

Tarrawonga Coal Mine Community Consultative Committee Meeting #72

**Quarterly Environmental Monitoring Report
January, 2023 – March, 2023**



Photo taken in March 2023 of our Northern Emplacement Area

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from January 1 2023 to March 31, 2023. Maps with all the monitoring locations are available in *Appendix A*.

Noise Monitoring

Noise monitoring for this reporting period involved, our quarterly Attended Noise Monitoring, Road Noise monitoring and the annual Sound Power Level Monitoring (SPL).

SPL monitoring aims to ensure that the mine's equipment is operating with noise suppression and any increases from the previous year are flagged so that any affected equipment's noise levels can be checked. TCM recorded that no plant items produced excessive noise.

Attended noise monitoring was conducted at the "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong" (TN2) properties from 14th March to the 18th March 2023. Noise criteria for the mine is 35dB(A) Leq (15 min) for all operating times.

Results below show that noise emissions from the mine did not exceed operational noise criteria at the "Barbers Lagoon", "Bungalow" or "Matong" monitoring locations for any monitoring events during the monitoring period.

(See below summary tables extracted from 20221219 Spectrum Acoustics report 9775 Quarterly Attended Noise Monitoring Tarrawonga Q4 2022)

Table 1 TCM Operational Noise Monitoring Results – 14 March 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC ¹	Identified Noise Sources
Matong – TN2	4:06pm	38	1.8 / 273 / A	Birds (37), insects (29), TCM (<20)
Barbers Lagoon – TN3	12:49pm	55	3.3 / 159 / D	Birds (53), traffic (50), insects (30), TCM (<20)
Bungalow – TN4	2:22pm	45	5.6 / 157 / D	Traffic (44), birds (38), TCM (<20)

Table 2 TCM Operational Noise Monitoring Results – 14 March 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:02pm	50	3.2 / 113 / D	Insects (50), frogs (36), TCM (<20)
Barbers Lagoon – TN3	7:32pm	44	0.9 / 158 / E	Insects (42), birds (40), TCM (<20)
Bungalow – TN4	8:17pm	51	2.2 / 114 / E	Insects (51), traffic (30), frogs (28), TCM (<20)

Table 3 TCM Operational Noise Monitoring Results – 14 – 15 March 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	54	3.1 / 092 / E	Insects (54), frogs (27), TCM (<20)
Barbers Lagoon – TN3	12:30am	45	0.8 / 056 / E	Insects (45), birds (31), frogs (30), TCM (<20)
Bungalow – TN4	11:19pm	48	3.8 / 116 / D	Insects (47), frogs (41), birds (34), TCM (<20)

Table 4 TCM Operational Noise Monitoring Results – 15 March 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	2:56pm	37	0.5 / 289 / A	Birds (36), traffic (26), insects (25), TCM (<20)
Barbers Lagoon – TN3	11:32am	47	3.6 / 170 / A	Traffic (46), birds (40), insects (24), TCM (<20)
Bungalow – TN4	1:11pm	38	2.3 / 290 / B	Birds (38), insects (25), TCM (<20)

Table 5 TCM Operational Noise Monitoring Results – 15 March 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:12pm	48	2.0 / 029 / F	Insects (48), frogs (29), TCM (<20)
Barbers Lagoon – TN3	7:47pm	42	0.8 / 059 / E	Birds (41), traffic (31), insects (30), TCM (<20)
Bungalow – TN4	8:26pm	55	0.9 / 043 / E	Insects (55), frogs (35), TCM (<20)

Table 6 TCM Operational Noise Monitoring Results – 15 – 16 March 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	57	1.4 / 075 / D	Insects (57), birds (28), frogs (27), TCM (<20)
Barbers Lagoon – TN3	12:28am	46	0.9 / 020 / E	Insects (44), birds (41), frogs (32), TCM (<20)
Bungalow – TN4	11:17pm	51	1.4 / 026 / E	Insects (51), birds (32), frogs (31), TCM (<20)

Table 7 TCM Operational Noise Monitoring Results – 16 March 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	2:50pm	39	1.0 / 317 / A	Birds (38), traffic (29), insects (24), TCM (<20)
Barbers Lagoon – TN3	11:22am	49	1.0 / 105 / A	Birds (48), traffic (38), insects (34), TCM (<20)
Bungalow – TN4	1:04pm	36	3.5 / 277 / D	Birds (36), insects (23), TCM (<20)

Table 8 TCM Operational Noise Monitoring Results – 16 March 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:15pm	51	1.8 / 041 / E	Insects (51), frogs (27), TCM (<20)
Barbers Lagoon – TN3	7:48pm	47	0.7 / 031 / E	Traffic (45), frogs (43), insects (29), TCM (<20)
Bungalow – TN4	8:29pm	56	1.8 / 042 / F	Insects (56), frogs (28), TCM (<20)

Table 9 TCM Operational Noise Monitoring Results – 16 – 17 March 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	60	2.0 / 037 / D	Insects (60), frogs (26), dogs (23), TCM (<20)
Barbers Lagoon – TN3	12:28am	43	1.3 / 045 / D	Insects (43), birds (26), frogs (23), TCM (<20)
Bungalow – TN4	11:18pm	53	1.8 / 026 / D	Insects (53), frogs (27), TCM (<20)

Table 10 TCM Operational Noise Monitoring Results – 17 March 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	3:53pm	45	2.3 / 196 / A	Birds (45), insects (33), TCM (<20)
Barbers Lagoon – TN3	2:09pm	47	7.2 / 206 / D	Birds (46), traffic (40), insects (23), TCM (<20)
Bungalow – TN4	12:30pm	46	3.9 / 238 / C	Traffic (45), birds (40), insects (23), TCM (<20)

Table 11 TCM Operational Noise Monitoring Results – 17 March 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:18pm	51	0.6 / 042 / D	Insects (51), frogs (27), TCM (<20)
Barbers Lagoon – TN3	7:52pm	43	0.6 / 035 / E	Insects (42), birds (36), frogs (32), TCM (<20)
Bungalow – TN4	8:31pm	57	0.9 / 048 / E	Insects (57), frogs (31), TCM (<20)

Table 12 TCM Operational Noise Monitoring Results – 17 – 18 March 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	53	1.8 / 035 / E	Insects (53), frogs (23), TCM (<20)
Barbers Lagoon – TN3	12:31am	47	2.4 / 040 / E	Insects (47), birds (34), frogs (32), TCM (<20)
Bungalow – TN4	11:19pm	48	2.6 / 048 / E	Insects (48), birds (35), frogs (30), TCM (<20)

Table 13 TCM Sleep Disturbance Monitoring Results – 14 – 15 March 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	62	<20	Insects	3.1 / 092 / E
Barbers Lagoon – TN3	12:30am	61	<20	Bird	0.8 / 056 / E
Bungalow – TN4	11:19pm	65	<20	Bird	3.8 / 116 / D

1. L1 (1 min) – total measured level.
2. L1 (1 min) – TCM noise only.

Table 14 TCM Sleep Disturbance Monitoring Results – 15 – 16 March 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	65	<20	Insects	1.4 / 075 / D
Barbers Lagoon – TN3	12:28am	76	<20	Bird	0.9 / 020 / E
Bungalow – TN4	11:17pm	65	<20	Insects	1.4 / 026 / E

Table 15 TCM Sleep Disturbance Monitoring Results – 16 – 17 March 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	66	<20	Insects	2.0 / 037 / D
Barbers Lagoon – TN3	12:28am	57	<20	Insects	1.3 / 045 / D
Bungalow – TN4	11:18pm	63	<20	Insects	1.8 / 026 / D

Table 16 TCM Sleep Disturbance Monitoring Results – 17 – 18 March 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	65	<20	Insects	1.8 / 035 / E
Barbers Lagoon – TN3	12:31am	72	<20	Bird	2.4 / 040 / E
Bungalow – TN4	11:19pm	70	<20	Bird	2.6 / 048 / E

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This criteria is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. Results of attended monitoring show that the measured L1 (1 min) noise level did not exceed sleep disturbance criteria.

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

Blast Monitoring

Blasting Results

Since 2006, there have been 1192 blasts (until 29/04/2023) at TCM.

The highest result for Overpressure last quarter was 112.70 dB recorded at the ‘Coomalgah’ monitor on the 23/02/2023.

The highest result for ground vibration last quarter was 0.98 mm/s recorded at the ‘Tarrawonga’ monitor on the 02/03/2023.

TCM overpressure and ground vibration for the quarter was compliant and did not exceed the blasting criteria declared in the project approval and Blast Management Plan (BMP).

Table 1 - Max Peak Overpressure and Ground Pressure for the Quarter

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	17/12/2022	117.3	N/A	06/01/2023	0.85	N/A
Coomalgah	17/12/2022	112.7	120	23/02/2023	0.98	10

**Limit Not applicable according to EPL and PA11_0047 because project related property.*

During the reporting period, no reportable blast fume events were recorded at TCM.

Air Quality Monitoring

Dust Deposition Results

Standard Australia AS/NZS 3580.10.1:2016, "Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method," classifies deposited dust as insoluble solids. Therefore, TCM tests air quality monthly at mine-owned sites for indicative purposes, to infer compliance, against the limit of 4 g/m²/month.

Table 3 shows deposited dust gauge results over 12 months. All the dust monitors are located on project related or WHC owned land; as such compliance criteria ($4\text{g}/\text{m}^2/\text{month}$) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others. Non-mine related particulate matter could be attributed to organic matter (such as leaves, mice, frogs, insects or bird faeces that fall in to the bottles), or they may be in farming locations, so during some months dust levels may be higher due to harvesting. To mitigate contamination from bird faeces, spikes have been added to the top of each dust gauge unit this quarter to deter birds from perching.

Table 2 - Deposited Dust Gauge Results [g/m2/month]

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARD (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Apr-22	7.4#	8#	0.1	0.4	1.8	3	2.8	0.6	1.3	5.6#
May-22	2.8	4.8#	1.4	1.1	0.6	13.8#	2.7	1.1	1.7	2.8
Jun-22	15.3#	12.2#	0.5	0.5	0.6	23.3#	5.2#	0.2	1.3	4.5#
Jul-22	3.5	5.3#	0.4	1.9	7.3	7.4#	3.2	0.6	1.4	2.6
Aug-22	5.1	3.6	0.4	0.6	0.3	124#	3	0.5	0.9	3.6
Sep-22	0.4	5.6#	0.4	0.4	0.5	24.3#	2.9	0.4	2.2	6#
Oct-22	28.7#	8.9#	1.1	0.9	2.2	92.8#	6.6#	0.8	2.3	3.9
Nov-22	45.2#	4.7#	0.7	1.1	3.2	16.3#	0.9	0.5	1.1	3.8
Dec-22	22.3#	1.9	1.2	1.2	4.1#	11.8#	4.5#	2	0.9	4.2#
Jan-23	1.8	6.1#	2	1.3	2.1	3.5	4.2#	2.5	2.5	4.7#
Feb-23	1	1.9	2.5	0.7	2.2	0.6	2	3.6#	1	1.6
Mar-23	4.8#	1	0.4	1.2	0.5	0.7	1.9	0.7	0.7	2.2
12 MONTH ROLLING AVERAGE	1.9	2.1	0.9	0.9	1.4	2.0	2.4	0.9	1.4	2.9

Analysis done on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter.

+ bottles missing due to replacement after contamination or temporary civil/mining activities in the area.

¹DDG bottle on the fenceline between TCM and BCM ROM.

Red = above the rolling average, but exceedances are not mine-related and are not considered non-compliances.

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors levels of Particle Matter under 10 micron (PM₁₀). It operates for 24hr every 6 days. **Table 3** shows that all, with the exception of one, 24hr average values recorded for this quarter are below 50µg/m³. The high value recorded on the 6th December 2022 was investigated and results concluded that Tarrawonga did not contribute more than 50 µg/m³. Harvesting was ongoing during the period of the higher PM10 reading and this source of the dust is supported by TCM's investigation.

Table 3 - HVAS PM10 24 hr average levels for the Quarter

Date	24hr averaged PM10 (µg/m ³)	Criterion 24hr average (µg/m ³)	Comments
05-01-23	18.7	50	Nil
11-01-23	14.4		
17-01-23	11.9		
23-01-23	9.1		
29-01-23	13.4		
04-02-23	12		
10-02-23	9.2		
16-02-23	16.2		
22-02-23	9.6		
28-02-23	21		
06-03-23	21		
12-03-23	4.8		
18-03-23	12.2		
24-03-23	8.4		
30-03-23	6.7		

Real-time Air monitoring (PM₁₀)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM₁₀ levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



TEOM installed at Flixton property

Three portable dust (PM₁₀) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



Portable and real-time dust monitor installed at TCM in November 2018

Water Monitoring

Groundwater

Routine groundwater monitoring results undertaken between April 2022 and March 2023 are shown in **Table 4** (refer to graphs in *Appendix C*).

Table 4 - Groundwater results Summary

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
MW1	March 22	6.80	7.54	3910
	June 22	6.70	7.52	3580
	September 22	6.46	7.58	3490
	December 22	6.12	7.75	3420
	March 23	5.74	7.37	3600
MW2	March 22	3.51	6.82	952
	June 22	3.52	6.59	826
	September 22	2.66	6.69	806
	December 22	3	6.91	906
	March 23	3.89	6.41	946
MW4	March 22	9.18	7.55	3290
	April 22	9.18	7.6	3360
	June 22	9.05	7.45	3090
	September 22	8.9	7.39	3010
	December 22	9.08	7.51	3050
	March 23	7.88	7.04	2900
MW5	March 22	2.35	8.01	1529
	June 22	1.9	7.52	830
	September 22	1.36	7.66	1874
	December 22	1.67	7.88	2022
	March 23	1.8	7.13	1412
MW8	March 22	12.36	Casing blocked	Casing blocked
	June 22	-		
	September 22	-		
	December 22	-		
	March 23	-		

Surface Water

Water storage onsite is expected to be sufficient for at least the next 12 months. TCM has continued to treat (flocculate) sediment dam SD9 to allow for controlled release from Licence Discharge Point (LDP) 2, and through SD17 (LDP1) in accordance with the Water Management Plan. Approximately 445 ML of suitable quality water (within EPL1265 limits) was discharged in the reporting period.

TCM has recorded 1064.8mm of rain for 2022.

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	106.6	74.4	100	60.8	59	14.4	32.4	116.6	166.2	170.2	129.8	34.4	1064.8
Cumulative (mm)	106.6	181	281	341.8	400.8	415.2	447.6	564.2	730.4	900.6	1030.4	1064.8	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	21.2	11	169.8										202
Cumulative (mm)	21.2	32.2	202										

Rehabilitation and Clearing

Rehabilitation

TCM submitted the report on rehabilitation achieved in 2022 to the Resources Regulator, as well as the Forward Program for 2023, where TCM commits to approximately 37Ha of Ecosystem Establishment for the year (tubestock planting and seeding) and approximately 25Ha of land ready for rehabilitation use (Landform establishment/ Growth medium development).

In May 2023 TCM will prepare approximately 11Ha of landform for spreading of topsoil and seeding on the Southern Emplacement Area (SOEA)

Trees on the NEA continue to successfully establish and grow on our rehabilitation area, as can be seen on the image below.



Figure 1: Photo taken in March 2023 of our Northern Emplacement Area

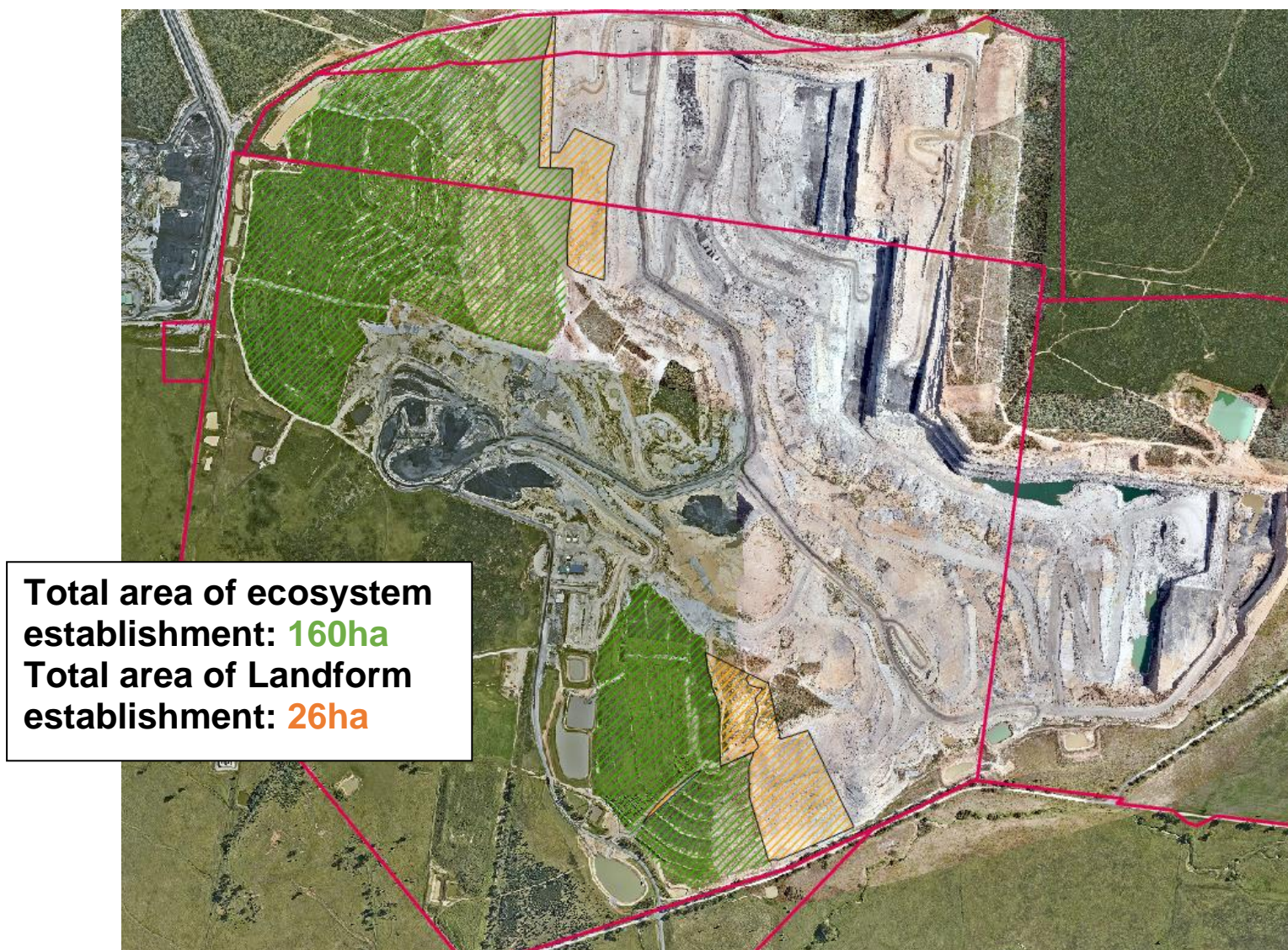


Figure 2: Rehab Status as at end of 2022

Clearing

20Ha of topsoil from 2021 and 2022 clearing has been stripped, with soil awaiting transfer to a prepared area of the NOEA for storage. Once in place it will be shaped to shed rainwater and seeded to encourage native species growth and discourage weeds.

Clearing started in Tarrawonga at the end of March 2023 to mid April, with stage one and two in place to minimise any impacts on possible fauna on the identified habitat trees.

Complaints

No complaints for the reporting period.

Environmental Management Plans

TAR Management Plans

The Water Management Plan is with the department of planning for review, all the approved Management Plans are available on the WHC website.

The Blast Management Plan submitted on the 13th March 2022 was approved by the Department of Planning and Environment in January 2023.

BTM Water Strategy

The BTM mines submitted an updated BTM Groundwater Model. This has now been approved and displayed on our website.

The BTM Noise Management Strategy has also been reviewed and will be submitted by MCCM once finalised.

Annual and Compliance Reporting

Annual Review and Annual Return Reports

The Annual Return and Annual Review were submitted in March 2023.

Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2022 and 2023 statement is currently in progress.

Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2021

Information for the TCM NPI and NGERs reports are in progress and to be finalised and submitted in September and October 2023.

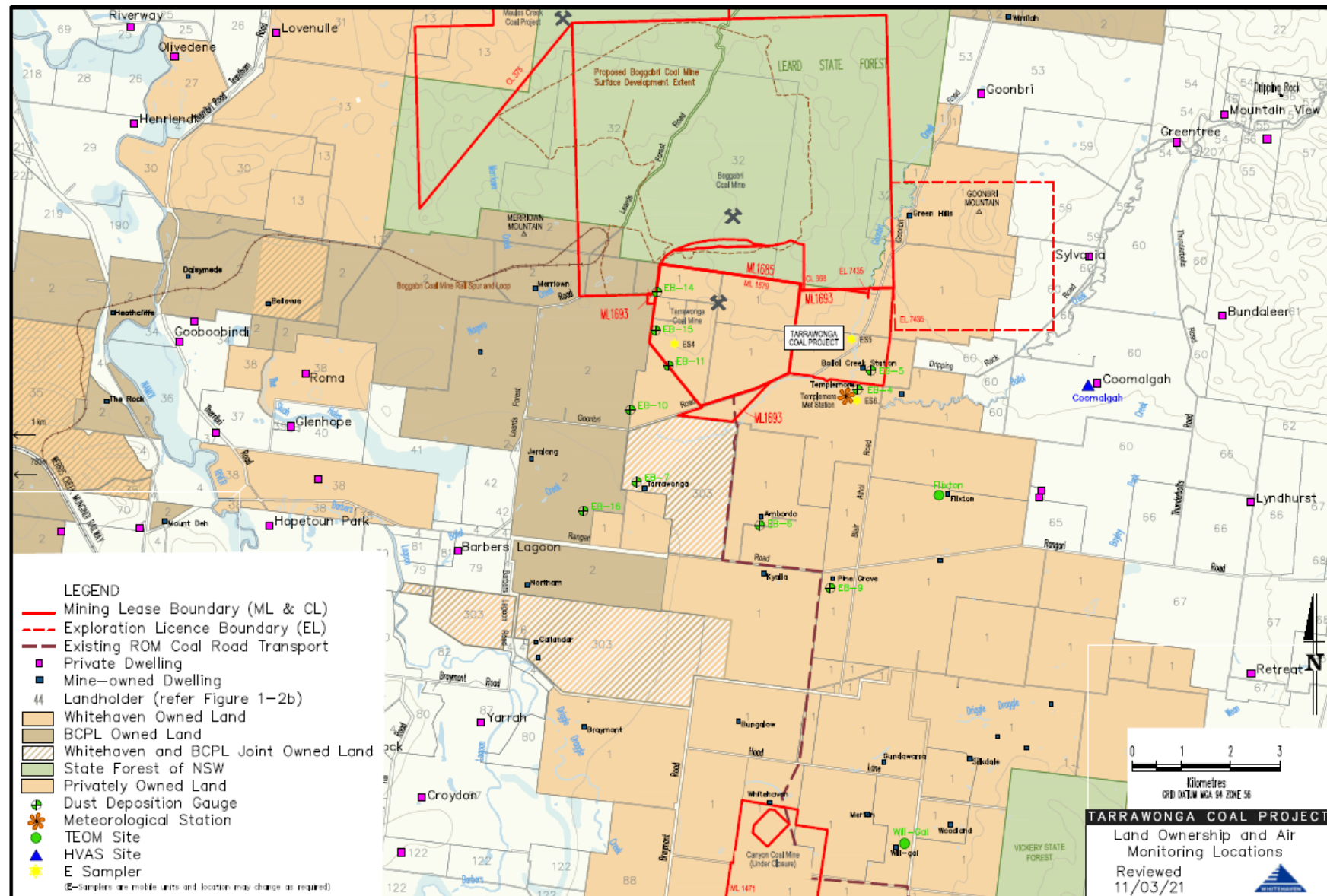
Audits - Compliance

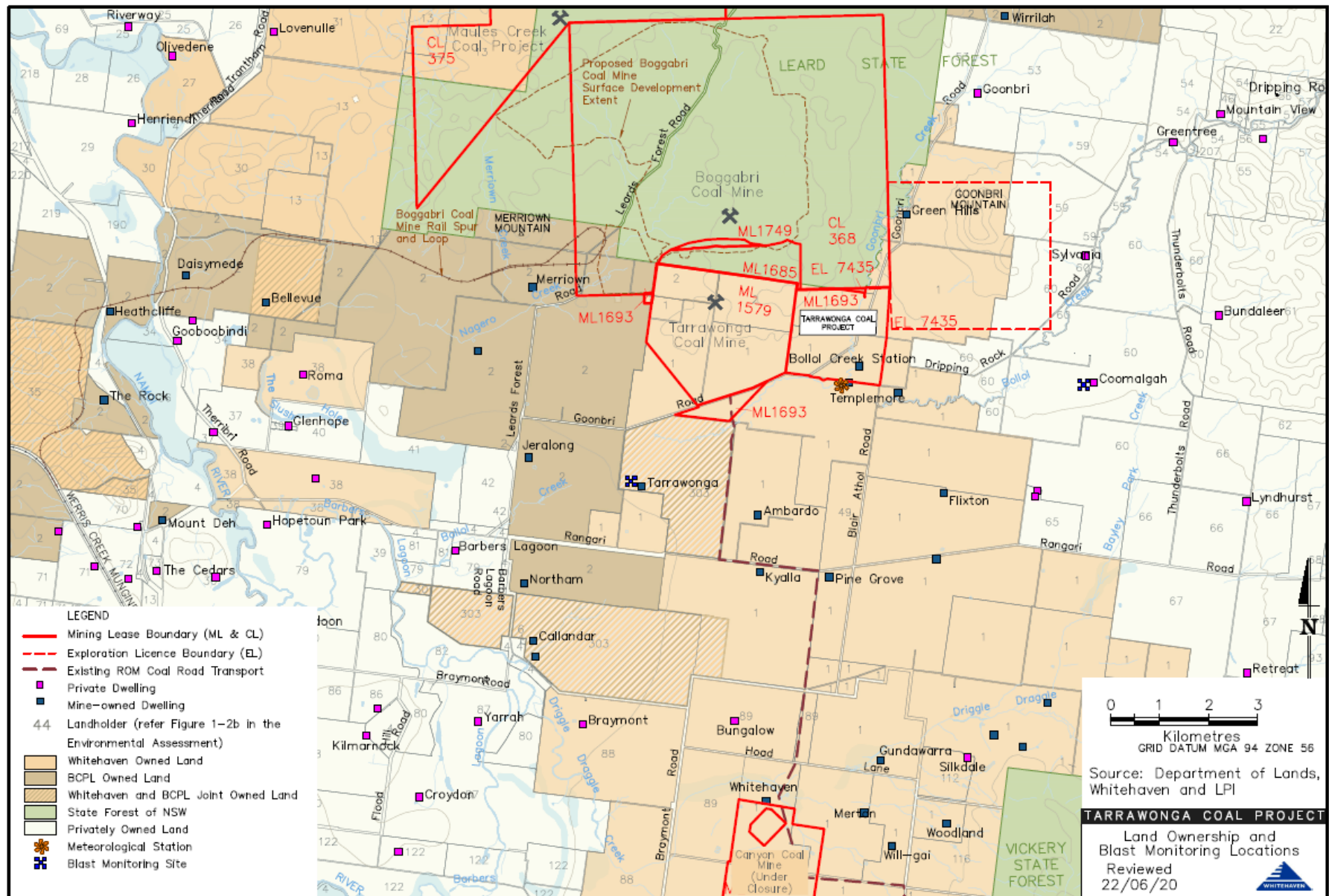
Planning has begun for Tarrawonga's Independent Environmental Audit for later in 2023. This audit is required by the Project Approval PA11_0047.

