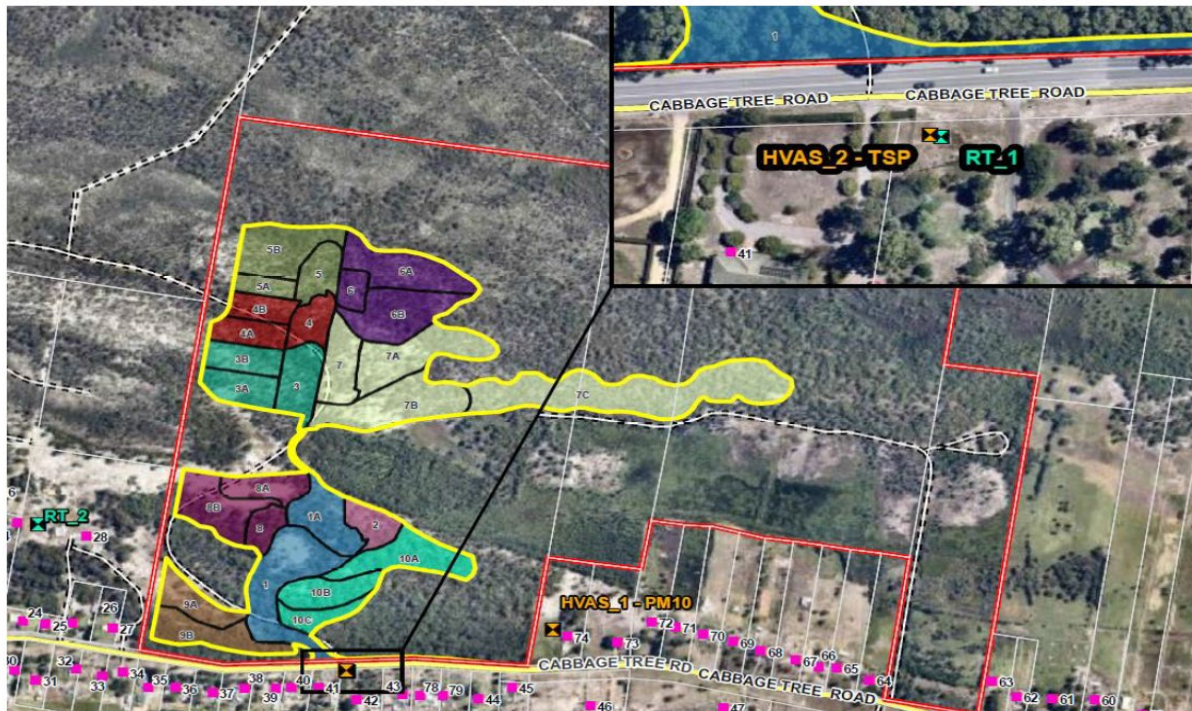


Newcastle Sand

Cabbage Tree Road Sand Quarry
282B (398) Cabbage Tree Road, Williamstown NSW
Air Quality Monitoring Network Results

Sample Locations



Air Quality Impact Assessment Criteria

7. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 3 at any residence on privately-owned land.

Table 3: Air quality criteria

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM ₁₀)	Annual	a, c 25 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	24 hour	b 50 µg/m ³
Total suspended particulates (TSP)	Annual	a, c 90 µg/m ³

Notes to Table 4:

a Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).

b Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development).

c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

d "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 8 and 9 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

