



**AIR, WATER, NOISE AND METEOROLOGICAL MONITORING –
APRIL 2021**

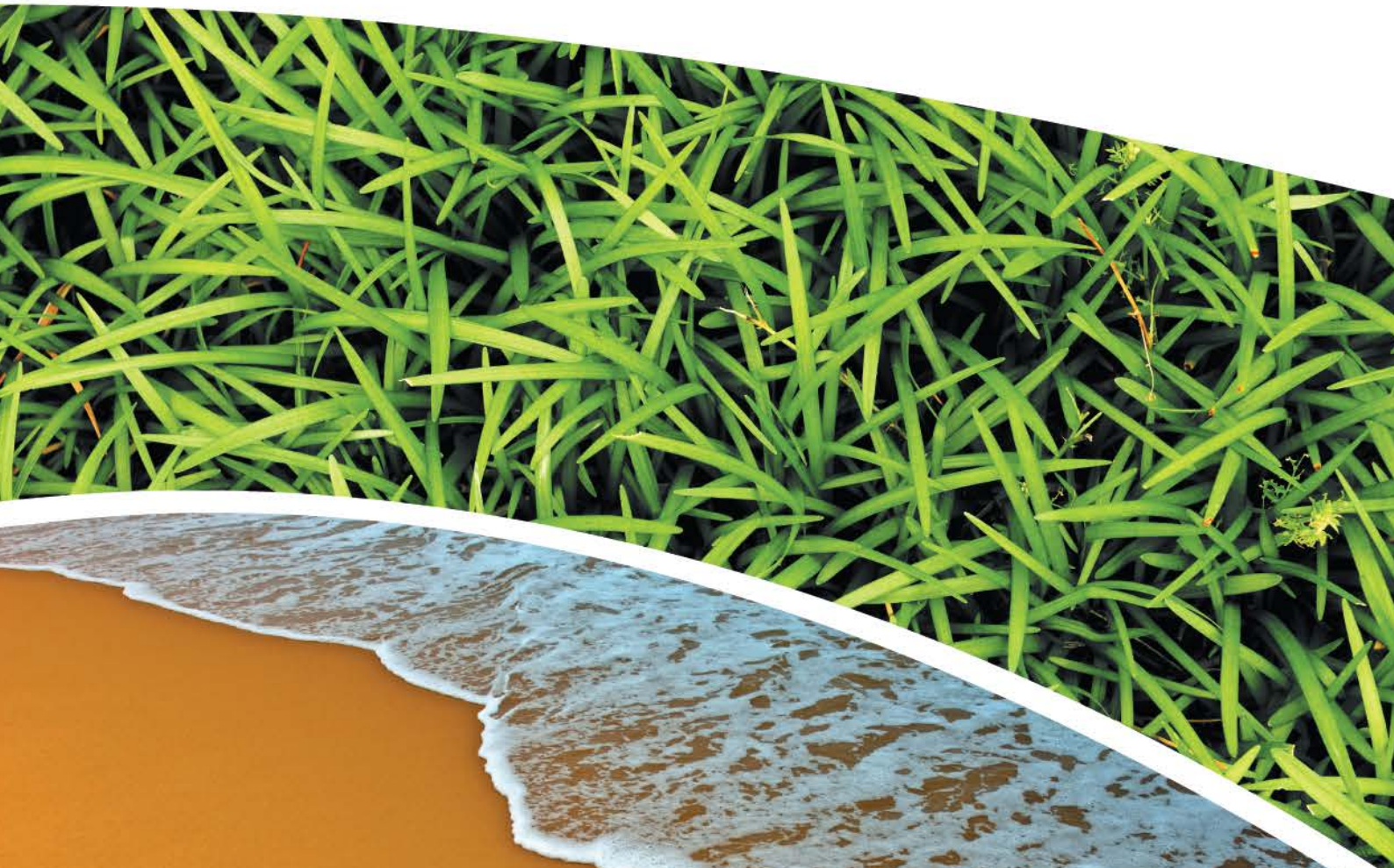
PINE DALE MINE, BLACKMANS FLAT

Prepared for Pine Dale Mine Community Consultative Committee

Prepared by RCA Australia

RCA ref 6880-1853/1

May 2021



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DOCUMENT STATUS						
Rev No	Comment	Author	Reviewer	Approved for Issue (Project Manager)		
				Name	Signature	Date
/0	Final	F Brooker	C Rocher	F Brooker		19.05.21
/1	Final	F Brooker	C Rocher	F Brooker		25.05.21

DOCUMENT DISTRIBUTION				
Rev No	Copies	Format	Issued to	Date
/0	1	Electronic (email)	Pine Dale Mine – Graham Goodwin graham.goodwin@energyaustralia.com.au	19.05.21
/0	1	Electronic (email)	Energy Australia- Mark Frewin mark.frewin@energyaustralia.com.au	19.05.21
/0	1	Electronic report	RCA – job archive	19.05.21
/1	1	Electronic (email)	Pine Dale Mine – Graham Goodwin graham.goodwin@energyaustralia.com.au	25.05.21
/1	1	Electronic (email)	Energy Australia- Mark Frewin mark.frewin@energyaustralia.com.au	25.05.21
/1	1	Electronic report	RCA – job archive	25.05.21



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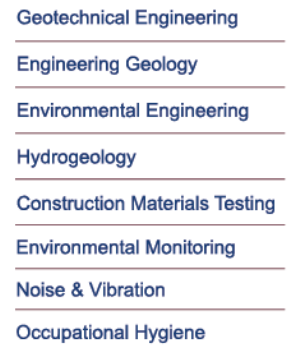
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25 May 2021

Enhance Place Pty Ltd
PO Box 202
WALLERWANG NSW 2845

Attention: Mr Graham Goodwin



**REPORT COMPILED FOR COMMUNITY CONSULTATIVE COMMITTEE
DETAILING AIR, WATER AND METEOROLOGICAL MONITORING AT PINE DALE
APRIL 2021**

1 INTRODUCTION

This report presents the results of air, water, noise and meteorological monitoring undertaken at Pine Dale Mine, Blackmans Flat during the month of April 2021.

