



Bengalla Mining Company Pty. Limited

Bengalla Road, (Locked Mailbag 5)

Muswellbrook NSW 2333 Australia

A.B.N. 32 053 909 470

Bengalla Mine

Environment Protection Licence 6538 Monthly Monitoring Data Summary

October 2017

Operator, for and on behalf of Bengalla Joint Venture, an unincorporated joint venture between:
Harcove Pty Ltd, Wesfarmers Bengalla Limited, Taipower Bengalla Pty Limited & Mitsui Bengalla Investment Pty Limited.

www.bengalla.com.au



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1. INTRODUCTION

Environmental Protection Licence (**EPL**) holders are required under the *Protection of the Environment Operations Act 1997* to make publicly available their monitoring results for those parameters specified in the EPL. This document has been prepared to satisfy this requirement.

Bengalla Mining Company Pty Limited's (**BMC**) operations are conducted in accordance with EPL 6538. The licence details are as follows:

License Holder:	Bengalla Mining Company Pty Limited
Licence Number:	6538
Premises:	Bengalla Mine Bengalla Road via Muswellbrook NSW 2333
Access to Licence:	http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=6538&id=6538&option=licence&searchrange=licence&range=POEOlicence&prp=no&status=Issued
Monitoring Locations:	See main text and Appendix A

This document provides a summary of environmental monitoring data sampled as prescribed by EPL 6538 for October 2017 (**Reporting Period**). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (**PM₁₀**);
- Surface water, including discharge mine water, conductivity, total suspended solids and pH;
- Noise - LAeq (15 minute); and
- Blast vibration and overpressure.

Monitoring Data Obtained: 15 November 2017

Monitoring Data Published: 1 December 2017



2. AIR QUALITY

Under EPL 6538 BMC is required to undertake continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 (**Appendix A**). As per Condition E1.1, BMC commenced the continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 on 31 August 2017.

2.1 Particulate Matter less than 10 Microns

Pollutant:	PM ₁₀
Unit of measure:	Micrograms per cubic metre (µg/m³)
Monitoring location:	See Table 1 and Appendix A .
Monitoring frequency required by licence:	10 minute intervals
Sampled:	01/10/2017 – 31/10/2017



In accordance with EPL 6538, PM₁₀ data for the Reporting Period is provided in **Table 1**.

Table 1. PM10 Monitoring Summary

Sampling point		No. of samples required by licence	No. of samples collected and analysed	Minimum sample value	Maximum sample value	Monthly mean of sample
EPA22	Lumeah Dairy, Bengalla Road, Muswellbrook	4458	4455	0.3	83.1	10.5
EPA23	Wybong Road (East), Muswellbrook	4458	4456	0.1	78.5	9.03
EPA24	Wybong Road (West), Muswellbrook	4458	4456	0	61.5	10.1



3. SURFACE WATER

BMC participates in the Hunter River Salinity Trading Scheme (**HRSTS**). In accordance with EPL 6538, BMC maintains two monitoring locations to measure concentration, volume and mass of mine water discharges.

The location of these monitoring points is provided in **Appendix B**.

3.1 Mine Water

Pollutant:	Mine water
Unit of measure:	Mega litres per day (ML/day)
Monitoring location:	EPA01 – Outlet pipe from 280 ML HRSTS storage dam.
Monitoring frequency required by licence:	Continuous during all discharge events.
Sampled:	Not applicable. During the Reporting Period, Bengalla did not discharge any mine water under the HRSTS.
Volume/mass limit: (EPL6538 Condition L3)	200 ML/day



3.2 Conductivity

Pollutant:	Conductivity
Unit of measure:	Microsiemens per centimetre ($\mu\text{S/cm}$)
Monitoring location:	EPA1 – Outlet pipe from 280 ML HRSTS storage dam. EPA2 – Tributary monitoring point in Dry Creek downstream of EPA1.
Monitoring frequency required by licence:	Continuous during all discharge events (EPA01); Two times daily during discharge (EPA02).
Sampled:	Not applicable. During the Reporting Period, Bengalla did not discharge any mine water under the HRSTS.



