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

November 2019

Bengalla Mining Company Pty. Limited
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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=POEO licence&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 November 2019 (Reporting Period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM_{10});
- Surface water, including discharge mine water and effluent water;
- Noise; and
- Blast vibration and overpressure.

Monitoring Data Obtained:	11 December 2019
Monitoring Data Published:	13 December 2019

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2. AIR QUALITY

Under EPL 6538 BMC is required to continuously record the average PM_{10} concentration at EPA Monitoring Points 22, 23 and 24 at intervals of 10 minutes. As per Condition E1.1, BMC commenced monitoring at these EPA Monitoring Points on 31 August 2017.

PM_{10} data for the Reporting Period is provided in **Table 1**.

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:	01/11/2019 – 30/11/2019

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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	4320	4317	0.3	969	56.7
EPA23	Wybong Road (East), Muswellbrook	4320	4317	0	876.6	50.8
EPA24	Wybong Road (West), Muswellbrook	4320	4318	-6.9	976.5	48.8

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3. SURFACE WATER

3.1 Discharge Monitoring

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 (see **Appendix B**).

3.1.1 Volume

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.
Volume/mass limit:	200 ML/day
Sampled:	Not applicable. During the Reporting Period, Bengalla did not discharge any mine water under the HRSTS.

3.1.2 Conductivity

Pollutant:	Conductivity
Unit of measure:	Microsiemens per centimetre (**µS/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.

3.1.3 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
pH limit:	6.5 – 9.5 (100th percentile)
TSS limit:	120 (100th percentile)
Sampled:	Not applicable. During the Reporting Period, BMC did not discharge any mine water under the HRSTS.

3.2 Effluent Quality Monitoring

Under EPL 6538 BMC is required to take quarterly grab samples from effluent quality monitoring point EPA25.

Pollutants:	Faecal Coliforms and pH
Unit of measure:	Colony Forming Units (CFU) per 100 millilitres (**CFU/100mL**) and pH
Monitoring location:	EPA25 – See **Appendix B**.
Monitoring frequency required by licence:	Quarterly
Sampled:	Not applicable. BMC was not required to undertake effluent quality monitoring during the Reporting Period

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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.

Noise monitoring data for the Reporting Period is provided in **Table 2**.

Pollutant:	Noise – Bengalla Only
Unit of measure:	LAeq (15 minute)
Monitoring locations:	See **Table 2** and **Appendix C**.
Monitoring frequency required by licence:	Monthly
EPA7/AN01 limit:	35 dB(A)
EPA9/AN04 limit:	35 dB(A)
EPA8/AN03 limit:	40 dB(A)
Sampled:	28 November 2019

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Table 2. Noise – Bengalla Only[1] 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	28/11/2019	00:33 – 00:48	29
EPA08/AN03	1	1	28/11/2019	01:10 – 01:25	<25
EPA09/AN04	1	1	28/11/2019	01:43 – 01:58	IA

Note:

1. LAeq,15minute operational noise levels for Bengalla in the absence of all other noise sources.

IA - Inaudible. When there was no noise from the source of interest (Bengalla Mine) audible at the monitoring location.

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5. BLASTING

In accordance with EPL 6538, BMC maintains three blast monitors on private (non-mine owned) land to measure air-blast overpressure and ground vibration for all blasts events undertaken at Bengalla.

Overpressure and ground vibration data for the Reporting Period is provided in **Tables 3 and 4**.

Pollutant:	Air blast overpressure & ground vibration peak particle velocity
Unit of measure:	dB (Lin Peak) and millimetres per second (mm/s)
Monitoring locations:	See **Table 3**, **Table 4** and **Appendix C**.
Monitoring frequency required by licence:	All blasts
Overpressure limits:	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:	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
Sampled:	02/11/2019 – 29/11/2019

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Table 3. Blast Overpressure Monitoring Summary

