvement needed to meet required good practice standards. Required works minor in nature and generally within budgeted site program.	Undertake minor works to improve rehabilitation to minimum standard prior to next annual inspection.
NC2	Not complying with significant risk to this inspection item, urgent corrective action needed. Requirements generally substantial in nature and beyond a budgeted site program.	Undertake major works required to improve rehabilitation to minimum standard prior to next annual inspection.

Table 14-3 TARP Rehabilitation Performance

Area	Status Rating	Comments/Opportunity for improvement
Stage 1-2	**C**	Minor gully erosion to be improved, continued weed control.
Stage 3-5	**C**	Continued weed control
Stage 6 & 9	**C**	Continued weed control
Stage 7	**N/A**	Current emplacement area.
Stage 8	**No Status**	Rehabilitation in still establishing (less than 3 yrs)

Stage 10	**N/A**	Current emplacement area.
Stage 12a	**C**	Opportunity for additional plantings in bare patches
Stages 14-16	**C**	Continued weed control
Stage 17	**No Status**	Rehabilitation in still establishing (less than 3 yrs)

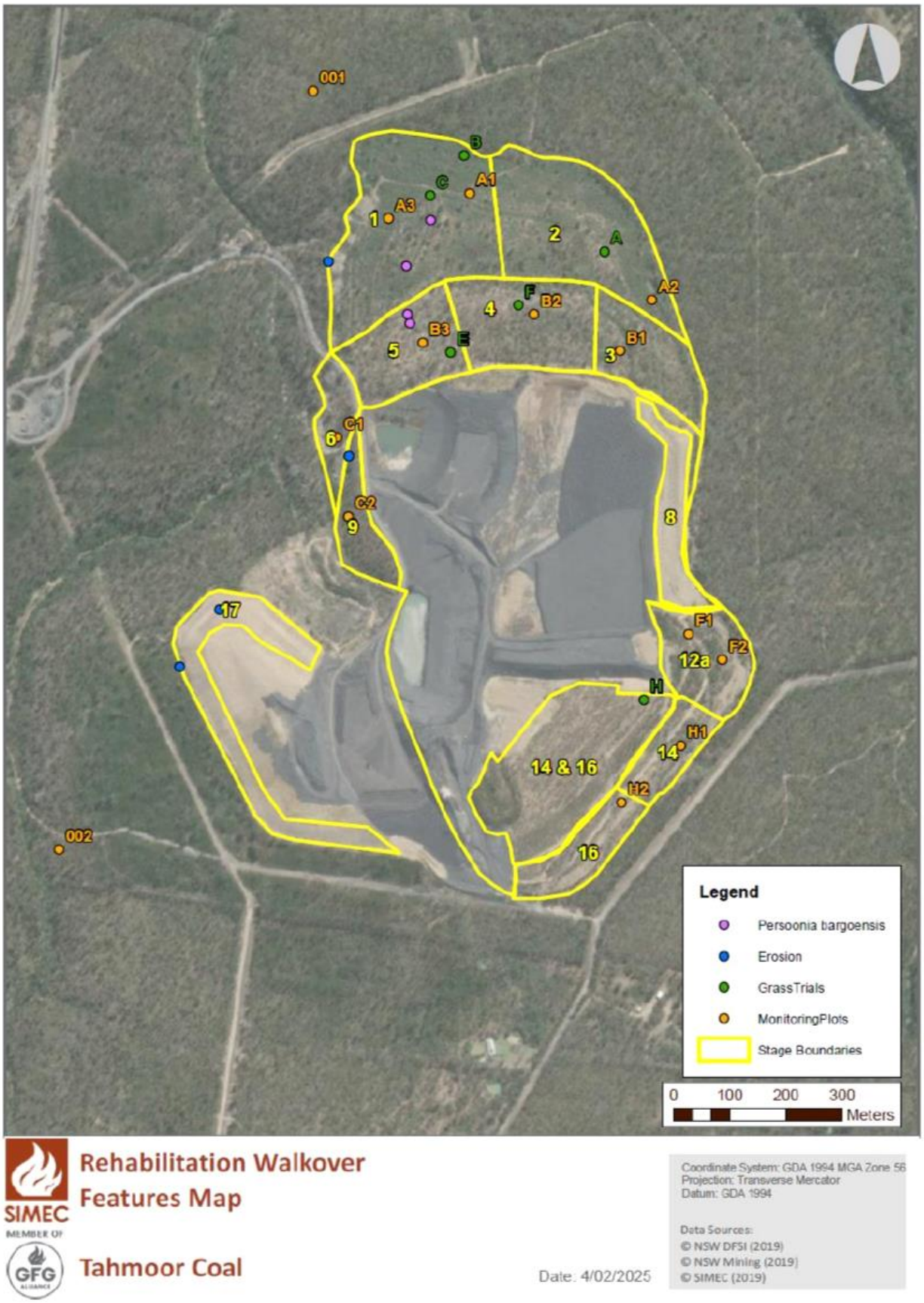


Figure 33 Rehabilitation Stages, monitoring plots and features noted during the Annual Rehabilitation Walkover during 2024

14.1.2 Rehabilitation and Emplacement Areas

During 2023, a portion of the top section of the current Refuse Emplacement Area was stripped to allow additional drying area and emplacement of refuse material. This has allowed for further vertical emplacement which will negate the need for future disturbance outside the already approved REA profile in accordance with the Tahmoor South Consent SSD 8445 and supporting EIS.

In accordance with Development Consent SSD 8445, Tahmoor Coal formally retired 327 x PCT1081 Biobanking Credits and received confirmation from the Biobanking Information Management System on 27 April 2023 (Transaction number 202304-RT-850) as per the requirements of the NSW Biodiversity Offset Scheme prior to any clearing of the PCT1081.

Tahmoor Coal is currently continuing to emplace refuse within the current approved boundary of the REA as part of normal operations. The emplacement areas utilised during the reporting period were confined to the western lobe and adjoining 'valley' section and the top-central section of the REA. Future emplacement of refuse material for 2025 will be confined to the adjoining valley section, the area located east of Dam S7 and the top-central section of the REA (Refer to **Figure 34**).

Limited opportunities are available for rehabilitation works during the next reporting period, however additional inter-planting will be considered for improvement in species diversity and abundance in establishing stages.

Tahmoor Coal is continuing to conduct a monthly grab water sample upstream and downstream of the Bargo River, as well as the EPA Licenced Discharge Point (LDP1) at the mine and overflow points (LOP's) of dams located within the REA and Shaft Site 2.

14.1.3 Further Improvements

During the next reporting period, grass trail fencing will be remediated as it has been subject to damage via wildlife over the years. This will require stakes being re-positioned and fencing wire re tightened and re-attached in some trials.