Each high volume air sampler (HVAS) runs for 24 hours every 6 days

HVAS 1 (PM10) paddock				HVAS 2 (TSP) sampson			
Sample Date	Concentration (µg/m³)	Comment	Rolling annual average Inclusive of extraordinary events (Criteria 25 µg/m³ excluding events)	Sample Date	Concentration (µg/m³)	Comment	Rolling annual average Inclusive of extraordinary events (Criteria 90 µg/m³ excluding events)
14-Sep-19	22.7			14-Sep-19	34.8		
17-Sep-19	17.3			17-Sep-19	31.6		
23-Sep-19	-	-Machine error. Power loss		23-Sep-19	-	-Machine error. Power loss	
29-Sep-19	-	-Machine error. Power loss		29-Sep-19	-	-Machine error. Power loss	
05-Oct-19	14.0			05-Oct-19	22.7		
11-Oct-19	5.9			11-Oct-19	11.0		
17-Oct-19	11.5	-Machine error. Partial sample only		17-Oct-19	89.0		
23-Oct-19	15.0			23-Oct-19	44.9		
29-Oct-19	51.1			29-Oct-19	81.5		
04-Nov-19	9.6			04-Nov-19	22.9		
10-Nov-19	21.4			10-Nov-19	50.5		
16-Nov-19	29.4	-Regional bushfire smoke impacts on air quality		16-Nov-19	41.4		
22-Nov-19	85.0	-Regional bushfire smoke impacts on air quality		22-Nov-19	129.0	-Regional bushfire smoke impacts on air quality	
28-Nov-19	58.7	-Regional bushfire smoke impacts on air quality		28-Nov-19	107.0	-Regional bushfire smoke impacts on air quality	
04-Dec-19	66.8	-Regional bushfire smoke impacts on air quality		04-Dec-19	134.0		
10-Dec-19	105.0	-Regional bushfire smoke impacts on air quality		10-Dec-19	105.0		
16-Dec-19	32.1			16-Dec-19	60.1		
22-Dec-19	32.7			22-Dec-19	67.1		
28-Dec-19	23.6			28-Dec-19	34.3		
03-Jan-20	-	-Machine error. No data until date reset 10/01/2020		03-Jan-20	-	-Machine error. No data until date reset 10/01/2020	
9-Jan-20	-	-Machine error. No data until date reset 10/01/2021		9-Jan-20	-	-Machine error. No data until date reset 10/01/2021	
15-Jan-20	17.7			15-Jan-20	36.8		
21-Jan-20	40			21-Jan-20	106.0		
27-Jan-20	29.1			27-Jan-20	53.0		
02-Feb-20	37.4			02-Feb-20	79.5		
08-Feb-20	16.5			08-Feb-20	21.4		
14-Feb-20	16.6			14-Feb-20	32.0		
20-Feb-20	17.5			20-Feb-20	48.3		
26-Feb-20	15.0			26-Feb-20	107.0		
03-Mar-20	20.9			03-Mar-20	46.2		
09-Mar-20	9.5			09-Mar-20	38.8		
15-Mar-20	11.4			15-Mar-20	21.3		
21-Mar-20	25.8			21-Mar-20	62.2		
27-Mar-20	12.9			27-Mar-20	27.0		
2-Apr-20	9.6			2-Apr-20	66.7		
8-Apr-20	7.8			8-Apr-20	23.2		
14-Apr-20	13.4			14-Apr-20	64.1		
20-Apr-20	19.4			20-Apr-20	71.8		
26-Apr-20	21.5			26-Apr-20	48.6		
02-May-20	35.1			02-May-20	110.0		
8-May-20	9.9			8-May-20	24.4		
14-May-20	13.1			14-May-20	27.5		
20-May-20	5.4			20-May-20	18.5		
26-May-20	10.9			26-May-20	18.7		
01-Jun-20	15.2			01-Jun-20	27.3		
07-Jun-20	4.1			07-Jun-20	11.4		
13-Jun-20	14.9			13-Jun-20	27.8		
19-Jun-20	4.9			19-Jun-20	28.6		
25-Jun-20	14.9			25-Jun-20	39.4		
1-Jul-20	7.0			1-Jul-20	35.0		
07-Jul-20	11.4			07-Jul-20	30.4		
13-Jul-20	6.4			13-Jul-20	16.1		
19-Jul-20	6.8			19-Jul-20	20.7		
25-Jul-20	4.9			25-Jul-20	13.6		
31-Jul-20	10.5			31-Jul-20	23.2		
6-Aug-20	10.6			6-Aug-20	28.5		
12-Aug-20	7.0			12-Aug-20	22.2		
18-Aug-20	5.6			18-Aug-20	23.7		
24-Aug-20	13.7			24-Aug-20	65.6		
30-Aug-20	51.6			30-Aug-20	23.2		
05-Sep-20	12.3			05-Sep-20	28.6		
11-Sep-20	8.3		21.2	11-Sep-20	25.3		46.3
17-Sep-20	21.0		21.1	17-Sep-20	74.8		47.0
23-Sep-20	30.3		21.4	23-Sep-20	107.0		48.2
29-Sep-20	12.0		21.2	29-Sep-20	34.6		48.0
05-Oct-20	19.9		21.2	05-Oct-20	40.2		47.8
11-Oct-20	22.4		21.3	11-Oct-20	34.1		48.0
17-Oct-20	19.2		21.5	17-Oct-20	42.8		48.6