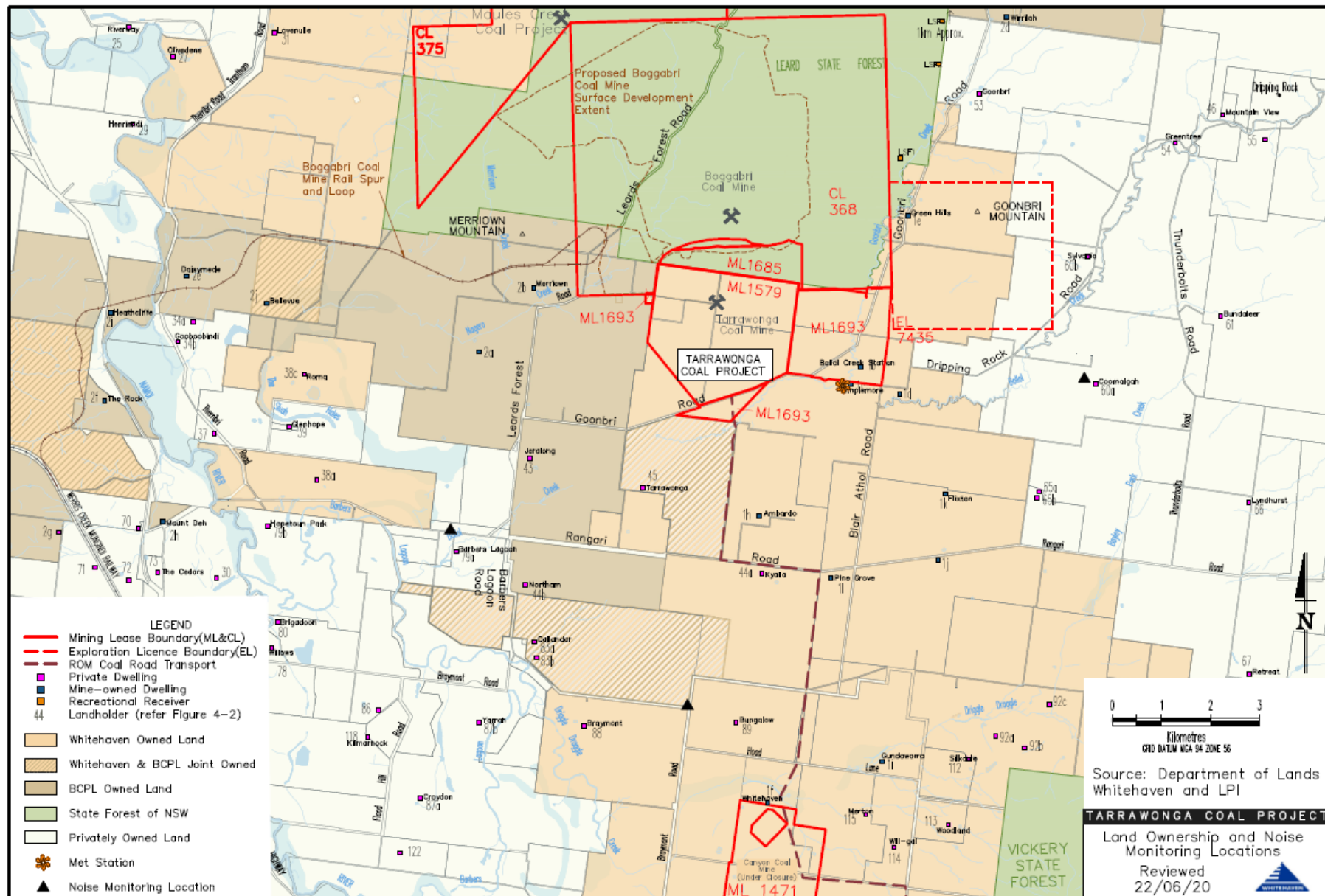
Approvals and Licencing

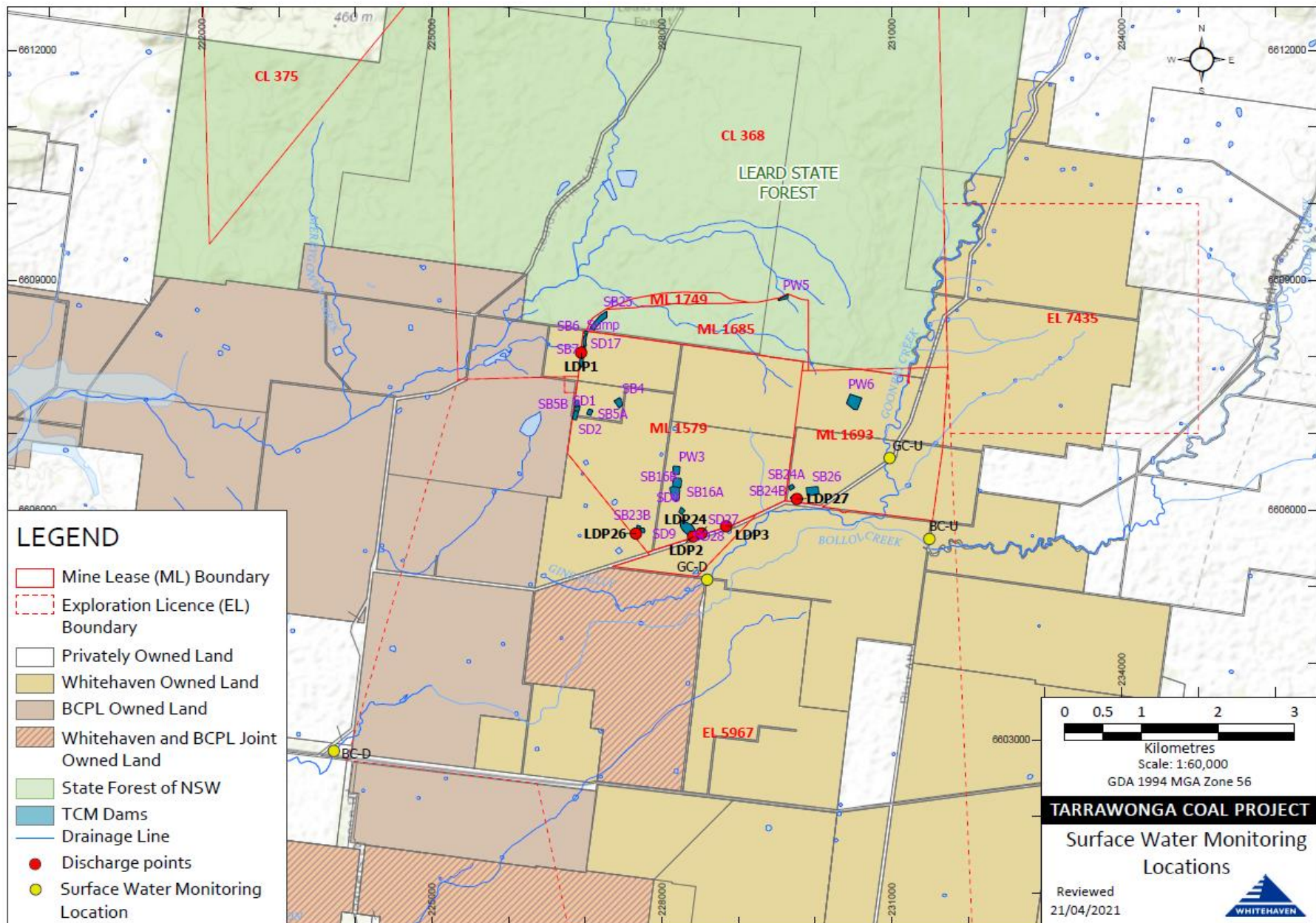
The updated EPL variation expected to be issued by the EPA was submitted in January and waiting for a final approval.

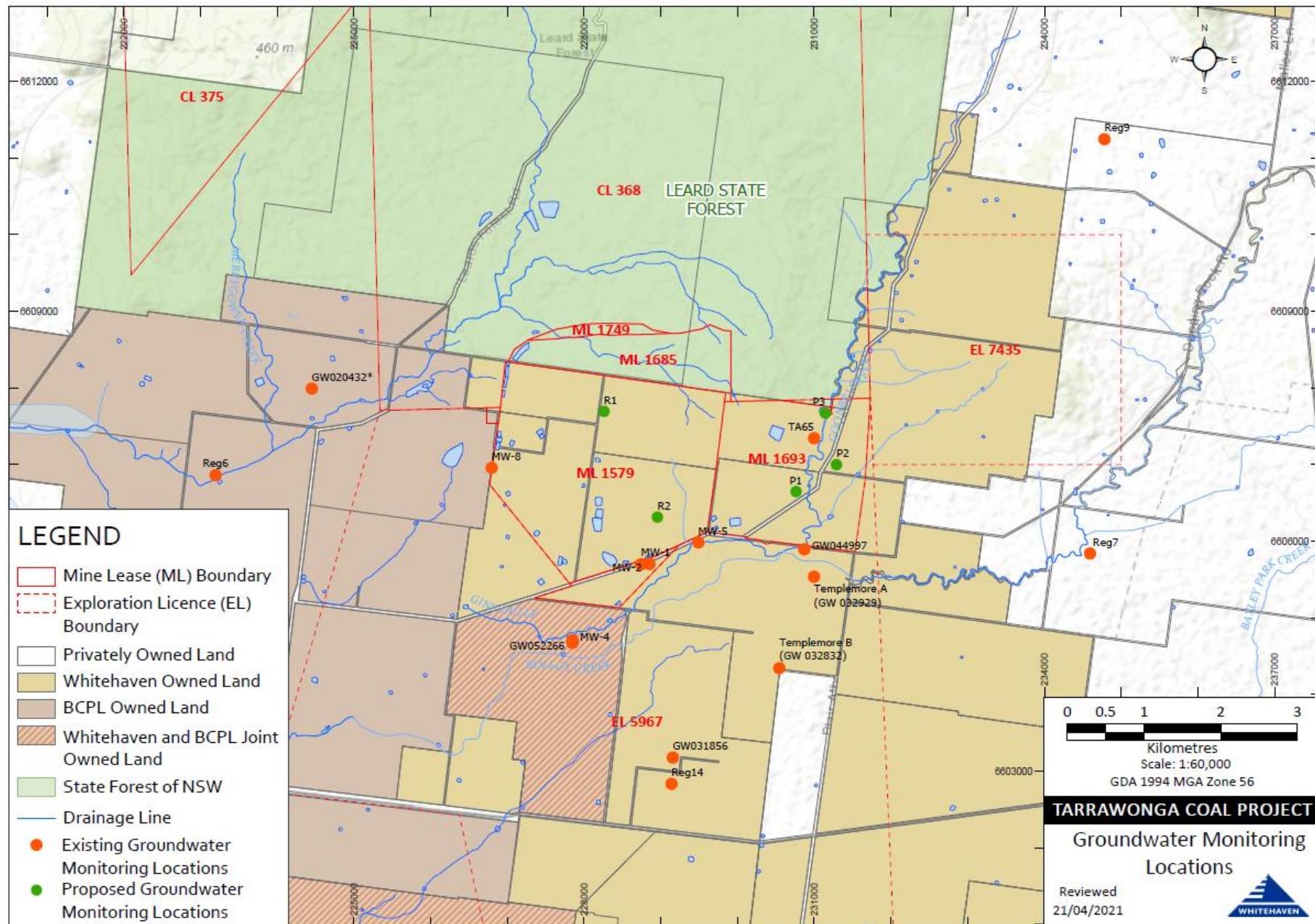
Appendix A





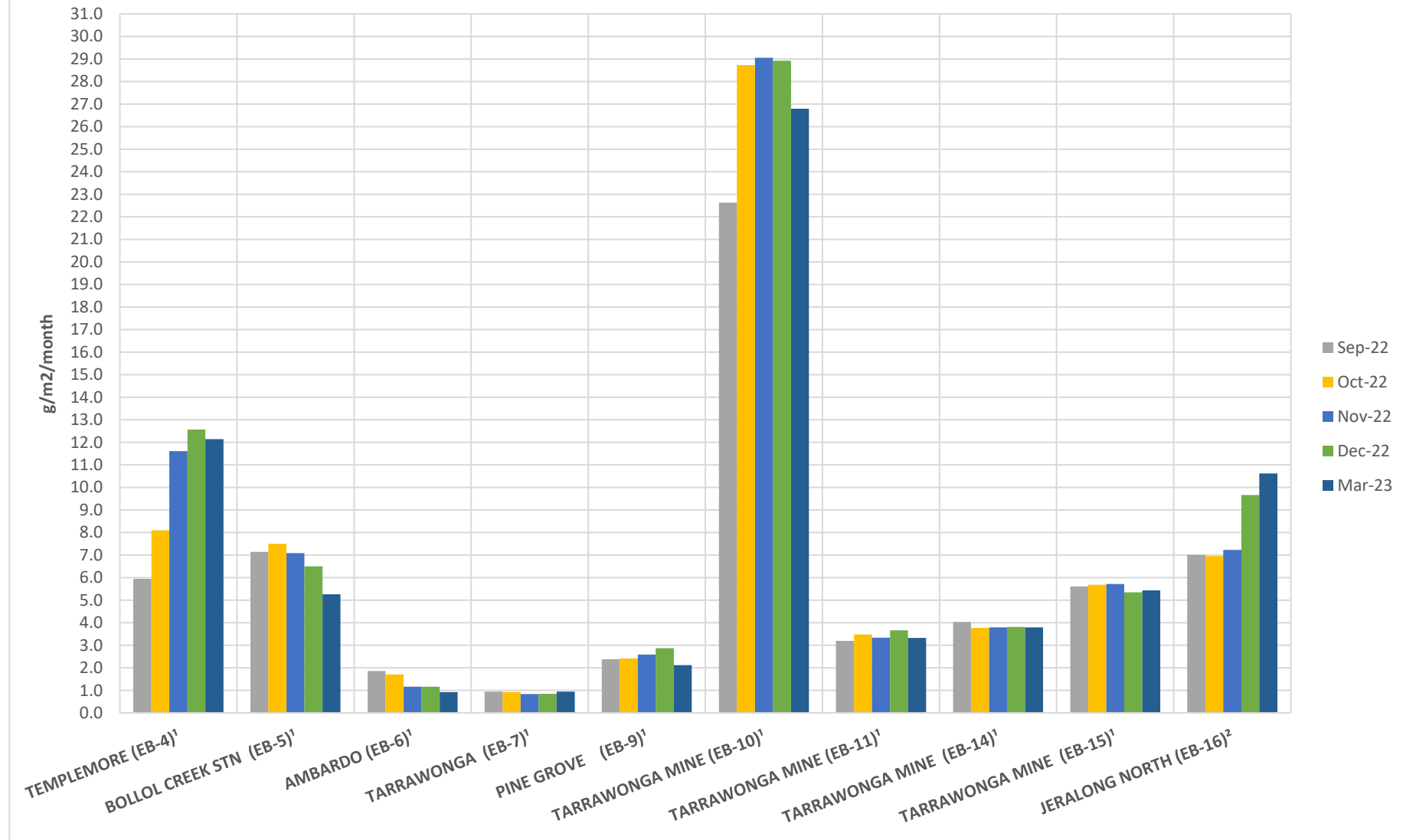




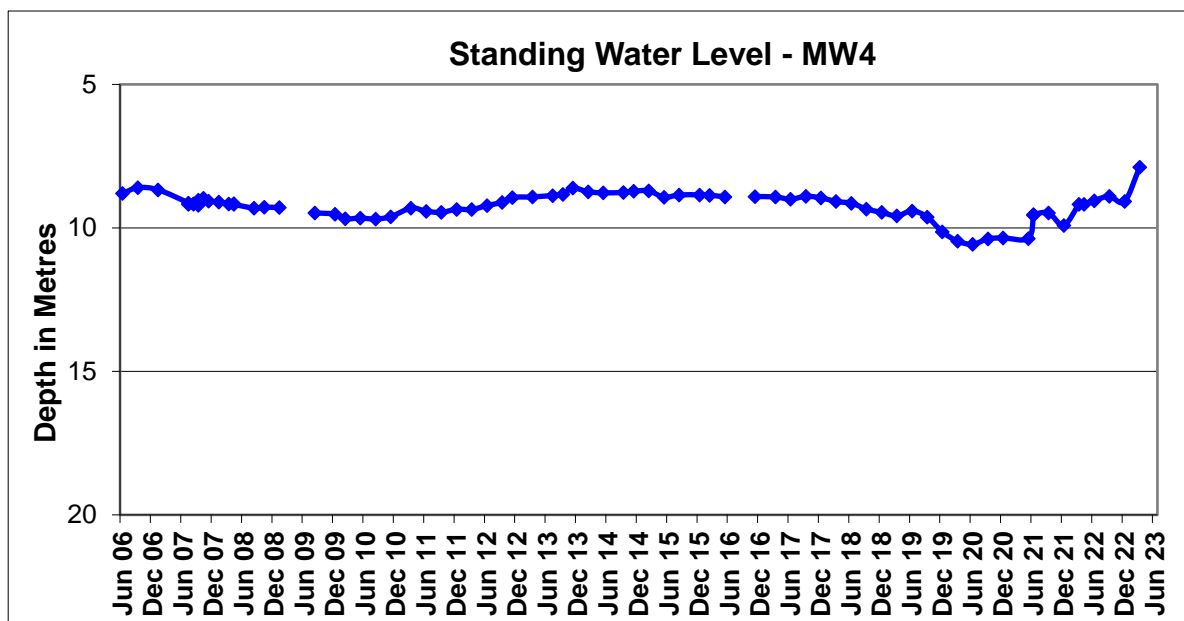
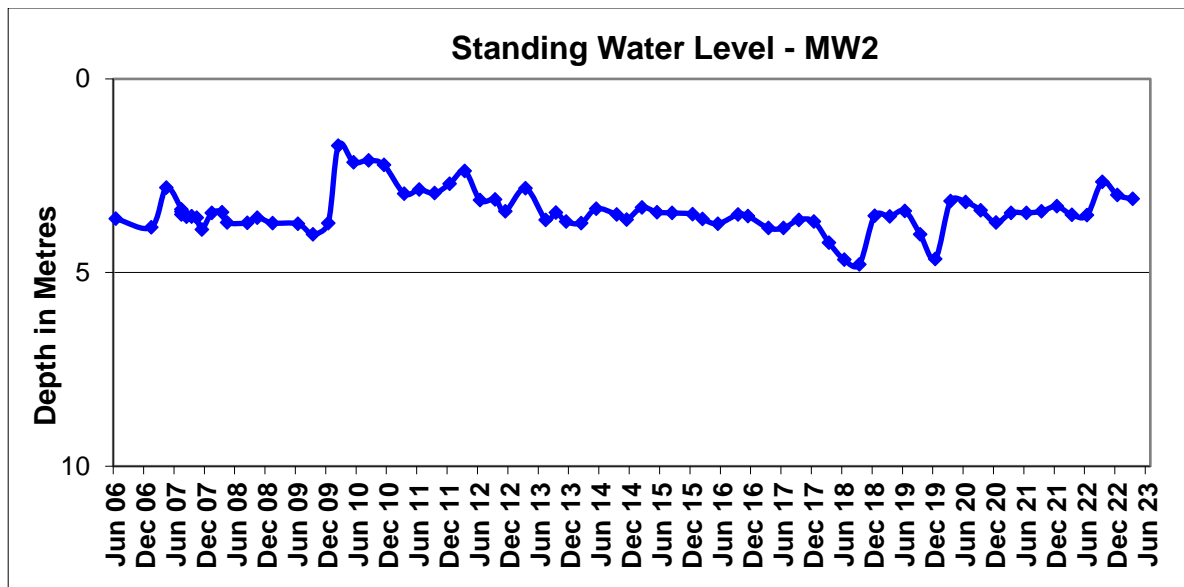
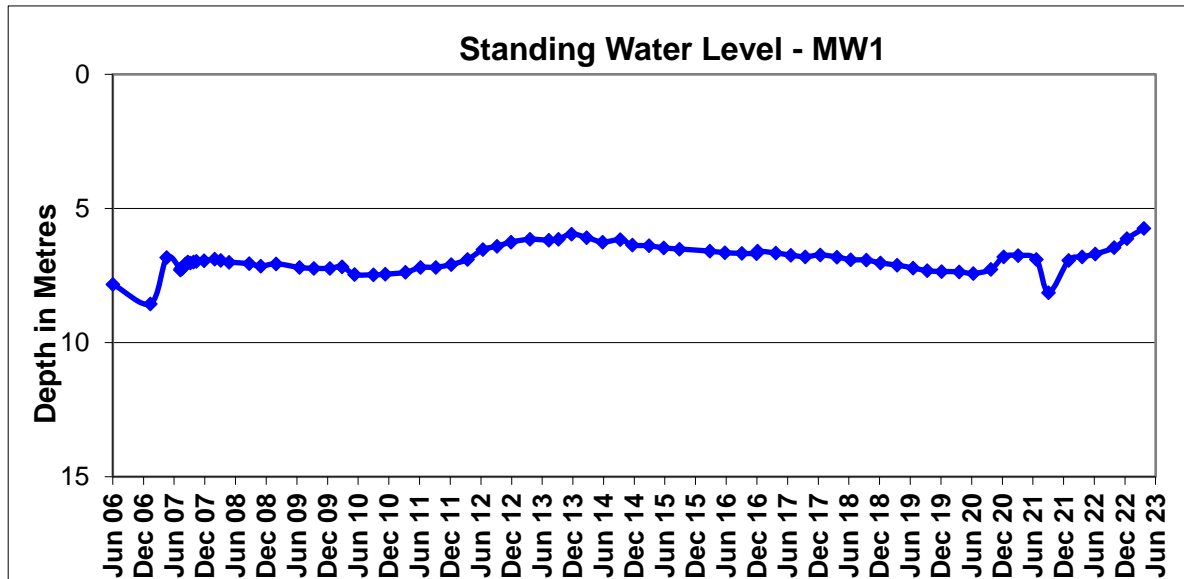


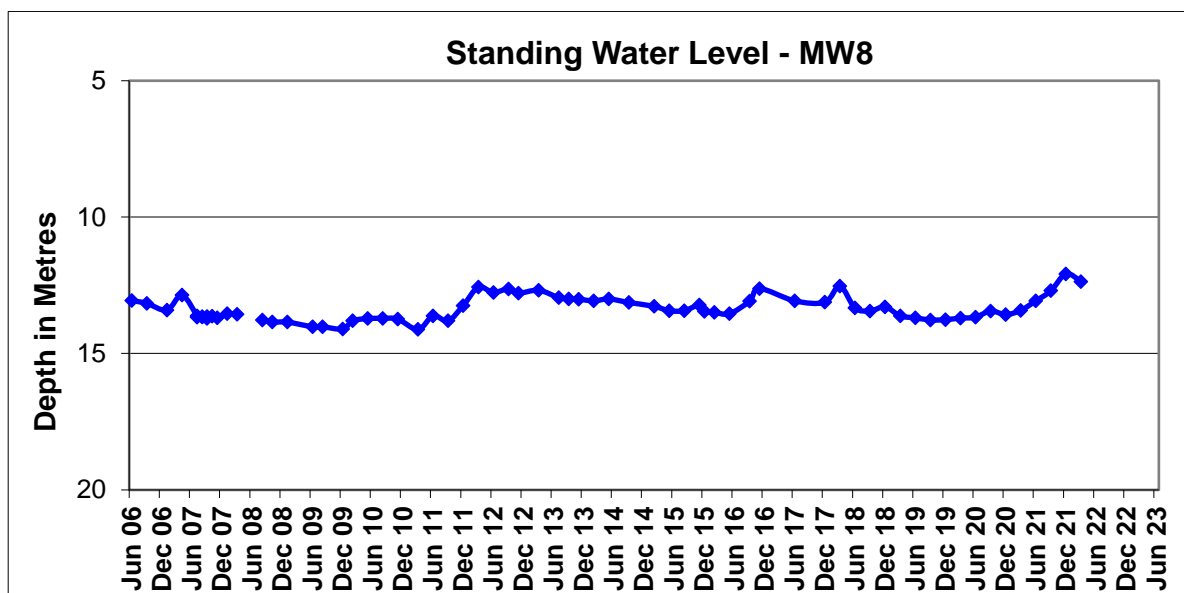
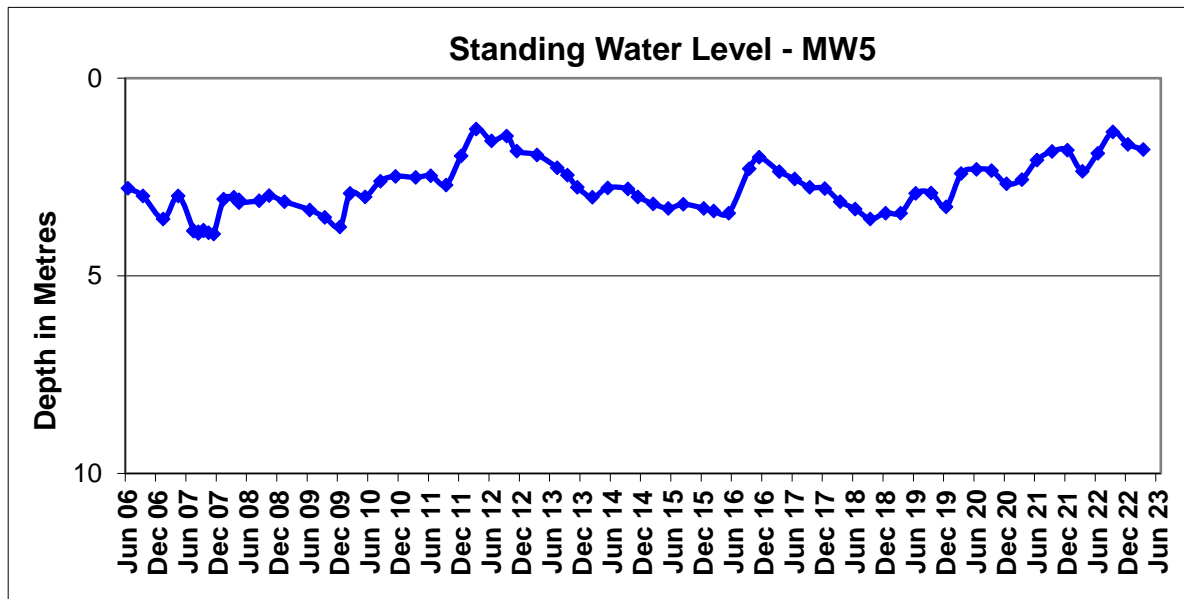
Appendix B

Deposited Dust Gauge Results- Quarterly rolling average [g/m2/month]



Appendix C





Notes: Notes of the 72nd Meeting of the Tarrawonga Coal Community Consultative Committee
Held at the Tarrawonga Coal Mine Training Room

Wednesday 24 May 2023

Members Present: Alison Quiroz (AQ) – TCM, Cr Rob Hooke – Gunnedah Shire Council (RH), Elizabeth O’Hara (EOH) – Community Representative, Jackie Scott (JS) – WHC, Lloyd Finlay (LF) – Community Representative, Mark Hathway (MHa) – Community Representative, Michelle Henry (MH) – Narrabri Shire Council, Omar Romeril (OR) – TCM, Prashanth Van Houten (PvH) –Gunnedah Shire Council (alternate)

Apologies: Colleen Fuller (CF) – Community Representative, Cr Darrell Tiemens – Narrabri Shire Council (DT), Megan Martin (MM) – TCM, Wade Hudson (WH) – GSC Representative

Independent Chair: David Ross (DR)

Independent Secretary: Debbie Corlet (DC)

Agenda Items	Who to Present
1. Welcome and Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Minutes from Previous Meeting	DR
4. Actions from Previous Meeting	DR
5. Mine Progress Report	MM
6. Environmental Monitoring Report	MM & AQ
7. General Business	ALL
8. Next Meeting – Wednesday 30 August 2023	ALL

Agenda Item	Discussion	Action/By Whom
1.	Welcome and Apologies – DR welcomed everyone to the CCC meeting. DR advised that Rebecca Ryan has resigned from the CCC. DR advised that he has started advertising for new members but to date the response has been underwhelming.	
2.	Declaration of pecuniary or other interests – EOH has a small package of WHC shares. LF leases country from WHC. DR is paid a fee as chair as is DC for typing the minutes.	
3.	Minutes from Previous Meeting – Members accepted the minutes appropriately reflected what was discussed.	
4.	<p>Actions from Previous Meeting – DR – Most actions from Previous Meeting have been completed.</p> <p>EOH – Discussed Molycop Recycling, which appears not to be currently ready to recycle mining truck tyres. However, it may be worthwhile for TCM to explore this. PvH also mentioned possibilities with Andromeda Industries.</p> <p>AQ – We will definitely look into this further.</p> <p>RH – Will provide an update next month after GSC’s meeting with UNSW’s Professor Veena Sahajwalla.</p>	<p>ACTION 1 – Mine to report on progress on tyre recycling.</p> <p>ACTION 2 – RH to report back next month on meeting with UNSW.</p>
5.	<p>Mine Progress Report – Overview</p> <p>OR commenced the report by providing members with an update on the mine’s safety statistics before discussing how mining production has progressed. The mine is on track to achieve revised targets of about 1.93 Mt in FY23.</p> <p>EOH – How many days have the evaporators been used in 2023?</p> <p>AQ – They’ve been used since January but not on every day - needs to have good weather.</p> <p>RH – Water you use within the mine site, this is captured from the mine site. How long can you maintain the internal watering system for?</p> <p>OR – 1.5 ML during a day. We have about 700 ML in the pit plus the mine water. Probably see us through for a couple of years.</p>	<p>ACTION 3 – AQ to provide details on evaporators’ use since January.</p>

6.	<p>Monitoring and Environmental Performance</p> <p>Community Overview</p> <p>With respect to the mine’s donations and sponsorships, JS described the diverse areas in which WHC is providing donations and seeking to partner such as with “Little Wings”, who provide flights for sick children. This is particularly in the areas of health, education, whole of community, and sport. For those who have ideas for applications, please contact JS at any time. Sponsorships and Donations information can be found https://whitehavencoal.com.au/sustainability/community/donations-sponsorships/</p> <p>Haulage Hours Modification</p> <p>AQ then spoke to some slides about the proposed modification. Whitehaven is proposing a modification to PA 11_0047 to authorise additional road haulage hours on the approved haulage route between the Tarrawonga Mine and the Gunnedah CHPP. This would create no change to noise levels, mine production, or the life of the mine.</p> <p>MH observed some disparities in information between what CCC members had already received in the past fortnight and what was presented at the CCC meeting, particularly with respect to what hours are being extended.</p> <p>In addition, MH noted that she had received three different versions of the Traffic Management Plan (TMP). They are supposed to be prepared in consultation with Council. Latest TMP includes the Vickery’s Mine plan. Instead, she is seeking only the TMP for Tarrawonga and what is proposed for the modification.</p> <p>There was then a discussion with respect to additional information required. EOH – The community have a concern about the cumulative impact. Road haulage impacts including Vickery’s – what’s the increased haulage? MH – Also truck numbers of trucks in and out.</p> <p>RH – I’m part of the Vickery’s CCC – no change in the tonnage going through. Is this modification purely to take pressure off the system?</p> <p>MH – Has to do with rostering of drivers. WHC has purchased Gunnedah Bulk. Won’t WHC staff operate those vehicles?</p> <p>In evaluating the committee’s concerns and confusion in response to the information presented, DR requested that WHC be tasked with a series of actions to be completed in the next week. These actions are:</p> <ol style="list-style-type: none"> 1. Provide members with no more than half a page clarifying why the modification is necessary. 2. Clarification of the hours proposed. 3. Clarification for NSC with respect to the details of the TMP and which version is relevant. 4. Clarification of Gunnedah Bulk’s involvement and why this is necessary. 5. Truck movements in and out and whether these are to change compared to current volumes. 	<p>ACTION 4 – WHC to respond to modification actions within a week.</p>
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The reason that DR wanted these actions to be completed urgently was so that committee members were appropriately informed before the anticipated exhibition of the modification in the coming weeks.

LF – Can we have a commitment that both councils will maintain the roads as they are shocking?

Both NSC and GSC committed to taking that request back to appropriate staff to consider.

EOH – Re Water Management Plan and 8th September amendment – was that information given to the CCC and did we discuss this at all? Have I missed something?

AQ – It may have been mentioned briefly.

DR – After the discussion about the modification, may need a future slide about “What is Anticipated / What is Coming Up” for the next 3 months.

Monitoring and Compliance

AQ summarised the key environmental activities on site over the last quarter. Evaporator fans have been installed and the sedimentation dams have been dewatered, with desilting to take place in response to reduced rainfall. The water management plan and rehabilitation plan are currently being worked on in consultation with DPE.

EOH – Was there a pollution incident 14th April 2023 as there were three community members who took photos?

AQ – We’ve only just received information this week from the EPA about a complaint about the dust. We did have a blast on 14th April in the morning. It stayed within the mine.

It was observed that the incident may be due to adjacent land use. It’s not always the mine.

Tyre Disposal Update

AQ noted that on 22nd November 2022, 319 tonnes of tyre were buried onsite. A report has now been submitted to DPE.

PvH – Do they specify the types of soil that the tyres are buried in?

AQ – I’m not sure as I’m not involved but the report to be submitted to DPE should include everything, such as where they are located, how high they are buried.

Groundwater Levels

EOH – Re P1, 2 and 3 – when are the water monitors going to be in place and when will they be recording?

AQ – TCM has just completed the groundwater bores. Will now work on installing the water monitors.

ACTION 5 – New slide to be added for every CCC Meeting – “What is Anticipated / What is Coming Up”.

ACTION 6 – AQ to provide link to DR of where report of tyre disposal is mentioned on website.