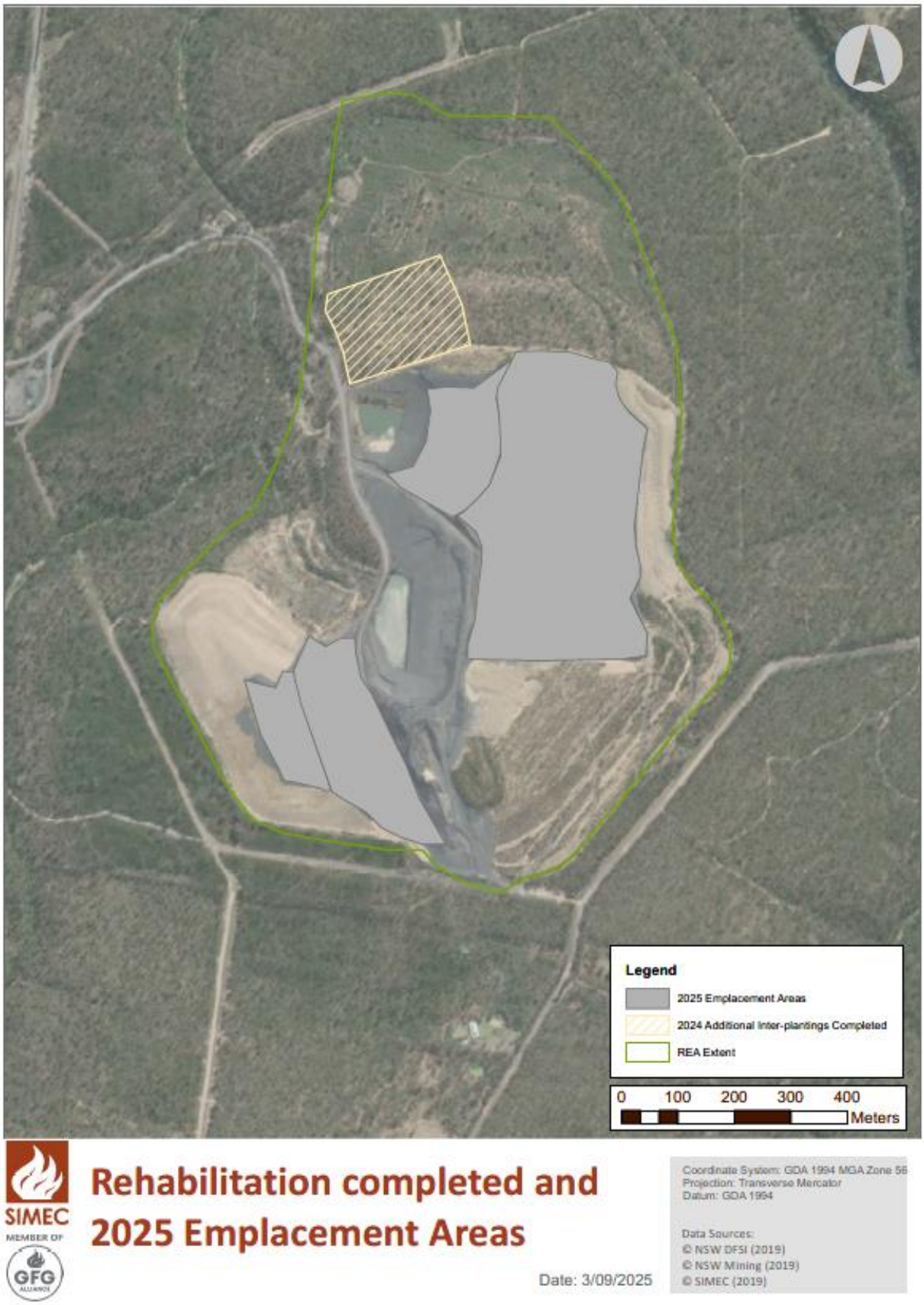


Figure 34 Completed Rehabilitation works during 2024, and Emplacement Areas for 2025.

14.2 Actions for the Next Reporting Period

During 2025, There are no areas completed to be rehabilitated at this stage. Rehabilitation targets for the next reporting period (1 January 2025 – 31 December 2025) are outlined in **Table 14-4** below.

Table 14-4 Rehabilitation Targets for 2025

Category	Targets for 2024 (ha)				
	Q1	Q2	Q3	Q4	Total (Target)
Disturbed	0	0	0	0	0
Levelled/Re-contoured	0	0	0	0	0
Rehabilitation Seeding	0	0	0	0	0
Established	0	0	0	0	0

A summary of maintenance activities completed and proposed for all rehabilitated land is outlined within **Table 14-5 below**.

Table 14-5 Rehabilitation Maintenance Activities

Nature of Treatment	Area (Ha) this Reporting period	Area (Ha) next reporting period	Comments, Control Strategies, Treatment Detail
Additional erosion control (drains re-contouring, rock protection)	<1	<1	Eastern Batter: Drainage lines re-contoured and rock armouring reinstated in sections, check drains installed. Logs placed along contours and scattered on the batter. Routine improvements and maintenance to existing stormwater drainage systems and erosion/sediment controls on disturbed areas and around dams will continue to be undertaken as required.
Re-covering (detail – further topsoil, subsoil sealing, etc)	0	0	
Soil treatment (detail – fertiliser, lime, gypsum, etc)	0	0	
Treatment management (detail – grazing, cropping, slashing, weeding etc)	<1	<1	Targeted weed spraying undertaken throughout the REA with weeds identified in the 2024 Rehab Walkover assessment prioritised. Similar weed management activities projected for 2025.
Adversely affected by weeds (detail, type and treatment)	<1	<1	Weed spraying continued on a monthly regime during 2024, with Acacia saligna and weeds noted during the 2023 walkover assessment and noted as being successfully controlled during the 2024 walkover.

			Minor weed species will need continued control during 2024, including Eragrostis curvula in Stages 14, 16, 12 and identified on the western side of Stages 1 & 5.
Re-seeding/planting (detail – species density, season, etc)	3.0	0	Additional interplantings of grasses and canopy trees completed for 2024 in Stage 5 (refer to **Figure 37**). Continued monitoring of juveniles for establishment and success rate. Some herbivory has impacted Lomandra sp.
Feral animal control (detail – additional fencing, trapping, baiting, etc)	80	80	Continued baiting of rabbits for next reporting period.

14.3 Mine Closure

14.3.1 Post mining Land use

There are several post mining land use options that may be applicable for the Tahmoor Mine site including residential land use, industrial land use or a return to native bushland.

The likely final land use option for most of Tahmoor Coal's closure domains will be a return to native bushland (refer to **Figure 35**). However, the final land use options will be confirmed in the detailed closure planning process, which involves undertaking a final land use analysis required 5 years prior to the cessation of mining activities at Tahmoor Mine.

A mine closure plan was developed as part of the Environmental Impact Statement for the Tahmoor South Project, referred to as the Rehabilitation and Mine Closure Strategy (SLR,2020).

14.3.2 Rehabilitation Indicators

The REA key rehabilitation indicators include the following:

- Maximum height of RL320 (SSD 8445);
- Maximum slope on final landform external batters will be 1:4 (generally will be 1:8);
- External batters should have gently sloping contour drains, reporting to water storage dams;
- Topsoil placement depth >300 mm;
- All final landform slopes to be contour ploughed prior to seeding or planting;
- Target <10% weed infestation within monitoring transects;
- Target evidence of second-generation flora germination in monitoring transects (monitored annually); and
- Rehabilitation monitoring transects contain flora species and structural characteristics like the desired vegetation communities at the analogue/reference sites (monitored annually).

Soils located at Tahmoor Mine have been identified as part of the Lucas Heights Soil Landscape and occurring adjacent to the Gymea Soil Landscape. Soil limitations of the landscape include stoniness, hard setting surfaces and low soil fertility. Erosion on the landscape is generally low. Where possible, deeper soil horizons are reserved for subsoil and capping material, while the top soil horizons with the highest organic content is reserved for rehabilitation and direct seeding/planting applications.