23-Oct-20	9.8		21.5	23-Oct-20	29.2		47.6
29-Oct-20	6.8		21.4	29-Oct-20	15.4		47.1
04-Nov-20	11.7		20.7	04-Nov-20	39.6		46.4
10-Nov-20	8.6		20.7	10-Nov-20	29.8		46.5
16-Nov-20	19.6		20.7	16-Nov-20	69.7		46.8
22-Nov-20	21.9		20.6	22-Nov-20	57.2		47.1
28-Nov-20	26.3		19.6	28-Nov-20	63.7		46.0
04-Dec-20	21.7		19.0	04-Dec-20	51.2		45.1
10-Dec-20	25.1		18.3	10-Dec-20	65.4	-Machine calibrated	43.9
16-Dec-20	6.8		16.6	16-Dec-20	20.9		42.5
22-Dec-20	23.0	-Machine calibrated	16.5	22-Dec-20	32.5		42.1
28-Dec-20	26.7	-Machine didn't take complete sample	16.4	28-Dec-20	59.6		41.9
03-Jan-21	13.6	-Machine didn't take complete sample	16.2	03-Jan-21	15.6		41.6
09-Jan-21	<0.1, no result recorded	-Machine didn't take complete sample - no result	16.2	09-Jan-21	16.1		41.2
15-Jan-21	<0.1, no result recorded	-Machine didn't take complete sample - no result	16.2	15-Jan-21	69.0		41.7
21-Jan-21	8.9	-Machine didn't take complete sample, machine to be serviced early February	16.1	21-Jan-21	46.7		41.8
27-Jan-21	<0.1, no result recorded	-Machine didn't take complete sample, machine to be serviced early February	15.7	27-Jan-21	38.4		40.7
02-Feb-21	<0.1, no result recorded	-Machine didn't take complete sample, machine to be serviced February 10	15.4	02-Feb-21	43.8		40.6
08-Feb-21	29.3		15.3	08-Feb-21		-Machine serviced and calibrated February 10	39.9
14-Feb-21	18.8	-Machine serviced and calibrated February 10	15.3	14-Feb-21	32.0		40.0
20-Feb-21	13.6		15.3	20-Feb-21	18.5		39.7
26-Feb-21	22.1		15.4	26-Feb-21	41.5		39.6
4-Mar-21	N/A	-Machine not accessible due to weather	15.4	4-Mar-21	N/A	-Machine not accessible due to weather	38.5
10-Mar-21	N/A	-Machine not accessible due to weather	15.1	10-Mar-21	N/A	-Machine not accessible due to weather	38.4
16-Mar-21	23.2		15.5	16-Mar-21	18.8		38.4
22-Mar-21	N/A	-Machine not accessible due to weather	15.6	22-Mar-21	23.0		38.4
28-Mar-21	16.8		15.4	28-Mar-21	30.7		37.9
03-Apr-21	10.1		15.4	03-Apr-21	15.9		37.7
9-Apr-21	20.3		15.6	9-Apr-21	52.9		37.4
15-Apr-21	32.0		16.0	15-Apr-21	73.2		38.3
21-Apr-21	17.2		16.1	21-Apr-21	34.4		37.8
27-Apr-21	8.8		15.9	27-Apr-21	25.6		37.0
03-May-21	7.3		15.6	03-May-21	21.7		36.5
09-May-21	12.5		15.2	09-May-21	20.9		35.0
15-May-21	10.0		15.2	15-May-21	22.6		35.0
21-May-21	11.2		15.2	21-May-21	21.9		34.9
27-May-21	9.1		15.3	27-May-21	25.2		35.0
2-Jun-21	4.7		15.1	2-Jun-21	39.9		35.4
08-Jun-21	2.8		14.9	08-Jun-21	23.0		35.3
14-Jun-21	8.0		15.0	14-Jun-21	19.8		35.4
20-Jun-21	4.8		14.8	20-Jun-21	8.2		35.3
26-Jun-21	4.5		14.8	26-Jun-21	23.7		35.0
2-Jul-21	1.1		14.3	2-Jul-21	11.2		34.6
8-Jul-21	8.3		14.6	8-Jul-21	26.6		34.4
14-Jul-21	3.4		14.4	14-Jul-21	36.7		34.2
20-Jul-21	9.7		14.5	20-Jul-21	23.0		34.3
26-Jul-21	13.2		14.6	26-Jul-21	29.2		34.4
01-Aug-21	13.1		14.8	01-Aug-21	26.0		34.7
7-Aug-21	10.6		14.8	7-Aug-21	33.4		34.8
13-Aug-21	7.8		14.7	13-Aug-21	33.0		34.9
19-Aug-21	13.3		14.8	19-Aug-21	34.8		35.1
25-Aug-21	1.4		14.8	25-Aug-21	7.4		34.9
31-Aug-21	11.3		14.7	31-Aug-21	39.0		34.7
06-Sep-21	13.3		14.0	06-Sep-21	29.7		34.8
12-Sep-21	17.1		14.1	12-Sep-21	35.1		34.9
18-Sep-21	9.0		14.1	18-Sep-21	24.5		34.9
24-Sep-21	14.0		14.0	24-Sep-21	37.8		34.2
30-Sep-21	4.2		13.5	30-Sep-21	18.0		32.8
06-Oct-21	18.1		13.6	06-Oct-21	38.2		32.9
12-Oct-21	9.6		13.4	12-Oct-21	16.6		32.5
18-Oct-21	14.3		13.3	18-Oct-21	35.1		32.5
24-Oct-21	16.1		13.3	24-Oct-21	27.0		32.2