	EOH – TA65 is a water monitoring location. However, the monitoring data don't appear to be in the report for December 2022 in the quarter monitoring report. It's significant to us.	ACTION 7 – AQ to provide TA65 data.
7.	<p>General Business</p> <p>MHa – I was unaware that WHC have bought the bulk business. Was curious if there was a program to re-configure them to have them standardised.</p> <p>EOH – Community have asked for a map off the offsets to determine if any offsets are potentially to be impacted from the proposed Santos pipeline. Where are the offsets for Tarrawonga and if impacted by the pipeline.</p> <p>EOH – Did Tarrawonga do any clearing this year? If so, how much? Did any animals have to be euthanised?</p> <p>AQ – It has all been done in line with what was discussed at our last CCC meeting. There were no injured animals.</p>	ACTION 8 – Tarrawonga to provide a large map showing the offset areas with names.
8.	<p>Next meeting date – Wednesday 30 August 2023. This will be a site visit.</p> <p>DR – Thanked everyone for their time.</p>	

Meeting Closed: 11:34 am.

Appendix 1: Actions

Page No	Action No	Description	Date Raised
2	1	Mine to report on progress on tyre recycling.	24 May 2023
2	2	RH to report back next month on meeting with UNSW.	24 May 2023
2	3	AQ to provide details on evaporators' use since January.	24 May 2023
3	4	WHC to respond to modification actions within a week.	24 May 2023
4	5	New slide to be added for every CCC Meeting – "What is Anticipated / What is Coming Up".	24 May 2023
4	6	Provide link to DR of where report of tyre disposal is mentioned on website.	24 May 2023
4	7	AQ to provide TA65 data.	24 May 2023
5	8	Tarrawonga to provide a large map showing the offset areas with names.	24 May 2023

Tarrawonga Coal Mine Community Consultative Committee Meeting #73

**Quarterly Environmental Monitoring Report
April, 2023 – June, 2023**



Photo taken in March 2023 of our Northern Emplacement Area

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from April 1 2023 to June 31, 2023. Maps with all the monitoring locations are available in *Appendix A*.

Noise Monitoring

Noise monitoring for this reporting period involved, our quarterly Attended Noise Monitoring, Road Noise monitoring and the annual Sound Power Level Monitoring (SPL).

SPL monitoring aims to ensure that the mine's equipment is operating with noise suppression and any increases from the previous year are flagged so that any affected equipment's noise levels can be checked. TCM recorded that no plant items produced excessive noise.

Attended noise monitoring was conducted at the "Bungalow" (TN4), "Barbers Lagoon" (TN3) and "Matong" (TN2) properties from 21st to the 25th June 2023. Noise criteria for the mine is 35dB(A) Leq (15 min) for all operating times.

Results below show that noise emissions from the mine did not exceed operational noise criteria at the "Barbers Lagoon", "Bungalow" or "Matong" monitoring locations for any monitoring events during the monitoring period.

(See below summary tables extracted from Tarrawonga Coal Mine Noise Monitoring – Q2 JUNE 2023)

Table 1 TCM Operational Noise Monitoring Results – 21 June 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC ¹	Identified Noise Sources
Matong – TN2	6:01pm	33	1.3 / 048 / F	Cows (32), car (27), TCM (<20)
Barbers Lagoon – TN3	6:49pm	38	2.4 / 057 / E	Traffic (38), dog (28), TCM (<20)
Bungalow – TN4	7:37pm	45	2.5 / 048 / F	Traffic (45), dogs (31), TCM (<20)

1. Pasquill Stability Class

Table 2 TCM Operational Noise Monitoring Results – 21 – 22 June 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:07pm	33	2.2 / 069 / D	Cows (33), car (21), TCM (<20)
Barbers Lagoon – TN3	12:39am	28	1.7 / 052 / E	Car (28), TCM (<20)
Bungalow – TN4	11:28pm	26	0.9 / 258 / E	Dogs (26), TCM (<20)

Table 3 TCM Operational Noise Monitoring Results – 22 June 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	11:19am	45	1.0 / 268 / A	Traffic (45), birds (33), mine (23), TCM (<20)
Barbers Lagoon – TN3	2:51pm	52	0.6 / 008 / A	Industrial (52), TCM (<20)
Bungalow – TN4	1:07pm	43	1.9 / 284 / D	Traffic (42), birds (35), TCM (<20)

Table 4 TCM Operational Noise Monitoring Results – 22 June 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:24pm	31	2.0 / 247 / F	Birds (31), mine (21), TCM (<20)
Barbers Lagoon – TN3	7:47pm	42	0.7 / 213 / F	Traffic (42), TCM (<20)
Bungalow – TN4	8:31pm	32	0.9 / 331 / D	TCM ¹ (32), traffic (22)

1. Coal trucks on private haul road

Table 5 TCM Operational Noise Monitoring Results – 22 – 23 June 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	12:47am	NA ¹	1.6 / 071 / E	NA ¹
Barbers Lagoon – TN3	11:28pm	46	1.2 / 172 / F	Traffic (46), TCM (20)
Bungalow – TN4	10:15pm	31	1.3 / 260 / D	TCM ² (28), traffic (28)

1. NA – Measurement was not able to be taken due to consistent rain
2. Coal trucks on private haul road

Table 6 TCM Operational Noise Monitoring Results – 23 June 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	11:31am	41	6.4 / 299 / D	Wind in trees (41), traffic (27), TCM (<20)
Barbers Lagoon – TN3	1:22pm	43	7.1 / 327 / D	Wind in trees (43), TCM (<20)
Bungalow – TN4	3:01pm	47	6.4 / 342 / C	Birds (46), wind in trees (37), TCM (<20)

Table 7 TCM Operational Noise Monitoring Results – 23 June 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:28pm	48	2.0 / 046 / E	Traffic (48), mine (27), TCM (<20)
Barbers Lagoon – TN3	7:53pm	32	2.7 / 035 / D	Car (32), TCM (<20)
Bungalow – TN4	8:36pm	32	0.5 / 065 / E	Wind in trees (32), TCM (<20)

Table 8 TCM Operational Noise Monitoring Results – 23 – 24 June 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	12:48am	38	0.8 / 022 / D	Birds (38), TCM (23)
Barbers Lagoon – TN3	10:21pm	37	1.9 / 039 / E	Traffic (35), birds (32), TCM (22)
Bungalow – TN4	11:31pm	46	1.4 / 034 / D	Birds (46), traffic (34), TCM ¹ (30)

1. Coal trucks on private haul road

Table 9 TCM Operational Noise Monitoring Results – 24 June 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	2:49pm	49	4.1 / 324 / D	Traffic (48), wind in trees (43), birds (24), TCM (<20)
Barbers Lagoon – TN3	11:18am	36	0.9 / 262 / A	Birds (35), wind in trees (27), TCM (<20)
Bungalow – TN4	1:03pm	42	2.3 / 206 / A	Wind in trees (42), birds (30), TCM (<20)

Table 10 TCM Operational Noise Monitoring Results – 24 June 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	7:48pm	38	1.7 / 053 / D	Car (38), TCM (<20)
Barbers Lagoon – TN3	9:21pm	22	1.6 / 054 / D	Car (22), TCM (<20)
Bungalow – TN4	8:36pm	37	3.4 / 071 / D	Insects (37), TCM (<20)

Table 11 TCM Operational Noise Monitoring Results – 24 – 25 June 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	12:47am	26	0.9 / 220 / F	Wind in trees (25), TCM (<20)
Barbers Lagoon – TN3	11:26pm	27	0.4 / 035 / E	Wind in trees (26), TCM (21)
Bungalow – TN4	10:04pm	26	0.6 / 037 / F	Wind in trees (26), TCM (<20)

Table 12 TCM Operational Noise Monitoring Results – 25 June 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	11:26am	43	1.6 / 339 / A	Traffic (43), mine (26), TCM (<20)
Barbers Lagoon – TN3	8:00am	45	0.4 / 089 / A	Birds (42), traffic (39), helicopter (39), TCM (28)
Bungalow – TN4	9:46am	33	0.2 / 125 / A	Birds (32), traffic (22), TCM ¹ (20)

1. Coal trucks on private haul road

Table 13 TCM Sleep Disturbance Monitoring Results – 21 – 22 June 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:07pm	42	<20	Cows	2.2 / 069 / D
Barbers Lagoon – TN3	12:39am	48	26	Car	1.7 / 052 / E
Bungalow – TN4	11:28pm	51	<20	Dogs	0.9 / 258 / E

1. L1 (1 min) – total measured level.
2. L1 (1 min) – TCM noise only.

Table 14 TCM Sleep Disturbance Monitoring Results – 22 – 23 June 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	12:47am	NA*	NA*	NA*	1.6 / 071 / E
Barbers Lagoon – TN3	11:28pm	48	20	Car	1.2 / 172 / F
Bungalow – TN4	10:15pm	40	40	Trucks	1.3 / 260 / D

* NA - Measurement was not able to be taken due to consistent rain

Table 15 TCM Sleep Disturbance Monitoring Results – 23 – 24 June 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	12:48am	51	<20	Birds	0.8 / 022 / D
Barbers Lagoon – TN3	10:21pm	58	27	Car	1.9 / 039 / E
Bungalow – TN4	11:31pm	61	34	Birds	1.4 / 034 / D

Table 16 TCM Sleep Disturbance Monitoring Results – 24 – 25 June 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	12:47am	36	<20	Wind	0.9 / 220 / F
Barbers Lagoon – TN3	11:26pm	37	<20	Wind	0.4 / 035 / E
Bungalow – TN4	10:04pm	37	<20	Wind	0.6 / 037 / F

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This criteria is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. Results of attended monitoring show that the measured L1 (1 min) noise level did not exceed sleep disturbance criteria.

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

Blast Monitoring

Blasting Results

Since 2006, there have been 1216 blasts (until 30/06/2023) at TCM.

The highest result for Overpressure last quarter was 106.3 dB recorded at the ‘Coomalgah’ monitor on the 28/06/2023.

The highest result for ground vibration last quarter was 1.69 mm/s recorded at the ‘Coomalgah’ monitor on the 29/04/2023.

TCM overpressure and ground vibration for the quarter was compliant and did not exceed the blasting criteria declared in the project approval and Blast Management Plan (BMP).

Table 1 - Max Peak Overpressure and Ground Pressure for the Quarter

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	28/04/2022	115.9	N/A	29/04/2023	1.69	N/A
Coomalgah	28/06/2022	106.3	120	29/04/2023	0.73	10

**Limit Not applicable according to EPL and PA11_0047 because project related property.*

Air Quality Monitoring

Dust Deposition Results

Standard Australia AS/NZS 3580.10.1:2016, "Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method," classifies deposited dust as insoluble solids. Therefore, TCM tests air quality monthly at mine-owned sites for indicative purposes, to infer compliance, against the limit of 4 g/m²/month.

Table 3 shows deposited dust gauge results over 12 months. All the dust monitors are located on project related or WHC owned land; as such compliance criteria (4g/m²/month) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others. Non-mine related particulate matter could be attributed to organic matter (such as leaves, mice, frogs, insects or bird faeces that fall in to the bottles), or they may be in farming locations, so during some months dust levels may be higher due to harvesting. To mitigate contamination from bird faeces, spikes have been added to the top of each dust gauge unit to deter birds from perching.

Table 2 - Deposited Dust Gauge Results [g/m2/month]¹²¹

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARDIO (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Jul-22	3.5	5.3#	0.4	1.9	7.3	7.4#	3.2	0.6	1.4	2.6
Aug-22	5.1	3.6	0.4	0.6	0.3	124#	3	0.5	0.9	3.6
Sep-22	0.4	5.6#	0.4	0.4	0.5	24.3#	2.9	0.4	2.2	6#
Oct-22	28.7#	8.9#	1.1	0.9	2.2	92.8#	6.6#	0.8	2.3	3.9
Nov-22	45.2#	4.7#	0.7	1.1	3.2	16.3#	0.9	0.5	1.1	3.8
Dec-22	22.3#	1.9	1.2	1.2	4.1#	11.8#	4.5#	2	0.9	4.2#
Jan-23	1.8	6.1#	2	1.3	2.1	3.5	4.2#	2.5	2.5	4.7#
Feb-23	1	1.9	2.5	0.7	2.2	0.6	2	3.6#	1	1.6
Mar-23	4.8#	1	0.4	1.2	0.5	0.7	1.9	0.7	0.7	2.2
Apr-23	0.8	1.8	1.1	0.4	1.3	1.5	2.8	3.3	0.6	0.6
May-23	0.5	7.3	0.7	0.4	1.1	0.7	3.6	3.9	1	5.5#
Jun-23	1.3	1.9	0.6	0.5	0.7	1.3	2.3	5.8	1.4	6.5
12 MONTH ROLLING AVERAGE	10.1	4.0	1.0	0.9	2.1	23.7	3.2	3.8	1.7	6.9

Analysis done on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter.

+ bottles missing due to replacement after contamination or temporary civil/mining activities in the area.

¹DDG bottle on the fenceline between TCM and BCM ROM.

Red = above the rolling average, but exceedances are not mine-related and are not considered non-compliances.

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalga property monitors levels of Particle Matter under 10 micron (PM₁₀). It operates for 24hr every 6 days. **Table 3** shows that all, with the exception of one, 24hr average values recorded for this quarter are below 50µg/m³. The high value recorded on the 6th December 2022 was investigated and results concluded that Tarrawonga did not contribute more than 50 µg/m³. Harvesting was ongoing during the period of the higher PM10 reading and this source of the dust is supported by TCM's investigation.

Table 3: HVAS PM10 24hr Quarterly Average levels

Date	24hr averaged PM10 (µg/m ³)	Criterion 24hr average (µg/m ³)	Comments
11/04/2023	7.2	50	Nil
17/04/2023	13.2		
23/04/2023	7		
29/04/2023	24.4		
5/05/2023	13.2		
11/05/2023	21.5		
17/05/2023	10.6		
23/05/2023	12.6		
29/05/2023	8		
4/06/2023	22.5		
10/06/2023	4.3		
16/06/2023	4.2		
22/06/2023	Not analysed due to run being short from blackout		
28/06/2023	5.2		
29/06/2023	0.2		

Real-time Air monitoring (PM₁₀)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM₁₀ levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



Figure 1: TEOM installed at Flixton property

Three portable dust (PM₁₀) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



Figure 2: Portable and real-time dust monitor installed at TCM in November 2018

Water Monitoring

Groundwater

Routine groundwater monitoring results undertaken between April 2022 and March 2023 are shown in **Table 4** (refer to graphs in *Appendix C*).

Table 4: Groundwater results summary

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
MW1	March 22	6.80	7.54	3910
	June 22	6.70	7.52	3580
	September 22	6.46	7.58	3490
	December 22	6.12	7.75	3420
	March 23	5.74	7.37	3600
MW2	March 22	3.51	6.82	952
	June 22	3.52	6.59	826
	September 22	2.66	6.69	806
	December 22	3	6.91	906
	March 23	3.89	6.41	946
MW4	March 22	9.18	7.55	3290
	April 22	9.18	7.6	3360
	June 22	9.05	7.45	3090
	September 22	8.9	7.39	3010
	December 22	9.08	7.51	3050
	March 23	7.88	7.04	2900
MW5	March 22	2.35	8.01	1529
	June 22	1.9	7.52	830
	September 22	1.36	7.66	1874
	December 22	1.67	7.88	2022
	March 23	1.8	7.13	1412
MW8	March 22	12.36	Casing blocked	Casing blocked
	June 22	-		
	September 22	-		
	December 22	-		
	March 23	-		

The Vibrating Wire Piezometer, located in the North-East of Tarrawonga's Mining Lease, is monitored as per our Project Approval. The graph below (Figure 3) displays the water level at differing depths within the VWP.

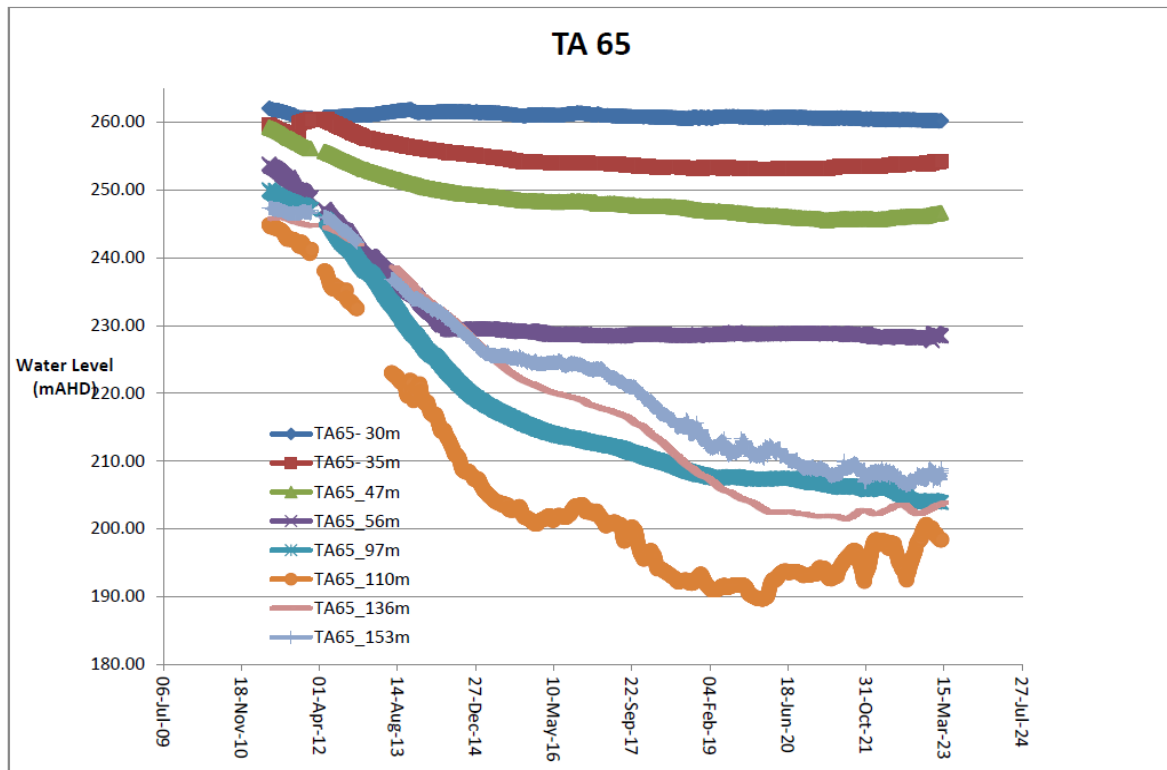


Figure 3: Groundwater Levels at TA65 (VWP)

Surface Water

Water storage onsite is expected to be sufficient for at least the next 12 months. TCM has not undertaken any discharging of treated water during the reporting period.

TCM has recorded 275.8mm of rain for 2023, so far.

Table 5: Annual rainfall

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	106.6	74.4	100	60.8	59	14.4	32.4	116.6	166.2	170.2	129.8	34.4	1064.8
Cumulative (mm)	106.6	181	281	341.8	400.8	415.2	447.6	564.2	730.4	900.6	1030.4	1064.8	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	21.2	11	169.8	37.2	0.8	35.8							275.8
Cumulative (mm)	21.2	32.2	202	239.2	240	275.8							

Evaporator Fans

During the reporting period, Tarrawonga used the Evaporator fans to evaporate mine water. Approximately 39ML of mine water was fed to the fans. It is calculated that <30% of water is successfully evaporated via the fans. During summer, it is assumed that this number will increase.

Rehabilitation and Clearing

Rehabilitation

TCM submitted the report on rehabilitation achieved in 2022 to the Resources Regulator, as well as the Forward Program for 2023, where TCM commits to approximately **37Ha** of Ecosystem Establishment for the year (tubestock planting and seeding) and approximately **25Ha** of land ready for rehabilitation use (Landform establishment/ Growth medium development).

By the close of June 2023, TCM prepared approximately 15.8Ha of landform prepared, and 8.6Ha of topsoil spread. By the time of this report, topsoil has been spread over more than 18Ha on the SOEA (Southern Emplacement Area). Seeding on the SOEA will occur in the coming weeks and continue along the rehabilitation face as the topsoil spreading continues. The landform progression and topsoiling, dated end of July, can be viewed in the image below. Tubestock planting is scheduled to occur when ground moisture is more suitable.

Trees on the NEA continue to successfully establish and grow on our rehabilitation area.



Figure 4: Photo taken July 31 2023 of our Southern Emplacement Area rehabilitation progression.



Figure 5: Rehab Status as at end of July 2023

Clearing

20Ha of topsoil from 2021 and 2022 clearing has been stripped, with soil awaiting transfer to a prepared area of the NOEA for storage. Once in place it will be shaped to shed rainwater and seeded to encourage native species growth and discourage weeds.

Clearing at Tarrawonga ceased for the year in April 2023. Mulching is concluding in the remainder of August. Topsoil and Subsoil will be stripped once storage areas become available. Until then, the soil will remain in place as this retains the soil's viability.

Complaints

No complaints for the reporting period.

Environmental Management Plans

TAR Management Plans

The Water Management Plan is with the department of planning for review and expected to be approved shortly.

All the approved Management Plans are available on the WHC website.

BTM Water Strategy

The BTM mines submitted an updated BTM Groundwater Model. This has now been approved and displayed on our website.

The BTM Noise Management Strategy has also been reviewed and will be submitted by MCCM once finalised.

Annual and Compliance Reporting

Annual Review and Annual Return Reports

The Annual Return and Annual Review were submitted in March 2023.

Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2023.

Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2023

TCM has internally submitted information for the NPI and NGERs reports and these will be finalised and submitted in September and October 2023.

Audits - Compliance

Tarrawonga recently underwent their Independent Environmental Audit and Independent Biodiversity Audit. These audits are required by the Project Approval PA11_0047, and EPBC Act respectively.

The audits were carried out smoothly with no immediate concerns. One minor administrative non-compliance was identified that a report had been submitted to the Regulator but then not uploaded to the website. The audit reports have not yet been drafted, but will be available on the WHC website once finalised.

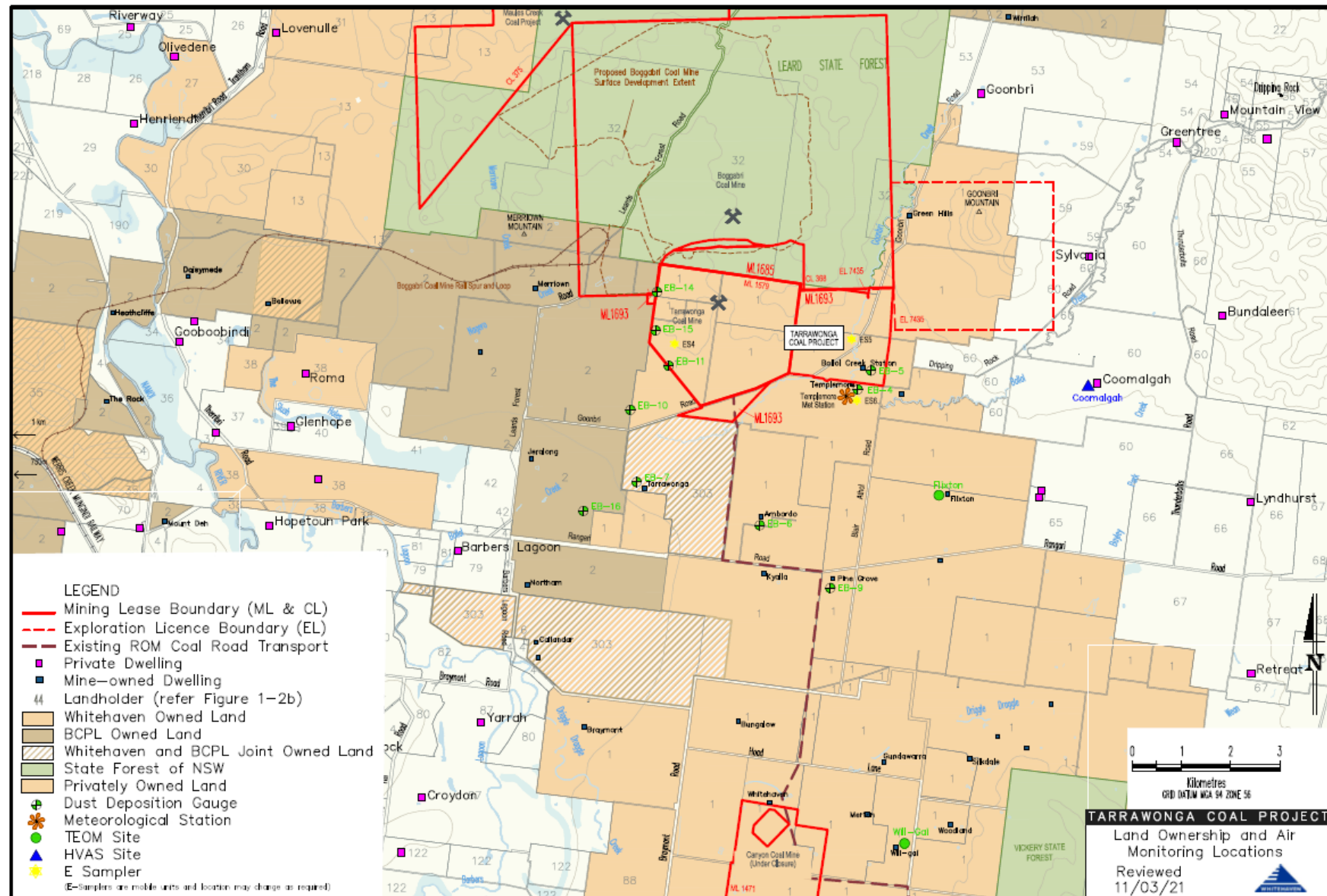
Approvals and Licencing

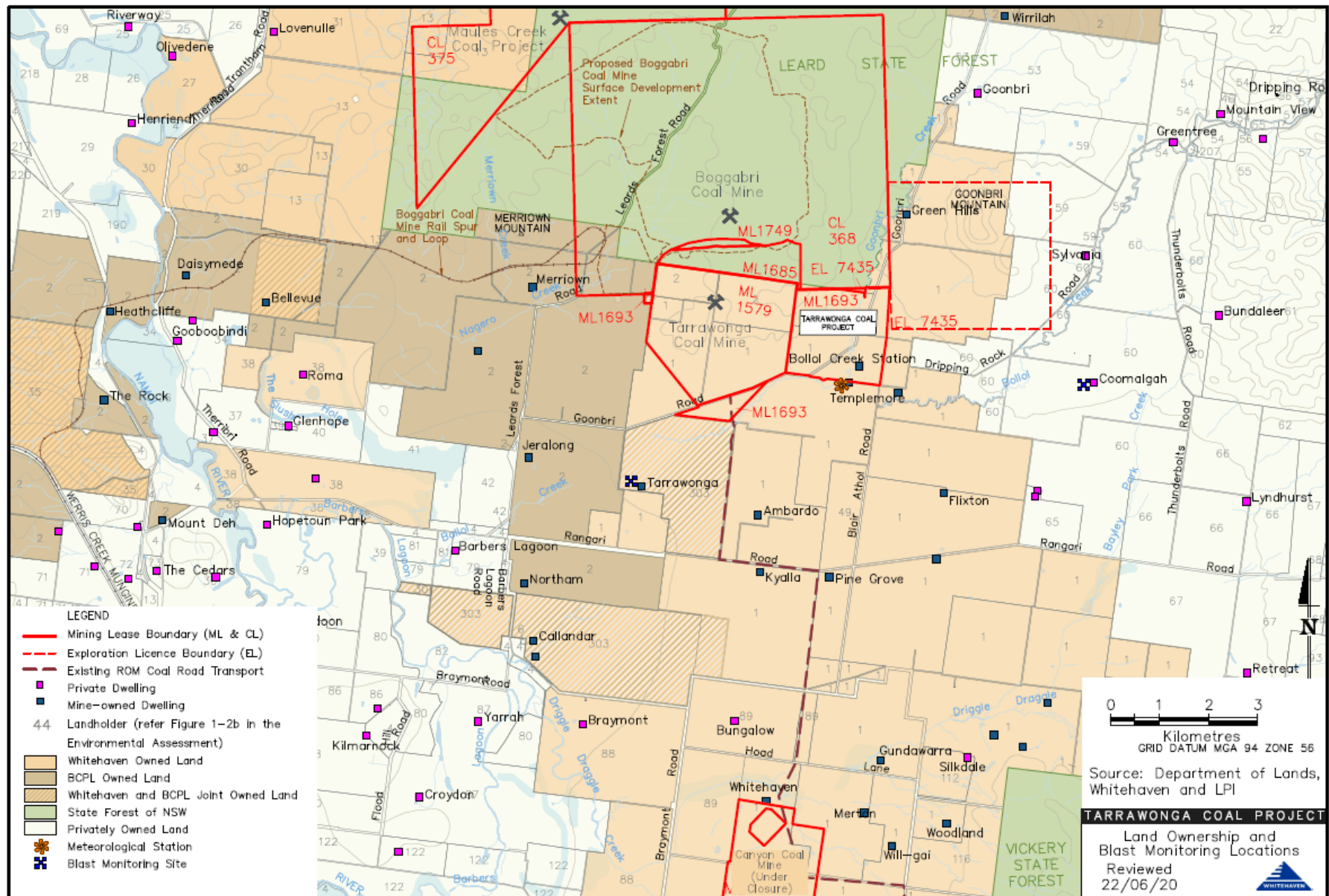
The updated EPL variation was issued by the EPA in June 2023. This variation outlines recommended improvements to some of Tarrawongas sediment dam inlets and outlets, and some require the use of Earthlok (a rock lining mat). Some of these projects have already been completed as can be seen in the photo below.

