



**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**

## **April 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](http://www.bengalla.com.au)



## Contents

1. INTRODUCTION .....	1
2. AIR QUALITY .....	2
2.1 Particulate Matter less than 10 Microns .....	3
3. SURFACE WATER .....	5
3.1 Mine Water.....	5
3.2 Conductivity.....	6
3.3 Total suspended solids and pH.....	7
4. NOISE .....	8
5. BLASTING.....	10

## Tables

Table 1. PM10 Monitoring Summary.....	4
Table 2. Noise – Bengalla Only <sup>1</sup> LAeq (15 minute) Monitoring Summary .....	9
Table 3: Blast Monitoring Summary .....	11



## 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 April 2017 (reporting period). Monitoring data provided is as follows:

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

Monitoring Data Obtained: 16 May 2017

Monitoring Data Published: 26 May 2017



## 2. AIR QUALITY

Under EPL 6538 BMC is no longer required to monitor or report on Total Suspended Particulates (TSP) or dust deposition.

Under EPL 6538 Conditions P1.1, M2.1, M2.2 and M9.5 BMC is now required to undertake continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 (**Appendix A – Revised Air Quality Monitoring Network**). However, as per Condition E1.1, BMC does not have to commence the continuous PM10 monitoring at EPA Monitoring Points 22, 23 and 24 until 30 June 2017. In the interim, BMC must maintain a particulate matter monitoring network at locations where particulate matter being sampled is representative of emissions from the operation of Bengalla.

In accordance with Condition E1.1 of EPL 6538, BMC will continue to operate and maintain a network of three high volume air samplers (HVAS) measuring PM10 on land representative of private receivers surrounding the Bengalla Mine (Bengalla). Additional PM10 data will continue to be sourced from Mt Arthur Coal through an information sharing agreement. The air quality monitoring network, as described, is shown in **Appendix A - Existing PM10 Monitoring Network (HVAS)**.



## 2.1 Particulate Matter less than 10 Microns

<b>Pollutant:</b>	PM <sub>10</sub>
<b>Unit of measure:</b>	Micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ )
<b>Monitoring location:</b>	See <b>Table 1</b> and <b>Appendix A - Existing PM10 Monitoring Network (HVAS)</b>
<b>Monitoring frequency required by licence:</b>	Every 6 days (24 hours)
<b>Sampled:</b>	19/03/2017, 25/03/2017, 31/03/2017, 06/04/2017 and 12/04/2017 Results for 19/03/2017, 25/03/2017 and 31/03/2017 to be presented in this summary due to sample schedule.
<b>Development consent limit:</b>	Annual average 30 $\mu\text{g}/\text{m}^3$ 24-hour average 50 $\mu\text{g}/\text{m}^3$



In accordance with Condition E1.1 of 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	Annual rolling average *
PM <sub>10</sub> - 1	Racecourse Road, Muswellbrook	5	5	11	19	15	19
PM <sub>10</sub> - 2	St James School, Muswellbrook	5	5	9	20	15	17
PM <sub>10</sub> - 3	Mt Arthur Coal Residence, Muswellbrook †	5	5	11	42	20	17
PM <sub>10</sub> - 4	Wybong Road (West), Muswellbrook	5	5	17	28	22	21

\* Annual rolling average as at 12/04/17.

† Data sourced from Mt Arthur Coal.

For the reporting period, annual rolling average PM<sub>10</sub> data were below the annual average Development Consent limit of 30 µg/m<sup>3</sup>.

For the reporting period, 24-hour average PM<sub>10</sub> data were below the 24-hour average Development Consent limit of 50 µg/m<sup>3</sup>



### 3. SURFACE WATER

Bengalla participates in the Hunter River Salinity Trading Scheme (HRSTS). In accordance with Condition P1.3, M2.3 and M7 of EPL 6538, Bengalla maintains three monitoring locations to measure concentration, volume and mass of mine water discharges.

The location of these monitoring points is provided in **Appendix A EPL Monitoring Points - Water**.