Each high volume air sampler (HVAS) runs for 24 hours every 6 days

HVAS 1 (PM10) paddock				HVAS 2 (TSP) sampson			
Sample Date	Concentration (µg/m ³)	Comment	Rolling annual average Inclusive of extraordinary events (Criteria 25 µg/m ³ excluding events)	Sample Date	Concentration (µg/m ³)	Comment	Rolling annual average Inclusive of extraordinary events (Criteria 100 µg/m ³ excluding events)
30-Oct-21	18.2		13.0	30-Oct-21	44.0		32.5
05-Nov-21	4.5		13.3	05-Nov-21	21.6		32.6
11-Nov-21	8.7		13.3	11-Nov-21	19.5		32.2
17-Nov-21	8.7	Machine calibration and service by TES on 15/11/2021	13.3	17-Nov-21	18.7	Machine calibration and service by TES on 15/11/2021	32.0
23-Nov-21	6.3		13.0	23-Nov-21	11.4		31.1
29-Nov-21	16.9		13.0	29-Nov-21	27.8		30.6
05-Dec-21	21.5		12.9	05-Dec-21	27.7		29.9
11-Dec-21	11.2		12.7	11-Dec-21	20.9		29.4
17-Dec-21	14		12.5	17-Dec-21	33.3		28.9
23-Dec-21	11.3		12.5	23-Dec-21	22.8		28.9
29-Dec-21	7.4		12.3	29-Dec-21	14.3		28.6
04-Jan-22	11		12.0	04-Jan-22	20.3		27.9
10-Jan-22	13.4		12.0	10-Jan-22	22.7		28.1
16-Jan-22	19.5		12.1	16-Jan-22	32.9		28.4
22-Jan-22	9.5		12.1	22-Jan-22	18.0		27.5
28-Jan-22	9.6		12.1	28-Jan-22	21.6		27.1
03-Feb-22	14.3		12.1	03-Feb-22	28.0		26.9
09-Feb-22	16.9		12.2	09-Feb-22	34.6		26.7
15-Feb-22	13.6		11.9	15-Feb-22	30.4		26.8
21-Feb-22	34.2		12.2	21-Feb-22	65.0		27.3
27-Feb-22	10.5		12.1	27-Feb-22	16.5		27.3
05-Mar-22	8.9		11.9	05-Mar-22	17.6		26.9
11-Mar-22		results are not able to be reported due to lab error.	11.9	11-Mar-22	25.8		26.9
17-Mar-22	8.2		11.8	17-Mar-22	23.8		26.8
23-Mar-22	13.0		11.7	23-Mar-22	32.8		27.1
29-Mar-22	8.2		11.6	29-Mar-22	12.7		26.9
04-Apr-22	10.6		11.5	04-Apr-22	31.9		26.9
10-Apr-22	8.4		11.5	10-Apr-22	14.7		26.9
16-Apr-22	4.8		11.2	16-Apr-22	10.4		26.2
22-Apr-22	4.9		10.8	22-Apr-22	13.0		25.2
28-Apr-22	4.5		10.6	28-Apr-22	14.6		24.9
04-May-22	3.7		10.3	04-May-22	22.9		24.9
10-May-22	3.3		10.4	10-May-22	8.6		24.7
16-May-22	7.7		10.4	16-May-22	30.1		24.8
22-May-22	3.8		10.3	22-May-22	9.4		24.6
28-May-22	10.0		10.2	28-May-22	15.6		24.5
03-Jun-22	5.8		10.2	03-Jun-22	25.3		24.5
09-Jun-22	14.7		10.3	09-Jun-22	31.6		24.4