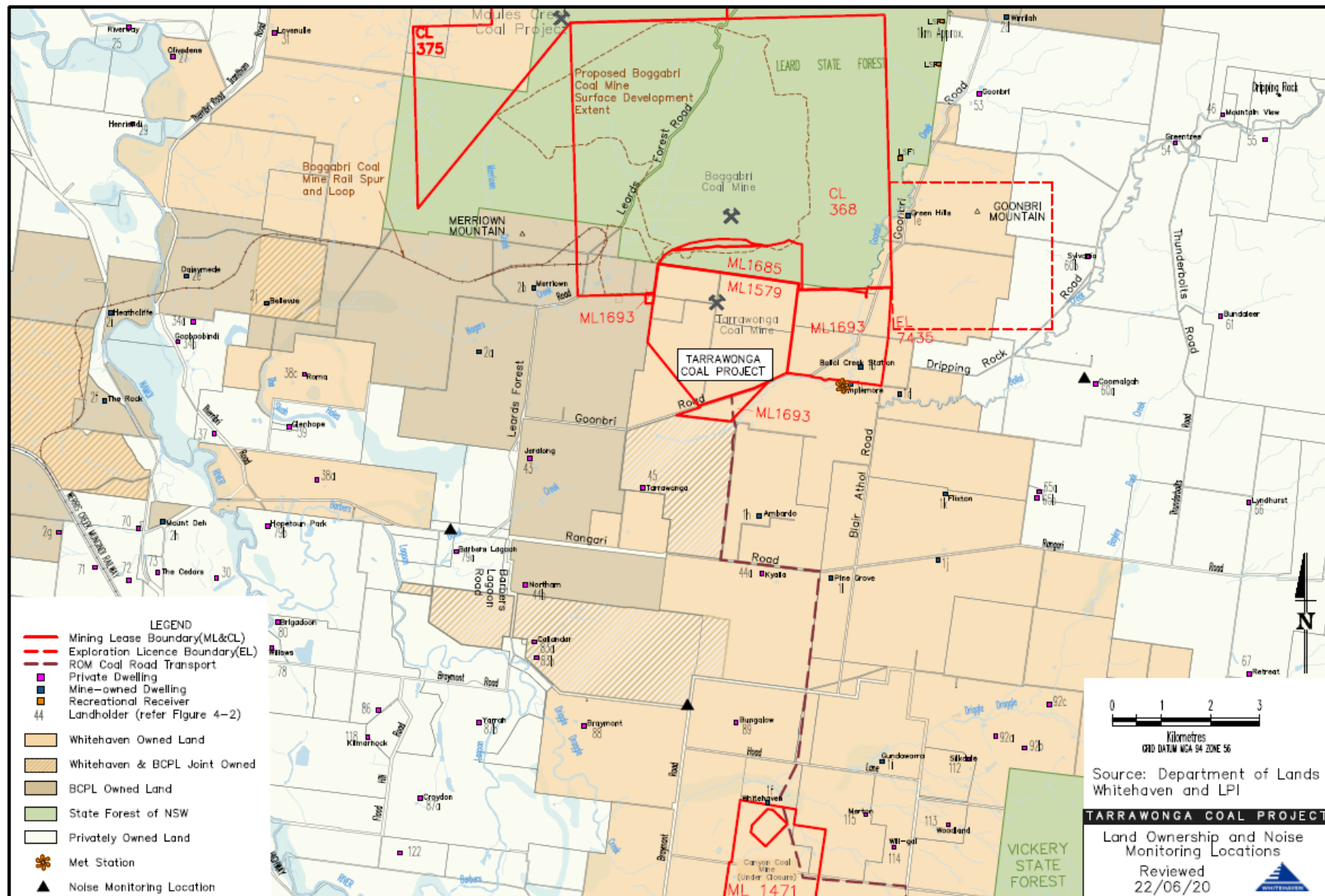


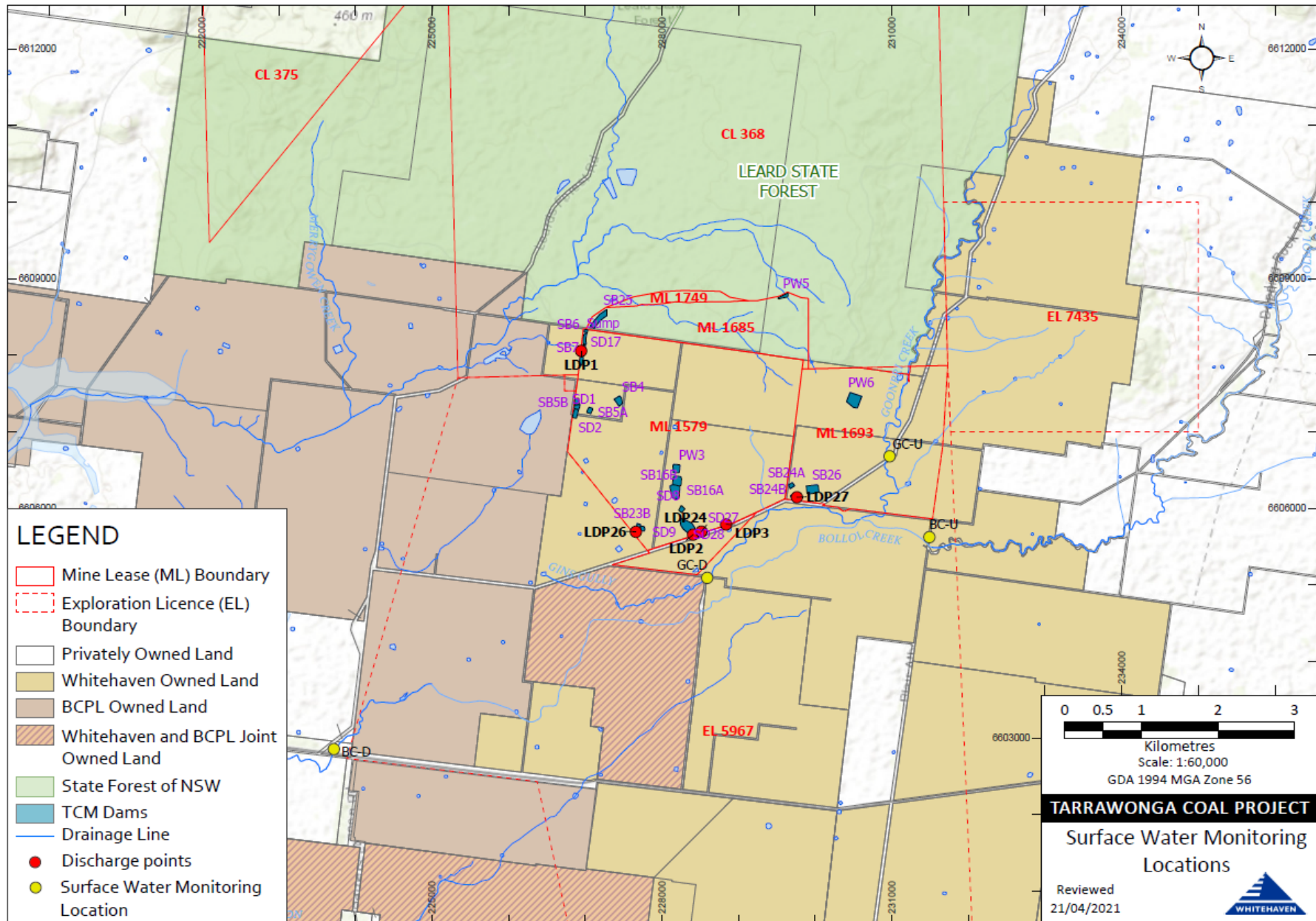
Figure 6: Earthlok installation on the inlet of SD17 (LDP 1)

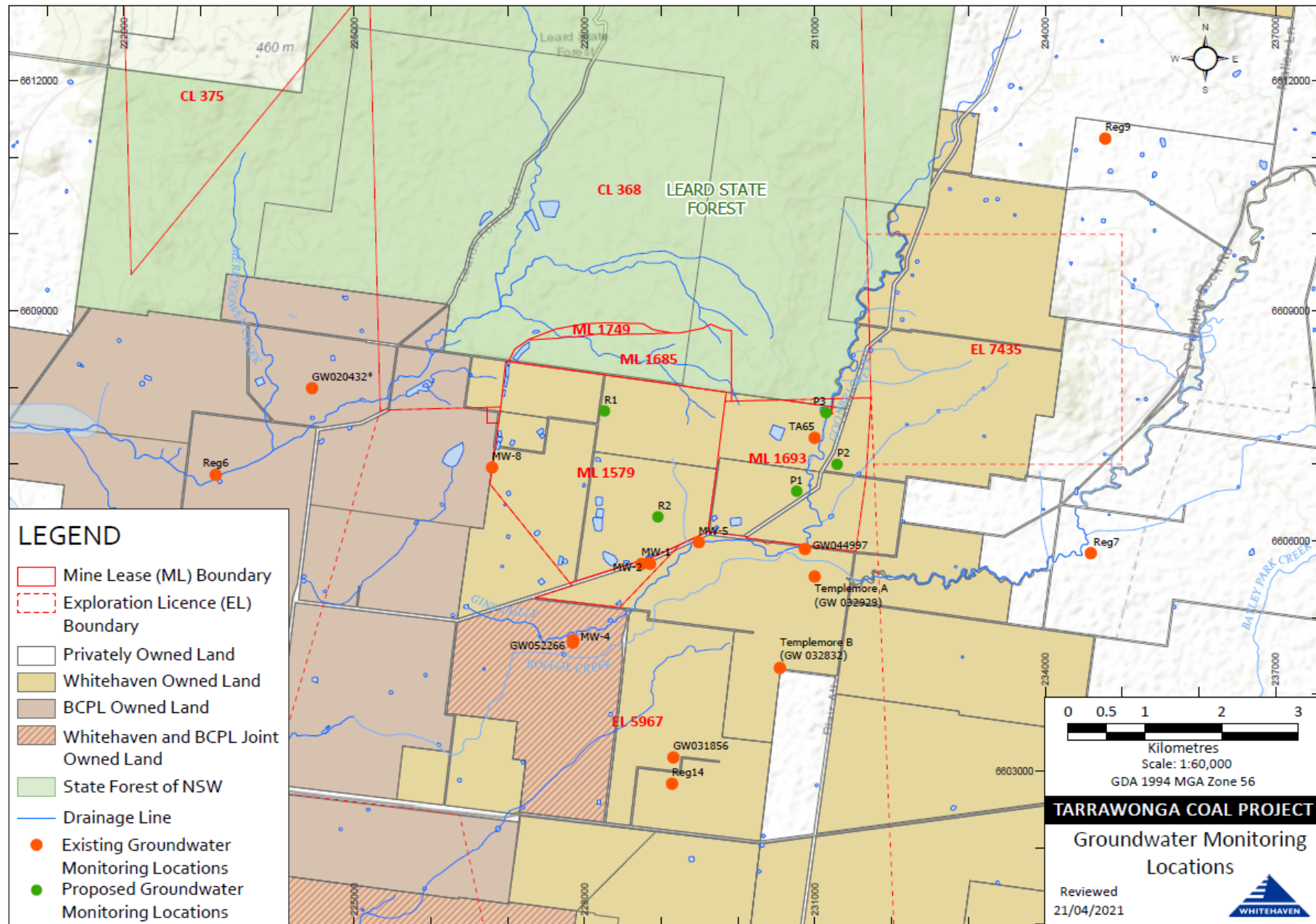
Appendix A





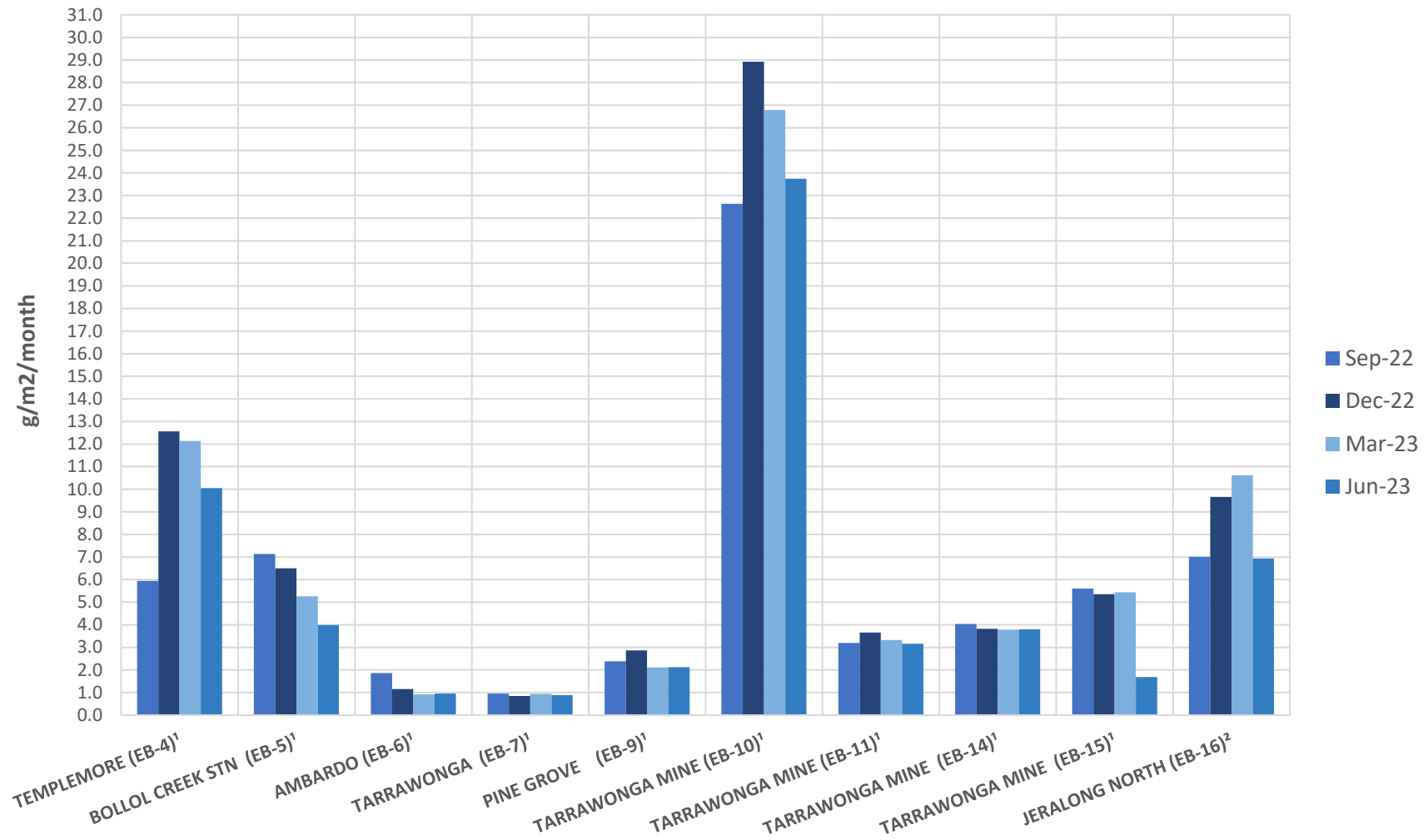




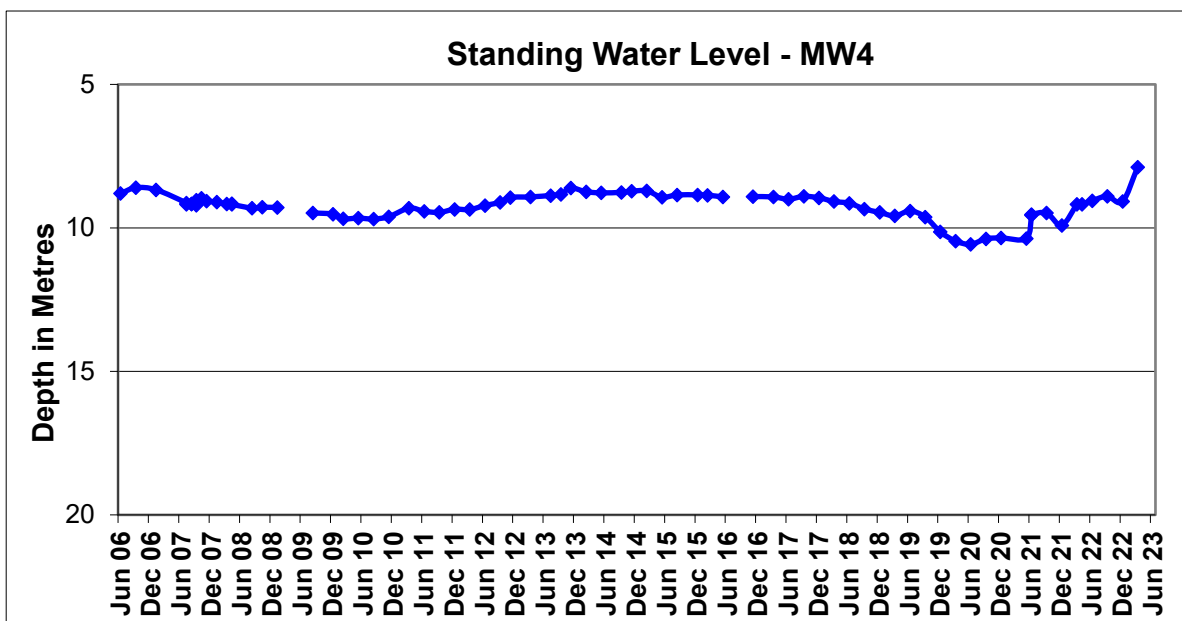
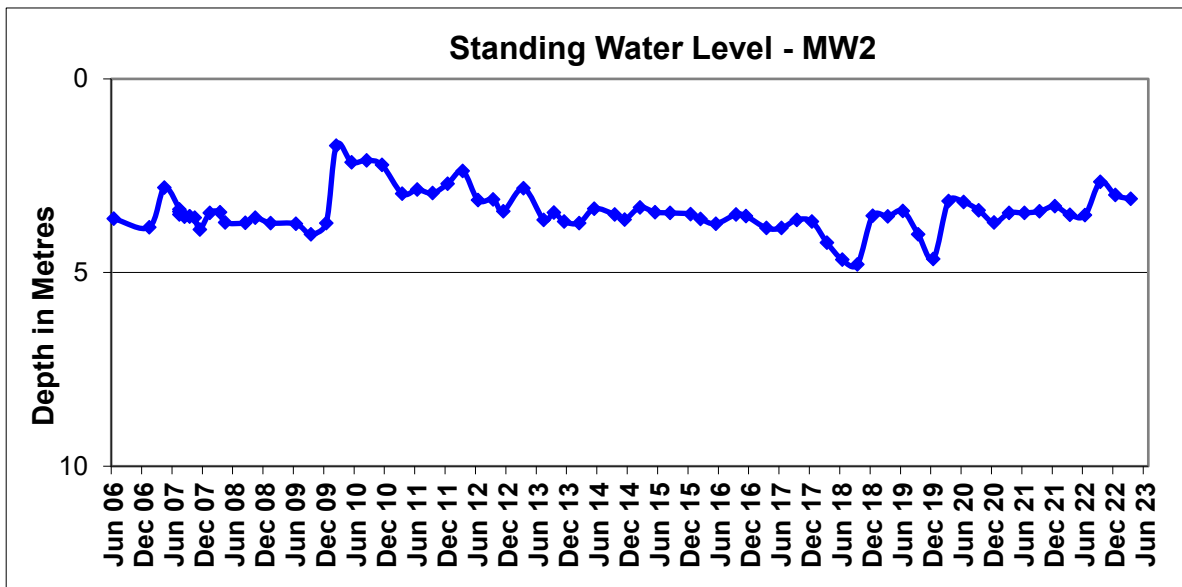
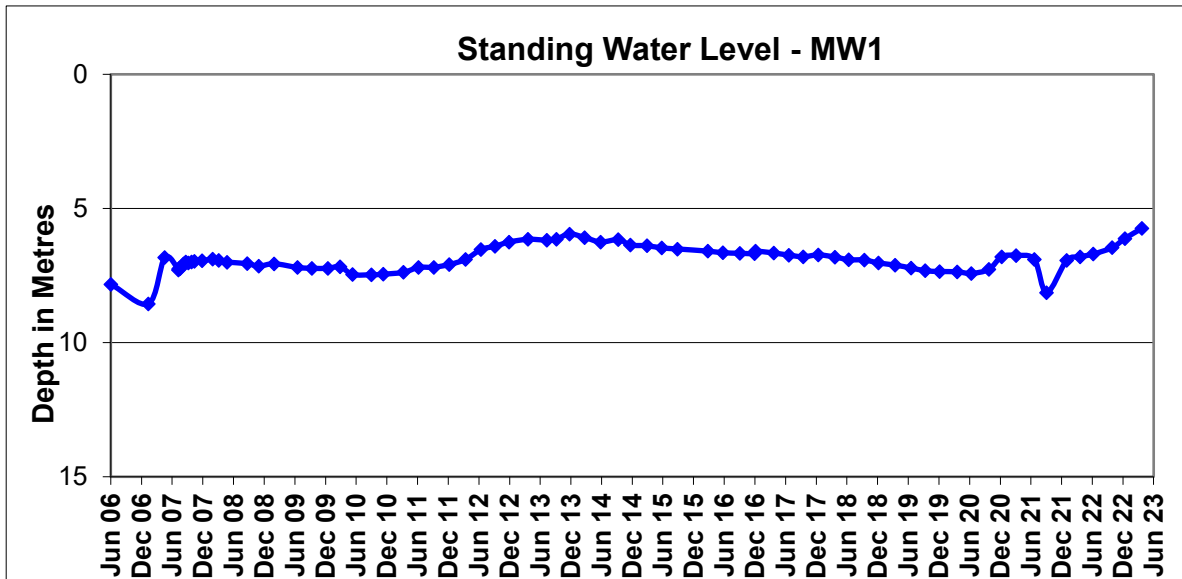


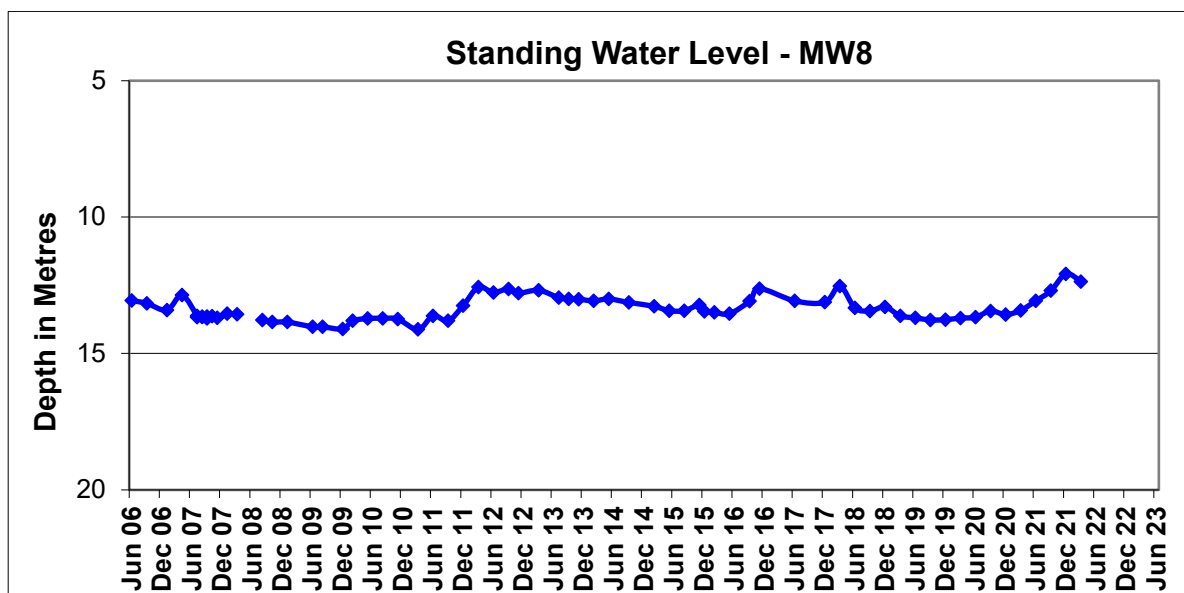
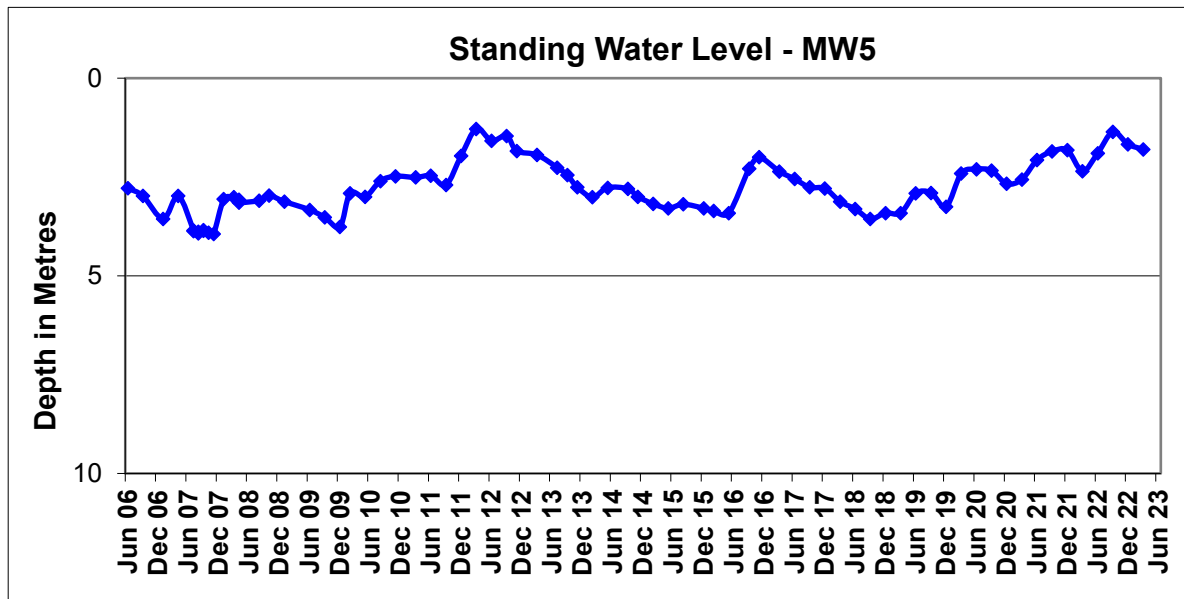
Appendix B

Deposited Dust Gauge Results- Quarterly rolling average [g/m²/month]



Appendix C





Notes: Notes of the 73rd Meeting of the Tarrawonga Coal Community Consultative Committee
Held at the Tarrawonga Coal Mine Training Room, 9 am.

Wednesday 30 August 2023

Members Present: Aaron Cross (AC) – Narrabri Shire Council, Alison Quiroz (AQ) – TCM, Elizabeth O’Hara (EOH) – Community Representative, Jackie Scott (JS) – WHC, Landon Brady (LB) – Narrabri Shire Council, Larissa Golby (LG) – Tarrawonga Coal Mine, Maddi Wright (MW) – Tarrawonga Coal Mine, Prashanth Van Houten (PvH) – Gunnedah Shire Council (alternate), Wade Hudson (WH) – Gunnedah Shire Council.

Apologies: Colleen Fuller (CF) – Community Representative, Cr Darrell Tiemens – Narrabri Shire Council (DT), Cr Rob Hooke – Gunnedah Shire Council (RH), Lloyd Finlay (LF) – Community Representative, Mark Hathway (MHa) – Community Representative, Megan Martin (MM) – TCM, Michelle Henry (MH) – Narrabri Shire Council, Omar Romeril (OR) – TCM

Independent Chair: David Ross (DR)

Independent Secretary: Debbie Corlet (DC)

Agenda Items	Who to Present
1. Welcome and Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Minutes from Previous Meeting	DR
4. Actions from Previous Meeting	DR
5. Mine Progress Report	MW
6. Environmental Monitoring Report	MW & AQ
7. General Business	ALL
8. Next Meeting – Wednesday 25 October 2023	ALL

Agenda Item	Discussion	Action/By Whom
1.	Welcome and Apologies – DR welcomed everyone to the CCC meeting. Advised that he is still looking for new members but to date the response has been underwhelming. Explained that this will be a short meeting as we'll be doing a site tour.	
2.	Declaration of pecuniary or other interests – EOH has a small package of WHC shares. DR is paid a fee as chair as is DC for typing the minutes.	
3.	Minutes from Previous Meeting – Members accepted the minutes appropriately reflected what was discussed.	
4.	Actions from Previous Meeting – DR – Most actions from previous meeting have been completed. An action on RH to remain open due to his absence.	
5.	<p>Mine Progress Report – Overview</p> <p>MW commenced the report by providing members with an update on the mine's safety statistics before discussing how mining production has progressed.</p> <p>Community – Donations across April to June 2023 of over \$385,378.63 were spent in the local community.</p>	
6.	<p>Environmental Monitoring Report</p> <p>Q3 CY23 Summary – MW noted that topsoil stripping is nearly completed. Sediment dams have been dewatered and inlets are being reworked and desilted. Rehabilitation of SOEA has progressed well, with topsoil spreading; more than half done and seeding to occur in the coming weeks. Water Management Plan submitted and waiting for review by the DPE. Annual Rehab Report submitted under the new legislation. Independent Environmental Audit undertaken; report will be published when finalised – one minor administrative non-compliance identified.</p> <p>WH – Re the Water Management Plan, is that in part due to the Modification Plan. MW –It's a general review requirement triggered to take place every three years.</p> <p>Noise – No exceedances in Q3 Attended Noise Monitoring.</p> <p>Blasting – All blasts this quarter were within blasting criteria. 1216 blasts up until 30 June at TCM since operations began.</p> <p>Air – All air quality monitoring for the quarter is within TCM's approval criteria.</p> <p>Tyre Disposal Update – 319 Tonnes of tyres disposed at Tarrawonga on 22 Nov 2. No more have been disposed of this year (EPL 12365). WHC has compiled the report on the tyre approval granted in the EPL and has been submitted.</p>	

<p>EOH – The general feeling in the community is that it is just easier to bury the tyres because there is no cost. So, you aren't actively encouraged to find alternatives.</p> <p>MW – We do a lot of research in this space. There is no technology for this type of rubber to be recycled. There is nowhere for it to go.</p> <p>EOH – Can you provide a slide next CCC of where you have researched (a slide for all future meetings).</p> <p>DR – I think because of PvH's previous suggestions for organisations to be considered to help with tyre researching, each of the mines considered those. I think they all reached out to the organisation. Unfortunately, only tyres of a much smaller size could be handled.</p> <p>MW – No one wants to fund it.</p> <p>LB – Needs to be a lot more work done. In Europe, recycled tyre material is used for roads. Here they say it is not up to standard for roads.</p> <p>MW – The report submitted goes more into where the tyres are buried rather than about the storage. Definitely something we are aware of and try not to store for a long time. We don't monitor day to day.</p> <p>PvH – 319 tonnes were disposed of in November. Post that date what happens with the tyres.</p> <p>MW – They are stored - can't be higher than 3 metres below the surface. Can't be near anything combustible. The licence will dictate what we can dispose.</p> <p>LB – Does the EPL state re leaching issues.</p> <p>MW – No it doesn't.</p> <p>EOH – Tyre Stewardship was a prime ministerial program. Might be something that WHC can put forward to being a recycler.</p> <p>DR – This issue of tyres has been discussed for the last 2 years. But, I don't think that we have discussed how the mine manages the issues of leaching etc once buried. Could that be a discussion / presentation at the next meeting?</p> <p>MW – This is something we are very passionate about as well. Yes, we can do at the next meeting.</p> <p>EOH – There was also talk about chemicals being buried inside the tyres.</p> <p>MW – No never to my knowledge.</p> <p>LB – Re the chemical storage - the EPA do routine inspections where they will look into issues like that. There was a requirement for bunding.</p> <p>EOH – This sort of thing is very important for the community.</p> <p>Noise - No exceedances in Q3 Attended Noise Monitoring.</p>	<p>ACTION 1 – MW to provide a slide on where they have researched for the tyre recycling.</p> <p>ACTION 2 – A presentation on how mine minimises impacts of tyre burial at next meeting</p> <p>ACTION 3 – MW to report back and confirm no chemicals being buried.</p> <p>ACTION 4 – MW to provide the link for the tyre management report.</p>
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7.	<p>General Business</p> <p>EOH – How much have the evaporators been used in the months since the last CCC meeting. MW – Have been used rarely; last time used was the 2nd August. The evaporation is not very high due to winter. Maybe more in summer.</p> <p>DR – At our next meeting, we need to talk about the revised CCC Guidelines. This discussion will require some time. Members across all of the State’s CCC, including proponents, can be subjected in the future to sterner warnings if required.</p> <p>MW – With respect to what we are undertaking over the next few months, rehabilitation is our priority and needs to be completed by 31 December. Other than the modification 10 discussed at the previous meeting, there are no other modifications expected in the next few months.</p> <p>AQ –We have to improve our sediment dams as part of our EPL licence variation- date is by 31 December.</p> <p>EOH - Stock planting. Is there a move to more seed spreading. MW – We are doing both. First seeding and then tube stock. There is more talk of what is more effective. At this time, we are doing both. We do trials every year as well to see what works. Missed out on planting tubestock in flood period; 36 ha in total by the end of this year. Due to the site being inaccessible, mining was halted and dirt was not transported as required. The land-forming of the rehabilitation was the main cause behind rehab being delayed for 2022. We are more than making up for it in our rehabilitation efforts for this year.</p>	
8.	<p>Next meeting date – Wednesday 25 October 2023 at 10:00 am.</p> <p>Members then spent the rest of the meeting on a site tour looking predominantly at rehabilitation sites.</p>	

Meeting (including site tour) closed at 12:00 pm.