Air and water samples were collected by RCA Laboratories – Environmental staff. Meteorological data was obtained from the site weather station.

This report satisfies the requirements to monitor environmental parameters as presented in the Pine Dale Mine Environmental Protection Licence (EPL 4911).

2 ANALYTICAL PROCEDURES

The analytical procedures used by RCA Laboratories – Environmental (NATA Accreditation number 9811) are based on established internationally recognised procedures such as APHA and Australian Standards. Analytical test methods are detailed in **Table 1**.

Table 1 Analytical Test Methods

Analysis	Method	Units	Analysing Laboratory	NATA Accreditation Status
Determination of Suspended Particulate Matter	ENV-LAB003	µg/m ³	RCA Laboratories – Environmental	NATA Analysis
Determination of Particulate Matter – Deposited Matter	ENV-LAB004	g/m ² per month	RCA Laboratories – Environmental	NATA Analysis
pH	ENV-LAB006	pH	RCA Laboratories – Environmental	NATA Analysis
Conductivity	ENV-LAB010	µS/cm	RCA Laboratories – Environmental	NATA Analysis
Total Suspended Solids	ENV-LAB009	mg/L	RCA Laboratories – Environmental	NATA Analysis
Turbidity	ENV-LAB037	NTU	RCA Laboratories - Environmental	NATA Analysis
Oil and Grease	ENV-LAB022	mg/L	RCA Laboratories - Environmental	Non-NATA Analysis
Major Anions (Alkalinity, Cl, SO ₄)	ED037, ED041, ED045	mg/L	ALS	NATA Analysis
Major Cations (Ca, Mg, Na, K)	ED093	mg/L	ALS	NATA Analysis
Dissolved Metals	EG020F	mg/L	ALS	NATA Analysis

ALS Environmental has been used to obtain analysis of anions, cations and dissolved metals (NATA Accreditation number 825).

3 WATER MONITORING RESULTS

3.1 GROUNDWATER

A total of two (2) groundwater samples were collected from within the Pine Dale Mine site during April 2021. Water quality analysis results are shown in **Table 2**. Groundwater monitoring locations are shown in **Appendix A**.

Table 2 Groundwater Analysis Results

ANALYSIS	UNITS	P6	P7
Sample Number	-	042168800010	04216880011
Date Sampled	-	8/04/2021	8/04/2021
Time Sampled	-	7:39	8:46
Depth to Water from Surface	m	22.87	5.90
Water Level (AHD)	m	894.74	889.46
Temperature	°C	15.9	15.9
pH	pH	6.12	6.21
Conductivity	µS/cm	1539	830
Turbidity	NTU	12	
Dissolved Oxygen	mg/L	2.5	
Total Suspended Solids	mg/L	69	
Oil and Grease	mg/L	<5	
Bicarbonate Alkalinity (CaCO ₃)	mg/L	94	
Total Alkalinity (CaCO ₃)	mg/L	94	
Sulphate (as SO ₄)	mg/L	770	
Chloride	mg/L	50	
Calcium	mg/L	140	
Magnesium	mg/L	66	
Sodium	mg/L	75	
Potassium	mg/L	21	
Cobalt (dissolved)	mg/L	0.045	
Manganese (dissolved)	mg/L	2.72	
Nickel (dissolved)	mg/L	0.091	
Zinc (dissolved)	mg/L	0.032	
Iron (dissolved)	mg/L	37.9	
Trigger Values			
pH trigger level ^a	pH	6.2 – 8.0	6.3 – 8.0
Conductivity trigger level	µS/cm	1180	852
Water Level (AHD) ^b	m	887.90	883.28
Revised Trigger Values^c			
pH trigger level ^d	pH	5.6	6.3
Water Level (AHD) ^b	M	887.9	--

■ Indicates analysis was not required.

^a pH trigger value is exceeded if the pH is outside the nominated range.

^b Water Level trigger is exceeded if the AHD water level drops below the nominated trigger level.

^c Proposed trigger values to be used alongside the currently approved trigger values.

^d pH trigger value is exceeded if pH is below the nominated value.

Results shown in ***bold italics*** indicates exceedance of trigger value.

Results shown in underline indicates exceedance of revised trigger value.

3.2 SURFACE WATER MONITORING

Quarterly surface water monitoring was not required to be undertaken during April 2021.

4 AIR QUALITY RESULTS

4.1 HIGH VOLUME AIR SAMPLERS (HVAS)

Monitoring for TSP and PM₁₀ using HVAS was removed from Environment Protection Licence 4911 in November 2020. The Pine Dale Mine Air Quality and Greenhouse Gas Management Plan (AQGGMP) was reviewed and updated to reflect this change. The updated AQGGMP was submitted to the Department of Planning, Industry and Environment (DPIE) for endorsement. The AQGGMP was endorsed by DPIE on 4 December 2020 and was subsequently uploaded onto the Pine Dale Mine website.

4.2 DEPOSITIONAL DUST MONITORING

The depositional dust monitoring exposure period for April 2021 was 8 March – 7 April 2021. Depositional dust gauges at this facility conform to AS/NZS 3580.10.1:2016 and AS/NZS 3580.1.1:2016. The April exposure period was 30 days which is within the 30 ± 2 days dust exposure period stipulated in AS/NZS 3508.10.1:2016. Depositional dust monitoring results are shown in **Table 3**. Depositional dust monitoring locations are shown in **Appendix A**.