A combination of sterile cover crops and grasses for initial stability while native shrub and tree seed mixes establish are used at the REA to achieve the rehabilitation objective outcome of surrounding native bushland in the area. A species list has been developed and refined based on Tahmoor Coal's development consents and the results of the annual rehabilitation monitoring (which identifies which species have performed more successful than others during each year).

Hollow bearing trees and timber logs from clearing activities at the REA are salvaged and stockpiled for use throughout rehabilitation areas. Logs and hollows are spread throughout rehabilitation areas where accessible, to provide structure and encourage habitation colonisation by native fauna.

All mine closure domains including active domains still in operational use, are described in the Tahmoor Mine Conceptual Mine Closure Plan, the Rehabilitation Management Plan and Rehabilitation Strategy. Inactive Domains are assessed to establish an annual record of the status of each domain, including photographic monitoring to show progress and changes year to year included in the annual rehabilitation walkover (**Appendix 7**) however, this was not included in the 2024 Annual Rehabilitation Monitoring. To date the Refuse Emplacement Area is the only Domain currently undergoing active rehabilitation activities.

Regular surveying is conducted in active landform areas to monitor maximum slope to conform to final landform designs.

Tahmoor Coal has five (5) identified primary closure domains based on operational function and geography (ie. 1, 2, 3, 4 and 5). Most of these domains are connected or within close proximity of one another, and will therefore share similar final landforms and rehabilitation objectives. A schedule of these domains, with the rehabilitation status comparing last reporting period to this reporting period, is provided in **Table 14-6** and shown in **Appendix 8.**

Table 14-6 Tahmoor Coal Closure Domains

Domain	Description	Rehabilitation Status	
		2023	**2024**
1	Tahmoor Mine Main Pit-top Area	-	-
1A	CHPP	Active Area	Active Area
1B	Rail Loading Facility	Active Area	Active Area
1C	Main Workshop and Administration Area	Active Area	Active Area
1D	No.3 Shaft and Gas Drainage Plant	Active Area	Active Area
1E	Sewage/Water Treatment Plant	Active Area	Active Area
2	Product Stockpile Area	Active Area	Active Area
3	Refuse Emplacement Area	Active Area, Ecosystem Est., and Ecosystem Dev.	Active Area, Ecosystem Est., and Ecosystem Dev.
4	No.1 Ventilation Shaft	Active Area	Active Area
5	No.2 Ventilation Shaft	Active Area	Active Area
6	Off Title Subsidence Area	Active Area	Active Area

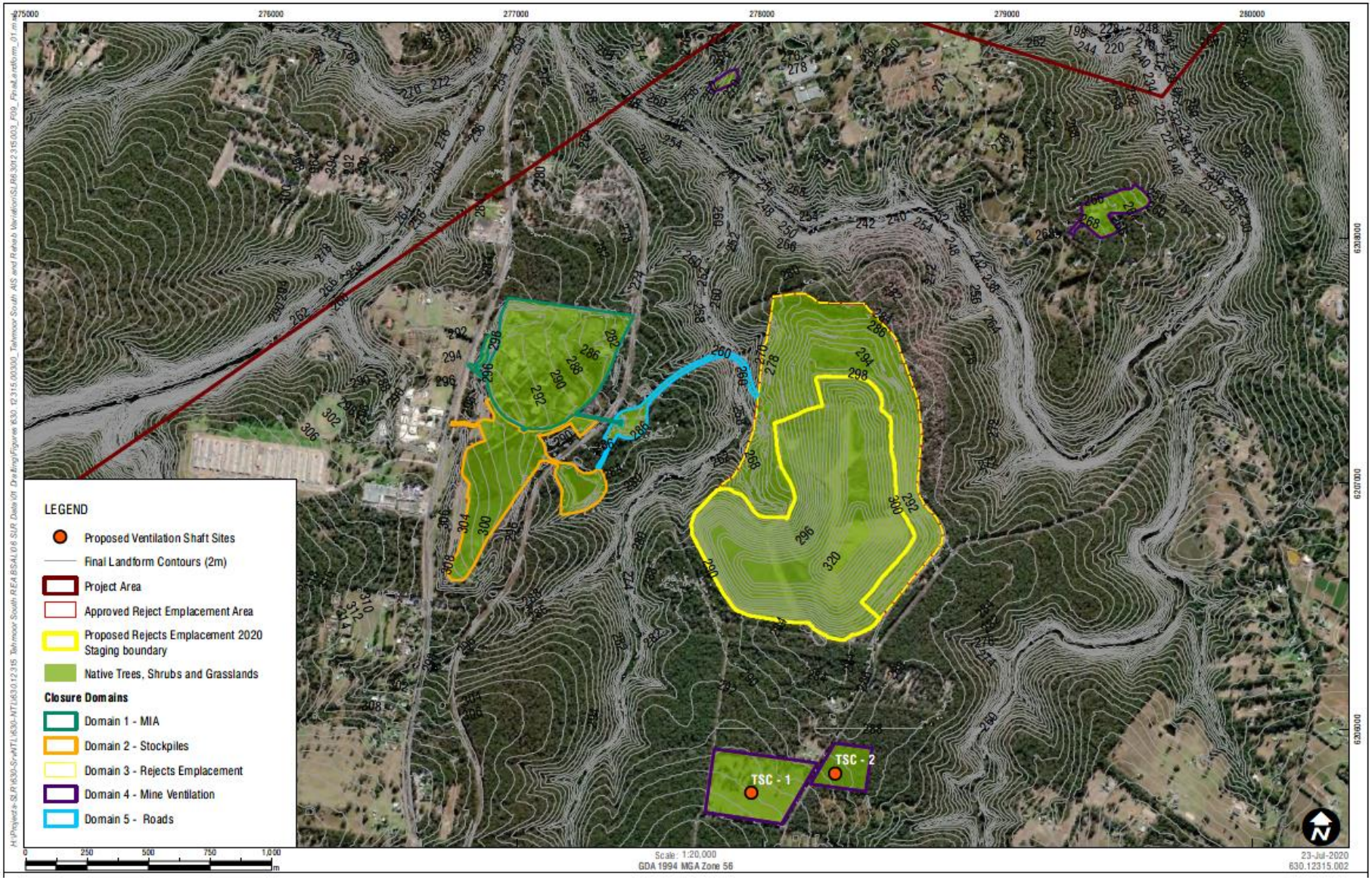


Figure 35 Final rehabilitation and post-mining land use.