Appendix 1: Actions

Page No	Action No	Description	Date Raised
		RH to report back next month on meeting with UNSW	24 May 2023
3	1	MW to provide a slide on where they have researched for the tyre recycling.	30 August 2023
3	2	A presentation on how mine minimises impacts of tyre burial at next meeting	30 August 2023
3	3	MW to report back and confirm no chemicals being buried.	30 August 2023
3	4	MW to provide the link for the tyre management report.	30 August 2023

Tarrawonga Coal Mine Community Consultative Committee Meeting #74

**Quarterly Environmental Monitoring Report
July, 2023 – September, 2023**



Photo taken in October 2023 displaying topsoil spreading activities on the Southern Emplacement Area

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from July 1 2023 to September 30, 2023. Maps with all the monitoring locations are available in *Appendix A*.

Noise Monitoring

Attended Noise Monitoring was conducted during this period.

Attended noise monitoring was conducted at the “Bungalow” (TN4), “Barbers Lagoon” (TN3) and “Matong” (TN2) properties from 11th to the 15th of September 2023. Noise criteria for the mine is 35dB(A) Leq (15 min) for all operating times.

Results below show that noise emissions from the mine did not exceed operational noise criteria at the “Barbers Lagoon”, “Bungalow” or “Matong” monitoring locations for any monitoring events during the monitoring period.

(See below summary tables extracted from **Tarrawonga Coal Mine Noise Monitoring – Q3 September 2023**)

Table 1 TCM Operational Noise Monitoring Results – 11 September 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	2:50pm	41	3.4 / 186 / C	Birds (41), TCM (<20)
Barbers Lagoon – TN3	11:15am	52	2.8 / 190 / A	Birds (52), traffic (40), insects (32), TCM (<20)
Bungalow – TN4	1:15pm	43	3.1 / 152 / A	Birds (43), traffic (29), TCM (<20)

1. Pasquill Stability Class

Table 2 TCM Operational Noise Monitoring Results – 11 September 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC ¹	Identified Noise Sources
Matong – TN2	9:14pm	26	1.2 / 034 / D	Birds (26), TCM (<20)
Barbers Lagoon – TN3	7:43pm	36	1.6 / 064 / E	Dogs (35), frogs (28), TCM (<20)
Bungalow – TN4	8:24pm	33	0.9 / 177 / E	Traffic (30), TCM ¹ (27), birds (26)

1. Coal trucks on private haul road

Table 3 TCM Operational Noise Monitoring Results – 11-12 September 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	28	1.2 / 090 / E	Birds (28), TCM (<20)
Barbers Lagoon – TN3	12:28am	31	0.6 / 093 / E	Dogs (29), TCM (26)
Bungalow – TN4	11:20pm	36	1.0 / 271 / E	Traffic (35), dogs (30), TCM (<20)

Table 4 TCM Operational Noise Monitoring Results – 12 September 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	3:18pm	34	2.3 / 188 / B	Birds (34), TCM (<20)
Barbers Lagoon – TN3	11:51am	52	2.0 / 197 / A	Traffic (52), aeroplanes (41), birds (33), insects (24), TCM (<20)
Bungalow – TN4	1:33pm	47	2.4 / 202 / B	Traffic (47), birds (34), insects (23), TCM (<20)

Table 5 TCM Operational Noise Monitoring Results – 12 September 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:30pm	33	1.2 / 079 / E	Birds (31), mine (28), TCM (<20)
Barbers Lagoon – TN3	7:55pm	33	1.5 / 033 / E	Birds (33), TCM (<20)
Bungalow – TN4	8:40pm	32	2.1 / 039 / F	Traffic (30), dogs (27), TCM (<20)

1. Coal trucks on private haul road

Table 6 TCM Operational Noise Monitoring Results – 12-13 September 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	36	1.3 / 042 / E	Birds (33), mine (31), traffic (26), TCM (24)
Barbers Lagoon – TN3	12:36am	33	0.9 / 105 / E	Dogs (30), birds (30), TCM (<20)
Bungalow – TN4	11:20pm	29	2.2 / 042 / F	Birds (28), traffic (23), TCM (<20)

Table 7 TCM Operational Noise Monitoring Results – 13 September 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	3:20pm	46	2.4 / 218 / B	Birds (46), TCM (<20)
Barbers Lagoon – TN3	11:45am	55	2.4 / 230 / B	Birds (55), residential (39), insects (33), TCM (<20)
Bungalow – TN4	1:30pm	41	3.2 / 216 / B	Birds (39), insects (34), traffic (33), TCM (<20)

Table 8 TCM Operational Noise Monitoring Results – 13 September 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:29pm	29	2.4 / 037 / E	Birds (27), traffic (24), TCM (<20)
Barbers Lagoon – TN3	7:56pm	32	0.7 / 100 / E	Frogs (29), TCM (28), dogs (23)
Bungalow – TN4	8:36pm	32	2.6 / 062 / D	Dogs (31), traffic (23), TCM (<20)

Table 9 TCM Operational Noise Monitoring Results – 13-14 September 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	45	1.4 / 099 / E	Birds (45), mine (34), TCM (<20)
Barbers Lagoon – TN3	12:33am	33	1.1 / 091 / E	Birds (30), mine (29), TCM (<20)
Bungalow – TN4	11:19pm	29	1.4 / 074 / E	Birds (29), TCM (<20)

Table 10 TCM Operational Noise Monitoring Results – 14 September 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	1:17pm	38	3.3 / 161 / B	Birds (38), TCM (<20)
Barbers Lagoon – TN3	9:55am	49	2.3 / 199 / B	Birds (48), residential (43), TCM (<20)
Bungalow – TN4	11:38am	41	2.9 / 188 / B	Birds (40), aeroplanes (33), TCM (<20)

Table 11 TCM Operational Noise Monitoring Results – 14 September 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:26pm	30	1.1 / 050 / E	Birds (30), TCM (<20)
Barbers Lagoon – TN3	7:51pm	33	1.4 / 103 / E	Traffic (31), birds (29), TCM (<20)
Bungalow – TN4	8:32pm	31	2.0 / 032 / E	Dogs (31), TCM (<20)

Table 12 TCM Operational Noise Monitoring Results – 14-15 September 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	32	1.2 / 107 / F	Birds (31), insects (23), TCM (<20)
Barbers Lagoon – TN3	12:32am	29	1.7 / 103 / E	Dogs (29), TCM (<20)
Bungalow – TN4	11:21pm	27	1.4 / 082 / E	Birds (27), TCM (<20)

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This criteria is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. Results of attended monitoring show that the measured L1 (1 min) noise level did not exceed sleep disturbance criteria.

Table 13 TCM Sleep Disturbance Monitoring Results – 11-12 September 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	50	<20	Birds	1.2 / 090 / E
Barbers Lagoon – TN3	12:28am	47	30	Dog	0.6 / 093 / E
Bungalow – TN4	11:20pm	54	<20	Car	1.0 / 271 / E

1. L1 (1 min) – total measured level.
2. L1 (1 min) – TCM noise only.

Table 14 TCM Sleep Disturbance Monitoring Results – 12-13 September 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	51	31	Birds	1.3 / 042 / E
Barbers Lagoon – TN3	12:36am	48	<20	Car	0.9 / 105 / E
Bungalow – TN4	11:20pm	51	<20	Dog	2.2 / 042 / F

Table 15 TCM Sleep Disturbance Monitoring Results – 13-14 September 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	73	<20	Birds	1.4 / 099 / E
Barbers Lagoon – TN3	12:33am	46	<20	Birds	1.1 / 091 / E
Bungalow – TN4	11:19pm	48	<20	Birds	1.4 / 074 / E

Table 16 TCM Sleep Disturbance Monitoring Results – 14-15 September 2023 (Night)					
Location	Time	dB(A) L1 (1 min) ¹	dB(A) L1 (1 min) ²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	43	<20	Birds	1.2 / 107 / F
Barbers Lagoon – TN3	12:32am	47	<20	Dog	1.7 / 103 / E
Bungalow – TN4	11:21pm	50	<20	Birds	1.4 / 082 / E

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

Blast Monitoring

Blasting Results

Since 2006, there have been 1231 blasts (until 30/09/2023) at TCM.

The highest result for Overpressure last quarter was 116.5 dB recorded at the 'Coomalgah' monitor on the 15/07/2023. TCMs blasts for the rolling year still remain below 5% of blasts with overpressure more than 115db.

The highest result for ground vibration last quarter was 2.65 mm/s recorded at the 'Tarrawonga' monitor on the 20/09/2023.

TCM ground vibration for the quarter was compliant and did not exceed the blasting criteria declared in the project approval and Blast Management Plan (BMP).

Table 1 - Max Peak Overpressure and Ground Pressure for the Quarter

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Tarrawonga*	07/08/2022	110.1	N/A	20/09/2023	2.65	N/A
Coomalgah	15/07/2022	116.5	120	09/09/2023	0.92	10

**Limit Not applicable according to EPL and PA11_0047 because it is a project related property.*

Air Quality Monitoring

Dust Deposition Results

Standard Australia AS/NZS 3580.10.1:2016, "Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method," classifies deposited dust as insoluble solids. Therefore, TCM tests air quality monthly at mine-owned sites for indicative purposes, to infer compliance, against the limit of 4 g/m²/month.

Table 3 shows deposited dust gauge results over 12 months. All the dust monitors are located on project related or WHC owned land; as such compliance criteria (4g/m²/month) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others. Non-mine related particulate matter could be attributed to organic matter (such as leaves, mice, frogs, insects or bird faeces that fall in to the bottles), or they may be in farming locations, so during some months dust levels may be higher due to harvesting. To mitigate contamination from bird faeces, spikes have been added to the top of each dust gauge unit to deter birds from perching.

Table 2 - Deposited Dust Gauge Results [g/m2/month]¹²¹

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARD (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Oct-22	28.7#	8.9#	1.1	0.9	2.2	92.8#	6.6#	0.8	2.3	3.9
Nov-22	45.2#	4.7#	0.7	1.1	3.2	16.3#	0.9	0.5	1.1	3.8
Dec-22	22.3#	1.9	1.2	1.2	4.1#	11.8#	4.5#	2	0.9	4.2#
Jan-23	1.8	6.1#	2	1.3	2.1	3.5	4.2#	2.5	2.5	4.7#
Feb-23	1	1.9	2.5	0.7	2.2	0.6	2	3.6#	1	1.6
Mar-23	4.8#	1	0.4	1.2	0.5	0.7	1.9	0.7	0.7	2.2
Apr-23	0.8	1.8	1.1	0.4	1.3	1.5	2.8	3.3	0.6	0.6
May-23	0.5	7.3	0.7	0.4	1.1	0.7	3.6	3.9	1	5.5#
Jun-23	1.3	1.9	0.6	0.5	0.7	1.3	2.3	5.8	1.4	6.5
Jul-23	0.6	1.1	0.8	0.3	0.3	0.8	3	3.8	1.1	2.1
Aug-23	4.1#	0.9	1.9	0.3	0.1	0.5	1.3	9.6#	1	0.4
Sep-23	1.1	2.2	0.7	0.6	0.5	1.1	5.1	6.2#	2.5	0.6
12 MONTH ROLLING AVERAGE	1.0	2.2	1.1	0.7	1.3	1.2	2.9	3.7	1.6	1.2

Analysis done/ field comments on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter. These are now excluded from the average calculation.

+ bottles missing due to replacement after contamination or temporary civil/mining activities in the area.

¹DDG bottle on the fenceline between TCM and BCM ROM.

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors levels of Particle Matter under 10 micron (PM₁₀). It operates for 24hr every 6 days. **Table 3** shows that all 24hr average values recorded for this quarter are below 50µg/m³.

Table 3: HVAS PM10 24hr Quarterly Average levels

Date	24hr averaged PM10 (µg/m ³)	Criterion 24hr average (µg/m ³)	Comments
4/07/2023	1	50	Nil
10/07/2023	1.9		
16/07/2023	3.9		
22/07/2023	1.7		
28/07/2023	7.6		
3/08/2023	12.1		
9/08/2023	8.5		
15/08/2023	3.4		
21/08/2023	6.1		
27/08/2023	12.9		
2/09/2023	4.5		
8/09/2023	7.6		
14/09/2023	8		
20/09/2023	19.1		
26/09/2023	11.2		

Real-time Air monitoring (PM₁₀)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM₁₀ levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



Figure 1: TEOM installed at Flixton property

Three portable dust (PM₁₀) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



Figure 2: Portable and real-time dust monitor installed at TCM in November 2018

Water Monitoring

Groundwater

Routine groundwater monitoring results undertaken between September 2022 and September 2023 are shown in **Table 4** (refer to graphs in *Appendix C*).

Table 4: Groundwater results summary

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
MW1	September 22	6.46	7.58	3,490
	December 22	6.12	7.75	3,420
	March 23	5.74	7.37	3,600
	June 23	5.73	7.73	3,830
	September 23	5.61	6.98	3,390
MW2	September 22	2.66	6.69	806
	December 22	3	6.91	906
	March 23	3.1	6.41	946
	June 23	3.53	6.87	979
	September 23	3.58	6.31	778
MW4	September 22	8.9	7.39	3,010
	December 22	9.08	7.51	3,050
	March 23	8.5	7.04	2,900
	June 23	9.05	7.43	3,380
	September 23	8.31	6.62	2,990
MW5	September 22	1.36	7.66	1,874
	December 22	1.67	7.88	2,022
	March 23	1.8	7.13	1,412
	June 23	2.12	7.45	757
	September 23	2.29	6.97	1,862
MW8	September 22	12.61	Casing blocked	Casing blocked
	December 22	Sampling error		
	March 23	Sampling error		
	June 23	12.3		
	September 23	12.54		

The Vibrating Wire Piezometer, located in the North-East of Tarrawonga's Mining Lease, is monitored as per our Project Approval. The graph below (Figure 3) displays the water level at differing depths within the VWP.

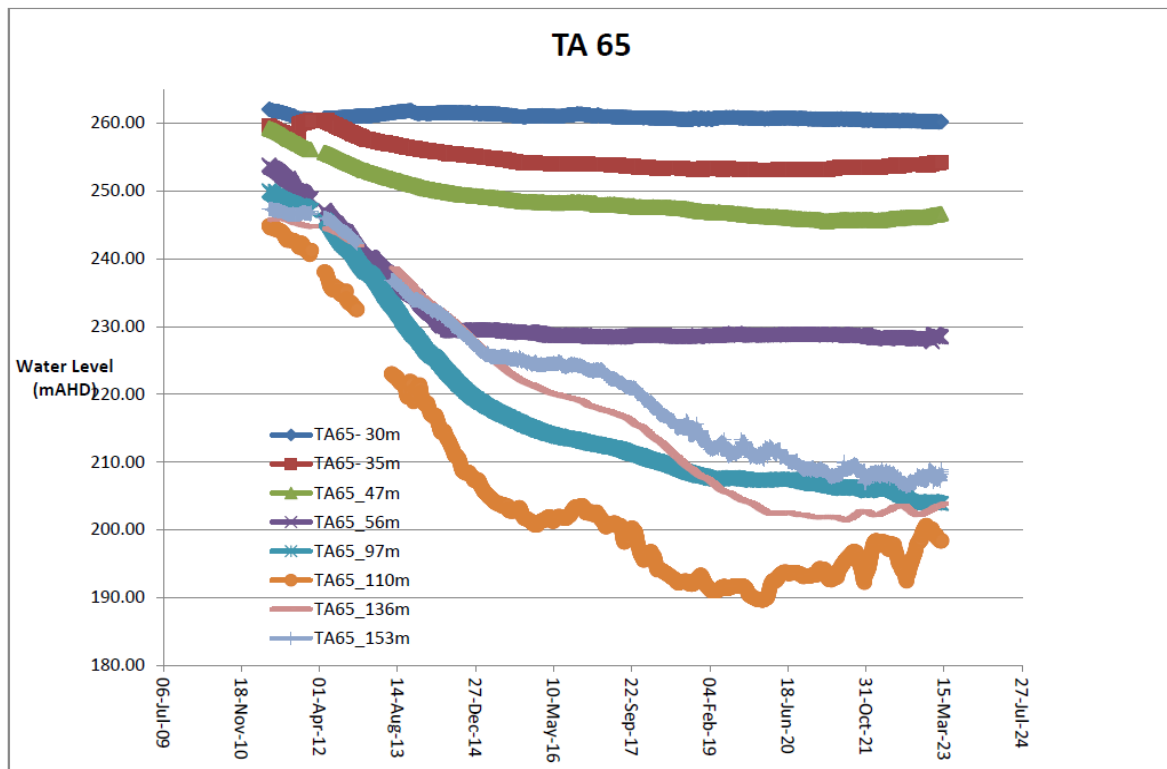


Figure 3: Groundwater Levels at TA65 (VWP)

Surface Water

Water storage onsite is expected to be sufficient for at least the next 7 months. TCM has not undertaken any discharging of treated water during the reporting period.

TCM has recorded 297.2mm of rain for 2023, so far. The nearby Boggabri weather station has recorded 322.8mm this year.

Table 5: Annual rainfall

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	106.6	74.4	100	60.8	59	14.4	32.4	116.6	166.2	170.2	129.8	34.4	1064.8
Cumulative (mm)	106.6	181	281	341.8	400.8	415.2	447.6	564.2	730.4	900.6	1030.4	1064.8	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	21.2	11	169.8	37.2	0.8	35.8	8	11.4	2	0			297.2
Cumulative (mm)	21.2	32.2	202	239.2	240	275.8	283.8	295.2	297.2	297.2			

Evaporator Fans

During the reporting period, Tarrawonga did not use the Evaporator fans to evaporate mine water. As we are now moving into a conservatory water stage, the fans are unlikely to be used during the summer.

Rehabilitation and Clearing

Rehabilitation

TCM submitted the report on rehabilitation achieved in 2022 to the Resources Regulator, as well as the Forward Program for 2023, where TCM commits to approximately **37Ha** of Ecosystem Establishment for the year (tubestock planting and seeding) and approximately **25Ha** of land ready for rehabilitation use (Landform establishment/ Growth medium development).

By the close of September 2023, TCM prepared approximately 15.8Ha of landform prepared, and 8.6Ha of topsoil spread. By the time of this report, topsoil has been spread over more than 24Ha on the SOEA (Southern Emplacement Area). Seeding on the SOEA is happening now and will continue along the rehabilitation face as the topsoil spreading is finalised. Tubestock planting is scheduled to occur when ground moisture is more suitable, but infill planting in the Northern emplacement area will occur prior to the end of the year.

Trees on the both the North and South rehab areas continue to successfully establish and grow on our rehabilitation area. Ecologists were here last week to assess the success rate of rehab and that monitoring report will be included in our Annual Review.



Figure 4: Rehab Status as at end of September 2023

Clearing

20Ha of topsoil from 2021 and 2022 clearing has been stripped, with soil awaiting transfer to a prepared area of the NOEA for storage. Once in place it will be shaped to shed rainwater and seeded to encourage native species growth and discourage weeds.

Clearing at Tarrawonga ceased for the year in April 2023. Mulching concluded in August. Topsoil and Subsoil will be stripped once storage areas become available. Until then, the soil will remain in place as this retains the soil's viability.

Complaints

One complaint received during the reporting period. This pertained to a rock kicked up by a haul truck and cracking the windscreen of a member of the public. The windscreen was fixed by WHC.

Environmental Management Plans

TAR Management Plans

The Water Management Plan was updated and approved by the DPE.

The Blast Management Plan is currently under review and will be submitted to the DPE in the coming weeks.

All the approved Management Plans are available on the WHC website.

BTM Water Strategy

The BTM mines submitted an updated BTM Groundwater Model. This has now been approved and displayed on our website.

The BTM Noise Management Strategy has also been reviewed and will be submitted by MCCM once finalised.

Annual and Compliance Reporting

Annual Review and Annual Return Reports

The Annual Return and Annual Review were submitted in March 2023.

Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2023.

Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2023

TCM has submitted information for the NPI and NGERs reports and these were approved and reports published at the close of September 2023.

Audits - Compliance

Tarrawonga recently underwent their Independent Environmental Audit and Independent Biodiversity Audit. These audits are required by the Project Approval PA11_0047, and EPBC Act respectively.

The audits were carried out smoothly with no immediate concerns. One minor administrative non-compliance was identified that a report had been submitted to the Regulator but then not uploaded to the website. The audit reports have been submitted to the department with action plans. These will be available on our website upon approval.

Approvals and Licencing

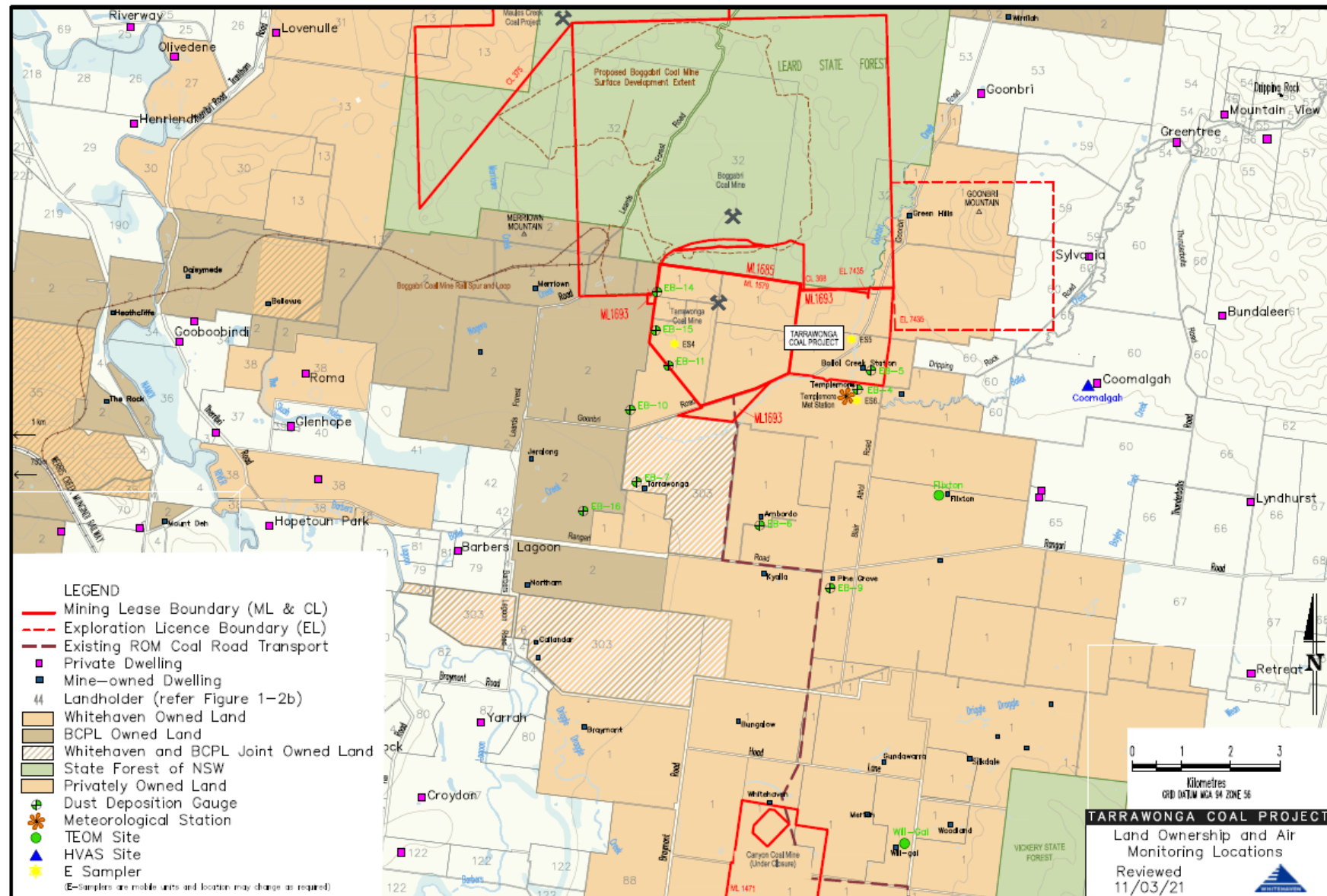
Tarrawongas MP11_0047 Modification 10 was approved on the 19th October 2023. This modification is in relation to Haul truck hours. Tarrawonga will update relevant management plans (Noise and Traffic) to align with this modification.

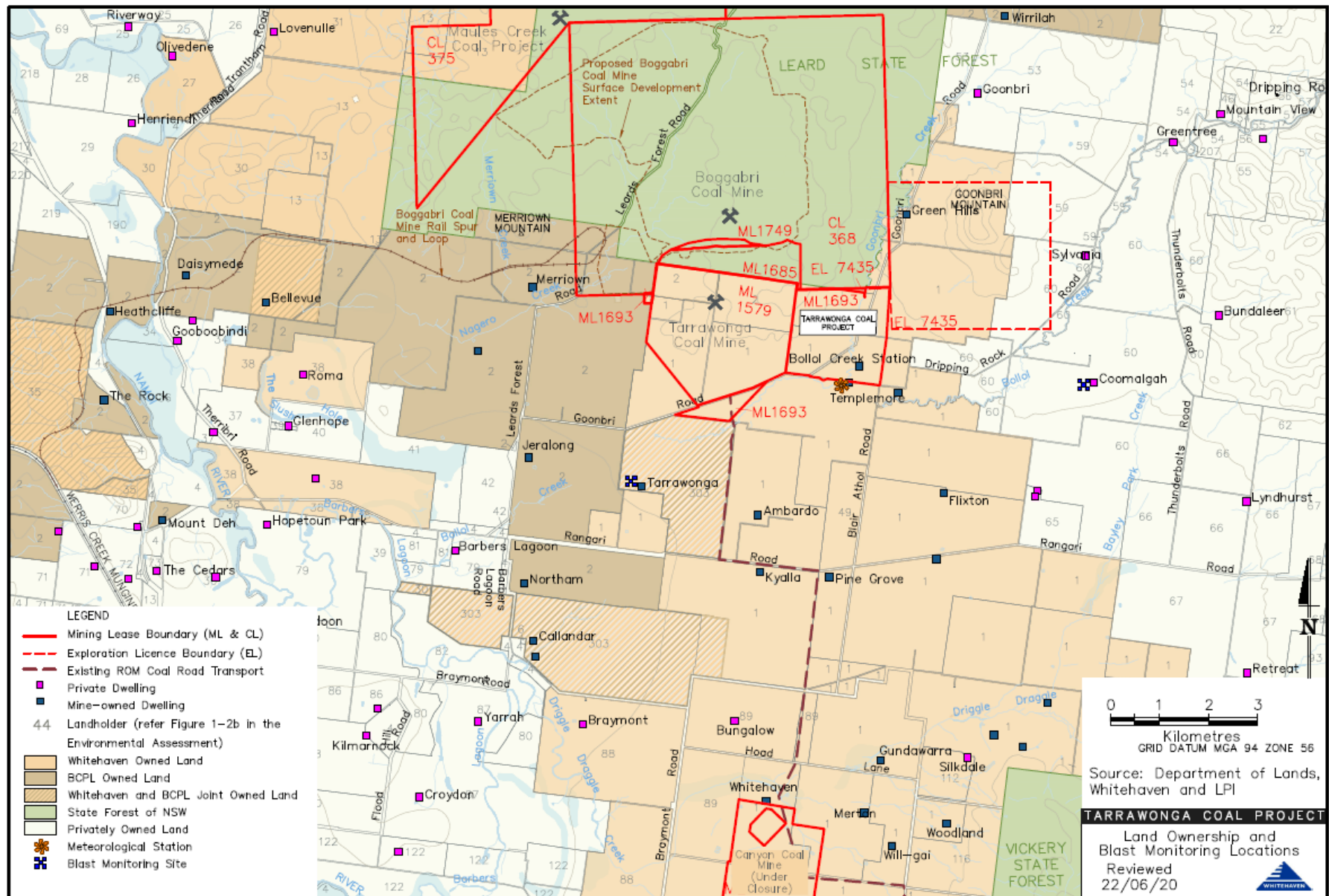
The updated EPL variation was issued by the EPA in June 2023. This variation outlines recommended improvements to some of Tarrawongas sediment dam inlets, outlets and drains, and some require the use of Earthlok (a rock lining mat). Some of these projects have already been completed as can be seen in the photo below.