3.3 Total suspended solids and pH

Pollutants:	pH and Total suspended solids (TSS)
Unit of measure:	pH and Milligrams per litre (mg/L)
Monitoring location:	EPA01 – Outlet pipe from 280 ML HRSTS storage dam.
Monitoring frequency required by licence:	Daily during all discharge events
Sampled:	Not applicable. During the Reporting Period, BMC did not discharge any mine water under the HRSTS.
pH limit: (EPL6538 Condition L2.4)	6.5 – 9.5 (100 th percentile)
TSS limit: (EPL6538 Condition L2.4)	120 (100 th percentile)



4. NOISE

In accordance with EPL 6538, BMC undertakes compliance attended noise monitoring for 15minutes once per calendar month during the night period (10 pm to 7 am) at three locations representative of the nearest private receivers. The noise monitoring locations, as described, are shown in **Appendix C**.

Pollutant:	Noise – Bengalla Only
Unit of measure:	LAeq (15 minute)
Monitoring location:	AN01 (EPA07) – Wybong Road, Castle Rock. AN03 (EPA08) – Denman Road, Muswellbrook. AN04 (EPA09) – Racecourse Road, Muswellbrook.
Monitoring frequency required by licence:	Monthly
Sampled:	27-28 October 2017
EPA7/AN01 and EPA9/AN04 limit: (EPL6538 Condition L4.1)	35 dB(A)
EPA8/AN03 limit: (EPL6538 Condition L4.1)	40 dB(A)



Table 2. Noise – Bengalla Only¹ LAeq (15 minute) Monitoring Summary

Sampling point	No. of samples required by licence	No. of samples taken and analysed	Sample Date	Sample Time	Measured value
EPA07/AN01	1	1	27/10/2017	23:54	30
EPA08/AN03	1	1	28/10/2017	00:35	28
EPA09/AN04	1	1	28/10/2017	02:12	IA ²

Note:

1. LAeq,15minute operational noise levels for Bengalla in the absence of all other noise sources.
2. Inaudible (IA) - No noise from the source of interest audible at the monitoring location.

For the Reporting Period noise data were compliant with the EPL 6538 limits.



5. BLASTING

In accordance with EPL 6538, BMC maintains a network of three blast monitors on private (non-mine owned) land to measure air-blast overpressure and ground vibration for all blasts events undertaken at Bengalla. The location of these monitors is provided in **Appendix C**.

Pollutant:	Air blast overpressure & ground vibration peak particle velocity
Unit of measure:	dB (Lin Peak) and millimetres per second (mm/s)
Monitoring locations:	MRE (EPA12) SCH (EPA19) BLK (EPA20)
Monitoring frequency required by licence:	All blasts
Sampled:	1 – 31 October 2017
Overpressure limits: (Condition L5)	a) 115 linear decibels (dB(L)) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and b) 120 dB(L) at any time
Ground vibration limits: (Condition L5)	a) exceed 5 millimetres/second (mm/s) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and b) 10mm/s at any time



In accordance with Condition M8 of EPL 6538, overpressure and ground vibration data is provided in **Table 3**.