Table 3 *Depositional Dust Monitoring*

Deposit Gauge	Number of Days	Notes	Insoluble Solids	Ash	Combustible Matter
D1	32	IT	0.6	<0.1	0.6
D3	32	I	0.5	0.1	0.4
D4	32	I	0.3	<0.1	0.3
D5	32	I	0.2	<0.1	0.2
D6	32	I	0.5	0.1	0.4

All units are g/m²/month

I – Insects (eg, Ants, Spiders)

T – Tree litter (leaves, gumnuts)

4.2.1 ALLOWABLE DEPOSITIONAL DUST LIMITS

The EPA long term (annual average) deposited dust limit is 4g/m² per month. The rolling annual average depositional dust results for all sites within the period (May 2020 – April 2021) are in compliance with consent conditions. The annual average for dust gauges D1, D3, D4, D5 and D6 are all less than or equal to 1.0g/m² per month. Annual averages are shown in the depositional dust gauge graphs provided in **Appendix B**.

5 METEOROLOGICAL MONITORING

Pine Dale Mine records meteorological data continuously via an onsite weather station. Details of the weather data recorded during the period 1 to 30 April 2021 are shown in **Appendix C**.

10 minute data availability during this period was 100%. No daily data was available on the 16 April: the reason for this is unknown as the 10 minute data was available. For the purposes of reporting, the 10 minute data has been used to provide information on the 16 April 2021, noting that no data is available for evapotranspiration rates on this date.

6 BLASTING RESULTS

No blasting was undertaken during this month as mining operations have ceased since the end of March 2014.

7 NOISE MONITORING RESULTS

Quarterly noise monitoring was not undertaken at Pine Dale during April 2021.

8 OPERATIONAL ACTIVITIES

All of the approved minable reserves at the Pine Dale Mine have now been exhausted. Operational mining and the last coal sales ceased as of the end of March 2014.

Pine Dale Mine has been placed in care and maintenance since April 2014. All former operators have been made redundant; however, some statutory positions still remain.

9 SUMMARY

During the month of April 2021 environmental monitoring results were found to be generally in compliance with stipulated criteria with the exception of:

- pH at groundwater bores P6 and P7 were below the respective lower site-specific trigger values.
- The electrical conductivity at groundwater bore P6 was greater than site-specific trigger value.

The pH at P6 was above the revised lower site-specific trigger value and is therefore compliant; there is no limit for electrical conductivity as part of the revised trigger values and the electrical conductivity concentration at P6 is compliant. The revised trigger level for pH is the same as the current trigger level and as such pH at P7 is non-compliant.

All depositional dust gauge results are well below the EPA Long Term (annual average) criteria of 4g/m².month based upon a rolling average of the past 12 months.

Meteorological monitoring was undertaken for the entire month of April with 100% data capture with the exception of the daily data summary on 16 April: this has been calculated using 10 minute data.

Quarterly noise monitoring was not undertaken during April 2021; the next monitoring round is due before the end of June 2021.

Pine Dale Mine ceased operation in March 2014 and therefore no blasting occurred at the site.

10 LIMITATIONS

This report has been prepared for Enhance Place Pty Ltd in accordance with an agreement with RCA Australia (RCA). The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

This report has been prepared for the sole use of Enhance Place. The report may not contain sufficient information for purposes of other uses or for parties other than Enhance Place. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

The information in this report is considered accurate at the date of issue with regard to the current conditions of the site. Conditions can vary across any site that cannot be explicitly defined by investigation.

Environmental conditions including contaminant concentrations can change in a limited period of time. This should be considered if the report is used following a significant period of time after the date of issue.

Yours faithfully

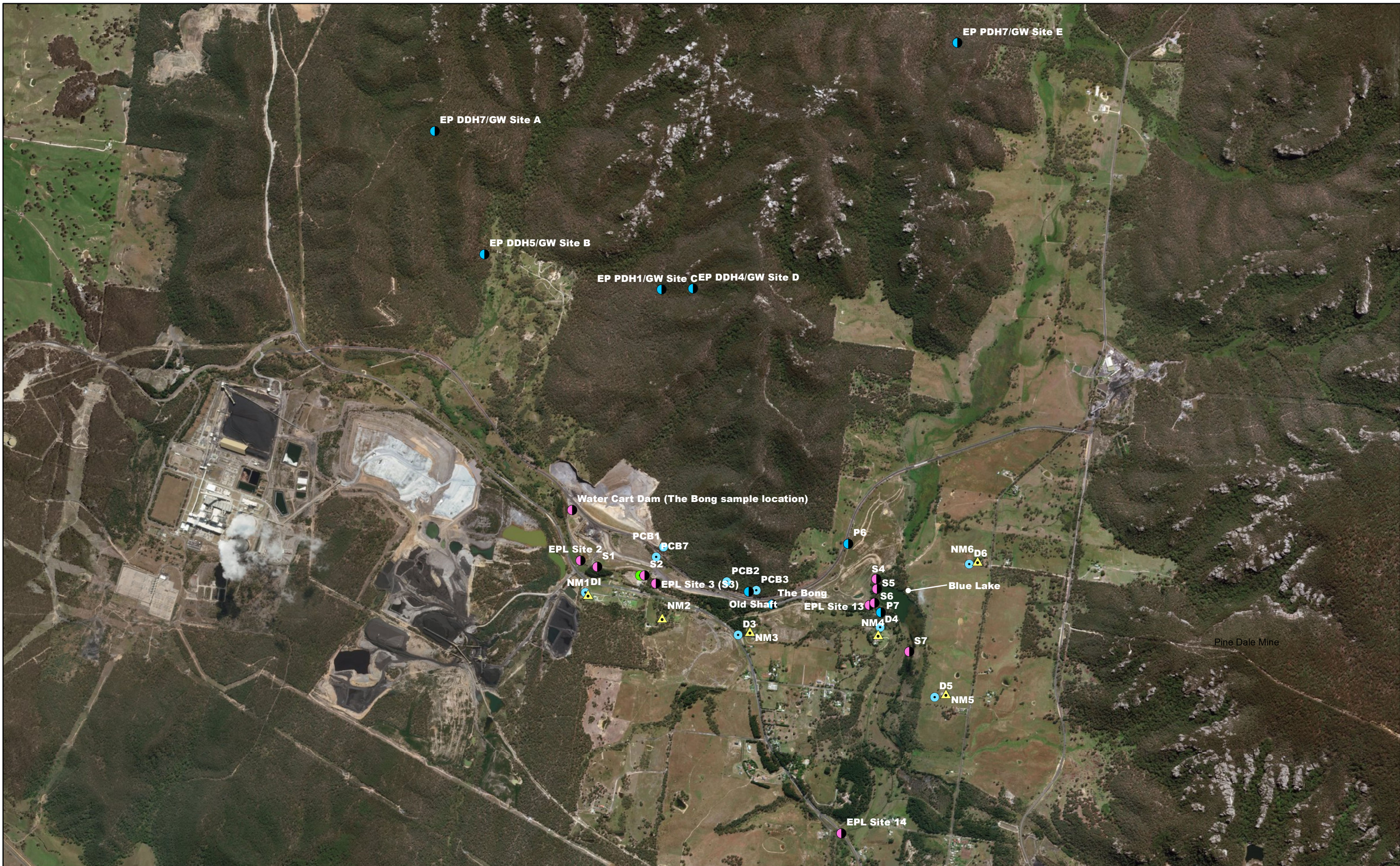
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Fiona Brooker
Manager of Environmental Services
RCA Australia