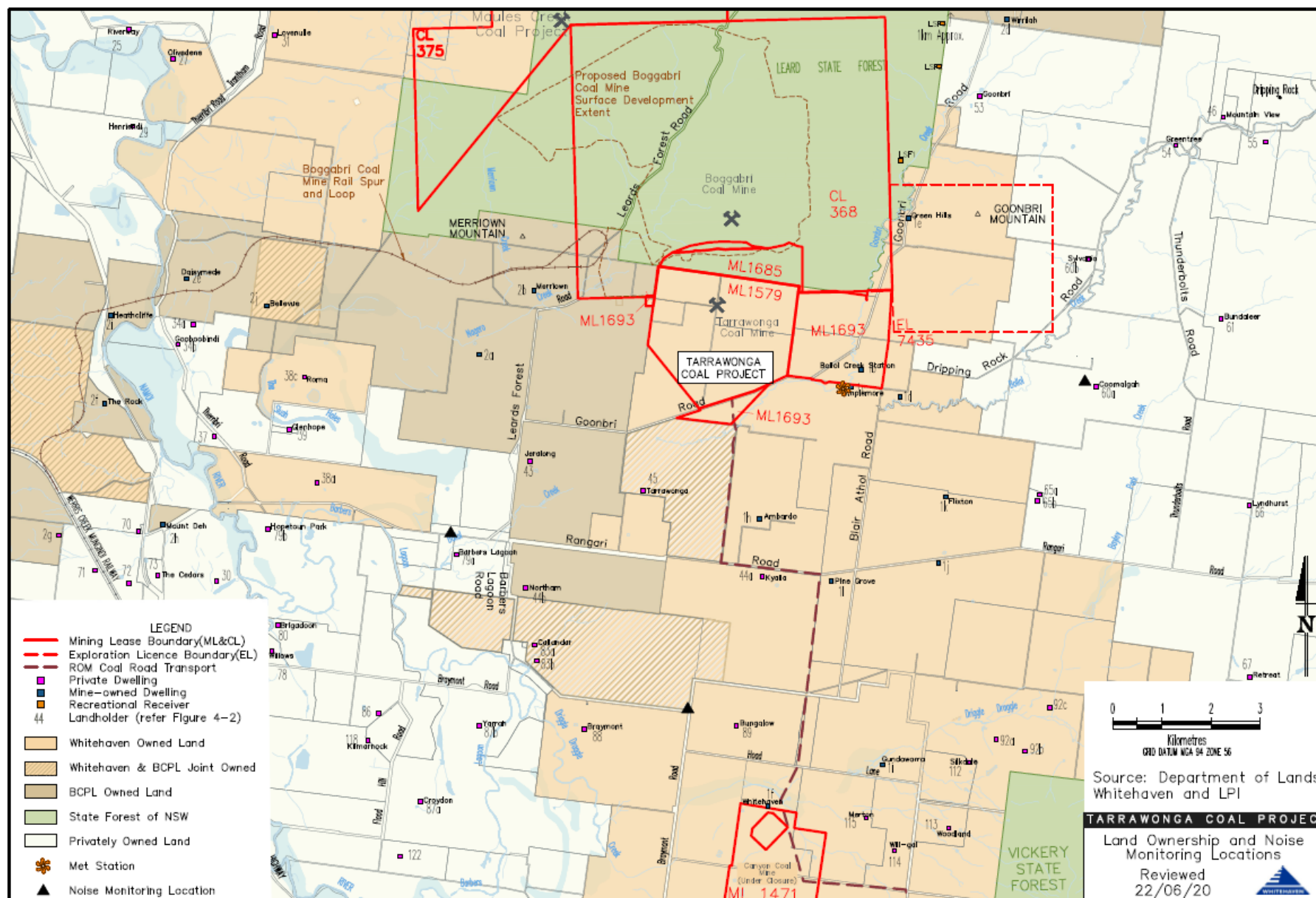


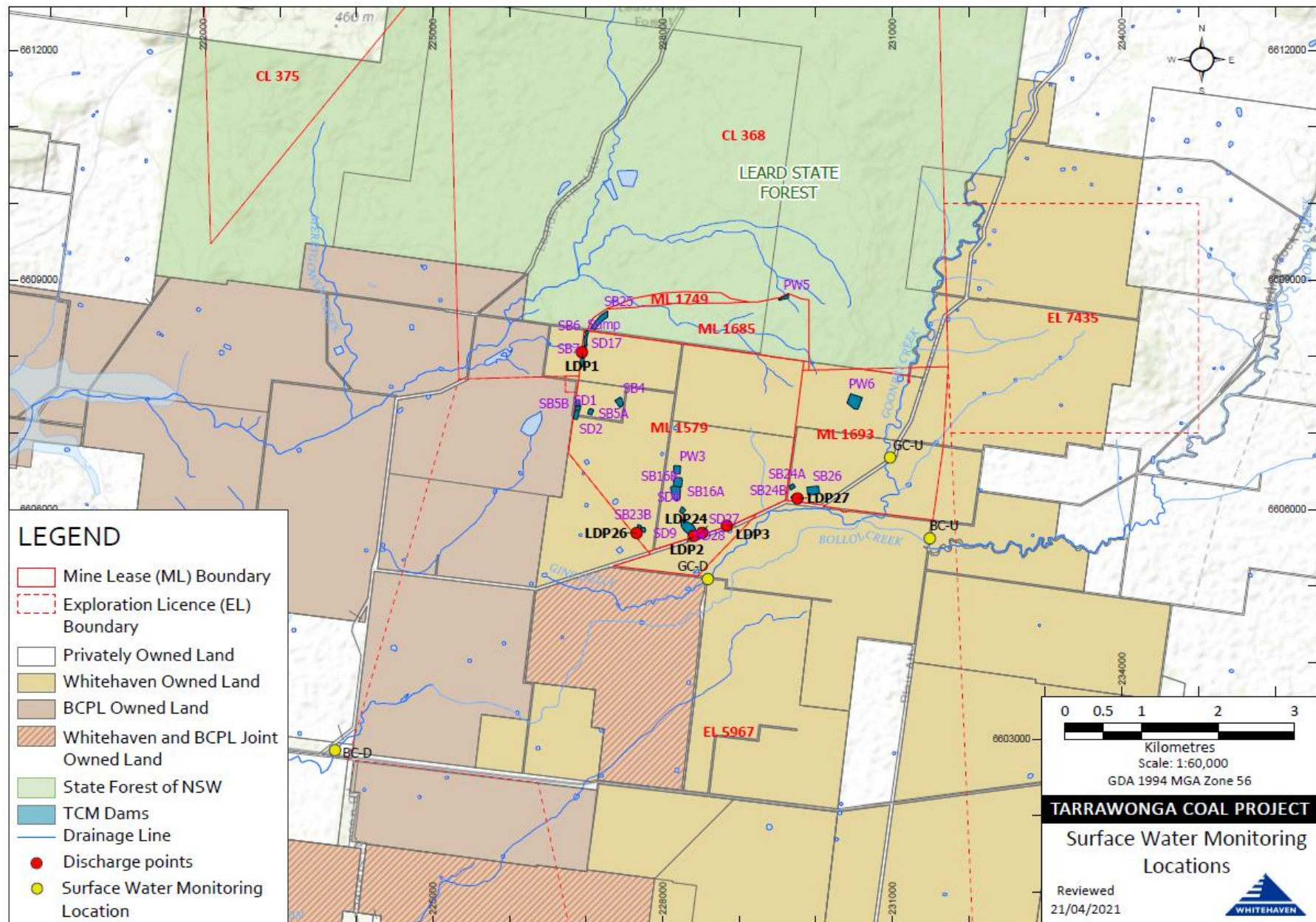
Figure 5: Earthlok installation on the drain from the ROM pad to SB16A

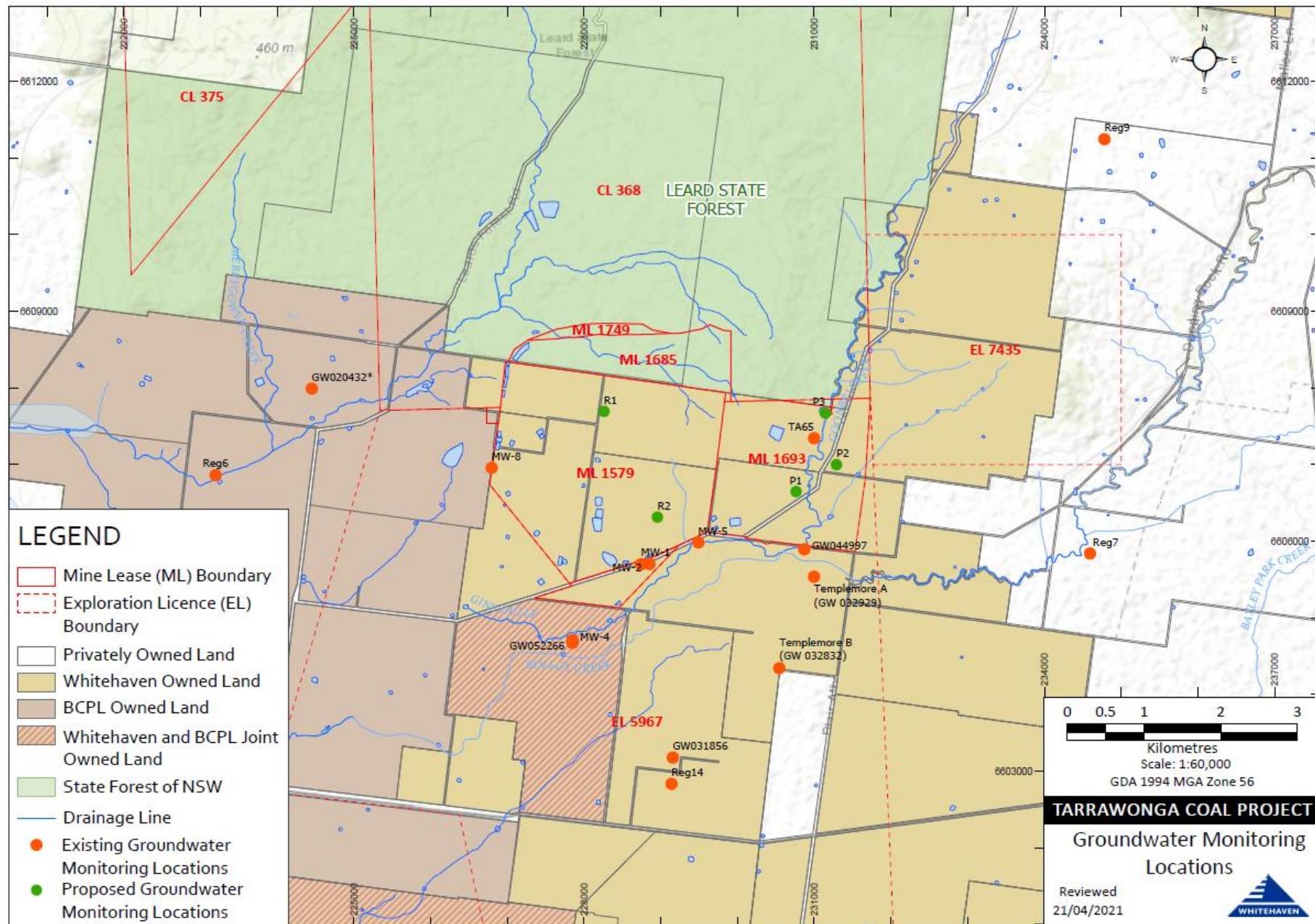
Appendix A





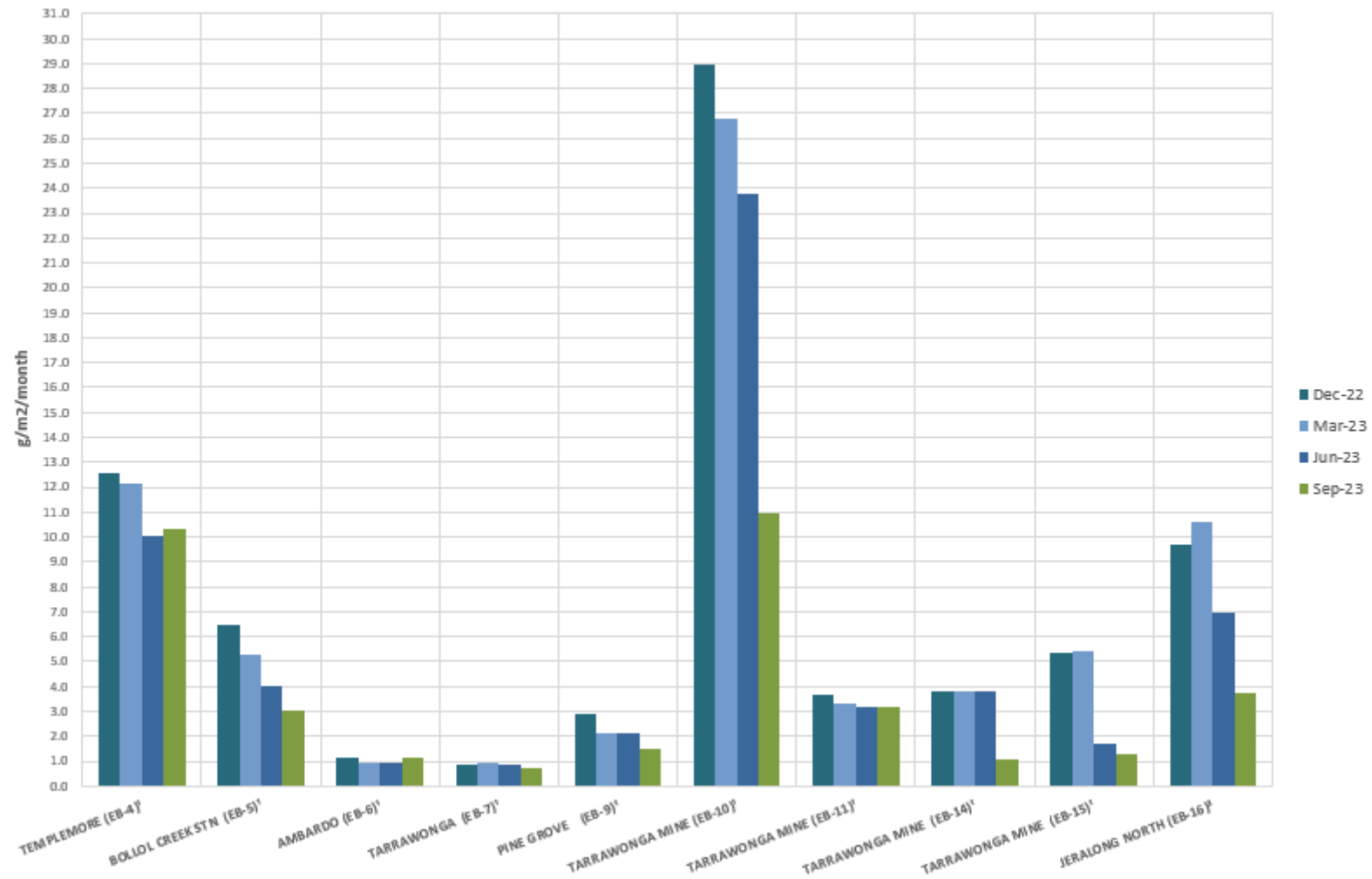




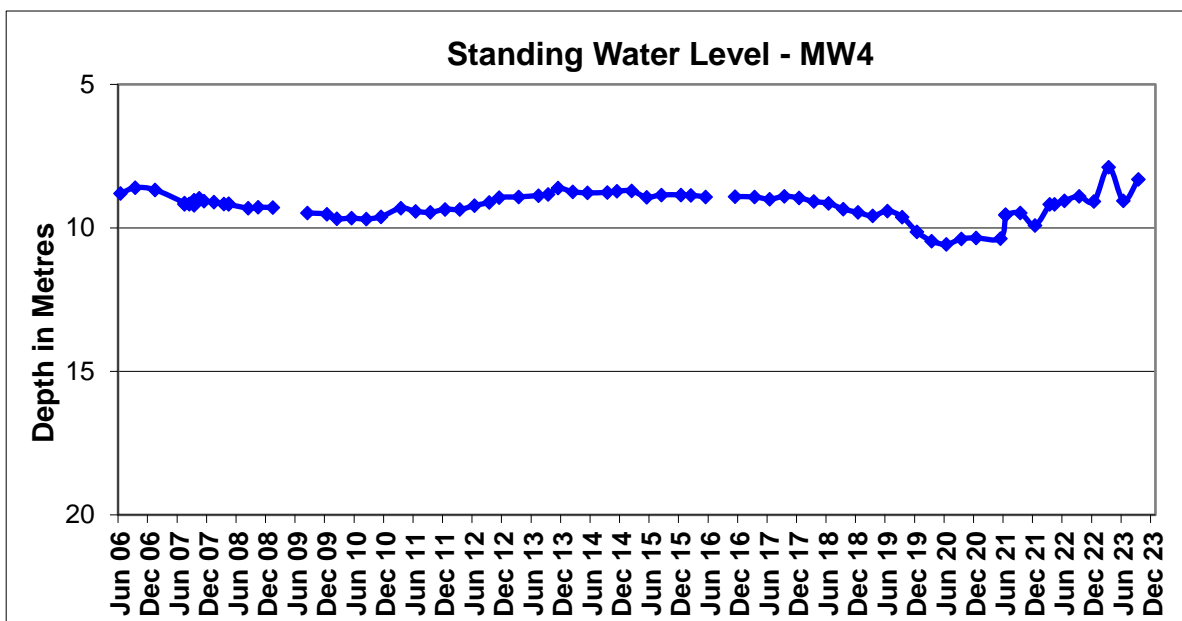
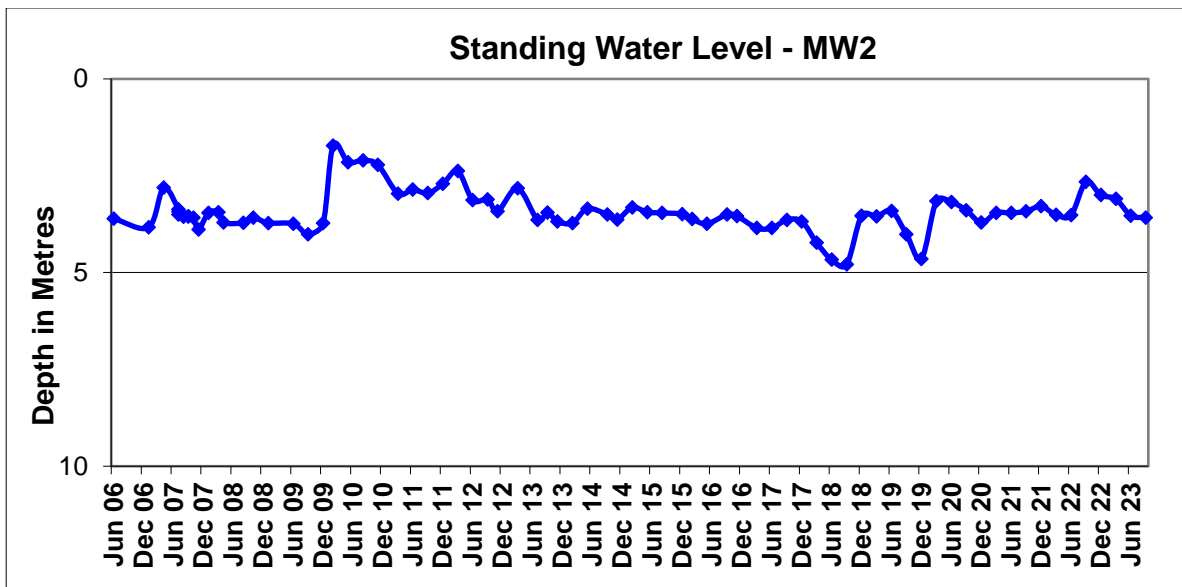
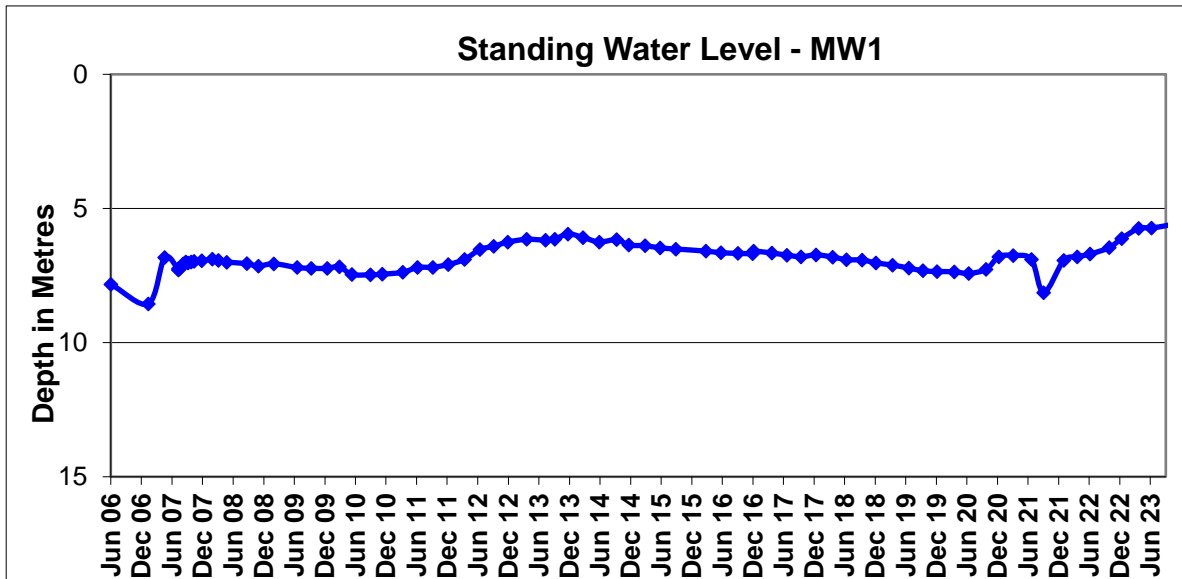


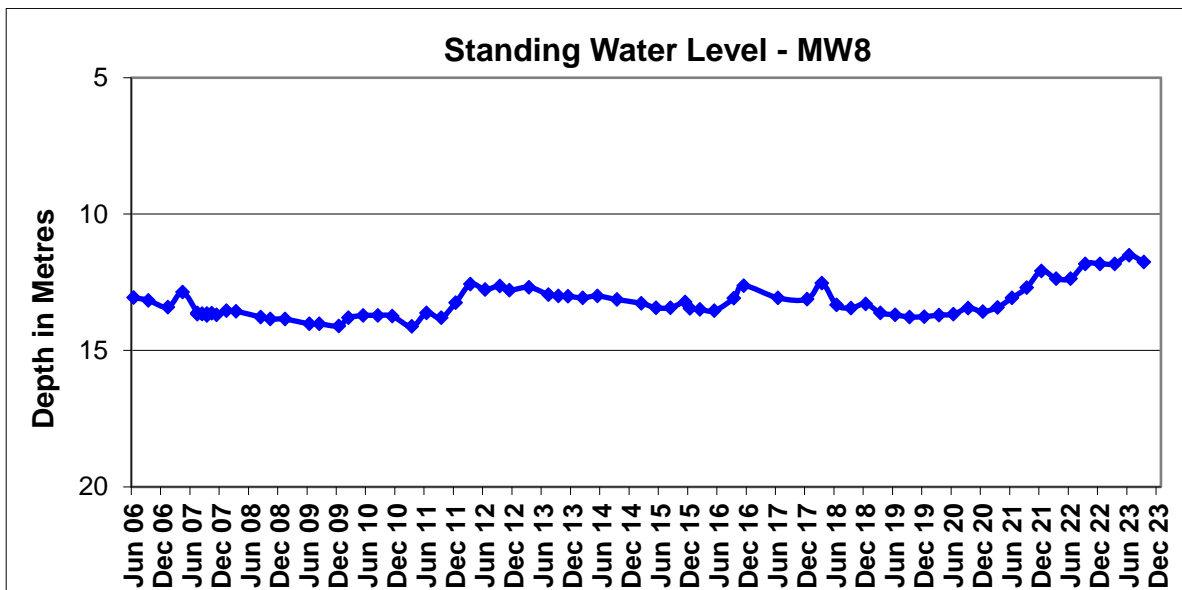
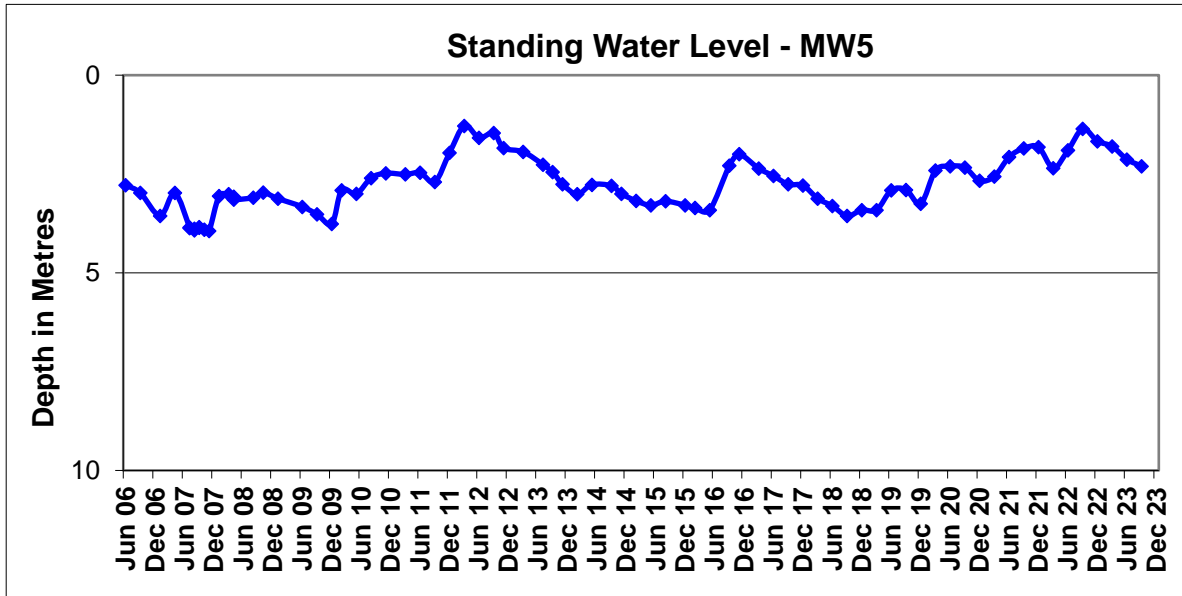
Appendix B

Deposited Dust Gauge Results- Quarterly rolling average [g/m²/month]



Appendix C





Notes: Notes of the 73rd Meeting of the Tarrawonga Coal Community Consultative Committee
2023

Wednesday 30 August

Held at the Tarrawonga Coal Mine Training Room, 9 am.

Members Present: Aaron Cross (AC) – Narrabri Shire Council, Alison Quiroz (AQ) – TCM, Elizabeth O’Hara (EOH) – Community Representative, Jackie Scott (JS) – WHC, Landon Brady (LB) – Narrabri Shire Council, Larissa Golby (LG) – Tarrawonga Coal Mine, Maddi Wright (MW) – Tarrawonga Coal Mine, Prashanth Van Houten (PvH) – Gunnedah Shire Council (alternate), Wade Hudson (WH) – Gunnedah Shire Council.

Apologies: Colleen Fuller (CF) – Community Representative, Cr Darrell Tiemens – Narrabri Shire Council (DT), Cr Rob Hooke – Gunnedah Shire Council (RH), Lloyd Finlay (LF) – Community Representative, Mark Hathway (MHa) – Community Representative, Megan Martin (MM) – TCM, Michelle Henry (MH) – Narrabri Shire Council, Omar Romeril (OR) – TCM

Independent Chair: David Ross (DR)

Independent Secretary: Debbie Corlet (DC)

Agenda Items	Who to Present
1. Welcome and Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Minutes from Previous Meeting	DR
4. Actions from Previous Meeting	DR
5. Mine Progress Report	MW
6. Environmental Monitoring Report	MW & AQ
7. General Business	ALL
8. Next Meeting – Wednesday 25 October 2023	ALL

Agenda Item	Discussion	Action/By Whom
1.	Welcome and Apologies – DR welcomed everyone to the CCC meeting. Advised that he is still looking for new members but to date the response has been underwhelming. Explained that this will be a short meeting as we'll be doing a site tour.	
2.	Declaration of pecuniary or other interests – EOH has a small package of WHC shares. DR is paid a fee as chair as is DC for typing the minutes.	
3.	Minutes from Previous Meeting – Members accepted the minutes appropriately reflected what was discussed.	
4.	Actions from Previous Meeting – DR – Most actions from previous meeting have been completed. An action on RH to remain open due to his absence.	
5.	Mine Progress Report – Overview MW commenced the report by providing members with an update on the mine's safety statistics before discussing how mining production has progressed. Community – Donations across April to June 2023 of over \$385,378.63 were spent in the local community.	

6.	<p>Environmental Monitoring Report</p> <p>Q3 CY23 Summary – MW noted that topsoil stripping is nearly completed. Sediment dams have been dewatered and inlets are being reworked and desilted. Rehabilitation of SOEA has progressed well, with topsoil spreading; more than half done and seeding to occur in the coming weeks. Water Management Plan submitted and waiting for review by the DPE. Annual Rehab Report submitted under the new legislation. Independent Environmental Audit undertaken; report will be published when finalised – one minor administrative non-compliance identified.</p> <p>WH – Re the Water Management Plan, is that in part due to the Modification Plan. MW –It’s a general review requirement triggered to take place every three years.</p> <p>Noise – No exceedances in Q3 Attended Noise Monitoring.</p> <p>Blasting – All blasts this quarter were within blasting criteria. 1216 blasts up until 30 June at TCM since operations began.</p> <p>Air – All air quality monitoring for the quarter is within TCM’s approval criteria.</p> <p>Tyre Disposal Update – 319 Tonnes of tyres disposed at Tarrawonga on 22 Nov 2. No more have been disposed of this year (EPL 12365). WHC has compiled the report on the tyre approval granted in the EPL and has been submitted.</p>	
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EOH – The general feeling in the community is that it is just easier to bury the tyres because there is no cost. So, you aren't actively encouraged to find alternatives.

MW – We do a lot of research in this space. There is no technology for this type of rubber to be recycled. There is nowhere for it to go.

EOH – Can you provide a slide next CCC of where you have researched (a slide for all future meetings).

DR – I think because of PvH's previous suggestions for organisations to be considered to help with tyre researching, each of the mines considered those. I think they all reached out to the organisation. Unfortunately, only tyres of a much smaller size could be handled.

MW – No one wants to fund it.

LB – Needs to be a lot more work done. In Europe, recycled tyre material is used for roads. Here they say it is not up to standard for roads.

MW – The report submitted goes more into where the tyres are buried rather than about the storage. Definitely something we are aware of and try not to store for a long time. We don't monitor day to day.

PvH – 319 tonnes were disposed of in November. Post that date what happens with the tyres.

MW – They are stored - can't be higher than 3 metres below the surface. Can't be near anything combustible. The licence will dictate what we can dispose.

LB – Does the EPL state re leaching issues.

MW – No it doesn't.

EOH – Tyre Stewardship was a prime ministerial program. Might be something that WHC can put forward to being a recycler.

DR – This issue of tyres has been discussed for the last 2 years. But, I don't think that we have discussed how the mine manages the issues of leaching etc once buried. Could that be a discussion / presentation at the next meeting?

MW – This is something we are very passionate about as well. Yes, we can do at the next meeting.

EOH – There was also talk about chemicals being buried inside the tyres.

MW – No never to my knowledge.