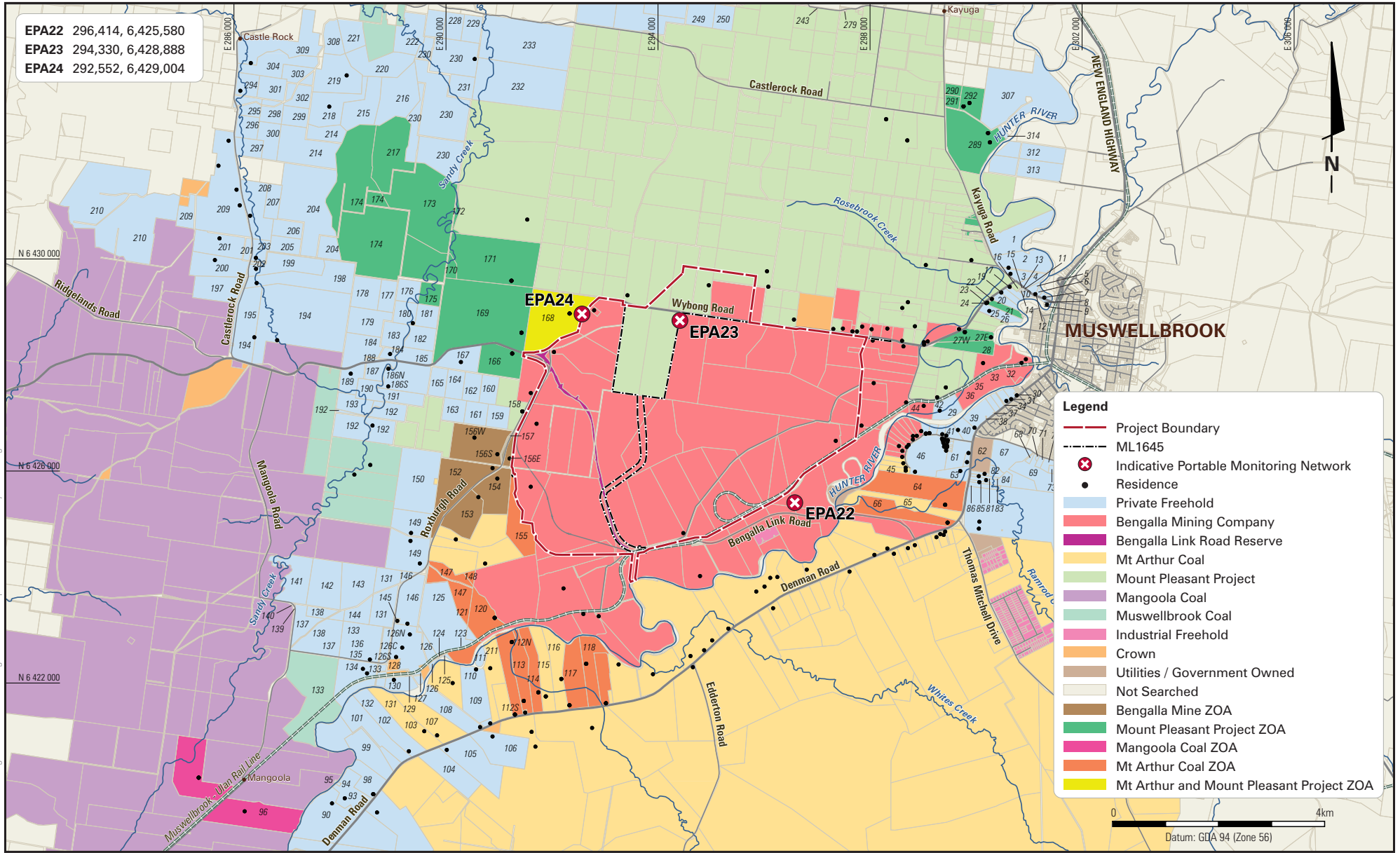
Table 3: Blast Monitoring Summary

Sampling point	Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Minimum value	Maximum value	Mean of samples
BLK (EPA20)	Overpressure	dB(L)	All blast events	13	85.60	114.60	100.21
	Ground vibration	mm/s	All blast events	13	0.06	0.48	0.21
SCH (EPA19)	Overpressure	dB(L)	All blast events	13	63.50	84.30	71.89
	Ground vibration	mm/s	All blast events	13	0.03	0.26	0.09
MRE (EPA12)	Overpressure	dB(L)	All blast events	13	90.80	110.50	101.08
	Ground vibration	mm/s	All blast events	13	0.27	3.15	1.19

For the Reporting Period, overpressure and ground vibration data were below the maximum limit and within the 5% allowance limit specified in Condition L5 of EPL 6538.