15-Jun-22	9.3		10.5	15-Jun-22	27.4		24.4
21-Jun-22	6.1		10.4	21-Jun-22	21.5		24.5
27-Jun-22	15.6		10.6	27-Jun-22	24.8		24.7
03-Jul-22	11.1		10.7	03-Jul-22	18.3		24.7
09-Jul-22	8.8		10.8	09-Jul-22	14.6		24.7
15-Jul-22	4.4		10.8	15-Jul-22	14.2		24.5
21-Jul-22	11.3		10.9	21-Jul-22	19.1		24.5
27-Jul-22	11.2		10.9	27-Jul-22	23.6		24.6
02-Aug-22	8.8		10.8	02-Aug-22	38.2		24.7
08-Aug-22	10.6		10.8	08-Aug-22	22.2		24.6
14-Aug-22	10.4		10.8	14-Aug-22	18.5		24.4
20-Aug-22	12.5		10.9	20-Aug-22	26.7		24.3
26-Aug-22	7.8		10.8	26-Aug-22	12.2		23.9
01-Sep-22	6.9		10.9	01-Sep-22	19.2		24.1
07-Sep-22	5.4		10.8	07-Sep-22	20.4		23.8
13-Sep-22	7.3		10.7	13-Sep-22	10.7		23.7
19-Sep-22	8.5		10.5	19-Sep-22	35.0		23.7
25-Sep-22	6.8		10.5	25-Sep-22	17.6		23.6
01-Oct-22	7.1		10.4	01-Oct-22	16.1		23.2
07-Oct-22	2.7		10.4	07-Oct-22	24.8		23.3
13-Oct-22	4.4		10.1	13-Oct-22	22.3		23.1
19-Oct-22	14.9		10.2	19-Oct-22	24.7		23.7
25-Oct-22	6.1		10.1	25-Oct-22	20.4		23.0
31-Oct-22	8.4		10.0	31-Oct-22	45.9		23.3
06-Nov-22	12.4		9.9	06-Nov-22	18.7		22.9
12-Nov-22	10.7		10.0	12-Nov-22	22.1		22.9
18-Nov-22	9.2		10.0	18-Nov-22	28.1		23.0
24-Nov-22	-		10.0	24-Nov-22	-		23.1
30-Nov-22	-		10.1	30-Nov-22	-		23.3
06-Dec-22	13.2		10.0	06-Dec-22	13.2		23.0
12-Dec-22	15.7		9.9	12-Dec-22	15.7		22.8
18-Dec-22	5.4		9.8	18-Dec-22	13.7		22.7
24-Dec-22	-	filter not changed	9.7	24-Dec-22	-	filter not changed	22.9
30-Dec-22	18.7		9.9	30-Dec-22	24.0		22.6
05-Jan-23	14.2		10.0	05-Jan-23	26.0		22.8
11-Jan-23	11.4		10.0	11-Jan-23	20		22.8
17-Jan-23	10.8		10.0	17-Jan-23	24.4		22.8
23-Jan-23	14		9.9	23-Jan-23	21.9		22.6
29-Jan-23	13.4		9.8	29-Jan-23	21.2		22.7
04-Feb-23	15.8		10.0	04-Feb-23	32.6		27.8
10-Feb-23	17.7		10.1	10-Feb-23	30.3		27.8
16-Feb-23	13.5		10.0	16-Feb-23	28.4		27.7
22-Feb-23	10.8		10.0	22-Feb-23	16.8		27.5
28-Feb-23	17.7		9.7	28-Feb-23	22		26.7
06-Mar-23	22.9		9.9	06-Mar-23	49.6		27.3
12-Mar-23	25		10.2	12-Mar-23	29.6		27.5
18-Mar-23	18.5		10.3	18-Mar-23	29.7		27.6
24-Mar-23	13		10.4	24-Mar-23	20.2		27.5
30-Mar-23	13.8		10.4	30-Mar-23	35.2		27.4
05-Apr-23	10.5		10.5	05-Apr-23	17.1		27.5
11-Apr-23	15.6		10.6	11-Apr-23	30.8		27.4