	<p>LB – Re the chemical storage - the EPA do routine inspections where they will look into issues like that. There was a requirement for bunding.</p> <p>EOH – This sort of thing is very important for the community.</p> <p>Noise - No exceedances in Q3 Attended Noise Monitoring.</p>	<p>ACTION 4 – MW to provide the link for the tyre management report.</p>
7.	<p>General Business</p> <p>EOH – How much have the evaporators been used in the months since the last CCC meeting.</p> <p>MW – Have been used rarely; last time used was the 2nd August. The evaporation is not very high due to winter. Maybe more in summer.</p> <p>DR – At our next meeting, we need to talk about the revised CCC Guidelines. This discussion will require some time. Members across all of the State’s CCC, including proponents, can be subjected in the future to sterner warnings if required.</p> <p>MW – With respect to what we are undertaking over the next few months, rehabilitation is our priority and needs to be completed by 31 December. Other than the modification 10 discussed at the previous meeting, there are no other modifications expected in the next few months.</p> <p>AQ –We have to improve our sediment dams as part of our EPL licence variation- date is by 31 December.</p> <p>EOH - Stock planting. Is there a move to more seed spreading.</p> <p>MW – We are doing both. First seeding and then tube stock. There is more talk of what is more effective. At this time, we are doing both. We do trials every year as well to see what works. Missed out on planting tubestock in flood period; 36 ha in total by the end of this year. Due to the site being inaccessible, mining was halted and dirt was not transported as required. The land-forming of the rehabilitation was the main cause behind rehab being delayed for 2022. We are more than making up for it in our rehabilitation efforts for this year.</p>	
8.	<p>Next meeting date – Wednesday 25 October 2023 at 10:00 am.</p> <p>Members then spent the rest of the meeting on a site tour looking predominantly at rehabilitation sites.</p>	

Meeting (including site tour) closed at 12:00 pm.

Page No	Action No	Description	Date Raised
		RH to report back next month on meeting with UNSW	24 May 2023
3	1	MW to provide a slide on where they have researched for the tyre recycling.	30 August 2023
3	2	A presentation on how mine minimises impacts of tyre burial at next meeting	30 August 2023
3	3	MW to report back and confirm no chemicals being buried.	30 August 2023
3	4	MW to provide the link for the tyre management report.	30 August 2023

Tarrawonga Coal Mine Community Consultative Committee Meeting #75

Quarterly Environmental Monitoring Report
October 2023 – December 2023



Photo taken in December 2023 displaying newly seeded topsoil on the Southern Emplacement Area

This report has been prepared for the Community Consultative Committee (CCC) meeting to show Environmental monitoring performance at Tarrawonga Coal Mine (TCM) for the reporting period from October 1 2023 to December 31 2023. Maps with all the monitoring locations are available in *Appendix A*.

Noise Monitoring

Attended Noise Monitoring was conducted during this period.

Attended noise monitoring was conducted at the “Bungalow” (TN4), “Barbers Lagoon” (TN3) and “Matong” (TN2) properties from 11th to the 15th of December 2023. Noise criteria for the mine is 35dB(A) Leq (15 min) for all operating times.

Results below show that noise emissions from the mine did not exceed operational noise criteria at the “Barbers Lagoon”, “Bungalow” or “Matong” monitoring locations for any monitoring events during the monitoring period.

(See below summary tables extracted from Tarrawonga Coal Mine Noise Monitoring – Q4 December 2023)

Table 1 TCM Operational Noise Monitoring Results – 11 December 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC ¹	Identified Noise Sources
Matong – TN2	9:21pm	35	1.9 / 039 / E	Insects (33), frogs (30), cows (25), TCM (IA)
Barbers Lagoon – TN3	7:57pm	43	0.8 / 056 / E	Birds (42), insects (36), traffic (29), frogs (26), TCM (IA)
Bungalow – TN4	8:34pm	38	1.1 / 045 / E	Insects (37), frogs (30), TCM ¹ (26)

1. Coal trucks on private haul road

Table 2 TCM Operational Noise Monitoring Results – 11-12 December 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	30	1.6 / 087 / E	Insects (30), TCM (IA)
Barbers Lagoon – TN3	12:28am	46	1.4 / 070 / E	Traffic (46), insects (32), frogs (20), TCM (IA)
Bungalow – TN4	11:16pm	46	1.9 / 076 / E	Insects (46), dogs (29), frogs (27), mine (20), TCM (IA)

Table 3 TCM Operational Noise Monitoring Results – 12 December 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	12:26pm	47	2.6 / 211 / A	Birds (46), insects (39), TCM (21)
Barbers Lagoon – TN3	2:16pm	44	2.6 / 225 / B	Traffic (42), birds (37), insects (35), TCM (IA)
Bungalow – TN4	10:46am	41	1.7 / 148 / A	Insects (39), birds (37), TCM (IA)

Table 4 TCM Operational Noise Monitoring Results – 12 December 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:29pm	34	2.0 / 270 / E	Insects (33), frogs (24), TCM (23)
Barbers Lagoon – TN3	8:05pm	45	1.0 / 300 / E	Aeroplanes (42), insects (40), birds (36), frogs (35), TCM (IA)
Bungalow – TN4	8:45pm	41	0.5 / 219 / E	Insects (41), birds (25), TCM (IA)

1. Coal trucks on private haul road

Table 5 TCM Operational Noise Monitoring Results – 12-13 December 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	39	2.8 / 242 / D	Insects (37), TCM (32), frogs (31)
Barbers Lagoon – TN3	12:26am	35	1.4 / 047 / E	Insects (34), sheep (25), frogs (23), TCM (IA)
Bungalow – TN4	11:17pm	34	1.0 / 122 / E	Insects (34), frogs (23), TCM (IA)

Table 6 TCM Operational Noise Monitoring Results – 13 December 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	1:32pm	41	3.2 / 266 / B	Birds (40), insects (35), TCM (IA)
Barbers Lagoon – TN3	3:13pm	50	3.1 / 284 / C	Traffic (50), insects (37), birds (35), TCM (IA)
Bungalow – TN4	11:19am	49	3.2 / 268 / B	Birds (48), insects (41), TCM (IA)

Table 7 TCM Operational Noise Monitoring Results – 13 December 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:30pm	46	5.2 / 317 / D	Insects (46), wind (32), TCM (IA)
Barbers Lagoon – TN3	8:03pm	43	3.1 / 189 / E	Insects (42), traffic (35), frogs (29), birds (25), TCM (IA)
Bungalow – TN4	8:44pm	48	5.1 / 313 / D	Insects (47), frogs (38), wind (33), TCM (IA)

Table 8 TCM Operational Noise Monitoring Results – 13-14 December 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	42	4.5 / 325 / D	Insects (42), wind (26), TCM (23)
Barbers Lagoon – TN3	12:26am	34	1.5 / 102 / E	Insects (30), frogs (30), TCM (28)
Bungalow – TN4	11:16pm	43	3.0 / 331 / D	Insects (43), frogs (30), TCM (IA)

Table 9 TCM Operational Noise Monitoring Results – 14 December 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	2:42pm	51	5.1 / 298 / C	Birds (50), insects (43), wind (36), TCM (IA)
Barbers Lagoon – TN3	4:29pm	45	4.6 / 293 / D	Birds (44), insects (37), TCM (IA)
Bungalow – TN4	11:16am	53	6.1 / 316 / C	Birds (53), insects (35), wind (32), TCM (IA)

Table 10 TCM Operational Noise Monitoring Results – 14 December 2023 (Evening)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	9:29pm	51	8.4 / 322 / D	Insects (40), frogs (42), wind (30), TCM (IA)
Barbers Lagoon – TN3	8:03pm	46	1.3 / 254 / E	Insects (45), birds (39), frogs (23), TCM (IA)
Bungalow – TN4	8:45pm	46	1.6 / 221 / E	Insects (46), sheep (34), TCM (IA)

Table 11 TCM Operational Noise Monitoring Results – 14-15 December 2023 (Night)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	10:00pm	48	7.4 / 319 / D	Insects (47), birds (38), wind (33), TCM (IA)
Barbers Lagoon – TN3	12:27am	52	2.1 / 114 / D	Insects (52), TCM (IA)
Bungalow – TN4	11:17pm	55	6.3 / 287 / D	Insects (54), frogs (47), wind (32), TCM (IA)

Table 12 TCM Operational Noise Monitoring Results – 15 December 2023 (Day)				
Location	Time	Total dB(A), Leq (15 min)	Wind speed / direction / PSC	Identified Noise Sources
Matong – TN2	11:46am	45	4.9 / 298 / C	Birds (44), insects (39), TCM (21)
Barbers Lagoon – TN3	9:59am	50	4.5 / 292 / C	Birds (40), traffic (42), insects (35), TCM (IA)
Bungalow – TN4	8:16am	46	4.0 / 321 / C	Birds (45), insects (40), TCM (IA)

Noise from the mine must not exceed 45 dB(A) L1 (1 min) between 10 pm and 7 am. This criteria is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. Results of attended monitoring show that the measured L1 (1 min) noise level did not exceed sleep disturbance criteria.

Table 13. Low-frequency analysis – Matong – TN2 10:00 pm													
Hz/dB(Z)	One-third octave LZeq,15min threshold level												
Frequency (Hz)	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
Matong – TN2, dB(Z)	--	46	45	42	45	40	44	43	42	43	42	37	29
Threshold, dB(Z)	92	89	86	77	69	61	54	50	50	48	48	46	44
Exceedance, dB	--	0	0	0	0	0	0	0	0	0	0	0	0

The results in Table 13 show no exceedance of the low-frequency criteria.

Table 14 TCM Sleep Disturbance Monitoring Results – 11-12 December 2023 (Night)					
Location	Time	dB(A) L1 (1 min)¹	dB(A) L1 (1 min)²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	44	<20	Insects	1.6 / 087 / E
Barbers Lagoon – TN3	12:28am	71	<20	Traffic	1.4 / 070 / E
Bungalow – TN4	11:16pm	55	<20	Insects	1.9 / 076 / E

1. L1 (1 min) – total measured level.
2. L1 (1 min) – TCM noise only.

Table 15 TCM Sleep Disturbance Monitoring Results – 12-13 December 2023 (Night)					
Location	Time	dB(A) L1 (1 min)¹	dB(A) L1 (1 min)²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	51	36	Insects	2.8 / 242 / D
Barbers Lagoon – TN3	12:26am	59	<20	Insects	1.4 / 047 / E
Bungalow – TN4	11:17pm	47	<20	Insects	1.0 / 122 / E

Table 16 TCM Sleep Disturbance Monitoring Results – 13-14 December 2023 (Night)					
Location	Time	dB(A) L1 (1 min)¹	dB(A) L1 (1 min)²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	50	26	Insects	4.5 / 325 / D
Barbers Lagoon – TN3	12:26am	38	32	Insects	1.5 / 102 / E
Bungalow – TN4	11:16am	49	<20	Insects	3.0 / 331 / D

Table 17 TCM Sleep Disturbance Monitoring Results – 14-15 December 2023 (Night)					
Location	Time	dB(A) L1 (1 min)¹	dB(A) L1 (1 min)²	L1 Source	Wind speed / direction / PSC
Matong – TN2	10:00pm	56	<20	Insects	7.4 / 319 / D
Barbers Lagoon – TN3	12:27am	62	<20	Insects	2.1 / 114 / D
Bungalow – TN4	11:17pm	60	<20	Insects	6.3 / 287 / D

The real time noise monitor located on the “Coomalgah” property remains a management tool so the noise criteria are not applicable at that site. Levels of noise recorded at that location are managed according to the noise management plan and trigger action response plan.

Blast Monitoring

Blasting Results

Since 2006, there have been 1249 blasts (until 31/12/2023) at TCM.

The highest result for Overpressure last quarter was 101.7dB recorded at the compliance monitor on the 18/10/2023.

The highest result for ground vibration last quarter was 0.73 mm/s recorded on the 23/09/2023.

TCM overpressure and ground vibration for the quarter was compliant and did not exceed the blasting criteria declared in the project approval and Blast Management Plan (BMP).

Table 1 - Max Peak Overpressure and Ground Pressure for the Quarter

Monitor Location	Date	Max. Peak Overpressure (dB)	Criterion (dB)	Date	Max. Peak Ground Pressure (mm/s)	Criterion (mm/s)
Coomalgah	18/10/2023	101.7	120	23/12/2023	0.73	10

**Limit Not applicable according to EPL and PA11_0047 because it is a project related property.*

Air Quality Monitoring

Dust Deposition Results

Standard Australia AS/NZS 3580.10.1:2016, "Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method," classifies deposited dust as insoluble solids. Therefore, TCM tests air quality monthly at mine-owned sites for indicative purposes, to infer compliance, against the limit of 4 g/m²/month.

Table 3 shows deposited dust gauge results over 12 months. All the dust monitors are located on project related or WHC owned land; as such compliance criteria (4g/m²/month) do not apply. While deposited dust trends remain steady during the reporting period (refer graph in *Appendix B*), some monitors are displaying non-mine related particulate matter deposition more regularly than others. Non-mine related particulate matter could be attributed to organic matter (such as leaves, mice, frogs, insects or bird faeces that fall in to the bottles), or they may be in farming locations, so during some months dust levels may be higher due to harvesting. To mitigate contamination from bird faeces, spikes have been added to the top of each dust gauge unit to deter birds from perching.

Table 2 - Deposited Dust Gauge Results [g/m2/month]¹²¹

MONTH	TEMPLEMORE (EB-4)	BOLLOL CREEK STN (EB-5)	AMBARD (EB-6)	TARRAWONGA (EB-7)	PINE GROVE (EB-9)	TARRAWONGA MINE (EB-10)	TARRAWONGA MINE (EB-11)	TARRAWONGA MINE (EB-14)	TARRAWONGA MINE (EB-15)	JERALONG NORTH (EB-16)
Jan-23	1.8	6.1#	2	1.3	2.1	3.5	4.2#	2.5	2.5	4.7#
Feb-23	1	1.9	2.5	0.7	2.2	0.6	2	3.6#	1	1.6
Mar-23	4.8#	1	0.4	1.2	0.5	0.7	1.9	0.7	0.7	2.2
Apr-23	0.8	1.8	1.1	0.4	1.3	1.5	2.8	3.3	0.6	0.6
May-23	0.5	7.3	0.7	0.4	1.1	0.7	3.6	3.9	1	5.5#
Jun-23	1.3	1.9	0.6	0.5	0.7	1.3	2.3	5.8	1.4	6.5
Jul-23	0.6	1.1	0.8	0.3	0.3	0.8	3	3.8	1.1	2.1
Aug-23	4.1#	0.9	1.9	0.3	0.1	0.5	1.3	9.6#	1	0.4
Sep-23	1.1	2.2	0.7	0.6	0.5	1.1	5.1	6.2#	2.5	0.6
Oct-23	0.5	1.3	1.1	1.5	0.5	2.6	3.3	2.2	1.9	2.0
Nov-23	0.3	0.7	0.4	0.6+	0.6	0.8	2.0	3.2	1.0	1.2
Dec-23	1.6	1.5	0.7	0.4+	1.2	0.8	3.1	4.7+	2.9	0.5+
12 MONTH ROLLING AVERAGE	1.0	2.0	1.1	0.7	0.9	1.2	2.9	3.5	1.5	1.2

Analysis done/ field comments on these bottles concluded that they are contaminated, often with low ash/insoluble matter. Often noted on field sheets are bird droppings, insects and plant matter. These are now excluded from the average calculation.

+ bottles not compliant for DDG testing, so results are not to be assessed against criteria alone. Still used to calculate average

¹DDG bottle on the fenceline between TCM and BCM ROM.

High Volume Air sampler (PM10) Results

The High Volume Air Sampler (HVAS) installed at Coomalgah property monitors levels of Particle Matter under 10 micron (PM₁₀). It operates for 24hr every 6 days. **Table 3** shows that all 24hr average values recorded for this quarter are below 50µg/m³.

Table 3: HVAS PM10 24hr Quarterly Average levels

Date	24hr averaged PM10 (µg/m ³)	Criterion 24hr average (µg/m ³)	Comments
2/10/2023	23.5	50	Nil
8/10/2023	3.6		
14/10/2023	9.3		
20/10/2023	19.0		
26/10/2023	11.3		
1/11/2023	33.0		
7/11/2023	18.0		
13/11/2023	16.3		
19/11/2023	13.7		
25/11/2023	5.5		
1/12/2023	10.5		
7/12/2023	25.7		
13/12/2023	38.3		
19/12/2023	20.8		
25/12/2023	7.8		
31/12/2023	9.1		

Real-time Air monitoring (PM₁₀)

A real time air quality unit (TEOM) is located at the “Flixton” property to monitor PM₁₀ levels in ambient air, as per the current Air Quality and Greenhouse gas Management Plan. It is an operational management tool and dust levels nearing or reaching the nominated criteria will trigger actions onsite to assess the source of dust and modify operations if it is determined to be related to Tarrawonga operations.



Figure 1: TEOM installed at Flixton property

Three portable dust (PM₁₀) monitors have been utilised since Nov 2018 to improve the real-time dust monitoring network and assist the operation to mitigate any potential dust generated by the operation.



Figure 2: Portable and real-time dust monitor installed at TCM in November 2018

Water Monitoring

Groundwater

Routine groundwater monitoring results undertaken between September 2022 and September 2023 are shown in **Table 4** (refer to graphs in *Appendix C*).

Table 4: Groundwater results summary

Site	Date	SWL (mbgl)	pH (units)	Elect. Conductivity (µS/cm)
MW1	December 22	6.12	7.75	3,420
	March 23	5.74	7.37	3,600
	June 23	5.73	7.73	3,830
	September 23	5.61	6.98	3,390
	December 23	5.45	7.24	2,810
MW2	December 22	3	6.91	906
	March 23	3.1	6.41	946
	June 23	3.53	6.87	979
	September 23	3.58	6.31	778
	December 23	3.61	7.15	729
MW4	December 22	9.08	7.51	3,050
	March 23	8.5	7.04	2,900
	June 23	9.05	7.43	3,380
	September 23	8.31	6.62	2,990
	December 23	8.24	7.49	3,100
MW5	December 22	1.67	7.88	2,022
	March 23	1.8	7.13	1,412
	June 23	2.12	7.45	757
	September 23	2.29	6.97	1,862
	December 23	2.47	7.52	2,004
MW8*	December 22	Sampling error	Casing blocked	Casing blocked
	March 23	Sampling error		
	June 23	12.3		
	September 23	12.54		
	December 23	Sampling error		

*Bore scheduled to be assessed by consultant using a borehole camera, and any problems rectified this year.

Surface Water

Water storage onsite is expected to be sufficient for at least the next 6.5 months. TCM has not undertaken any discharging of treated water during the reporting period.

TCM recorded 518.2mm of rain for 2023. The nearby Boggabri weather station recorded 556.3mm this year.

Table 5: Annual rainfall

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	106.6	74.4	100	60.8	59	14.4	32.4	116.6	166.2	170.2	129.8	34.4	1064.8
Cumulative (mm)	106.6	181	281	341.8	400.8	415.2	447.6	564.2	730.4	900.6	1030.4	1064.8	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly Rain (mm)	21.2	11	169.8	37.2	0.8	35.8	8	11.4	2	18.6	123	79.4	518.2
Cumulative (mm)	21.2	32.2	202	239.2	240	275.8	283.8	295.2	297.2	315.8	438.8	518.2	

Evaporator Fans

During the reporting period, Tarrawonga did not use the Evaporator fans to evaporate mine water. As we are now moving into a conservatory water stage, the fans are unlikely to be used during the summer.

Rehabilitation and Clearing

Rehabilitation

By the close of December 2023, TCM prepared approximately 42Ha of Ecosystem compared to a target of 37Ha. TCM also achieved 24Ha of landform against a target of 27Ha. The remaining hectares of landform was absorbed through the Ecosystem establishment phase.

All Ecosystem-ready areas were seeded with native seed mix and crop cover, as well as manure and gypsum. The crop cover can already be seen established on the ground and has maintained erosion control during the wet last few months while the native species establish.

Tubestock planting is scheduled to occur when temperatures are lower, around March this year. Tubestock planting will encapsulate approximately 55ha, as well as infill planting as required in some areas on the southern rehab.

Trees on the both the North and South rehab areas continue to successfully establish and grow on our rehabilitation area. Ecologists were here during September to assess the success rate of rehab and that monitoring report will be included in our Annual Review.



Figure 3 Tree mounding on the Southern Rehab Area completed in Jan 24 ready for tubestock



**Total area of ecosystem
establishment: 42ha**
**Total area of Landform
establishment: 24ha**

Clearing

Clearing for 2024 will begin in the first week of March 2023. We will clear approximately 20ha using tracked mulchers.

Ecologists have been engaged to do their preclearance checks and mark habitat trees for the clearing process. Archaeologists have already surveyed the area and reported no new archaeological sites, and no sites to salvage.



Figure 4 Clearance polygons for 2024

Complaints

One complaint received during the reporting period. This pertained to a shattered shower screen in Boggabri. The home owner came home after being away to a shattered shower screen. A neighbour commented about a blast that was held at TCM the day prior, and suggested that this may have been the cause. After reviewing our monitoring data, TCMs monitor located at Tarrawonga property did not register a vibration outside of compliance levels for blasting. No further communication has been received from the complainant.

Environmental Management Plans

TAR Management Plans

TCMs Noise Management Plan was reviewed and submitted in response to Modification 10 requirements in January 2024. No comments have yet been received.

TCMs Traffic Management Plan was also reviewed and submitted for consultation. Requests were received from Narrabri Shire Council that are being addressed. This plan will be resubmitted in the coming months.

BTM Strategies

The BTM mines submitted an updated BTM Groundwater Model. This has now been approved and displayed on our website.

The BTM Noise Management Strategy has been reviewed and will be submitted by MCCM once finalised.

The BTM Blast Management Strategy has been reviewed and will be submitted by MCCM once finalised.

Annual and Compliance Reporting

Annual Review and Annual Return Reports

The Annual Return and Annual Review are currently being collated and will be submitted in March 2024.

Tyre Disposal

TCM completed one round of tyre disposal in Q4. This occurred in the first week of January 2024.

TCM disposed of 98 heavy Vehicle tyres through in pit disposal. These were disposed of in the TC Pit as per approval conditions, and this will be included in the Annual Review for the EPA.

Annual Compliance EPBC statement

The Annual Compliance EPBC statement was submitted to DAWE in June 2023.

Annual National Pollutant Inventory (NPI) and Greenhouse Gas Emission (NGERs) Reports 2023

TCM has submitted information for the NPI and NGERs reports and these were approved and reports published at the close of September 2023.

Audits - Compliance

Tarrawonga recently underwent their Independent Environmental Audit and Independent Biodiversity Audit. These audits are required by the Project Approval PA11_0047, and EPBC Act respectively. These audits were carried out in June 2023. The next audit will be conducted in three years, in June of 2026.

Approvals and Licencing

Tarrawongas MP11_0047 Modification 10 was approved on the 19th October 2023. This modification is in relation to Haul truck hours. Tarrawonga has updated and submitted relevant management plans (Noise and Traffic) to align with this modification. These hours were enacted on the 12th of December 2023, and communication was sent out to stakeholders regarding this.

The updated EPL variation was issued by the EPA in June 2023. This variation outlined recommended improvements to some of Tarrawongas sediment dam inlets, outlets and drains, and some require the use of Earthlok (a rock lining mat). All of these projects were completed by the due date (31st of December 2023) and TCM is satisfied that all of these updates were completed to a satisfactory standard. TCM expects that the EPA will want to see these updated features in the next few months. Some examples of the completed inlets/outlets and drains can be seen below.



Figure 5 SB16A Forebay constructed and inlets rock lined

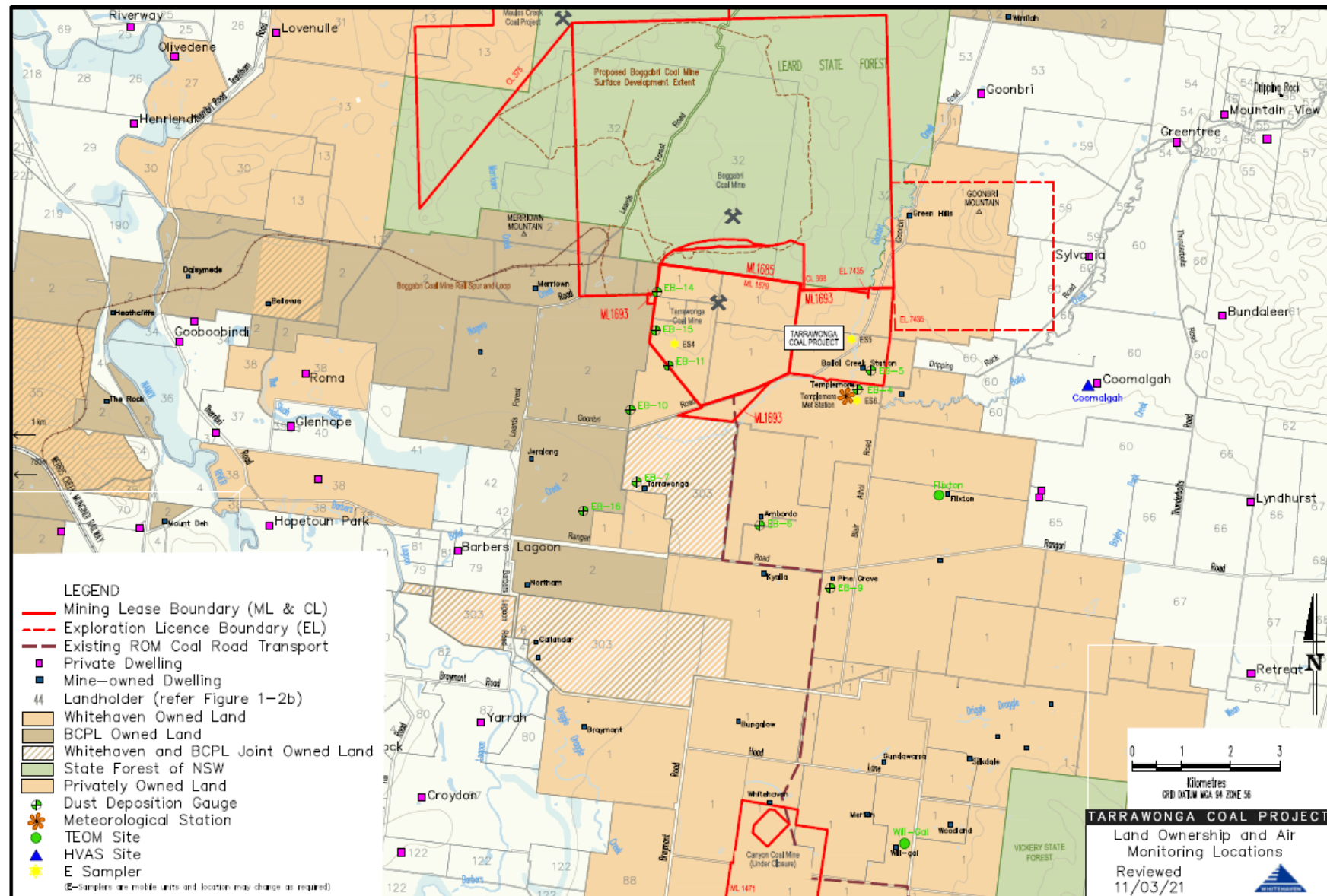


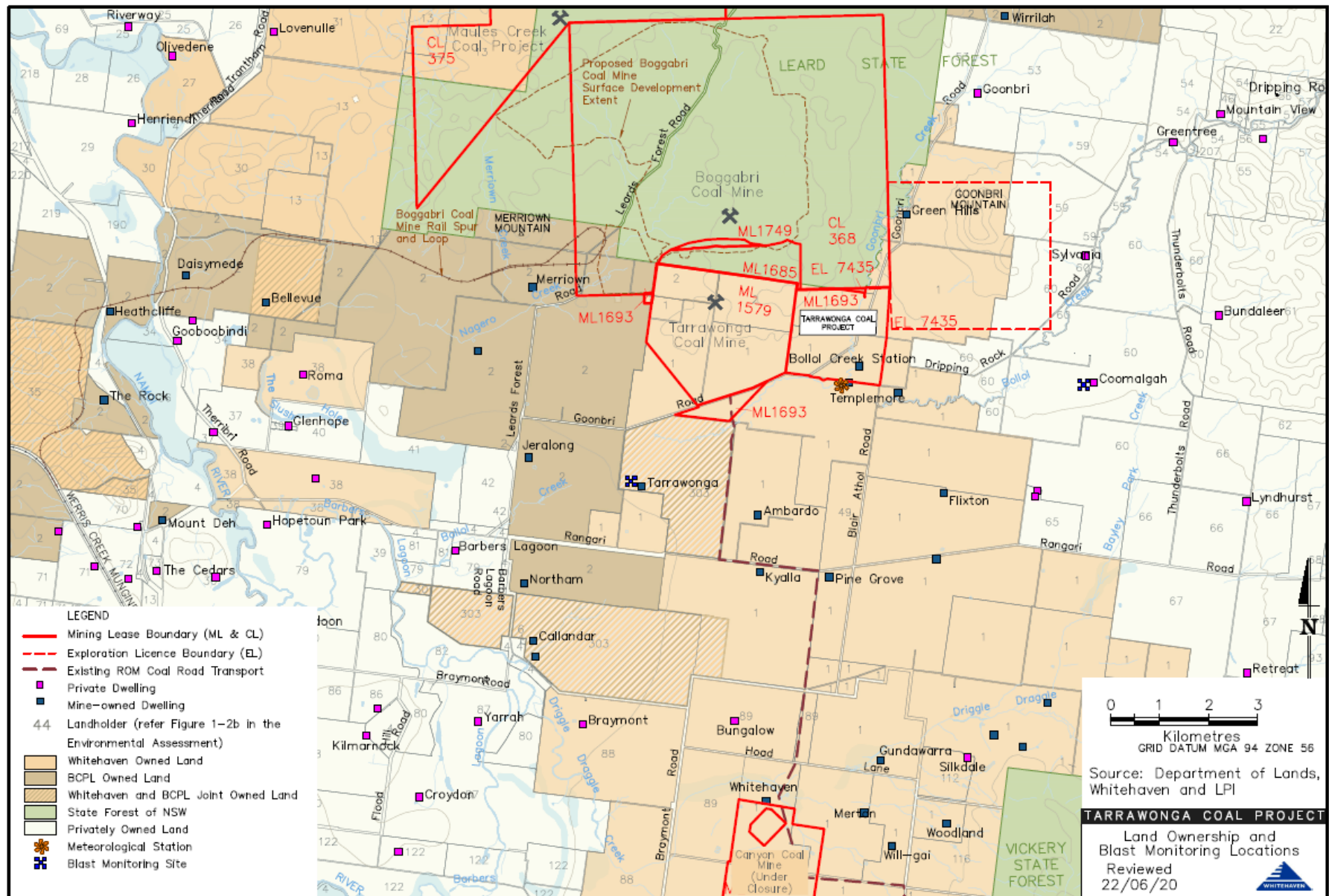
Figure 6 SD2 dam was decommissioned and the area rehabilitated