15 Weeds

15.1 Environmental Management

Weeds are managed across Tahmoor Mine in accordance with the Weed Management Procedure which has been developed as part of the site Environmental Management System. The purpose of this plan is to outline management strategies and controls for noxious and environmental weeds, so that weed infestations are controlled and kept at an acceptable level on all lands owned or managed by the mine. A summary of weed species targeted during the reporting period, and control methods used, is provided in **Table 15-1.**

Table 15-1 Weed Target Species

Target Weed Species	Date of Control	Treatment Method
African Lovegrass (Eragrostis curvula)	All seasons	Herbicide (Glyphosate)
Hedge Mustard (Sisymbrium orientale)	All seasons	Herbicide (Glyphosate Dicamba)
Whiskey Grass (Andropogon virginicus)	All seasons	Herbicide (Glyphosate)
Serrated Tussock (Nassella trichotoma)	All seasons	Herbicide (Glyphosate)
Fireweed (Senecio riensis madagasca)	Winter or as detected	Hand Weeding & Herbicide (Glysophate) Late Autumn
Western Australian Golden Wattle (Acacia saligna)	All seasons	Cut stump removal and herbicide application
Couch (Cynodon dactylon)	All seasons	Herbicide (Glyphosate)
Fountain Grass (Cenchrus setaceus)	All seasons	Herbicide (Glyphosate)
Catsear (Hypochaeris radicata)	All seasons	Herbicide (Glyphosate)
Narrow-leafed Cotton Bush (Gomphocarpus fruticosus)	All seasons	Herbicide (Glyphosate Dicamba)
Flaxleaf Fleabane (Conyza bonariensis)	All seasons	Herbicide (Glyphosate resistant)
Scarlet Pimpernel (Anagallis arvensis)	All seasons	Herbicide (Glyphosate Dicamba)
Veined Verbena (Verbena rigida)	All seasons	Herbicide (Glyphosate Dicamba)
Paspalum (Paspalum dilatatum)	All seasons	Herbicide (Glyphosate)
Red-flowered Mallow (Modiola caroliniana)	All seasons	Hand weeding & Herbicide (Glyphosate)
Pampas Grass	All seasons	Herbicide (Glyphosate)
Plantain (Plantago)	All seasons	Herbicide (Glyphosate)

15.2 Environmental Performance

Weed management of all land owned or managed by Tahmoor Coal has continued through the reporting period. Monthly Environmental inspections across Pit-top, REA, Shaft site 1, Shaft site 2 and the Bargo shaft site continually monitor weed prevalence across these sites and target areas

of concern to be controlled within the next month by Tahmoor Coal's Grounds Maintenance Contractors.

During the reporting period, the monthly environmental inspections have noted Pampas grass continuing to re-emerge in the same area as the parent plants that were controlled during 2022. Continued weed maintenance and control have been implemented in this area and continued inspections around this area will continue to suppress any further re-emergence or spread.

Continuation of the current weed control program and control of Whiskey Grass, African Lovegrass, Hedge Mustard, *Acacia saligna* and seedling *Leptospermum laevigatum* has been recommended and is monitored monthly by Tahmoor Coal's Grounds Maintenance Contractor.

Weeds identified across site during the Monthly Environmental Inspections during 2024 include African lovegrass, Blackberry (in particular at Dam M4), Narrow-leafed cotton bush and flaxleaf fleabane as most identified across pit-top. This was managed and maintained monthly by Tahmoor Coal's Grounds Maintenance Contractor.

There were no reportable incidents related to weed management during the reporting period.

15.3 Further Improvements

Tahmoor Coal will continue weed management monitoring and maintenance activities within associated leased and owned land, across pit-top and rehabilitation areas at the REA, with particular focus on any problematic weed pockets identified in the Annual Rehabilitation walkover or during the Monthly Environmental Inspections.

16 Bushfire Management

16.1 Environmental Management

Bushfire Management maintained across Tahmoor Mine in accordance with the approved Bushfire Management Plan (BMP), which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South.

The BMP provides significant detail on the location of all Tahmoor Coal land holdings with detailed maps showing Asset Protection Zones (APZ), Land Management Zones (LMZ) and Strategic Fire Zones (SFZ), gate/track/road access for all locations, and a detailed schedule of hazard reduction activities required for each location. For further information the Bushfire Management Plan can be viewed on the Tahmoor coal's website, accessible through the following link: Plans – Tahmoor Colliery.

16.2 Environmental Performance

During 2024, Tahmoor Coal undertook Annual Asset Protection Zone maintenance during late Spring keeping light vehicle access roads and perimeters around Pit-top, REA access roads, Shaft site 1, Shaft site 2 and Tahmoor Coal owned neighbouring properties on Charlies Point Road south of the REA maintained (refer to **Figure 36**).

No hazard reduction burns were completed during the reporting period and no wildfires were reported in the region.

16.3 Further Improvements

Tahmoor Coal will continue to implement hazard control strategies outlined in the current Bushfire Management Plan and in consultation with the Wollondilly/Wingecaribee Bush Fire Management Committee which a Tahmoor Coal representative attends quarterly.

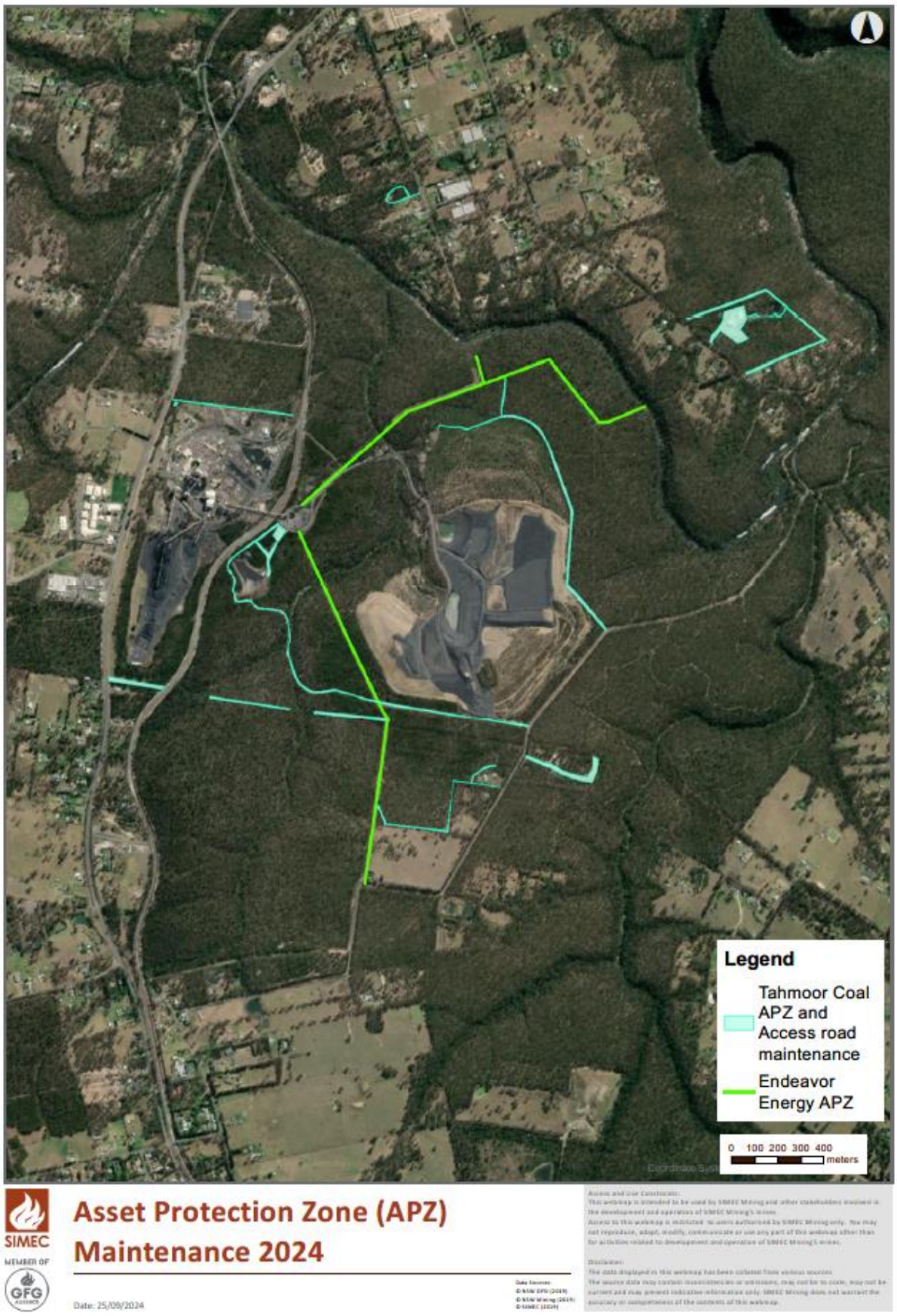


Figure 36 Annual Asset Protection Zone (APZ) and Fire trail maintenance for Tahmoor Coal during 2024