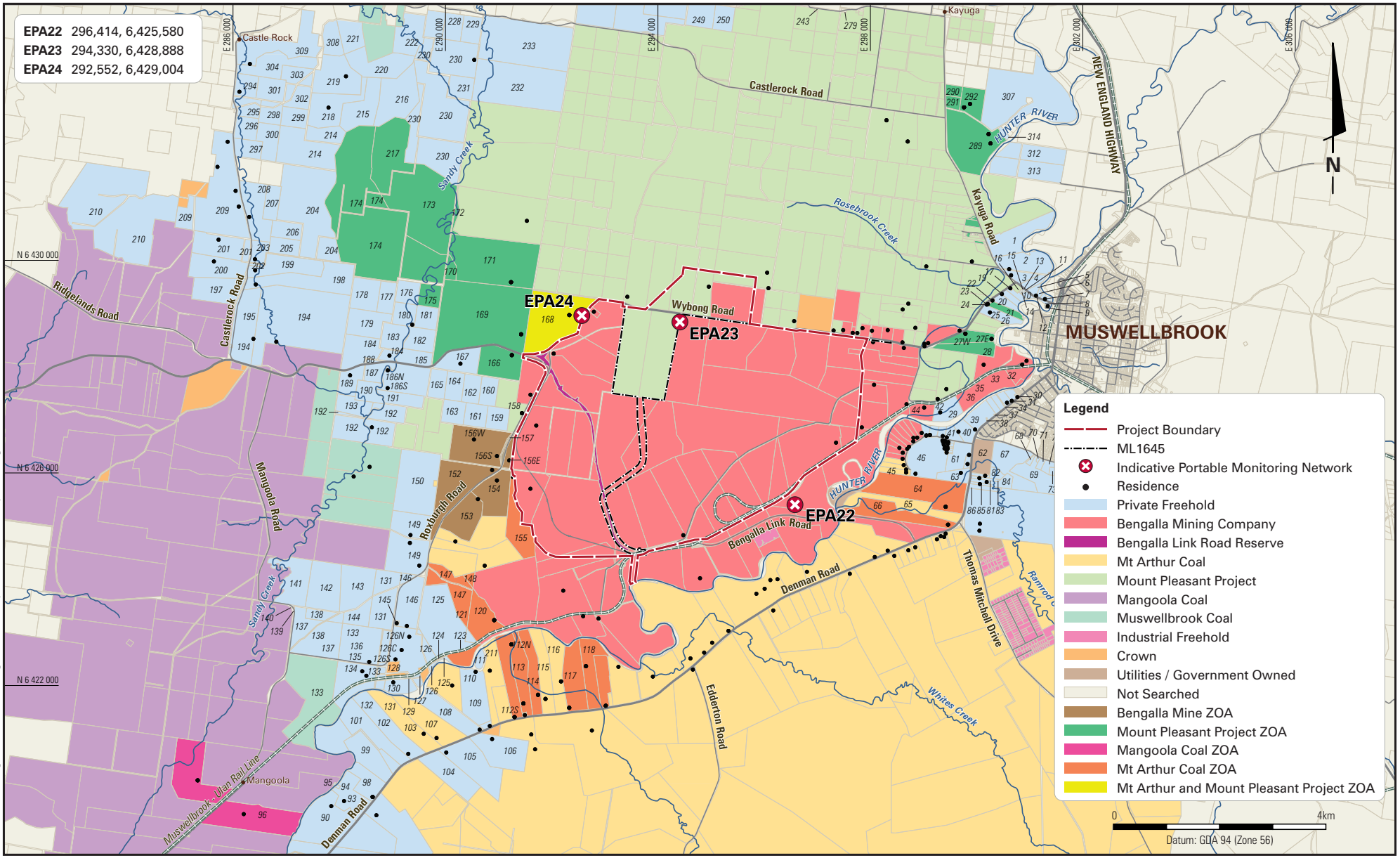
Sampling point	Pollutant	Unit of measure	No. of samples required by licence	No. of samples collected and analysed	Minimum value	Maximum value	Mean of samples
BLK (EPA20)	Overpressure	dB(L)	All blast events	14	88.40	104.20	95.25
SCH (EPA19)	Overpressure	dB(L)	All blast events	14	89.00	102.80	96.26
MRE (EPA12)	Overpressure	dB(L)	All blast events	14	94.70	111.80	101.15

Table 4. Blast Vibration 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)	Ground vibration	mm/s	All blast events	14	0.03	0.48	0.18
SCH (EPA19)	Ground vibration	mm/s	All blast events	14	0.02	0.18	0.08
MRE (EPA12)	Ground vibration	mm/s	All blast events	14	0.20	3.22	1.32