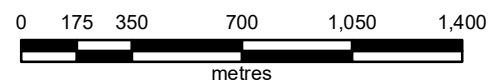
Appendix A

Monitoring Locations



LEGEND

- | | |
|--|--|
|  Noise Monitoring Location |  High Volume Air Sampling Location |
|  Depositional Dust Monitoring Location |  Meteorological Monitoring Location |
|  Groundwater Monitoring Location |  Surface Water Monitoring Location |

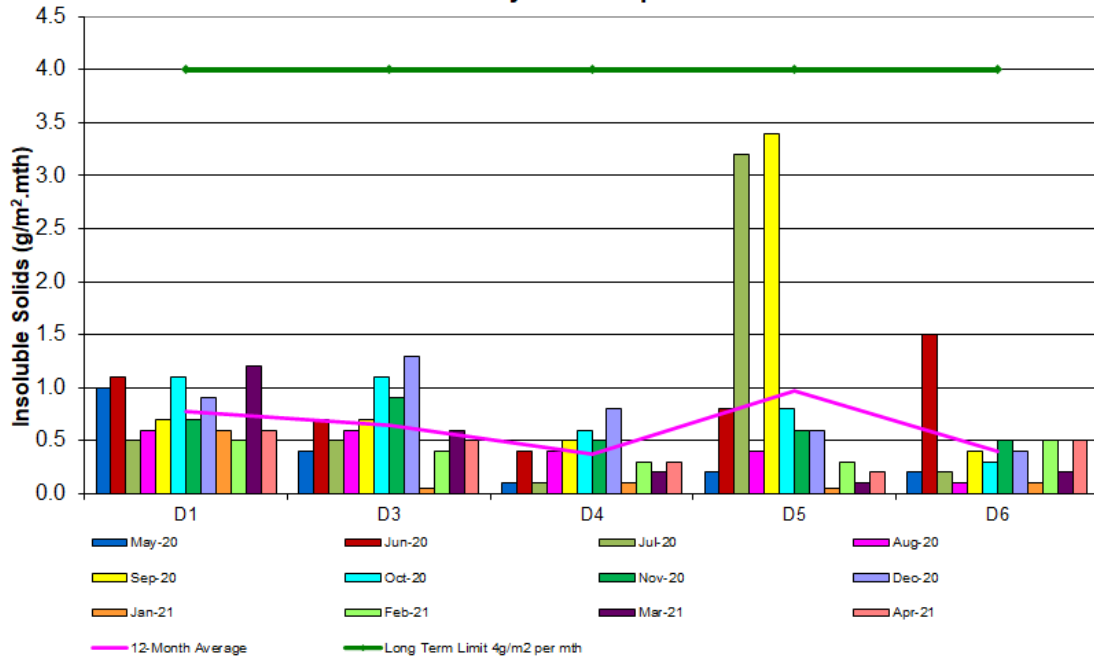


**PINE DALE MINE
ENVIRONMENTAL MONITORING
LOCATION PLAN**

Appendix B

Depositional Dust Graphs

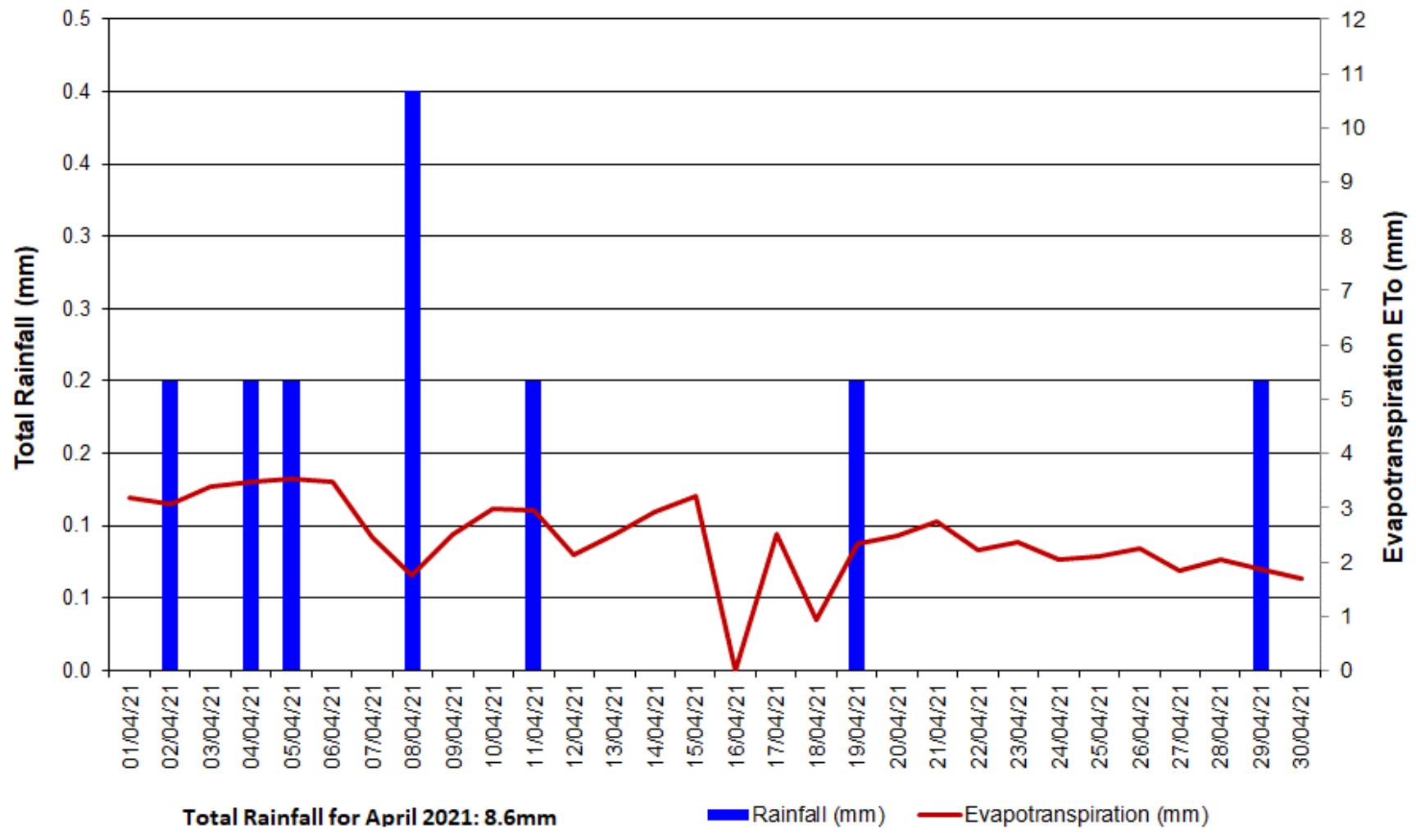
**Pine Dale Mine
Deposited Matter - Insoluble Solids 12 Months Comparative Results
May 2020 to April 2021**