17 Traffic Management

Traffic is managed in accordance with the approved Traffic Management Plan (available on the Tahmoor Coal website), which has been prepared to address the requirements of Condition B7 of the SSD 8445 development consent for Tahmoor South and has been managed in accordance with conditions B61, B62, B67, A10, A11, A13, A15 of consent SSD 8445.

During the reporting period truck and train times and tonnes have been recorded and reported in **Appendix 9** and **Appendix 10** in accordance with condition B61 of SSD 8445.

Tahmoor Coal operations were non-compliant with condition A11(c) during one occurrence due to an exceedance of the tonnes and truck movements allowable in accordance with the consent SSD8445. After becoming aware of the non-compliance, Tahmoor Coal and Wollondilly Shire Council took immediate action to reduce truck movements and ensure compliance with the Consent was achieved. This non-compliance was due to a lack of detailed understanding of the consent requirements between parties involved.

During 2 April 2024, transportation of Coal Washery Reject (CWR) commenced by road from the Tahmoor Mine Reject Emplacement Area to Bargo Waste Management Centre. Tahmoor Coal representatives loaded the trucks (contracted by Wollondilly Shire Council) with CWR, which was carted to construct a hardstand area at the Bargo waste Management Centre.

The non-compliances occurred on Tuesday 2 April and Wednesday 3 April 2024. The below **Table 17-1** provides the details of the non-compliances under conditions A11 of the Consent SSD 8445.

Actions taken to address the non-compliance and immediately rectify the non-compliance include:

- Confirmed Consent conditions with Wollondilly Shire Council and their truck haulage contractor;
- Confirmed Consent conditions with Tahmoor Coal representatives managing the loading of trucks;
- Check of truck logs on a daily basis; and
- Onsite observation of truck numbers.

The actions taken above have been successful at preventing future non-compliances from occurring.

Table 17-1 Non-Compliances that occurred on the 2 and 3 April 2024 in accordance with condition A11 of consent SSD 8445.

Date	Condition A11(i): 3,000 tonnes per hour	Condition A11(ii): 16 Truck movements in total per hour	Condition A11(iii): 158 truck movements in total per day
Tuesday 2 April 2024	4,452 tonnes (Non-Compliant)	Between 18-21 truck movements per hour over 7 hours (Non-Compliant)	159 (Non-Compliant)

Date	Condition A11(i): 3,000 tonnes per hour	Condition A11(ii): 16 Truck movements in total per hour	Condition A11(iii): 158 truck movements in total per day
		14 and 16 truck movements over 2 hours (Compliant)	
Wednesday 3 April 2024	3,248 tonnes (Non-Compliant)	Between 7am to 11am: 18 to 19 truck movements per hour (Non-Compliant)	116 (Compliant)
Thursday 4 April 2024	1,960 tonnes (Compliant)	Between 6 to 12 truck movements per hour (Compliant)	70 (Compliant)
Friday 5 April 2024	No truck movements due to weather	-	-

Tahmoor Coal operations have been compliant with condition A13 of consent SSD8445 during the reporting period (refer to **Appendix 9** and **Appendix 10** for Train and Truck timetables).

18 Community

18.1 Community Engagement Activities

Tahmoor Coal recognises that genuine partnerships with stakeholders and local communities are an essential part of community engagement.

Tahmoor Coal has established a good working relationship with the local community throughout its operations and seeks to continue this as new projects are established. There is a focus on providing timely and accurate information regarding its performance to its varied stakeholders.

The method of consultation used varies depending on the scale of project, stakeholder type and preferred method of communication.

The following consultation methods are commonly used to communicate and engage with stakeholders:

- Newsletters – distributed by email, website, post and printed posters displayed in various locations;
- Resident Information Packs – Distributed to residents in current and future proposed mining areas and website;
- Face to face consultation meetings, eg. Local landholders, schools, businesses and community groups;
- Website (https://www.tahmoorcolliery.com.au/) containing a variety of information and reports;
- 24-hour complaints line – phone number displayed on newsletter, website and distributed as required, eg. Face to face meetings;
- Tahmoor Coal Community Consultative Committee (TCCCC) Meetings – four (4) quarterly meetings held in 2024 (7 March, 6 June, 5 September and 5 December);
- Community Information Sessions – as required at various locations (open to all members of the public). One (1) session held in 2024 (27 November) for residents in the subsidence zone of LWs S4A-S6A;
- Displays of Tahmoor Coal operations at community events (eg Illuminate Wollondilly Festival of Art & Light at Picton in September 2024); and
- Six Monthly Subsidence Impact Reports – distributed to TCCCC and available on Tahmoor Coal website.

18.2 Community Contributions

Tahmoor Coal contributes to the social and economic development of sustainable communities associated with its operations and ensures the rights of communities in which it operates are respected and supported. This is achieved by:

- Identifying the communities and stakeholders associated with our operations and actively engaging with them as early as possible and throughout the life cycle of the operations to establish relationships based on mutual benefit and active participation;
- Respecting the cultural, customs, interests and rights of communities, including indigenous peoples and vulnerable or disadvantaged groups;

- Working with governments, local authorities, community representatives, inter-governmental and non-governmental organisations and other interested parties to develop and support projects that benefit the communities associated with our operations; and
- Contributing an indicative amount of $200,000 each year to fund initiatives that benefit the communities associated with our operations, particularly those located in more remote areas or in regions with a lower level of social and economic development and infrastructure.

18.3 Community Investment Program

In 2024 some of the major sponsorships and donations included support for:

- Australian Wildlife Sanctuary: Tahmoor Coal sponsored and provided a grant of $59,500 to build a Koala and Wildlife Rehabilitiation Centre at the Australian Wildlife Sanctuary. The project included numerous Koala care enclosures for intensive care and intermediate care, pre-release housing, relocatable office building and storage. The centre provides large capacity and 24-hour care opportunities for injured wildlife and a 24-hour rescue service;
- Bargo Public School SpellEx Program: The SpellEx Program was rolled out to Year 3 and 4 primary school students to improve spelling using a wide range of resources. The program kit contains lessons, teaching resources, online courses, slideshows, workbooks and assessments every two weeks to track progress. Tahmoor Coal provided a grant of $9,043 to implement the second phase of the program at Bargo Public School.
- Wollondilly Beach Bus: The Wollondilly Beach Bus is a free service travelling from Wollondilly to North Wollongong beach every Thursday during January. The program primarily targets the 8000 young people in the Local Government Area. Wollondilly is significantly transport disadvantaged and has a lack of free or affordable entertainment options for young people. The service enables people to meet with or develop new friendships while undertaking a recreational activity that promotes healthy lifestyle and fitness. Ultimately, it connects the community throughout summer, providing them with an opportunity to socialise, exercise and unwind. Tahmoor Coal has sponsored this initiative for 12 years and provided financial support to allow two buses to run at no cost to participants during January 2024;
- Illuminate Wollondilly Festival of Art & Light: Attracting around 22,000 people, Illuminate Wollondilly encourages visitors, locals, friends and families to stroll through the town of Picton taking in the enchanted ambiance as an amazing range of local artworks are projected onto landmark buildings to illuminate the historic town. Tahmoor Coal was a sponsor for this event and set up a stall featuring a Virtual Reality (VR) underground experience for children and adults to enjoy.