Appendix A

EPL 6538 Particulate Matter Monitoring Locations



HB BENGALLA Management Plans 1642 Bengalla Mine Conceptual Revised Air Quality Monitoring Network 28 06 2017 Rev G

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Hansen Bailey
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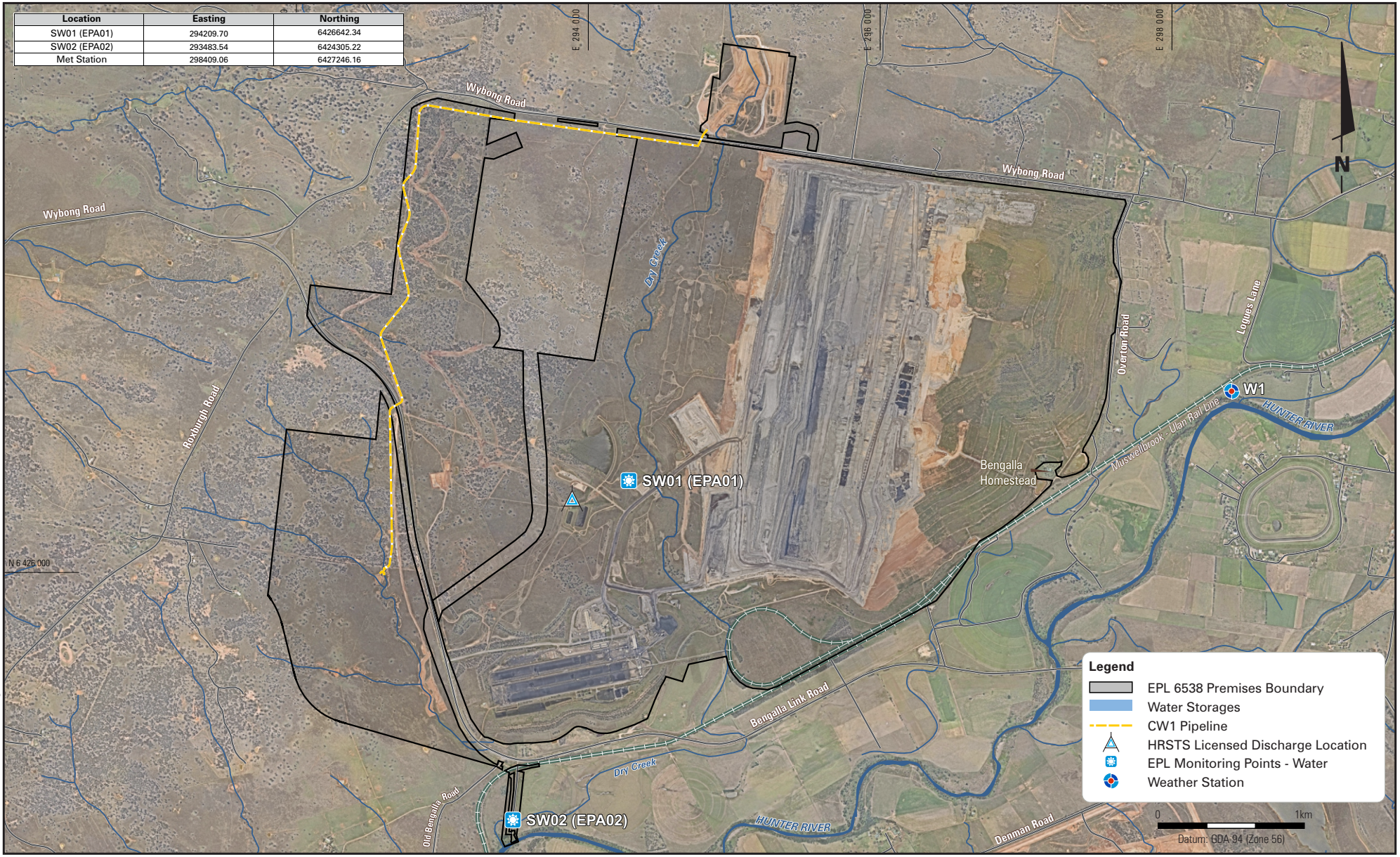
EPL 6538 PM10 Monitoring Locations