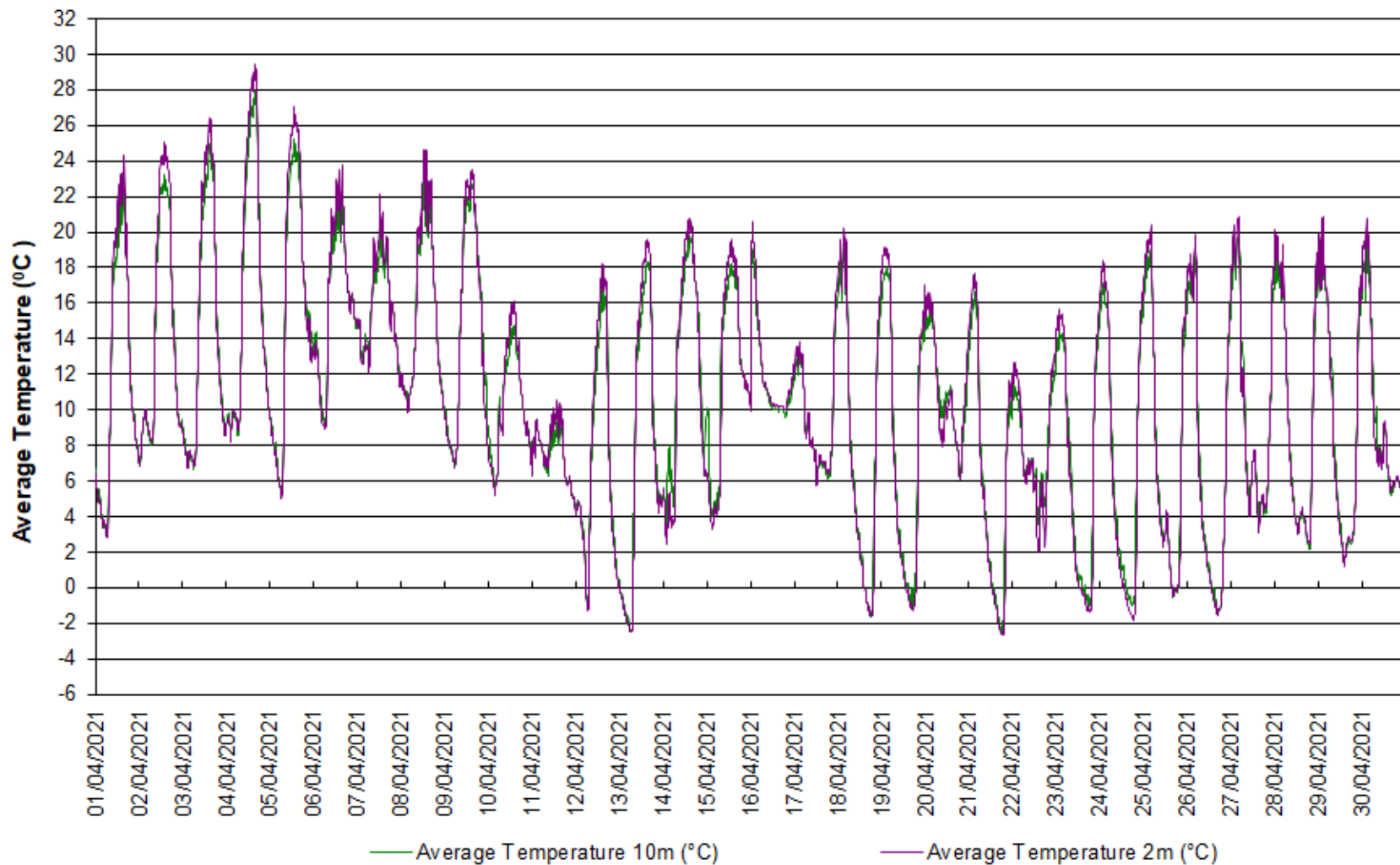
Appendix C

Meteorological Data

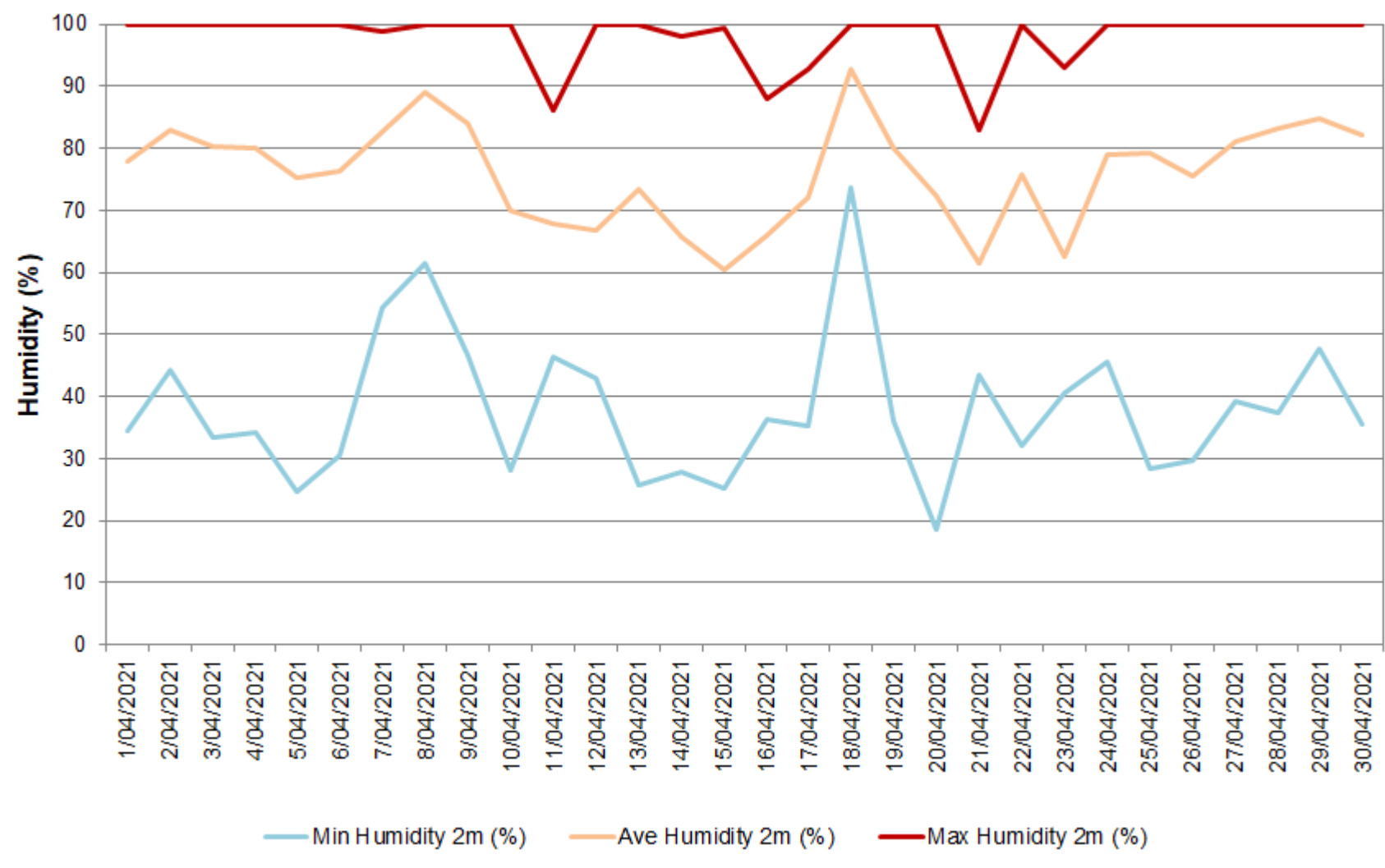
Blackmans Flat NSW
Total Rainfall & Evapotranspiration
Period: 1/4/2021 to 30/4/2021