Appendix A

EPL 6538 Particulate Matter Monitoring Locations



BENGALLA MINE



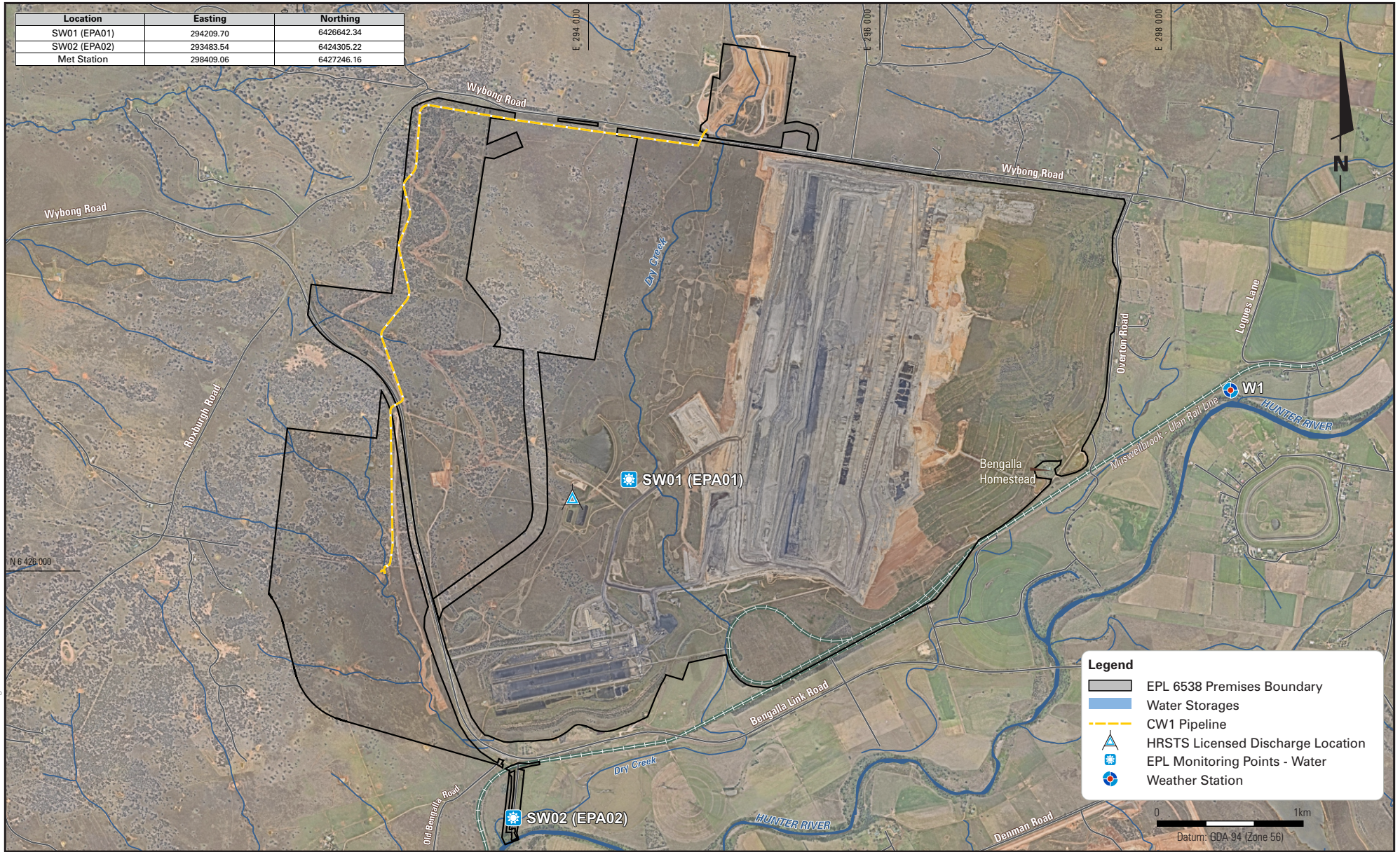
HansenBailey
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Revised Air Quality Monitoring Network

Appendix B

EPL 6538 Surface Water Monitoring Locations

Location	Easting	Northing
SW01 (EPA01)	294209.70	6426642.34
SW02 (EPA02)	293483.54	6424305.22
Met Station	298409.06	6427246.16



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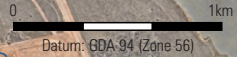
E 294 000

E 296 000

E 298 000

Legend

- EPL 6538 Premises Boundary
- Water Storages
- CW1 Pipeline
- HRSTS Licensed Discharge Location
- EPL Monitoring Points - Water
- Weather Station