#### 3.1 Mine Water

<b>Pollutant:</b>	Mine water
<b>Unit of measure:</b>	Mega litres per day (ML/day)
<b>Monitoring location:</b>	EPA Monitoring Point 1 (EPA01) – Outlet pipe from 280 ML HRSTS storage dam. EPA Monitoring Point 25 (EPA25) – HRSTS discharge and monitoring point.
<b>Monitoring frequency required by licence:</b>	Continuous during all discharge events.
<b>Sampled:</b>	Not applicable. During the reporting period, Bengalla did not discharge any mine water under the HRSTS.
<b>Volume/mass limit: (EPL6538 Condition L3)</b>	200 ML/day



### 3.2 Conductivity

<b>Pollutant:</b>	Conductivity
<b>Unit of measure:</b>	Microsiemens per centimetre ( $\mu\text{S}/\text{cm}$ )
<b>Monitoring location:</b>	EPA Monitoring Point 1 (EPA1) – Outlet pipe from 280 ML HRSTS storage dam. EPA Monitoring Point 25 (EPA25) – HRSTS discharge and monitoring point. EPA Monitoring Point 2 (EPA2) – Tributary monitoring point in Dry Creek downstream of EPA1.
<b>Monitoring frequency required by licence:</b>	Continuous during all discharge events (EPA01 and EPA25); Two times daily during discharge (EPA02).
<b>Sampled:</b>	Not applicable. During the reporting period, Bengalla did not discharge any mine water under the HRSTS.





### 3.3 Total suspended solids and pH

<b>Pollutants:</b>	pH and Total suspended solids (TSS)
<b>Monitoring location:</b>	EPA Monitoring Point 1 (EPA01) – Outlet pipe from 280 ML HRSTS storage dam. EPA Monitoring Point 25 (EPA25) – HRSTS discharge and monitoring point.
<b>Monitoring frequency required by licence:</b>	Daily during all discharge events
<b>Sampled:</b>	Not applicable. During the reporting period, Bengalla did not discharge any mine water under the HRSTS.
<b>Obtained:</b>	Not applicable.
<b>pH limit: (EPL6538 Condition L2.4)</b>	6.5 – 9.5 (100 <sup>th</sup> percentile)
<b>TSS limit: (EPL6538 Condition L2.4)</b>	120 Milligrams per litre (mg/L) (100 <sup>th</sup> percentile)



#### **4. NOISE**

In accordance with Condition P1.4, L4 and M10 of EPL 6538, Bengalla undertakes compliance attended noise monitoring for 15 minutes 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 A - Bengalla Compliance Acoustic Monitoring Network**.

<b>Pollutant:</b>	Noise – Bengalla Only LAeq (15 minute)
<b>Monitoring location:</b>	EPA Monitoring Point 7 (EPA7) AN01 – Wybong Road, Castle Rock. EPA Monitoring Point 8 (EPA8) AN03 – Denman Road, Muswellbrook. EPA Monitoring Point 9 (EPA9) AN04 – Racecourse Road, Muswellbrook.
<b>Monitoring frequency required by licence:</b>	Monthly
<b>Sampled:</b>	27 – 28 March 2017
<b>EPA7/AN01 and EPA9/AN04 limit: (EPL6538 Condition L4.1)</b>	35 dB(A)
<b>EPA8/AN03 limit: (EPL6538 Condition L4.1)</b>	40 dB(A)



**Table 2. Noise – Bengalla Only<sup>1</sup> 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
EPA7/AN01	1	1	20/04/2017	00:54	34
EPA8/AN03	1	1	20/04/2017	01:35	IA <sup>2</sup>
EPA9/AN04	1	1	20/04/2017	02:10	25

For the reporting period noise data were below the EPL 6538 limits of 35 dB(A) for AN01 and AN04 and 40 dB(A) for AN03.

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.
3. Not Measurable (NM) - Some noise from the source of interest was audible at low-levels, but could not be quantified.



## 5. BLASTING

In accordance with Condition P1.4, L5 and M8 of EPL 6538, Bengalla 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 by the operation. The location of these monitors is provided in **Appendix A - Bengalla Compliance Acoustic Monitoring Network**.

<b>Monitoring locations:</b>	EPA Monitoring Point 12 (EPA12) MRE EPA Monitoring Point 19 (EPA19) SCH EPA Monitoring Point 20 (EPA20) BLK
<b>Monitoring frequency required by licence:</b>	All blasts
<b>Sampled:</b>	1 – 30 April 2017
<b>Overpressure limits: (Condition L5)</b>	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
<b>Ground vibration limits: (Condition L5)</b>	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**.