17-Apr-23	10.7		10.6	17-Apr-23	24.5		27.6
23-Apr-23	-	filter not changed	10.7	23-Apr-23	-	filter not changed	27.9
29-Apr-23	10.4		10.8	29-Apr-23	19.3		28.0
05-May-23	17.1		11.0	05-May-23	33.6		28.8
11-May-23	12.4		11.2	11-May-23	28.8		28.4
17-May-23	10.4		11.3	17-May-23	15.3		28.6
23-May-23	10.9		11.3	23-May-23	41.3		28.8
29-May-23	6.8		11.4	29-May-23	23.4		29.0
04-Jun-23	9.7		11.4	04-Jun-23	22.8		29.1
10-Jun-23	6.3		11.4	10-Jun-23	20.1		29.0
16-Jun-23	7.7		11.3	16-Jun-23	39.9		29.2
22-Jun-23	5.8		11.2	22-Jun-23	41.1		29.4
28-Jun-23	7		11.2	28-Jun-23	25.8		29.5
04-Jul-23	3.2		11.0	04-Jul-23	10.3		29.2
10-Jul-23	5.9		10.9	10-Jul-23	36.6		29.5
16-Jul-23	8.1		10.9	16-Jul-23	23.1		29.7
22-Jul-23	7.9		11.0	22-Jul-23	19.2		29.8
28-Jul-23	7.2		10.9	28-Jul-23	40.1		30.1
03-Aug-23	2.4		10.7	03-Aug-23	22.3		30.1
09-Aug-23	<0.1	Power outage during sample.	10.8	09-Aug-23	18.0	Power outage during sample.	29.8
15-Aug-23	2.6		10.6	15-Aug-23	10.9		29.6
21-Aug-23	7.3		10.6	21-Aug-23	33.9		29.8
27-Aug-23	4.8		10.4	27-Aug-23	12.4		29.6
02-Sep-23	6.7		10.4	02-Sep-23	17.9		29.7
08-Sep-23	4.5		10.4	08-Sep-23	20.4		29.7
14-Sep-23	11.5		10.5	14-Sep-23	28.9		29.9
20-Sep-23	15.8		10.6	20-Sep-23	59.5		30.5
26-Sep-23	13.6		10.7	26-Sep-23	31.9		30.4
02-Oct-23	20.3		11.0	02-Oct-23	54.1		31.1
08-Oct-23	3.5		10.9	08-Oct-23	17.3		31.1
14-Oct-23	7.9		11.0	14-Oct-23	29.4		31.2
20-Oct-23	12.9		11.1	20-Oct-23	41.7		31.5
26-Oct-23	7.8		11.0	26-Oct-23	17.7		31.4
01-Nov-23	16.5		11.2	01-Nov-23	40.3		31.7
07-Nov-23	8		11.2	07-Nov-23	21.3		31.3
13-Nov-23	20.5		11.3	13-Nov-23	37.9		31.6
19-Nov-23	12.1		11.4	19-Nov-23	22.4		31.6
25-Nov-23	6		11.3	25-Nov-23	14.3		31.4
01-Dec-23	18.4	Filter ran for 2 consecutive periods	11.4	01-Dec-23	26.3	Filter ran for 2 consecutive periods	31.3
07-Dec-23	18.4	Filter ran for 2 consecutive periods	11.5	07-Dec-23	26.3	Filter ran for 2 consecutive periods	31.2
13-Dec-23	12.8		11.5	13-Dec-23	22.4		31.4
19-Dec-23	24.6		11.4	19-Dec-23	41.3		31.8
25-Dec-23	14.6		11.8	25-Dec-23	22.3		32.0
31-Dec-23	16.9		11.9	31-Dec-23	38.4		32.1
06-Jan-24	16.8		11.9	06-Jan-24	21.8		32.0
12-Jan-24	16.9		11.9	12-Jan-24	29.4		32.1

