



Bengalla Mining Company Pty. Limited

Bengalla Road, (Locked Mailbag 5)

Muswellbrook NSW 2333 Australia

A.B.N. 32 053 909 470

Bengalla Mine

State Significant Development 5170 Monthly Monitoring Data Summary

October 2019



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1. INTRODUCTION

State Significant Development (SSD) 5170 (as modified) requires the Bengalla Mining Company Pty Ltd (BMC) to make a comprehensive summary of the Bengalla Mine (Bengalla) monitoring results, reported in accordance with the specifications in any conditions of SSD-5170 (as modified), or any approved plans and programs, publicly available on its website. This document has been prepared in accordance with the Department of Planning and Environment (DPE) *Web-Based Reporting Guideline* (October 2015) to satisfy the above requirement.

This document provides a summary of environmental monitoring data sampled as prescribed by SSD-5170 (as modified) for October 2019 (Reporting Period). Monitoring data provided is as follows:

- Air quality, particulate matter less than 10 microns (PM₁₀), total suspended particulate (TSP) matter and depositional dust;
- Noise; and
- Blast overpressure and ground vibration.

Monitoring Data Obtained: 11 November 2019

Monitoring Data Published: 12 December



2. AIR QUALITY

The air quality monitoring program at Bengalla is undertaken in accordance with the requirements of SSD-5170 (as modified), EPL 6538 and the Bengalla Air Quality Management Plan (AQMP). Air quality monitoring results relevant to SSD-5170 are summarised in the following sections.

2.1 Particulate Matter less than 10 Microns

To evaluate the performance of Bengalla against the SSD-5170 criterion for particulate matter, BMC operates and maintains four High Volume Air Samplers (HVAS) measuring PM₁₀. The HVAS are run for 24 hours every six days.

PM₁₀ data for the Reporting Period is provided in **Table 1**.

Pollutant:	PM ₁₀
Unit of measure:	Micrograms per cubic metre (µg/m ³)
Monitoring location:	See Table 1 and Appendix A .
Monitoring frequency:	24 hours every 6 days
24 Hour Average Criteria:	50 µg/m ³
Annual Average Criteria:	25 µg/m ³
Sampled:	05/10/2019 – 29/10/2019

Table 1. PM₁₀ Monitoring Summary

Run Date	Run Date Reading (µg/m ³)			
	PM10-1 Racecourse Road	PM10-2 St James School	PM10-3 Roxburgh Road	PM10-4 Wybong Road
05/10/2019	27	23	31	39
11/10/2019	26	21	26	31
17/10/2019	130	72	66	65
23/10/2019	50	44	46	59
29/10/2019	70	75	62	78



2.2 Total Suspended Particle Matter

To evaluate the performance of Bengalla against the SSD-5170 criterion for particulate matter, BMC operates and maintains five HVAS measuring TSP. The HVAS are run for 24 hours every six days.

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

Pollutant:	TSP
Unit of measure:	µg/m ³
Monitoring location:	See Table 2 and Appendix B .
Monitoring frequency:	24 hours every 6 days
Annual Average Criteria:	90 µg/m ³
Sampled:	05/10/2019 – 29/10/2019

Table 2. TSP Monitoring Summary

Run Date	Run Date Reading (µg/m ³)				
	HV01 Wybong Road (East)	HV02 Racecourse Road	HV03 Logues Lane	HV04 St James School	HV06 Wybong Road (West)
05/10/2019	85	79	63	67	160
11/10/2019	47	85	36	78	123
17/10/2019	244	203	131	182	193
23/10/2019	112	108	81	91	148
29/10/2019	280	138	142	157	242



2.3 Depositional Dust

To evaluate the performance of Bengalla against the SSD-5170 criterion for depositional dust, BMC operates and maintains 14 depositional dust gauges surrounding the Bengalla operations.

Depositional dust data for the Reporting Period is provided in **Table 3**.