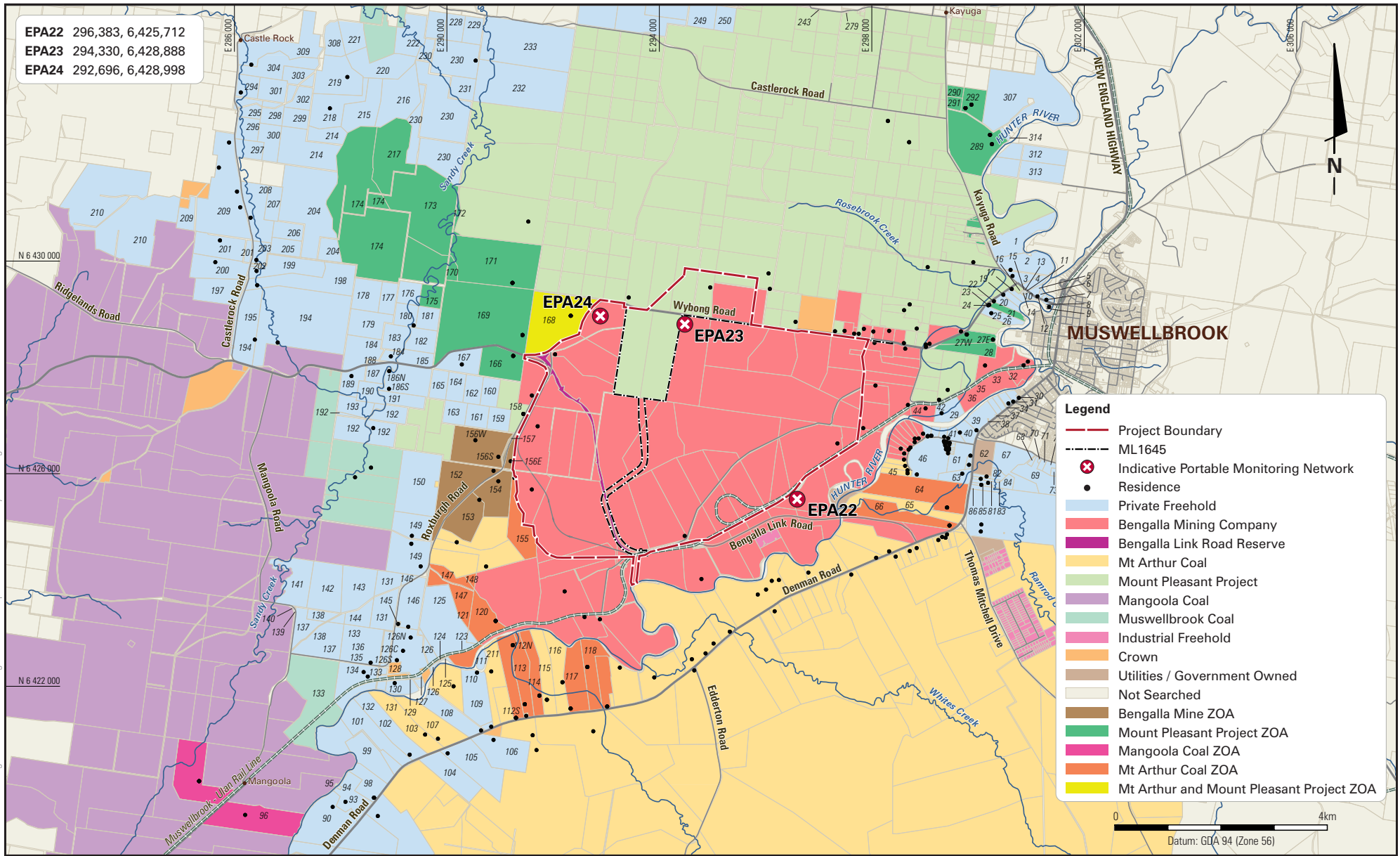
**Table 3: Blast Monitoring Summary**

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
Blake (BLM)	Overpressure	dB(L)	All blast events	12	86.90	103.70	95.12
	Ground vibration	mm/s	All blast events	12	0.02	0.39	0.22
St James School (SCH)	Overpressure	dB(L)	All blast events	12	86.50	101.70	92.88
	Ground vibration	mm/s	All blast events	12	0.01	0.18	0.08
Moore (MRE)	Overpressure	dB(L)	All blast events	12	90.00	114.40	101.66
	Ground vibration	mm/s	All blast events	12	0.05	2.17	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 Monitoring Locations**