Beta Attenuation Monitoring (BAM) Real-Time Monitoring - updated at end of month

Month	RT1 (sth of CBT Rd)				RT2 (nth of CBT Rd)				Maximum 24hr Average Quarry Contribution RT2-RT1 assumes NW wind Criteria 50 µg/m³	Comments
	24 hr rolling average in µg/m³			Rolling annual average Inclusive of extraordinary events at end of month, Criteria 25 µg/m³ exclusive of events.	24 hr rolling average in µg/m³			Rolling annual average Inclusive of extraordinary events at end of month, Criteria 25 µg/m³ exclusive of events.		
	Minimum	Average	Maximum		Minimum	Average	Maximum			
Sep-21	4.7	13.4	26.1	13.0	2.1	5.4	10.7	9.8	18.3	
Oct-21	5.2	15.0	35.3	13.0	2.2	6.1	15.6	9.3	23.4	
Nov-21	5.2	12.3	37.4	13.1	2.4	5.6	20.0	8.8	20.7	Both machines calibrated and service by TES on 15/11/2021
Dec-21	4.0	11.9	20.7	12.6	1.4	5.7	10.9	7.8	10.4	
Jan-22	5.6	12.0	19.5	12.6	2.3	6.4	11.8	6.7	10.4	
Feb-22	7.5	13.2	29.3	12.5	3.1	7.1	14.3	5.6	15.6	
Mar-22	5.0	12.3	24.2	12.4	2.3	5.1	9.2	5.5	19.5	- Machine error on RT1, humidity and/or logger related, average corrected RT2 data or pre-post error.
Apr-22	3.0	9.9	25.1	12.3	1.4	4.2	9.8	5.5	20.2	- Machine error on RT1, humidity and/or logger related, average corrected RT2 data or pre-post error.
May-22	4.3	9.2	18.8	12.2	1.8	3.9	6.5	5.4	13.4	
Jun-22	4.0	11.5	19.4	12.1	1.9	4.7	8.1	5.4	12.7	
Jul-22	4.5	9.1	18.4	12.0	2.2	4.3	9.8	5.4	10.2	
Aug-22	1.5	3.7	9.3	11.4	4.0	10.2	19.7	5.6	4.3	- Both machines restarted and checked on 30/08/ 2022
Sep-22	4.0	10.8	19.5	10.8	2.1	8.4	18.0	5.8	10.2	
Oct-22	5.4	10.6	20.8	10.6	3.4	8.8	19.8	6.1	8.5	- RT2 data downloaded manually. Logger sent for service.
Nov-22	8.5	13.3	28.8	10.4	8.5	13.3	28.8	6.5	0.0	- RT2 logger offline for service.
Dec-22	6.3	12.1	20.6	10.5	6.3	12.1	20.6	7.1	0.0	- RT2 logger reinstated 13/12/2022.
Jan-23	6.7	12.2	20.5	10.2	3.1	5.7	12.4	7.4	13.3	
Feb-23	8.8	16.4	47.6	10.4	0.0	4.4	13.7	7.3	40.8	- RT1 logger error. Blackout at both loggers on 18.02.2023.
Mar-23	8.7	16.2	27.7	10.7	3.2	6.4	11.9	7.6	16.9	- RT1 logger error.
Apr-23	6.5	11.1	22.6	10.9	1.5	4.6	7.0	7.6	16.8	
May-23	5.2	12.8	30.3	11.2	1.5	5.3	10.2	7.7	20.6	
Jun-23	5.1	12.9	20.8	11.4	1.5	5.5	12.7	7.8	12.9	
Jul-23	3.7	13.4	29.8	11.6	1.1	5.4	13.1	7.9	18.7	
Aug-23	1.8	11.2	20.7	12.1	0.7	5.4	20.4	7.7	11.7	- Power outage at both loggers 9.08.2023
Sep-23	7.1	15.4	32.3	12.6	2.4	6.9	13.7	7.5	19.0	
Oct-23	8.1	17.2	34.5	13.1	2.5	7.1	17.0	7.3	21.4	
Nov-23	5.3	12.9	31.0	13.4	2.3	5.7	14.2	7.0	18.0	
Dec-23	6.8	16.4	33.0	13.6	2.3	8.0	16.7	6.4	17.1	