In accordance with the Tahmoor Coal Community Development Plan and Community Investment Program, all community investment activities, whether financial or in-kind support, should target the following group-wide focus areas:

- Community development;
- Education;
- Health; and
- Environment.

An overview of the Tahmoor Coal community contributions during 2024 are outlined in **Table 18-1** below.

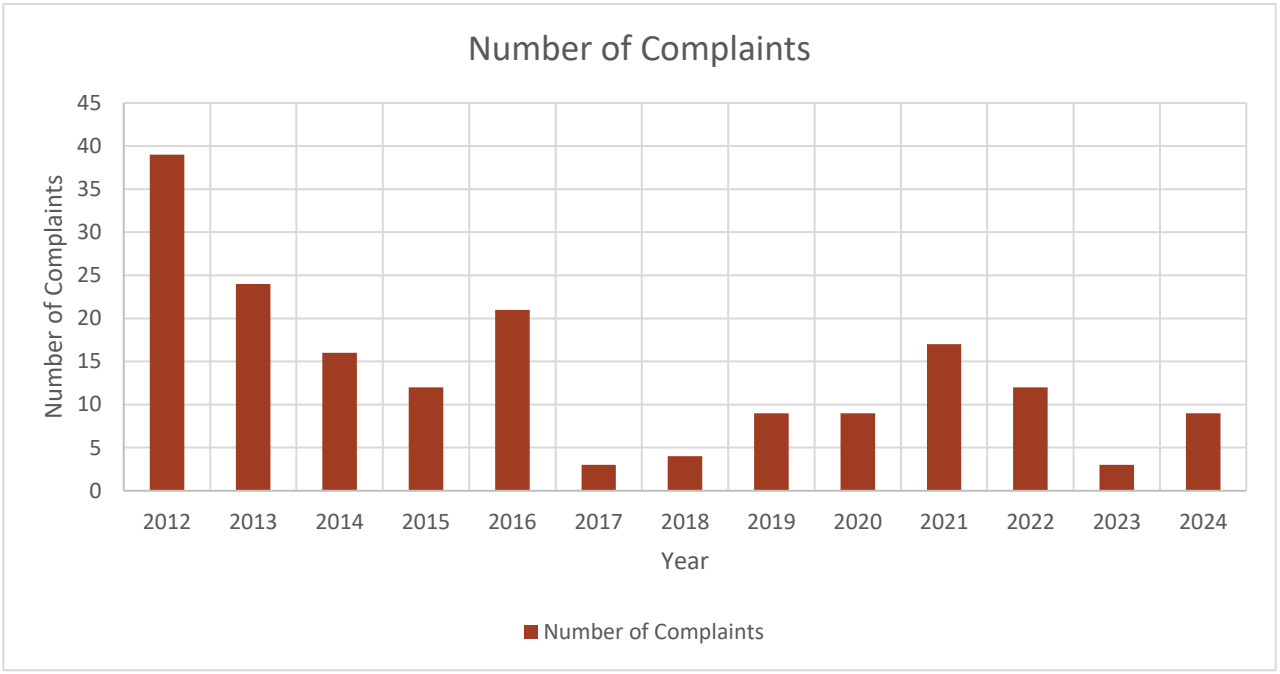
Table 18-1 Community Contributions in 2024

Category	Contributions in 2024
Community Development	$25,700
Health	$12,350
Environment	$59,500
Education, Art & Culture	$43,923
Total	**$141,473**

18.4 Community Complaints

A total of nine (9) community complaints were received for the reporting period and is illustrated in **Figure 37** and **Table 18-2**. The complaints received related to the following categories:

- Noise and vibration (4); and
- Truck movements (5).