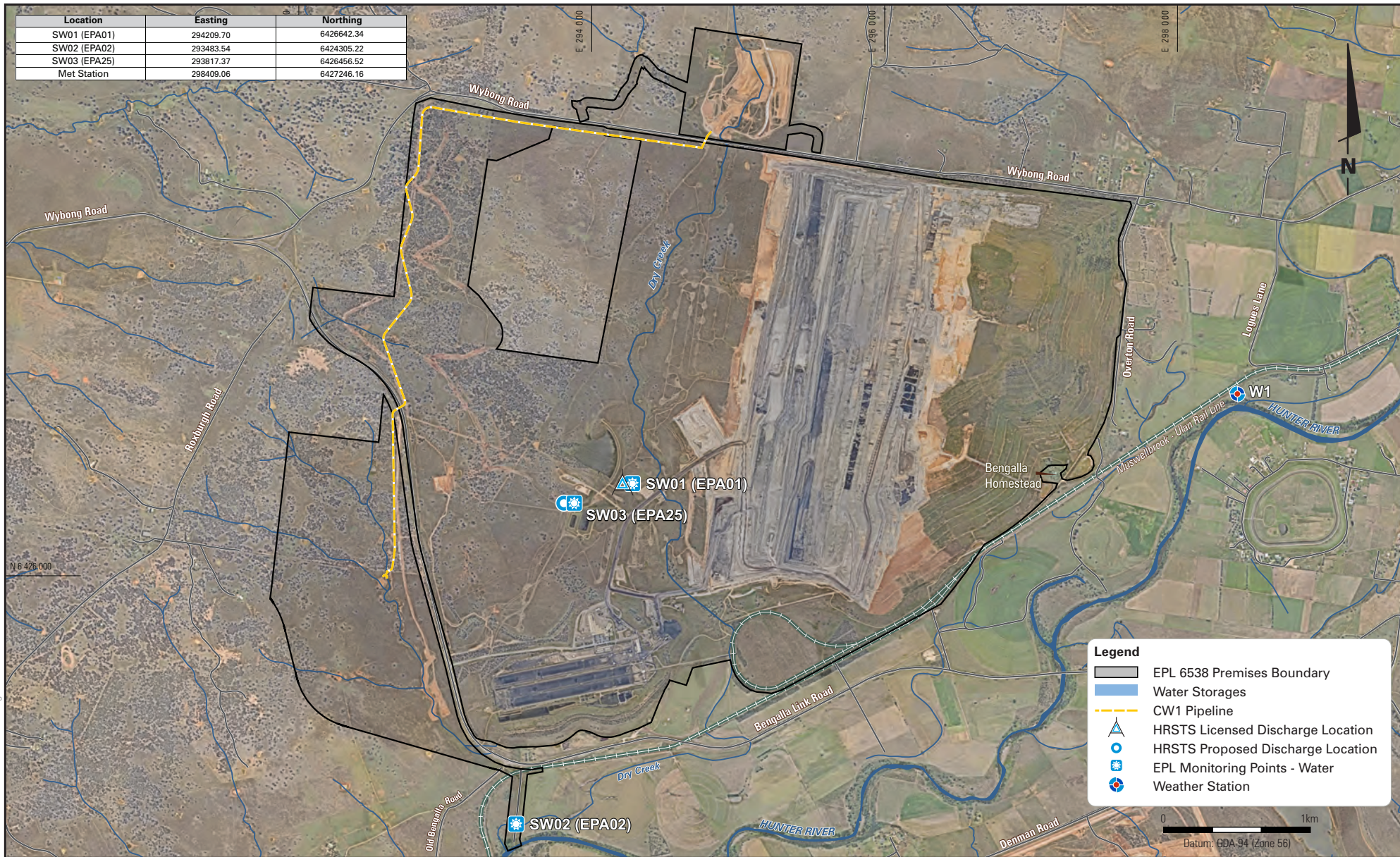




**BENGALLA MINE**  
Existing PM10 Monitoring Network (HVAS)



Location	Easting	Northing
SW01 (EPA01)	294209.70	6426642.34
SW02 (EPA02)	293483.54	6424305.22
SW03 (EPA25)	293817.37	6426456.52
Met Station	298409.06	6427246.16