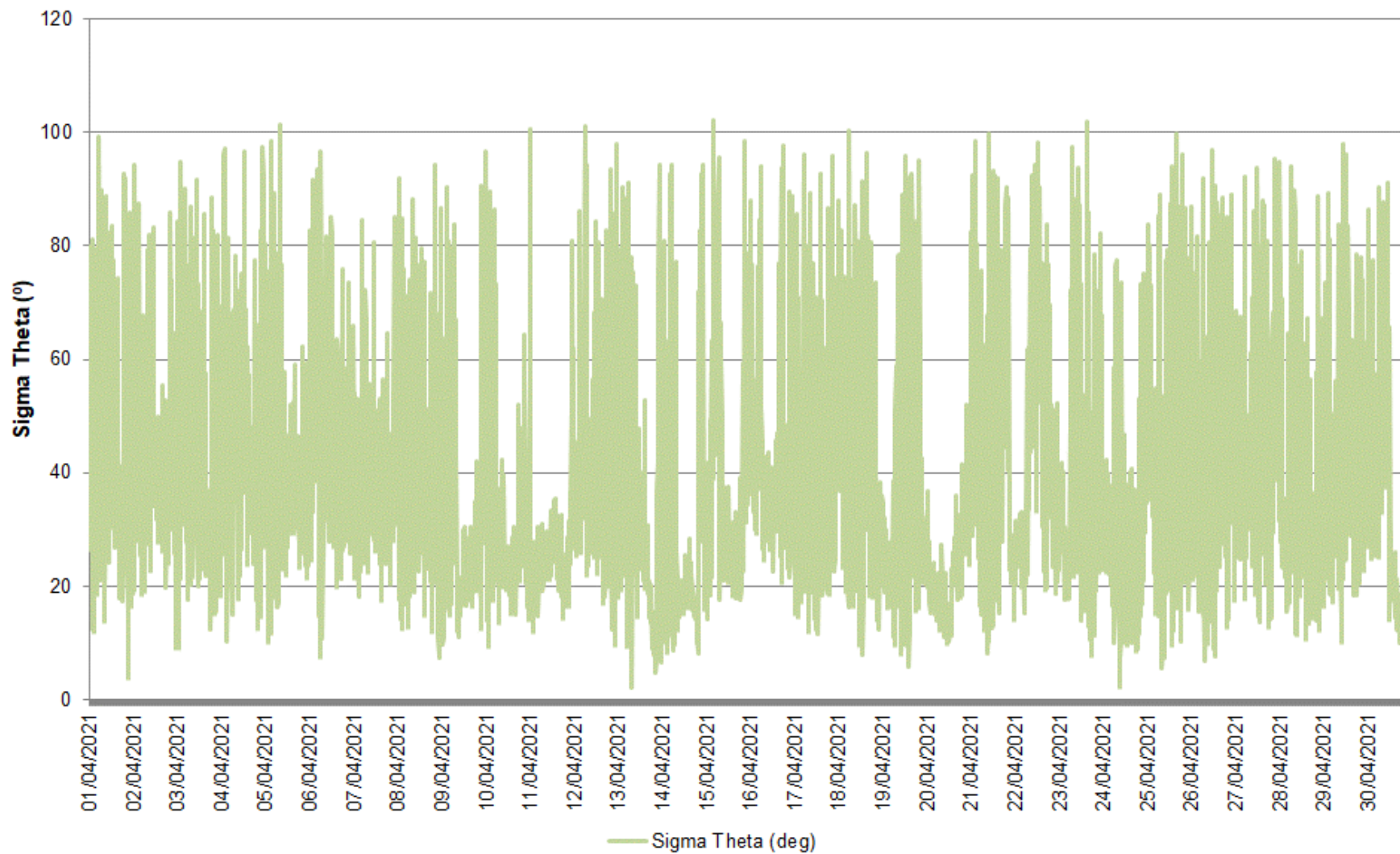
Blackmans Flat NSW
Average Air Temperature - Period: 1/4/2021 to 30/4/2021



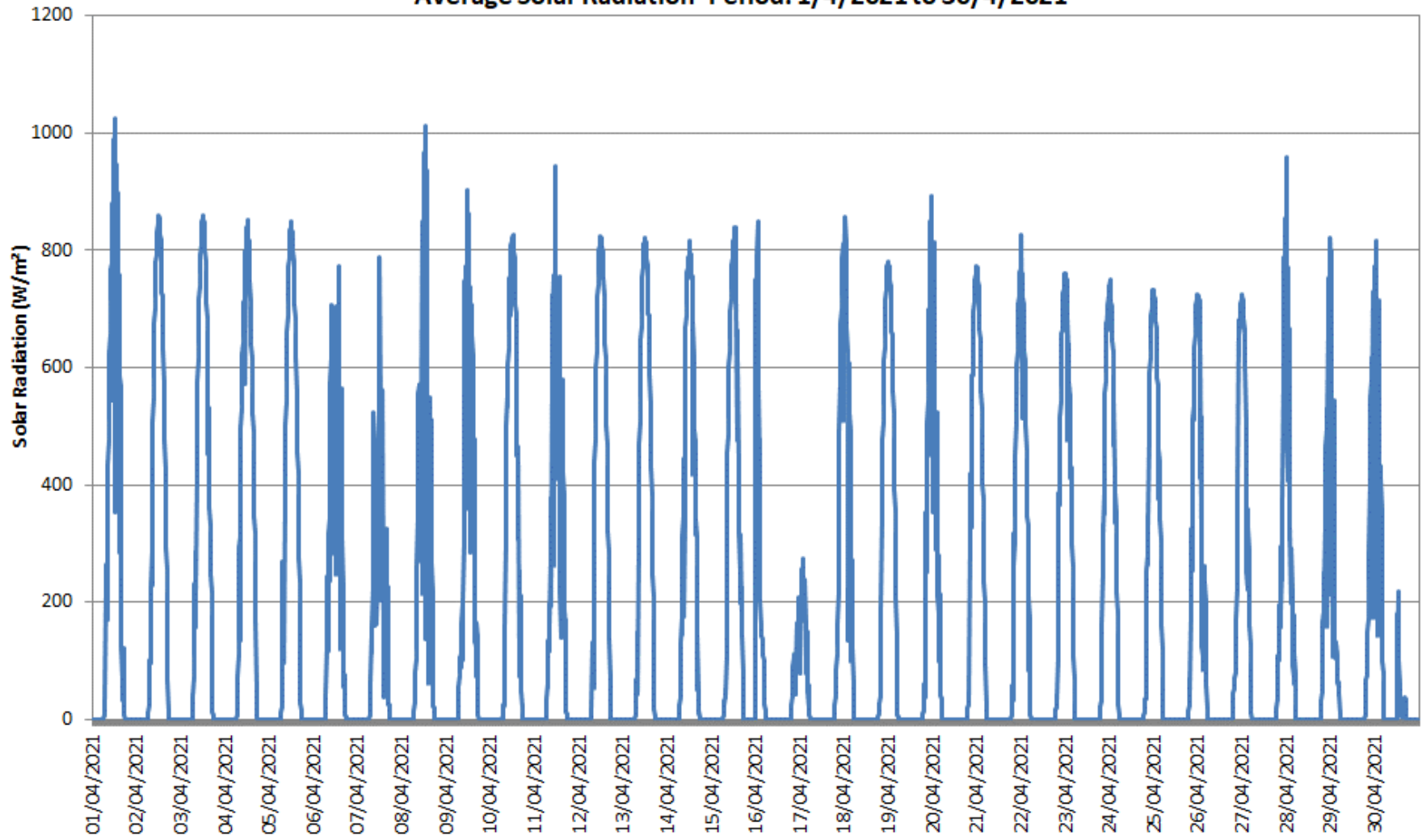
Blackmans Flat NSW Daily Humidity Variations - Period: 1/4/2021 to 30/4/2021