Pollutant:	Depositional Dust
Unit of measure:	Grams per metre squared per month (g/m ² /month)
Monitoring location:	See Table 3 and Appendix C .
Monitoring frequency:	Monthly
Maximum depositional dust increase criteria:	2 g/m ² /month
Maximum total depositional dust criteria:	4 g/m ² /month
Sampled:	16/09/2019 - 17/10/2019



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Table 3. Depositional Dust Monitoring Summary

Sampling point		Measured Value	Sampling Comments
D01	Queen Street, Muswellbrook	1.6	Insects
D02	King Street, Muswellbrook	1.6	Insects
D04A	Industrial Estate, Muswellbrook	3.1	Insects
D05	Intersection Kayuga and Wybong Road, Muswellbrook	2.3	Insects, bird droppings
D06	Logues Lane, Muswellbrook	3.1	Insects
D07A	St James School, Muswellbrook	1.6	Insects, bird droppings
D08	Denman Road, Muswellbrook	1.9	Insects
D09	Wybong Road, Muswellbrook	3.8	Insects
D10	Racecourse Road, Muswellbrook	4.2	Insects
D20	Wyndams Arms R.O.W., Muswellbrook	5.7	Insects
D23B	Logues Lane, Muswellbrook	2.1	Insects
D25	Roxburgh Road, Muswellbrook	4.0	Insects
D26	Wybong Road, Muswellbrook	2.6	Insects
DA	Roxburgh Road, Muswellbrook	6.3*	Insects

* denotes a contaminated sample.

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.

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3. NOISE

The noise monitoring program at Bengalla is undertaken in accordance with the requirements of SSD-5170 (as modified), EPL 6538 and the Bengalla Noise Management Plan (NMP).

Compliance attended noise monitoring is undertaken 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.

Noise monitoring data for the Reporting Period is provided in **Table 4**.

Pollutant:	Noise – Bengalla Only
Unit of measure:	L _{Aeq} (15 minute)
Monitoring location:	See Table 4 and Appendix D .
Monitoring frequency:	Monthly
AN01 criteria:	35 dB(A)
AN04 criteria:	35 dB(A)
AN03 criteria:	40 dB(A)
Sampled:	28 October 2019

Table 4. Noise – Bengalla Only¹ LAeq (15 minute) Monitoring Summary

Sampling point		Sample Date	Sample Time	Measured value
AN01	1431 Wybong Road	28/10/2019	01:37 – 01:52	24
AN03	1312 Denman Road	28/10/2019	02:14 – 02:29	IA
AN04	Opposite 9 Racecourse Road	28/10/2019	02:46 – 03:01	28

1. LAeq, 15 minute 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.



4. BLASTING

BMC maintains three blast monitors to measure blast overpressure and ground vibration against the SSD-5170 criteria.

The blast overpressure and ground vibration data for the Reporting Period is provided in **Table 5**.

Pollutant:	Air blast overpressure & ground vibration peak particle velocity
Unit of measure:	dB (Lin Peak) and millimetres per second (mm/s)
Monitoring locations:	See Tables 5 and Appendix D .
Monitoring frequency:	All blasts
Overpressure criteria:	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 criteria:	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:	02/10/2019 – 31/10/2019



Table 5. Blast Overpressure Monitoring Summary

Date	Time	Ground Vibration (mm/s)			Overpressure (dBL)		
		BLK	MRE	SCH	BLK	MRE	SCH
02/10/19	2:53:29 PM	0.59	3.03	0.33	84.20	98.80	98.20
04/10/19	3:38:48 PM	0.13	1.03	0.06	106.60	98.50	102.70
09/10/19	3:16:07 PM	0.01	0.01	0.00	75.10	98.80	84.40
10/10/19	12:25:46 PM	0.38	2.66	0.22	100.60	99.00	91.30
11/10/19	2:32:35 PM	0.09	0.47	0.09	102.10	107.90	105.60
14/10/19	2:37:27 PM	0.46	2.31	0.20	89.60	99.50	96.50
16/10/19	2:57:49 PM	0.38	2.89	0.12	96.40	99.90	93.30
18/10/19	11:06:49 AM	0.37	1.33	0.13	93.30	92.30	93.00
21/10/19	10:52:39 AM	0.22	1.54	0.16	84.50	98.10	88.60
25/10/19	11:17:17 AM	0.33	2.60	0.16	98.10	102.40	108.10
25/10/19	11:18:41 AM	0.12	0.06	0.08	102.60	104.40	105.20
28/10/19	11:11:22 AM	0.09	0.44	0.06	97.00	104.70	94.80
31/10/19	11:56:06 AM	0.08	0.39	0.05	84.80	96.00	96.20
31/10/19	11:56:56 AM	0.03	0.16	0.02	77.70	100.80	88.00