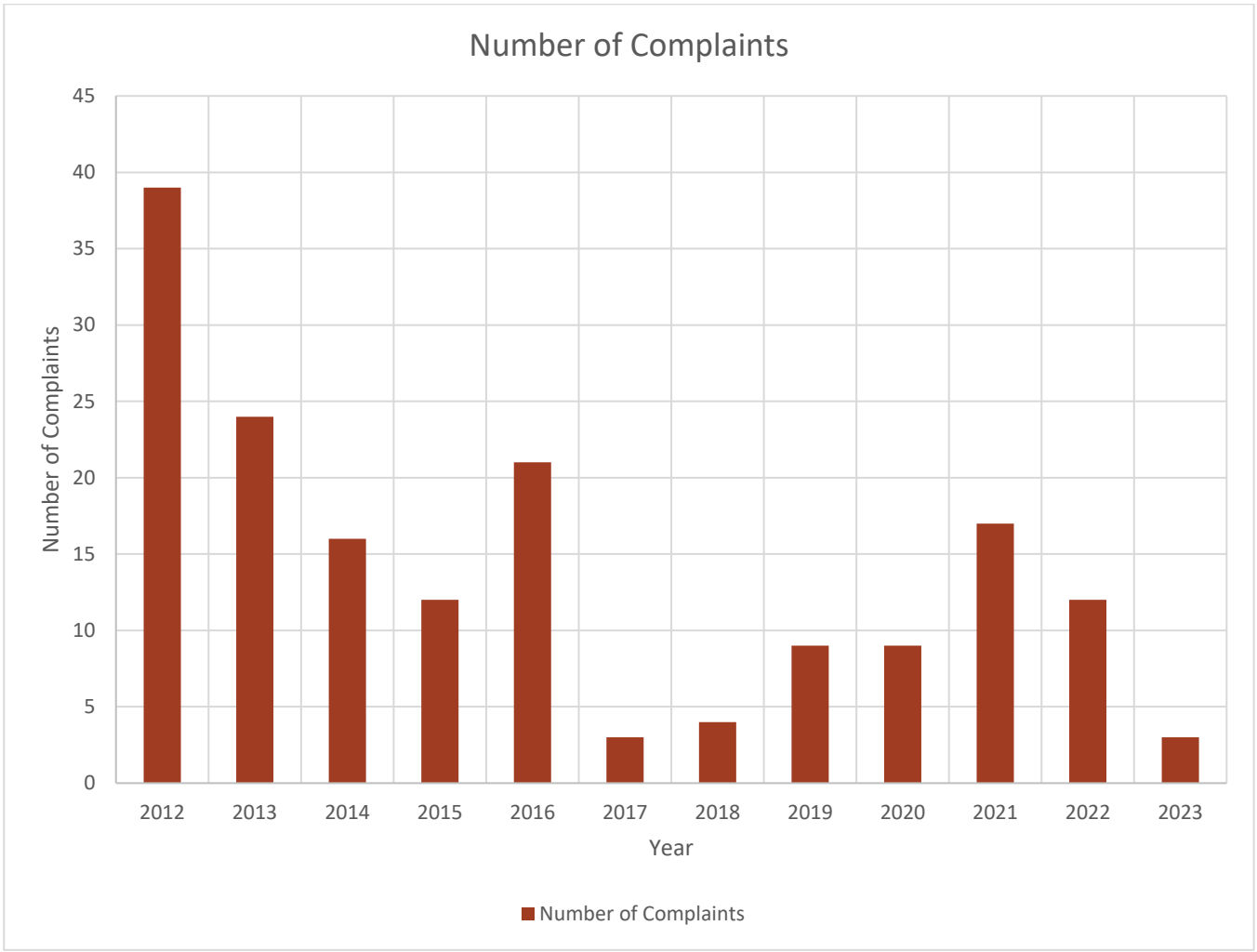


Figure 37 Community Complaint Statistics

Table 18-2 Complaint Details

Date	Type	Complaint Details
22/02/2024	Noise	Three (3) complaints received for perceived noise concerns from embankment clearing works along Remembrance Driveway Bargo. Tahmoor Coal met with the residents following concerns raised and explained that Black Wattle tree clearing works were approved by council. The works were required as part of the subsidence monitoring program for clear line of sight for surveying Remembrance Driveway embankments. Tahmoor Coal agreed to plant hedging plants along the embankment barrier.
02/04/2024 & 03/04/2024	Truck movements	Four (4) complaints received regarding excessive and speeding truck movements along Great Southern Road Bargo. Tahmoor Coal advised residents that Wollondilly Shire Council engaged the truck haulage company to transport material from Tahmoor Mine site and their complaint was referred to council for response.
26/08/2024	Truck movements	Perceived aggressive truck movements along Charlies Point Road Bargo. Tahmoor Coal contacted all trucking companies to provide a reminder to all truck drivers to be mindful and respectful of residents living along Charlies Point Road and drive to road conditions.
25/09/2024	Vibration noise	Vibration noise from windows and internal ensuite mirror. Tahmoor Coal requested resident keep a noise log for one week and provide results for further investigation. Complaint closed in November 2024 following multiple contact attempts to progress the investigation with no response received.

19 Incidents, Notifications and Non-Compliances

Tahmoor Coal had a total of three (3) non-compliances, two (2) incidents related to spills contained onsite during the reporting period. In addition, Tahmoor Coal had fourteen (14) occurrences of TARP triggers for environmental and built features during the reporting period. A summary of all environmental incidents and notifications for 2024 is outlined within **Table 19-1**.

Table 19-1 2024 Non-compliances, Incidents and notifications

Date	Classification (if required)	Type	Location	Details	Action(s) taken
Non-Compliances					
02/04/2024		Non-compliance	Refuse Emplacement Area	Number of allowable truck movements from site exceeded.	Truck movements reduced immediately. Contractors and site personnel notified. Consent conditions confirmed with project organisers and contractors. Daily truck logs checked and onsite truck observations undertaken.
30/09/2024		Non-compliance	Off-site	Noise exceedance for two (2) monitoring sites	Noise exceedance assessed for two (2) offsite noise monitoring locations. Stakeholders notified within seven (7) days in accordance with SSD8445 Condition D6.
11/10/2024		Non-compliance	Admin	Notification to DPHI in accordance with SSD8445 Condition E10 not met.	Notification sent to DPHI.
Incidents					
01/09/2024	Cat 0	Incident - Spill	Onsite - Yard	Quintolubric Hydraulic fluid spill in yard less than 20L.	E&C personnel identified a vehicle in yard with an oil leak, contained to the area surrounding the vehicle. Immediately enacted spill response procedure.
14/10/2024	Cat 0	Incident - Spill	Onsite - Yard	Oil spill/film contained in onsite Dam, less than 20L.	E&C personnel identified oil film on the surface of onsite dam. Immediately enacted spill response procedure with additional surface booms deployed. Vacuum sucker truck deployed.

Date	Classification (if required)	Type	Location	Details	Action(s) taken
Non-Compliances					
					Source discovered and rectified.
Notifications					
23/02/2024	TARP Trigger Notification	LW S2A Subsidence Notification 3 for environmental features	Pool TT2	Stream Water Quality TARP triggered (WMP1)	TARP implemented. No actions other than ongoing monitoring as per the LW S1A-S6A Water Management Plan.
23/02/2024	TARP Trigger Notification	LW S2A Subsidence Notification 3 for environmental features	Pool TT7	Pool Water Level TARP trigger (WMP3)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
23/02/2024	TARP Trigger Notification	LW S2A Subsidence Notification 3 for environmental features	Groundwater Monitoring Sites P51B, P53(A, B & C), P55 (B & C), P56C and GW104659	Shallow Groundwater Level TARP trigger (WMP8)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
23/02/2024	TARP Trigger Notification	LW S2A Subsidence Notification 3 for environmental features	Groundwater Monitoring sites P53C, P55(A, B & C), P56(A&B), REA4, GW104323, GW105395, GW112473	Groundwater Quality TARP trigger (WMP11)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
23/02/2024	TARP Trigger Notification	LW S2A Subsidence Notification 3 for environmental features	Monitoring sites P51B & BR3, P53(A, B & C) &TT14, P55B &TT1, P55C & TT1	Groundwater-Surface Water interaction TARP trigger (WMP12)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
17/05/2024	TARP Trigger Notification	LW S2A Subsidence Notification 5 for environmental features	Pool TT9	Pool Water Level TARP trigger (WMP3)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
04/10/2024	TARP Trigger Notification	LW S2A Subsidence Notification 6 for environmental features	Pools TT12 and TT11	Physical Features and Natural Behaviour TARP triggered (WMP5)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.

Date	Classification (if required)	Type	Location	Details	Action(s) taken
Non-Compliances					
04/10/2024	TARP Trigger Notification	LW S2A Subsidence Notification 6 for environmental features	Knickpoint Monitoring site K64	Channel Stability, Sedimentation and Erosion TARP Trigger (WMP7)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
04/10/2024	TARP Trigger Notification	LW S2A Subsidence Notification 6 for environmental features	Groundwater Monitoring sites P55B	Shallow Groundwater Level TARP trigger (WMP8)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
04/10/2024	TARP Trigger Notification	LW S2A Subsidence Notification 6 for environmental features	Monitoring sites P55B & TT1	Groundwater-Surface Water interaction TARP trigger (WMP12)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
12/11/2024	TARP Trigger Notification	LW S3A Subsidence Notification 1 for environmental features	Farm Dam 18 (FD18)	Seepage observed from Erosional rills on the Dam wall	TARP implemented. Further investigations note no safety concerns. Cause of rills likely due to Dam overtopping during high rainfall events and not mining related. Monitoring continuing in accordance with the Longwall S1A-S6A Land Management Plan.
20/12/2024	TARP Trigger Notification	LW S3A Subsidence Notification 2 for environmental features	Pool TT13	Stream Water Quality TARP triggered (WMP1) and Physical Features and Natural Behaviour of Water courses (WMP5)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
20/12/2024	TARP Trigger Notification	LW S3A Subsidence Notification 2 for environmental features	Groundwater Monitoring Sites P55A and P56B	Shallow Groundwater Level TARP trigger (WMP8)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.
20/12/2024	TARP Trigger Notification	LW S3A Subsidence Notification 2 for environmental features	Monitoring Sites P53C & TT14	Groundwater-Surface Water interaction TARP trigger (WMP12)	TARP implemented. Ongoing monitoring as per the LW S1A-S6A Water Management Plan.