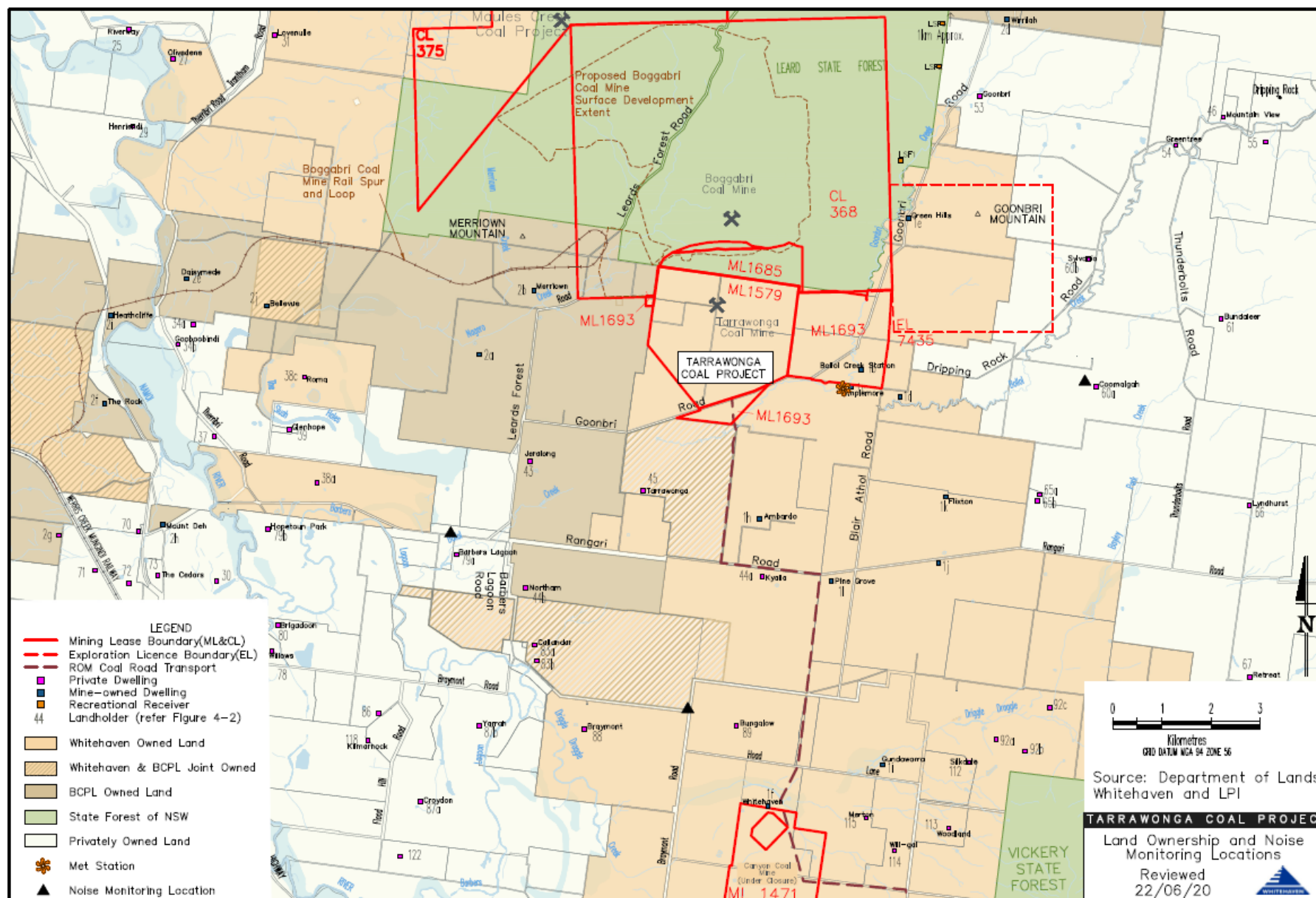


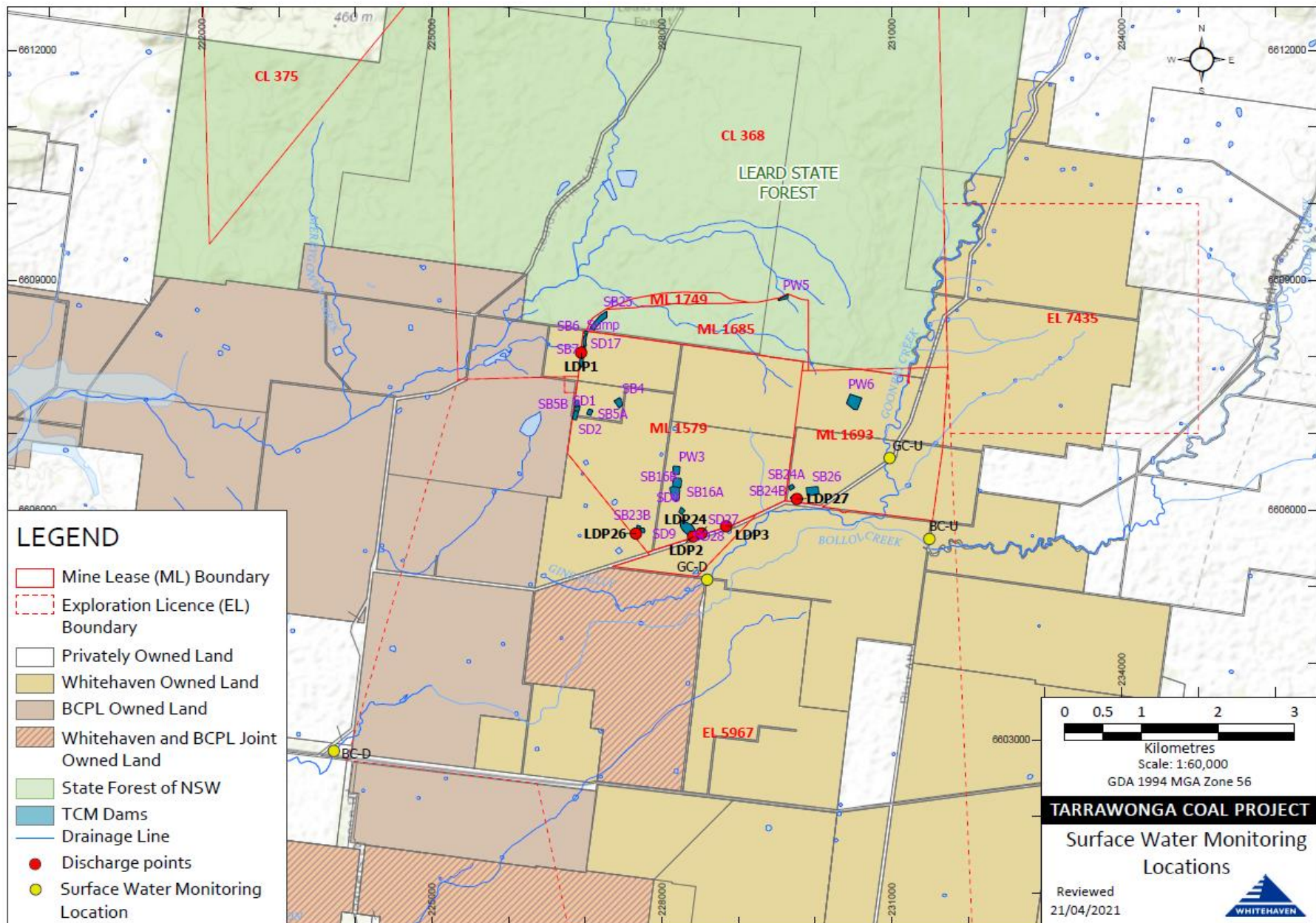
Figure 7 SB23A inlet was rock lined, and the drain had rock check points installed to avoid erosion in the drain

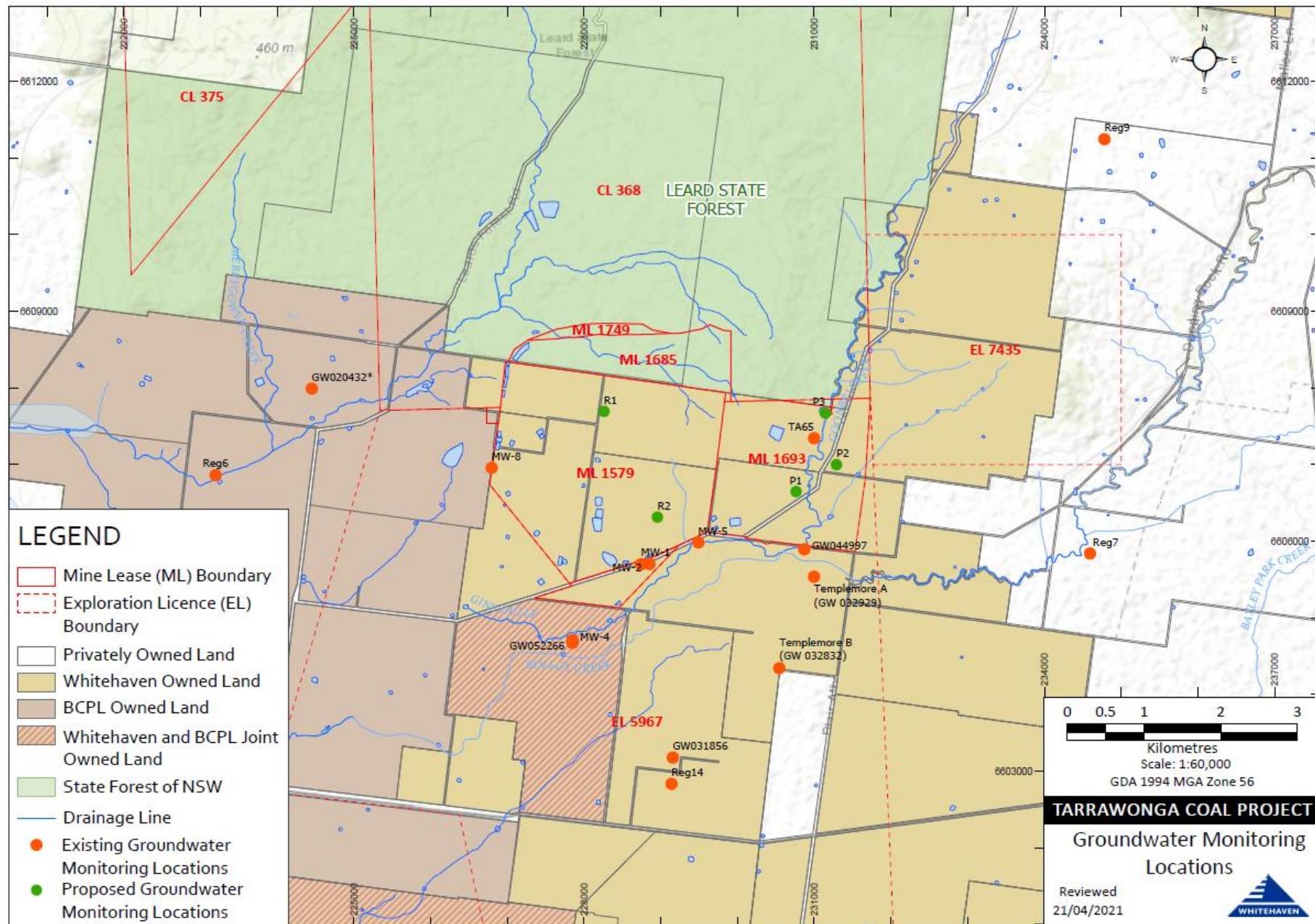
Appendix A





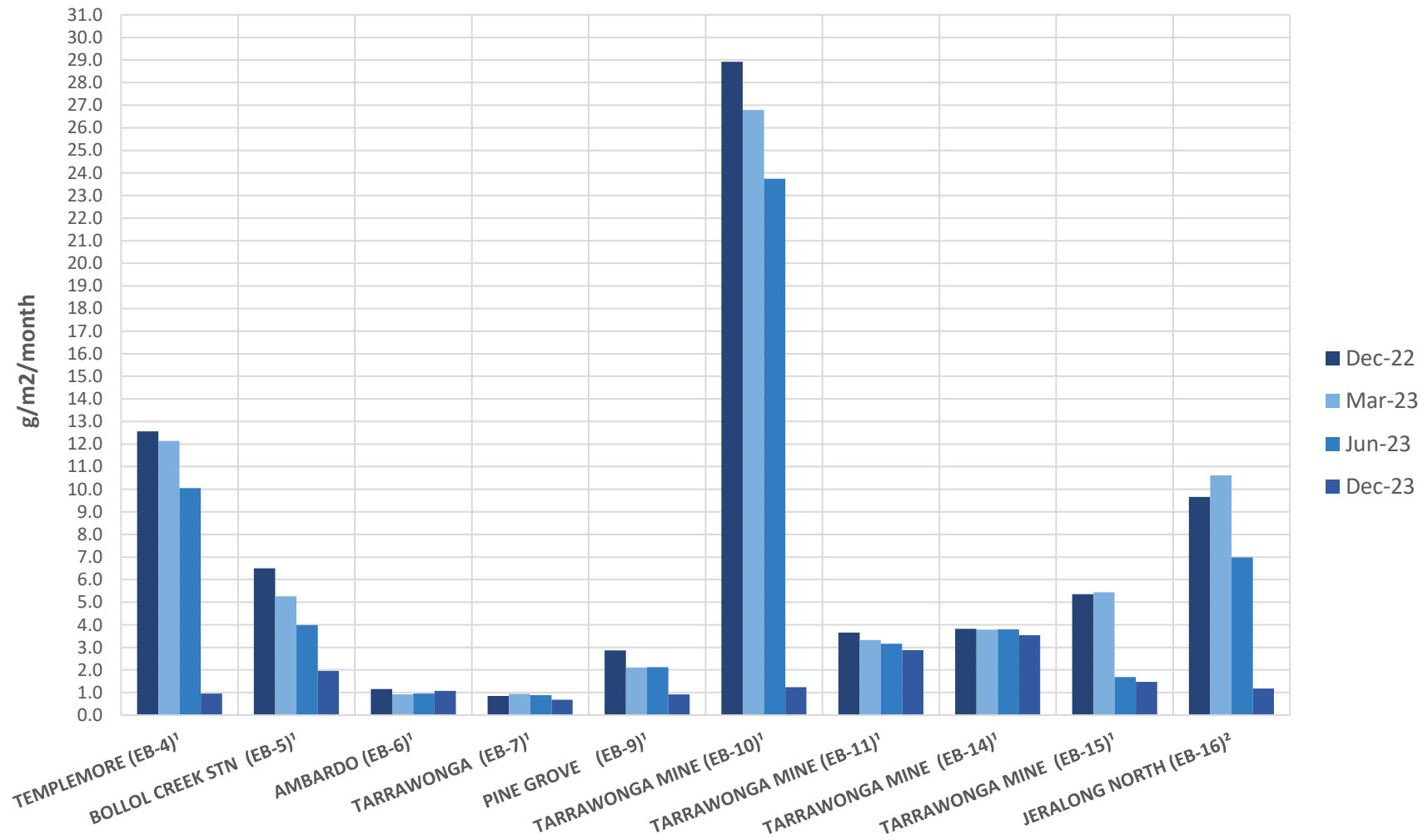




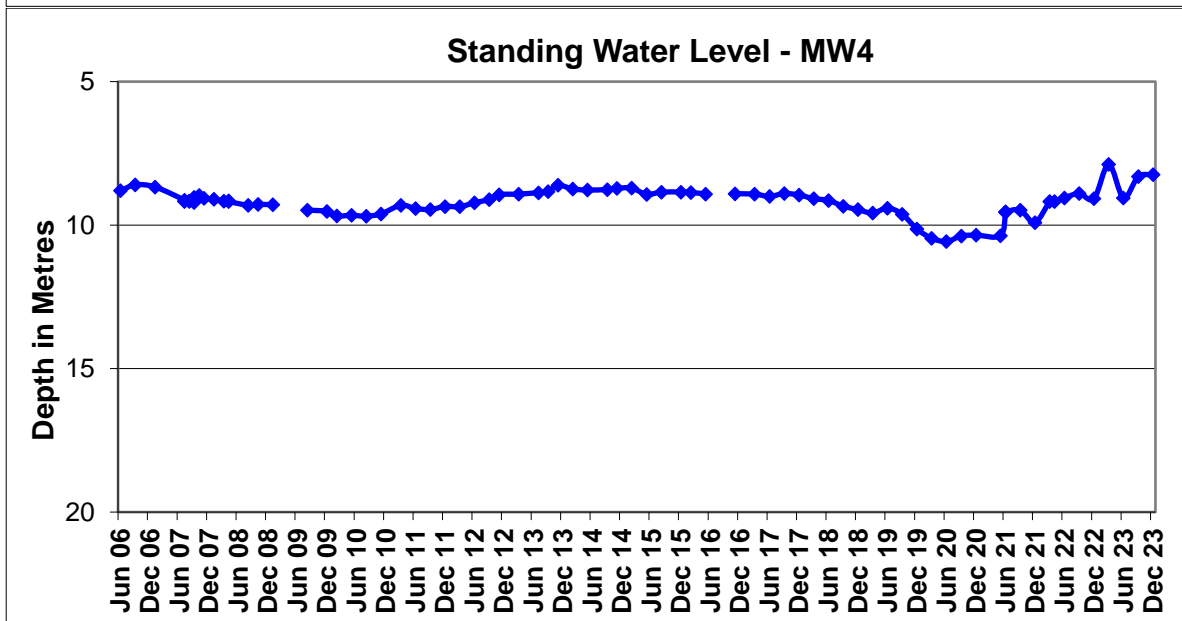
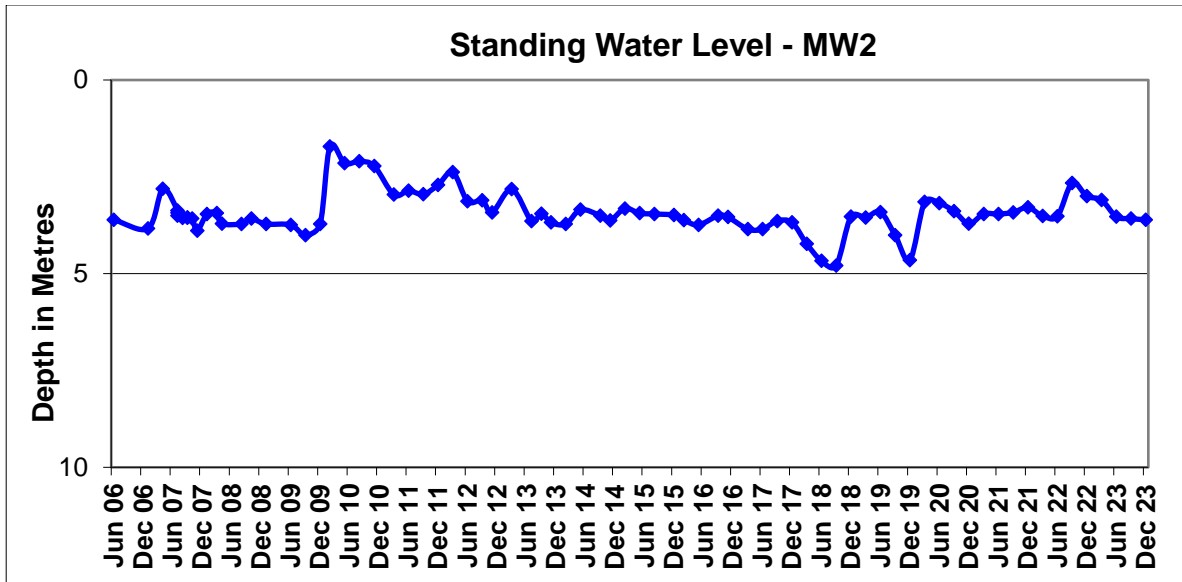
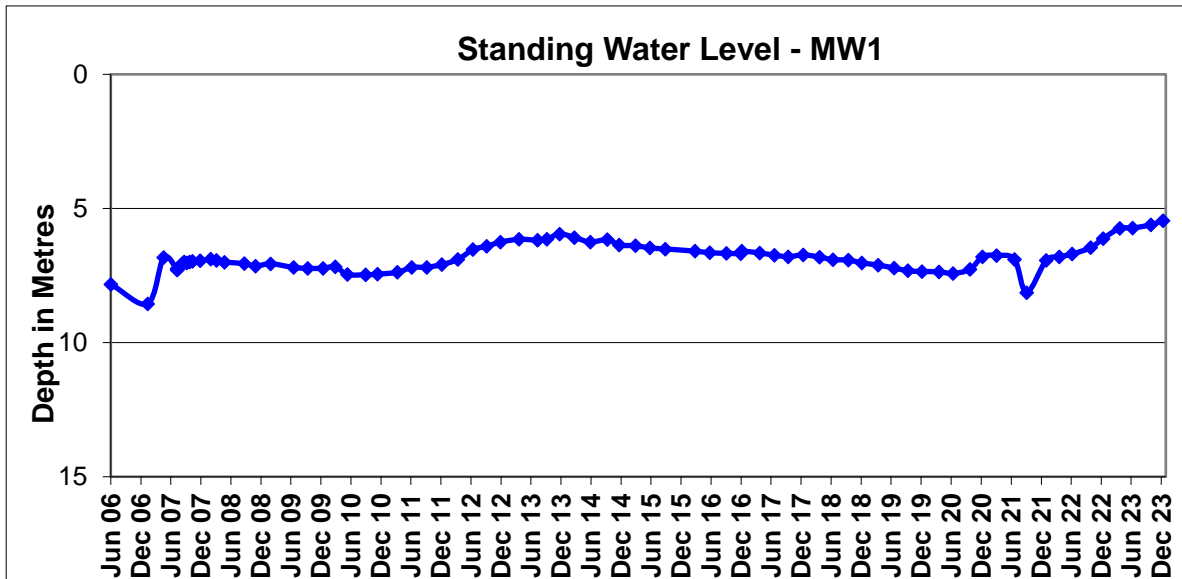


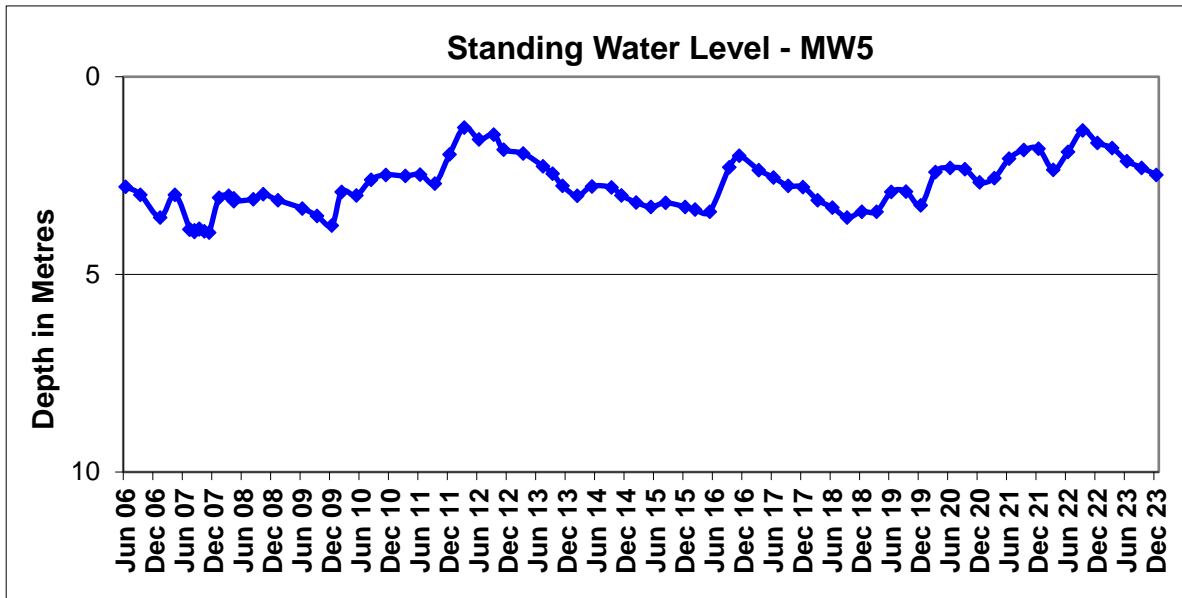
Appendix B

Deposited Dust Gauge Results- Quarterly rolling average [g/m²/month]



Appendix C





Notes: Notes of the 75th Meeting of the Tarrawonga Coal Community Consultative Committee
Held at the Tarrawonga Coal Mine Meeting Room

14th February 2024

Members Present: Elizabeth O'Hara (EOH) – Community Representative, Lloyd Finlay (LF) – Community Representative, Maddi Wright (MW) – Tarrawonga Coal Mine, Mark Hathway (MHa) – Community Representative, Landon Brady - Narrabri Shire Council, David Moses (DM) Gunnedah Shire Council (alternate), Cr Darrell Tiemens (DT, via video) Narrabri Shire Council, Larissa Golby (LG) - Tarrawonga Coal Mine

Apologies: Colleen Fuller (CF) – Community Representative, Cr Rob Hooke – Gunnedah Shire Council (RH), Michelle Henry (MH) - Narrabri Shire Council

Independent Chair: David Ross (DR)

Independent Secretary: Rhonda Smith (RS)

Agenda Items	Who to Present
1. Welcome and Apologies	DR
2. Declaration of pecuniary or other interests	DR
3. Minutes from Previous Meeting	DR
4. Actions from Previous Meeting	DR
5. Mine Progress Report	MW
6. Environmental Monitoring Report	MW
7. General Business	ALL
8. Next Meeting – Wednesday 15th May 10.00 AM Boggabri Golf Club	ALL

Agenda Item	Discussion	Action/By Whom
1.	Welcome and Apologies – DR welcomed everyone to the meeting.	
2.	Declaration of pecuniary or other interests – EOH has a small package of WHC shares. LF leases country from WHC. DR is paid a fee as chair as is RS for typing the minutes.	
3.	Minutes from Previous Meeting – Members accepted the minutes appropriately reflected what was discussed.	
4.	Actions from Previous Meeting – EOH observed, in relation to previous minutes, that she is concerned with response from WHC staff that there is no evidence of burying of tyres having an impact on surrounding environment. She believes that there is much evidence of contamination on groundwater and impacts to the land.	
5.	Mine Progress Report – Overview MW commenced the report by providing members with an update on the mine’s safety statistics before discussing how mining production has progressed. As part of the discussion, members expressed confusion about the statistics shown and what they meant. MW- in response to a question, there are no personal injury cases against Tarrawonga at the moment. Community – Donations / Sponsorship October to December 2023 - \$110,520 spent in the local community. MW also presented statistics from TCM’s Sustainability Report (see slides for further detail). LG observed that 107 ha of land has been rehabilitated to date.	ACTION 1 – TCM to explore feasibility of presenting a slide in future of injuries falling / rising ACTION 2 – TCM to provide link to Sustainability Report
6.	Environmental Monitoring Report Q4 CY24 Summary – MW observed the following: Noise – No exceedances on the Noise Monitoring Result Report. Blasting – Overpressure and ground vibration for the quarter was all compliant with the project approval and Blast Management Plan. One complaint received from home owner with broken shower screen but on checking monitored data indicated no vibration outside compliance levels was recorded Air – All air quality monitoring for the quarter is within TCM’s approval criteria except one exceedance due to Pilliga bushfires. This incident was self-reported to government. .	

EOH – As part of Tarrawonga’s Air Quality Monitoring, is PM2.5 reported?
MW – This is reported in the Annual Report.

Water Monitoring – Water storage onsite is expected to be enough for the next 6.5 months;

Rehabilitation and Clearing - MW noted that, by the end of 202, 42ha of ecosystem had been rehabilitated, compared to a target 37Ha. The areas were seeded with native seed mix and crop cover as well as fertiliser. Trees on the southern emplacement area is progressing successfully. Tubestock planting scheduled when cooler (March) - approximately 55Ha.

Clearing for 2024 will commence in March. Approximately 20ha is to be cleared. MW informed the CCC that archaeologists have surveyed that area and no sites will require salvaging.

Approvals – MW reminded members that Modification 10 was approved on 19th October 2023. The extension to haulage hours seems to be occurring more in the mornings.

Pollution Reduction Program Actions – as a consequence of multiple events in February 2020 which resulted in water leaving the site during record rainfall, TCM were required by the EPA to undertake a mandatory environmental audit. Out of the audit came 17 new licence conditions related to the inlet and outlet integrity of the mine’s sediment water dams

MW walked the CCC through slides showing the successful completion of these actions.

EOH – what happens with the sediment removed?

MW – it is dried out and then redeposited back to the put.

Tyre Burial

Approval was received in December to bury 490 tonnes of tyres. In December 2023, 289 tonnes of tyres were buried.

DR – Have been speaking to the Tyre Stewardship people about attending the May Joint CCC meeting. They are happy to be involved. Further discussions to take place.

EOH – Concerned that TCM are still going to be burying tyres, which will impact upon environment.

7.	<p>General Business</p> <p>MW – there was an action from the last meeting to share a copy of the mine’s Bushfire Management Plan. It is currently still in draft form. However, members can look at copies before the meeting closes.</p> <p>MHa – Asked was Braymont Road closed. MW advised this road has been closed off.</p> <p>LG – ask if we should be requesting new members to join committee. DR – I’ve been looking for members for the past year and have been unsuccessful.</p> <p>EOH – Asked if Social Impact Plan that is included in the Sustainability Report for 2023 was available. MW - SIMP is actually called Sustainability Report (note Actions 2 and 3).</p> <p>MW - Staffing full shifts remains a challenge. Discussion of shift lengths and working weeks across various mines; fatigue monitoring; ‘hotseaters’ shift 10.30am-2.30pm.</p> <p>A discussion took place on whether Gunnedah Council planned to fund the installation of a dialysis machine. DM noted that State Government no longer intended to fund installation.</p>	ACTION 3 – MW to investigate if Social Impact Plan was available
8.	<p>NEXT MEETING – 15th May 2024 10.00 AM At Boggabri Golf Club.</p> <p>DR informed the committee that, after 7.5 years chairing the BTM committees, he had informed the Department of Planning, Infrastructure and Housing that he was resigning. He thanked all members for their time and contribution through the years.</p> <p>Meeting closed at 11:30 am.</p>	

Appendix 1: Actions

Page No	Action No	Description	Date Raised
3	1	TCM to explore feasibility of presenting a slide in future of injuries falling / rising	14 th February
3	2	TCM to provide link to Sustainability Report	14 th February
4	3	MW to investigate if Social Impact Plan was available	14 th February