Appendix A

PM10 Monitoring Locations



MUSWELLBROOK

PM4

Wybong Road

PM1

PM2

Bengalla Link Road

PM3



BENGALLA MINE

PM10 Monitoring Locations

PRJ31060_BengallaMineNSW_50cm_19102017_gda94mga56_ortho_full-area

Appendix B

TSP Monitoring Locations



Wybong Road

Bengalla Link Road

MUSWELLBROOK

HV6

HV1

HV3

HV2

HV4



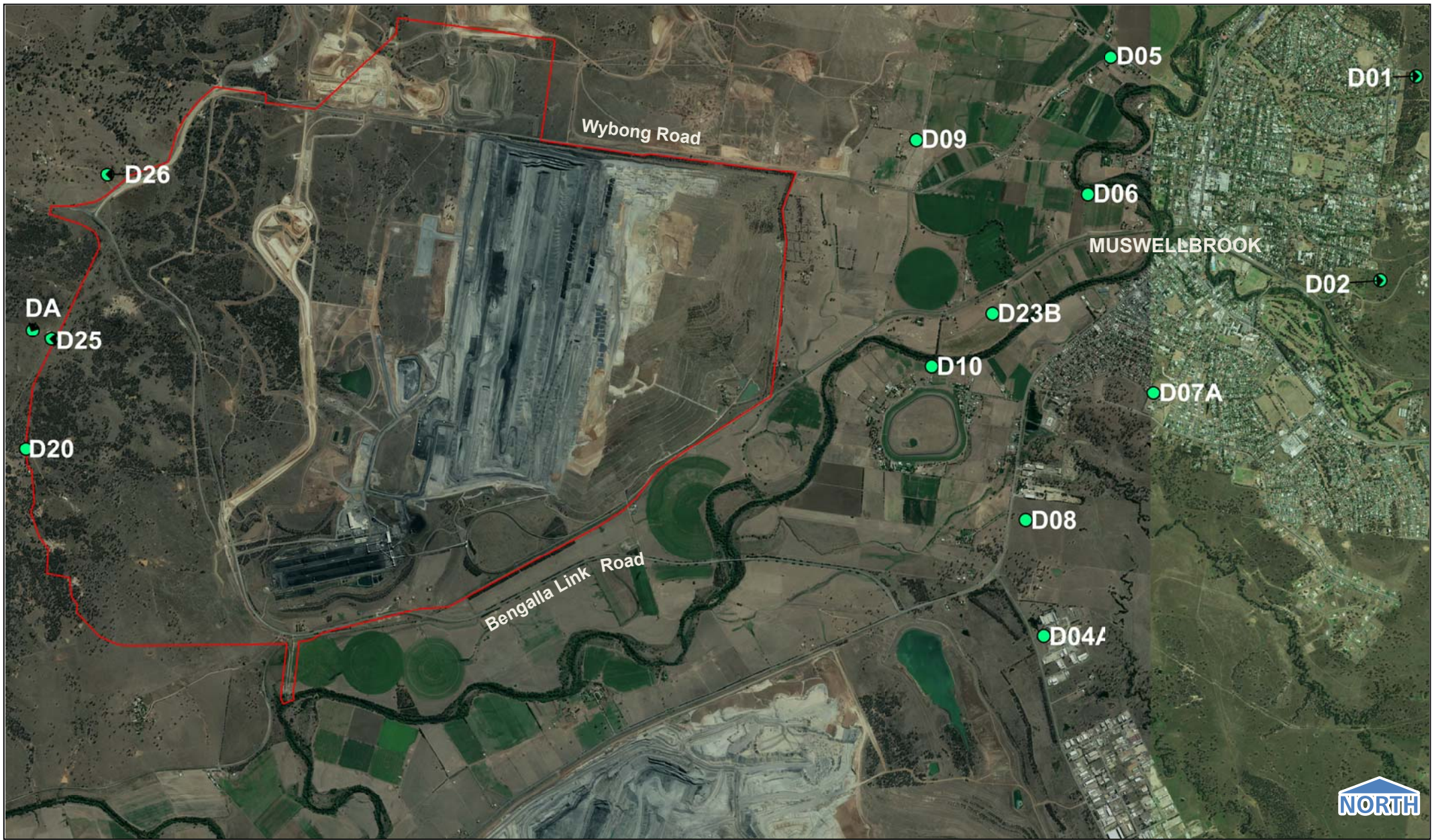