BENGALLA MINE



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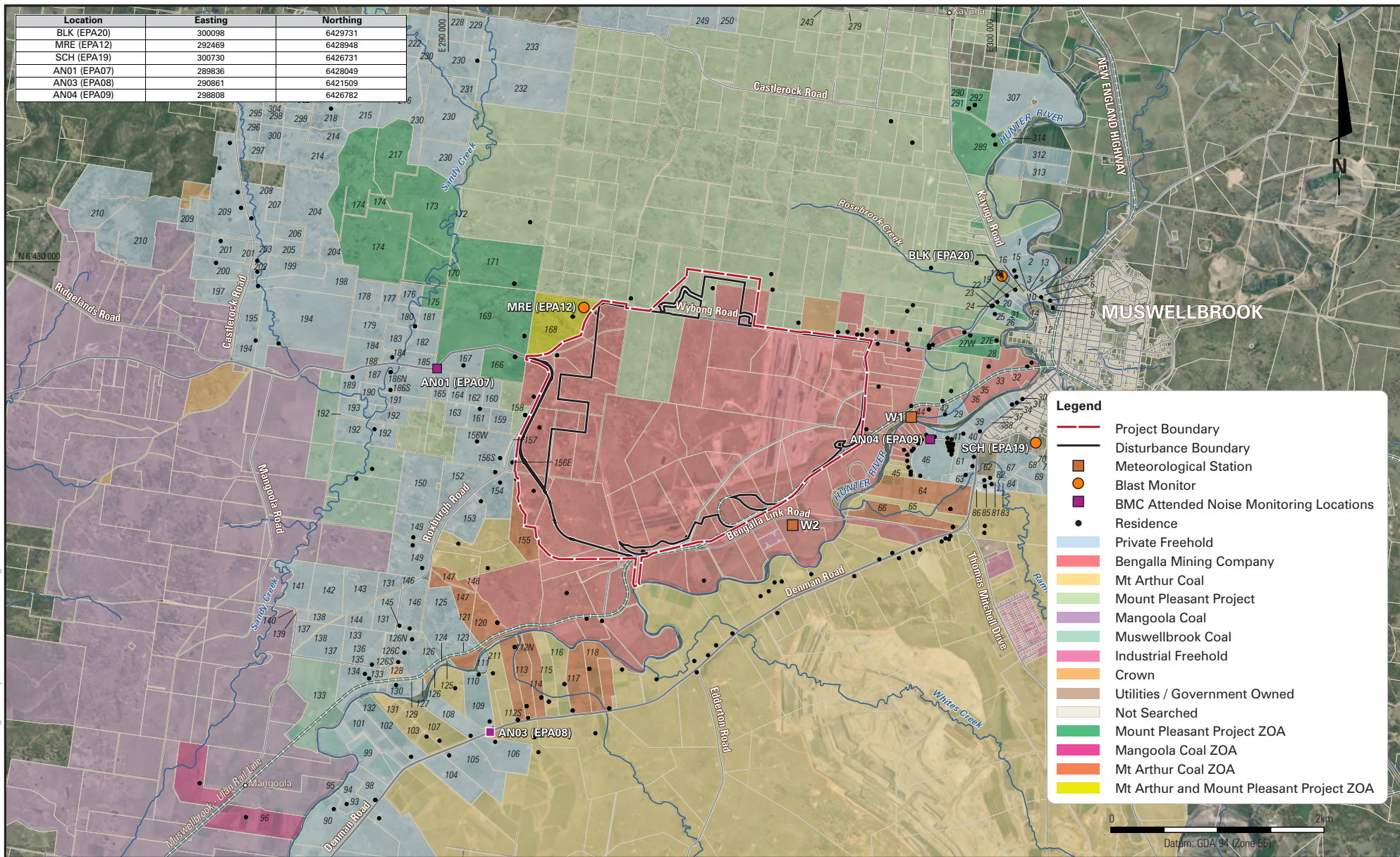
EPL Monitoring Points - Water

Appendix C

EPL 6538 Noise and Blast Monitoring Locations

Location	Easting	Northing
BLK (EPA20)	300098	6429731
MRE (EPA12)	292469	6428948
SCH (EPA19)	300730	6426731
AN01 (EPA07)	289836	6428049
AN03 (EPA08)	290861	6421509
AN04 (EPA09)	298808	6426782

HB BENGALLA EPL 1428 F1 Bengalla Compliance Acoustic Monitoring Network - Aerial Version 09 09 2016



BENGALLA MINE



Bengalla Compliance Acoustic Monitoring Network

FIGURE 1