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



HB BENGALLA 1642 F1 EPL Monitoring Points - Water 21 06 2017 Rev E

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EPL 6538 Discharge Monitoring Locations

PRJ33286_BengallaMineNSW_50cm_25072018_gda94mga56_ortho_full-area

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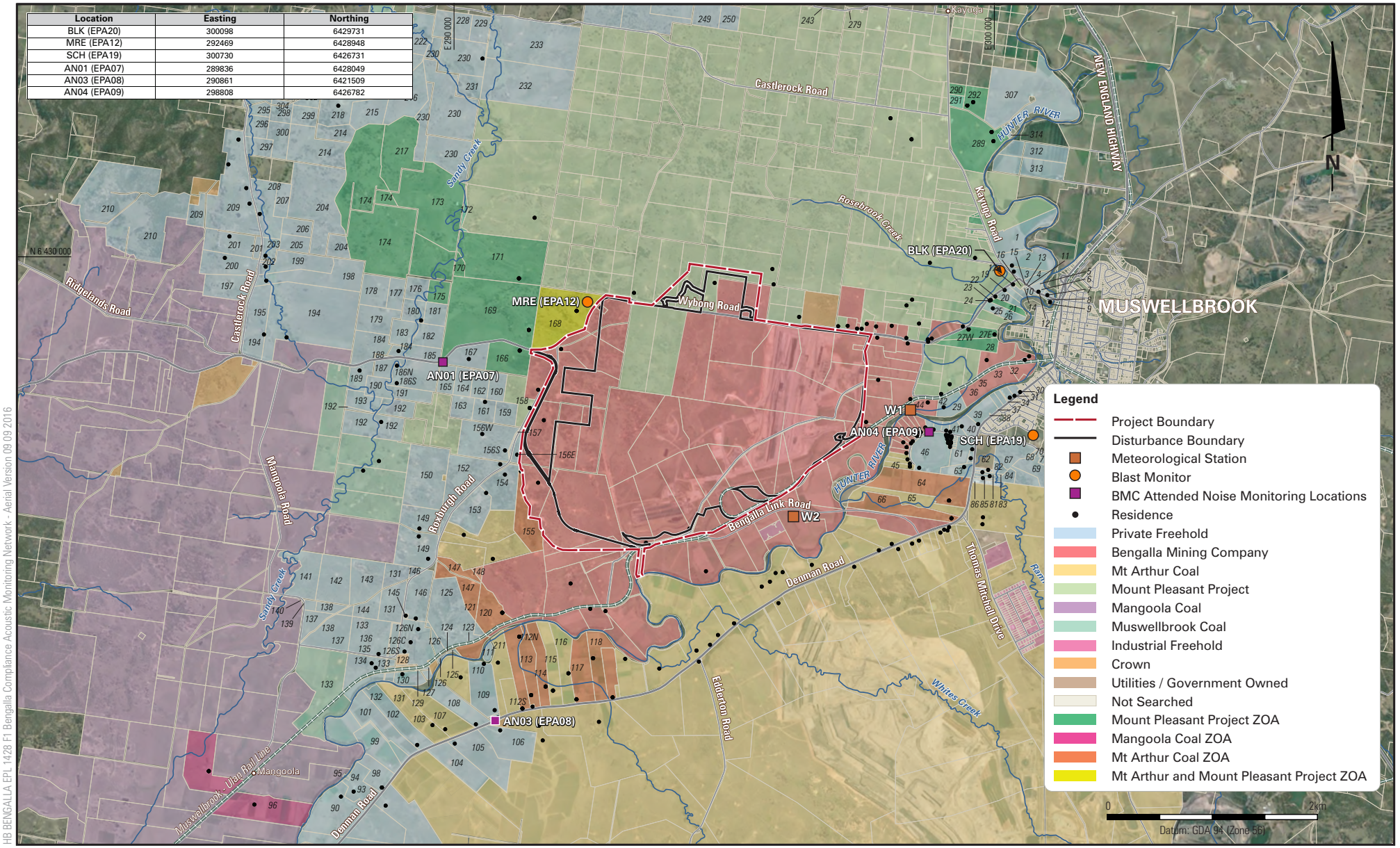
EPL 6538 Effluent Quality Monitoring Location

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

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EPL 6538 Noise & Blast Monitoring Locations