BENGALLA MINE
TSP Monitoring Locations

PRJ31060_BengallaMineNSW_50cm_19102017_gda94mga56_ortho_full-area

Appendix C

Depositional Dust Monitoring Locations

PRJ31060_BengallaMineNSW_50cm_19102017_gda94mga56_ortho_full-area



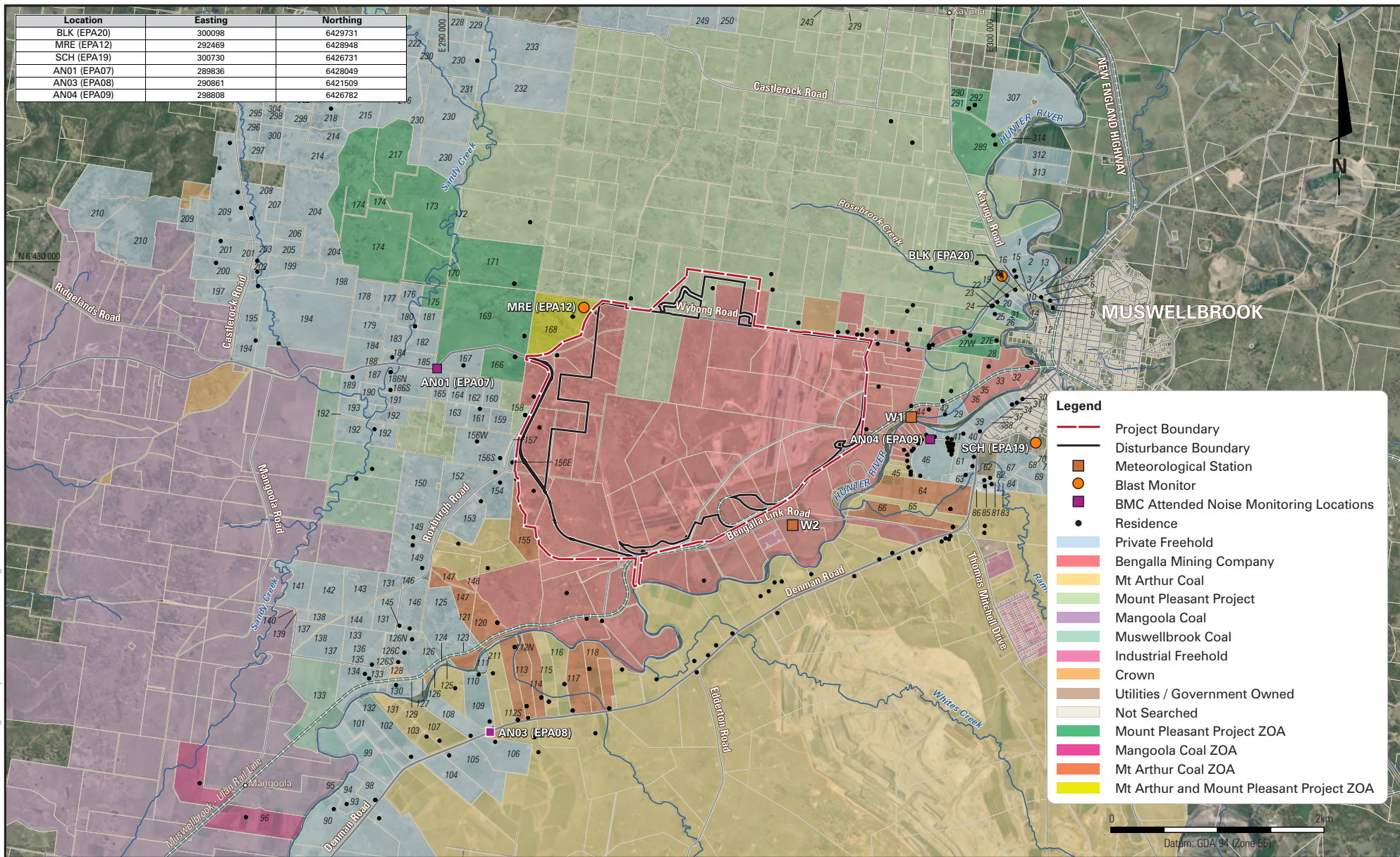
BENGALLA MINE
Depositional Dust Monitoring Locations

Appendix D

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