HB BENGALLA 1642 F1 EPL Monitoring Points - Water 21 12 2016 Rev C



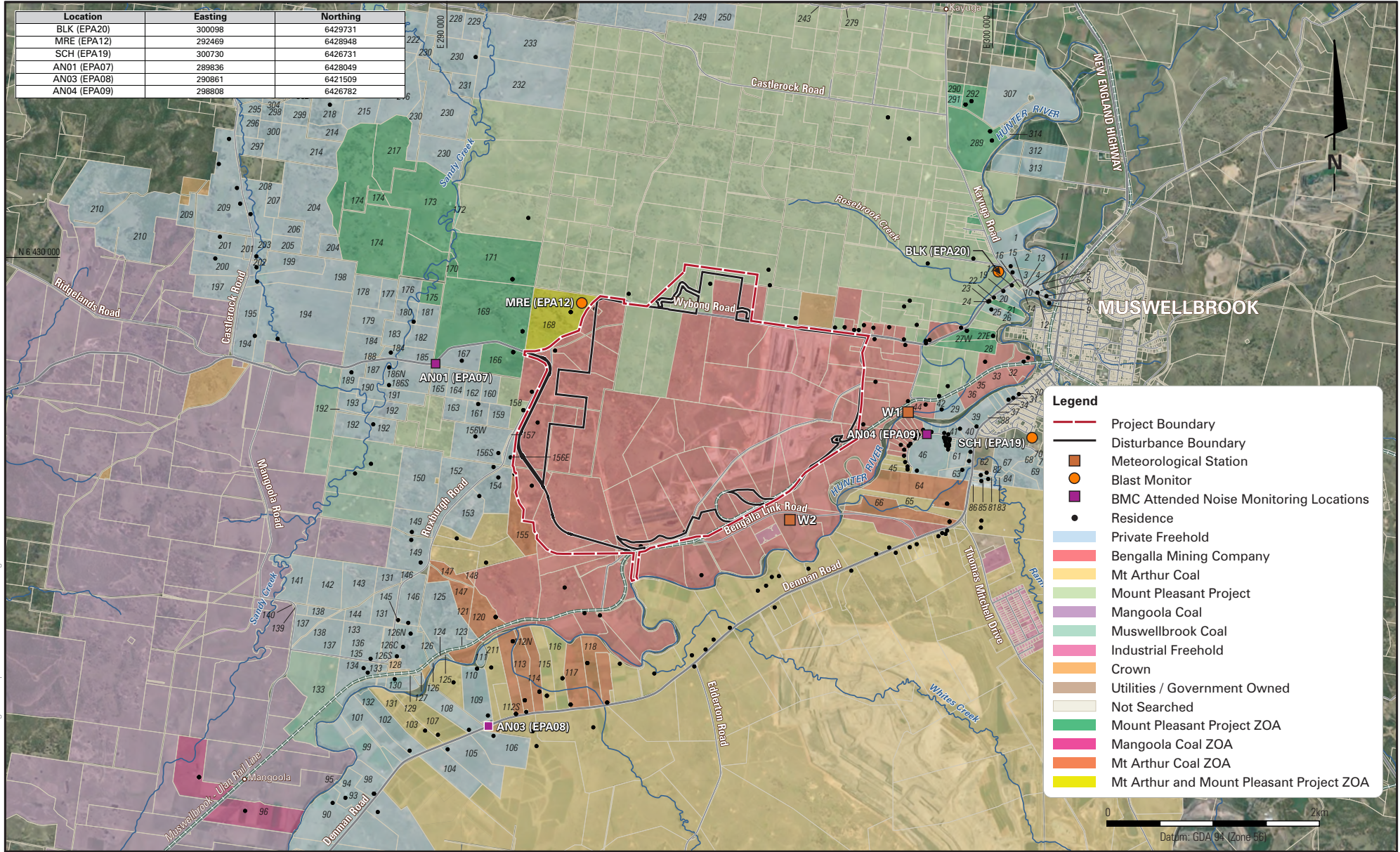
HansenBailey  
ENVIRONMENTAL CONSULTANTS

BENGALLA MINE

EPL Monitoring Points - Water



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



Hansen Bailey  
ENVIRONMENTAL CONSULTANTS

BENGALLA MINE

Bengalla Compliance Acoustic Monitoring Network