Blackmans Flat NSW
Sigma Theta Variations - Period: 1/4/2021 to 30/4/2021



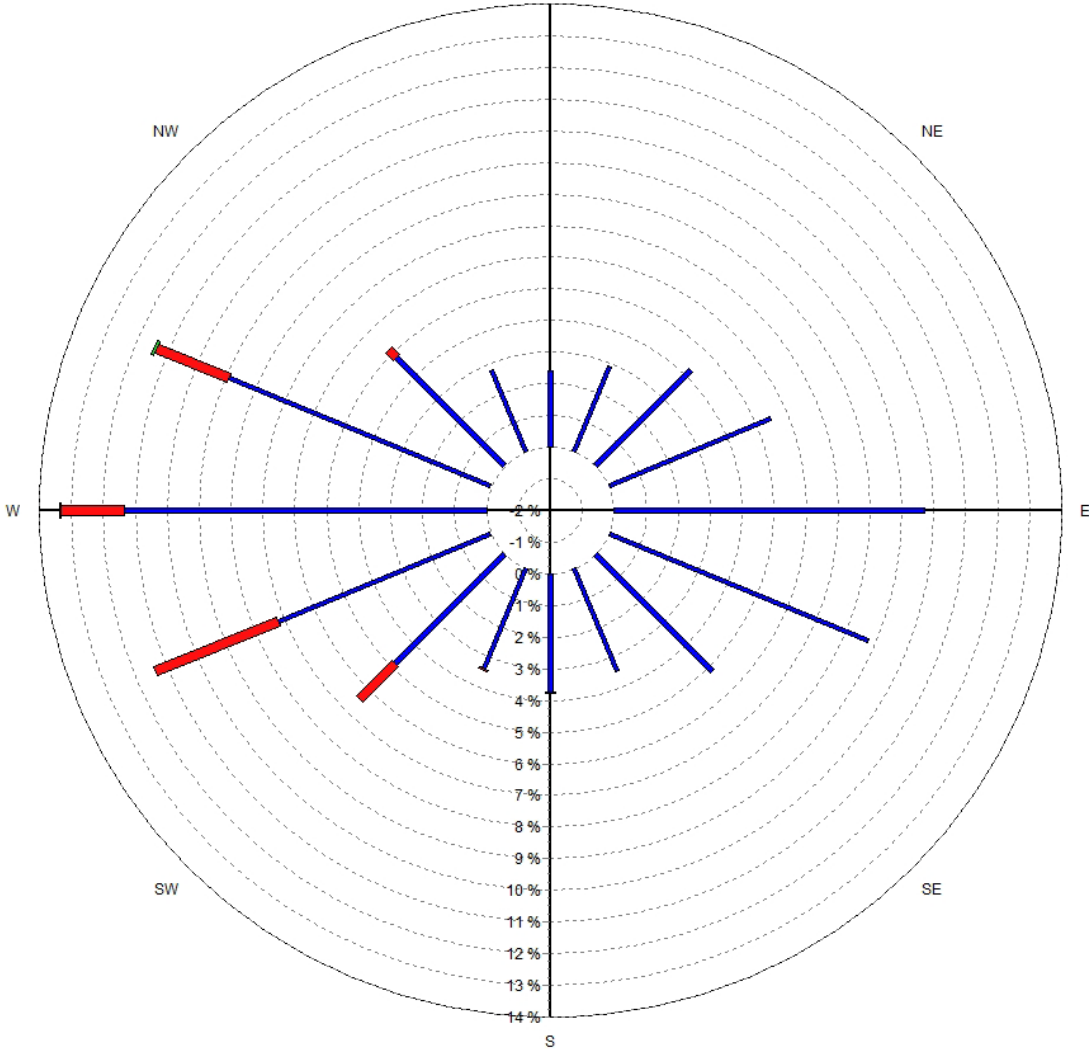
Blackmans Flat NSW
Average Solar Radiation- Period: 1/4/2021 to 30/4/2021



Blackmans Flat Windrose

1/04/2021 to 30/04/2021
N

- Bin1: 0 - 3 m/s
- Bin2: 3 - 6 m/s
- Bin3: 6 - 9 m/s
- Bin4: 9 - 12 m/s
- Bin5: 12 - 15 m/s
- Bin6: 15 - 18 m/s
- Bin7: 18 - 21 m/s
- Bin8: 21 - 24 m/s
- Bin9: 24+ m/s



Source data:
PineDale.SCM
10 minutely data - Ave WndDir (deg)
10 minutely data - Ave WndSpd (m/sec)