20 Activities to be completed during the next reporting period (1 January 2025 – 31 December 2025)

The following activities are aimed to improve the environment and/or community performance of Tahmoor Coal and are planned to be completed during the next reporting period:

- Continued monitoring of completed remediation works undertaken on Myrtle Creek and Redbank Creek CMAP;
- Further improvement to the site water management system including operation of Water Treatment Plant for processing discharge waters;
- Continue Aquatic Health Monitoring Program for the Bargo River as directed in EPL 1389;
- Continue Ecological Toxicity monitoring as directed in EPL1389;
- Continued community engagement for Tahmoor South mining; and
- Undertake studies required to support Extraction Plan for LW S1B-S6B, including obtaining baseline monitoring data from surface water and groundwater monitoring.

21 Related Documents

Related Documents directly related to or references from this document are provided below in **Table 21-1**.

Table 21-1 Related Documents

Document Title	Document Number
Tahmoor South Air Quality and Greenhouse Gas Management Plan	TAH-HSEC-00379
Tahmoor South Water Management Plan	TAH-HSEC-00369
Tahmoor south Groundwater Management Plan	TAH-HSEC-00373
Tahmoor South Noise Management Plan	TAH-HSEC-00372
Tahmoor South Biodiversity Management Plan	TAH-HSEC-00378
Tahmoor South Bushfire Management Plan	TAH-HSEC-00377
Tahmoor South Traffic Management Plan	TAH-HSEC-00370
Erosion & Sediment Control Plan	TAH-HSEC-00374
Weed Management Procedure	TAH-HSEC-00107
Rehabilitation Management Plan	TAH-HSEC-00402
Rehabilitation Strategy	TAH-HSEC-00401
Longwall S1A-S6A Extraction Plan	TAH-HSEC-00360
LW S1A-S6A Subsidence Monitoring Program	TAH-HSEC-00367
LW S1A-S6A Biodiversity Management Plan	TAH-HSEC-00363
LW S1A-S6A Heritage Management Plan	TAH-HSEC-00364
LW S1A-S6A Land Management Plan	TAH-HSEC-00362
LW S1A-S6A Built Features Management Plan	TAH-HSEC-00366
LW S1A-S6A Public Safety Management Plan	TAH-HSEC-00365
LW S1A-S6A Water Management Plan	TAH-HSEC-00361
Australian Wildlife Sanctuary Management Plan	MSEC1074
Wollondilly Shire Council Management Plan	MSEC1193-03
Jemena Management Plan	MSEC1193-06
Sydney Potable Water Management Plan	MSEC1193-04
Sydney Water Sewer Management Plan	MSEC1193-05
Telecommunications Management Plan	-
Wollondilly Anglican College Management Plan	MSEC1193-11
Bargo Chicken Breeder Production Complex Management Plan	MSEC1193-14
Tahmoor Garden Centre Management Plan	MSEC1193-15
Aboriginal Cultural Heritage Assessment: Amended Tahmoor South Project (Niche, 2020)	

Conceptual Mine Closure Plan	TAH-HSEC-00121

22 Abbreviations

Abbreviations used in this document are provided below in **Table 24-1**.

Table 22-1 Abbreviations

Abbreviation	Definition
ACM	Asbestos containing materials
AEMR	Annual Environmental Management Report
APZ	Asset Protection Zones
ASTs	Above ground storage tanks
AUSRIVAS	Australian River Assessment System
BC Act	*Biodiversity Conservation Act 2016*
BMP	Bushfire Management Plan
CCL	Consolidated Coal Lease
CHPP	Coal Handling Preparation Plant
CMAP	Corrective Management Action Plan
DA	Development Application
DC	Development Consent
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPIE	Department of Planning, Industry and Environment
DPHI	Department of Housing and Infrastructure
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environmental Protection Licence
ERG	Tahmoor Coal Environmental Response Group
GHG	Greenhouse gas
GIS	Global Information System
HHRT	Historical Heritage Technical Report
IPC	Independent Planning Commission
km	Kilometre
KL	Kilolitres
LDP1	Licenced Discharge Point 1
LMZ	Land Management Zones
LOP	Licenced Overflow Point
LW	Longwall
LW W1	Longwall West 1
LW W1-W2	Longwall West 1 and Longwall West 2
LW W2	Longwall West 2

Abbreviation	Definition
LW W3	Longwall West 3
LW W3-W4	Longwall West 3 and Longwall West 4
LW W4	Longwall West 4
LW S1A	Longwall South 1A
LW S1A-S6A	Longwalls South 1A to South 6A
LW S2A	Longwall South 2A
LW S6A	Longwall South 6A
m	Metres
ML	Mining Lease
MOP	Mining Operation Plan
NC	Non Compliance
NGERS	National Greenhouse and Energy Reporting
NSW	New South Wales
ODS	Ozone depleting substances
OSP	Open Stand Pipe
PCBs	Polycholorinated Biphenyls
PIRMP	Pollution Incident Response Management Plan
PM10	Particulate Matter smaller than 10 micrometres
PRP	Pollution Reduction Program
QA	Quality assurance
RAPs	Registered Aboriginal Parties
REA	Refuse Emplacement Area
RFS	Rural Fire Service
RWTP	Recycled Water Treatment Plant
Resources Regulator	Department of Regional NSW – Resources Regulator
ROM	Run of Mine
SFZ	Strategic Fire Zones
SLR	SLR Consulting Australia Pty Ltd
SMF	Syntheci Mineral Fibre
TSS	Total Suspended Solids
Tahmoor Coal	Tahmoor Coal Pty Ltd
Tahmoor Mine	Tahmoor Coal Mine
TARP	Trigger Action Response Plan
TCCCC	Tahmoor Coal Community Consultative Committee
USTs	Underground storage tanks
VWP	Vibrating Wire Piezometer

Abbreviation	Definition
WLEP	Wollondilly Local Environment Plan
WAL	Water Access Licence
WMP	Water Management Plan
WTP	Water Treatment Plant

23 Appendices

Table 23-1 Appendix Details

Appendix Number	Details
Appendix 1	Quarterly Noise Monitoring Assessment Results
Appendix 2	Licence Discharge and Overflow Monitoring Sites
Appendix 3	Dam Water Volumes
Appendix 4	Surface Water Management Schematic
Appendix 5	Surface Water Monitoring Graphs
Appendix 6	Pit-top and REA Groundwater Monitoring data
Appendix 7	Tahmoor Annual Rehabilitation monitoring 2024
Appendix 8	Closure Domains
Appendix 9	2024 Truck Timetable
Appendix 10	2024 Train Timetable
Appendix 11	Tahmoor South - Six Monthly Subsidence Impact Report 4 (Jan-June 2024)
Appendix 12	Tahmoor South - Six Monthly Subsidence Impact Report 5 (July-Dec 2024)
Appendix 13	Western Domain Residual Subsidence Quarterly Monitoring Reports (2024)
Appendix 14	Western Domain Residual Groundwater Monitoring Report (2024)