Meteorological Data

Station ID: 061078
Name: WILLIAMTOWN RAAF
Lat: -32.7 Long: 151.84
Height: 7.5 m

<http://www.bom.gov.au/products/IDN60801/IDN60801.94776.shtml>

Year	Month	Monthly Average Temperature (°C)						Monthly Rainfall (mm)			
		Minimum			Maximum			Long Term Mean	Rainfall	Var from Mean	Cumulative Variation from Mean
		Long Term Mean	Recent Min	Var from Mean	Long Term Mean	Recent Max	Var from Mean				
2019	Jan						99.5	14.6	-84.9	-84.9	
2019	Feb						117.8	33.6	-84.2	-169.1	
2019	Mar						120.7	145.8	25.1	-144.0	
2019	Apr						109.8	36.0	-73.8	-217.8	
2019	May						108.6	47.2	-61.4	-279.2	
2019	Jun						124.6	157.2	32.6	-246.6	
2019	Jul						72.6	23.4	-49.2	-295.8	
2019	Aug						72.8	98.6	25.8	-270.0	
2019	Sep						60.1	75.4	15.3	-254.7	
2019	Oct						75.9	45.0	-30.9	-285.6	
2019	Nov						81.6	51.8	-29.8	-315.4	
2019	Dec						78.6	0.8	-77.8	-393.2	
2020	Jan	18.2	20.6	2.4	28.3	30.1	1.8	99.5	67.2	-32.3	-425.5
2020	Feb	18.1	19.4	1.3	27.7	28.1	0.4	117.8	171.6	53.8	-371.7
2020	Mar	16.4	16.5	0.1	26.4	26.1	-0.3	120.7	106.2	-14.5	-386.2
2020	Apr	13.2	13.6	0.4	23.8	24.9	1.1	109.8	53.6	-56.2	-442.4
2020	May	10.1	9.5	-0.6	20.4	19.7	-0.7	108.6	105.6	-3.0	-445.4
2020	Jun	8.0	8.9	0.9	17.7	18.5	0.8	124.6	81.6	-43.0	-488.4
2020	Jul	6.4	7.8	1.4	17.2	17.7	0.5	72.6	242.6	170.0	-318.4
2020	Aug	6.9	6.8	-0.1	18.8	18.9	0.1	72.8	38.8	-34.0	-352.4
2020	Sep	9.1	9.7	0.6	21.5	23.2	1.7	60.1	28.0	-32.1	-384.5
2020	Oct	12.0	13.0	1.0	23.8	24.8	1.0	75.9	252.0	176.1	-208.4
2020	Nov	14.4	15.5	1.1	25.6	27.0	1.4	81.6	58.2	-23.4	-231.8
2020	Dec	16.6	18.1	1.5	27.4	26.5	-0.9	78.6	156.2	77.6	-154.2
2021	Jan	18.2	17.7	-0.5	28.3	28.0	-0.3	99.5	186.8	87.3	-66.9
2021	Feb	18.1	18.9	0.8	27.7	26.1	-1.6	117.8	157.8	40.0	-26.9
2021	Mar	16.4	17.4	1.0	26.4	25.3	-1.1	120.7	459.2	338.5	311.6
2021	Apr	13.2	12.0	-1.2	23.8	23.0	-0.8	109.8	70.0	-39.8	271.8
2021	May	10.1	10.3	0.2	20.4	20.7	0.3	108.6	90.8	-17.8	254.0
2021	Jun	8.0	7.8	-0.2	17.7	17.4	-0.3	124.6	104.6	-20.0	234.0
2021	Jul	6.4	6.7	0.3	17.2	17.8	0.6	72.6	44.2	-28.4	205.6
2021	Aug	6.9	7.1	0.2	18.8	20.3	1.5	72.8	48.8	-24.0	181.6
2021	Sep	9.1	9.3	0.2	21.5	23.0	1.5	60.1	85.2	25.1	206.7
2021	Oct	12.0	12.6	0.6	23.8	24.8	1.0	75.9	74.4	-1.5	205.2
2021	Nov	14.5	8.7	-5.8	25.6	30.7	5.1	83.4	213.8	130.4	335.6
2021	Dec	16.6	13.7	-2.9	27.4	36.8	9.4	77.8	20.4	-57.4	278.2
2022	Jan	18.2	14.9	-3.3	28.3	33.3	5.0	99.3	89.6	-9.7	268.5
2022	Feb	18.1	18.1	0.0	27.7	27.5	-0.2	117.8	161.4	43.6	312.1
2022	Mar	16.4	17.9	1.5	26.4	25.0	-1.4	120.7	354.0	233.3	545.4
2022	Apr	13.2	14.9	1.7	23.8	23.9	0.1	109.8	124.0	14.2	559.6
2022	May	10.1	11.6	1.5	20.4	20.6	0.2	108.5	114.2	5.7	565.3
2022	Jun	8.0	7.1	-0.9	17.7	17.3	-0.4	124.3	28.6	-95.7	469.6
2022	Jul	6.4	2.9	-3.5	17.2	21.8	4.6	72.2	327.4	255.2	724.8
2022	Aug	6.9	4.7	-2.2	18.8	23.2	4.4	72.0	38.4	-33.6	691.2
2022	Sep	9.1	5.4	-3.7	21.5	24.6	3.1	60.6	74.4	13.8	705.0
2022	Oct	12.0	7.1	-4.9	23.8	30.0	6.2	76.1	90.8	14.7	719.7
2022	Nov	14.5	8.2	-6.3	25.6	33.5	7.9	82.9	50.0	-32.9	686.8
2022	Dec	16.6	9.5	-7.1	27.4	33.0	5.6	77.8	19.2	-58.6	628.2
2023	Jan	18.2	7.1	-11.1	28.3	26.6	-1.7	99.4	114.2	14.8	643.0
2023	Feb	18.1	13.1	-5.0	27.7	35.9	8.2	118.8	107.4	-11.4	631.6
2023	Mar	16.5	12.3	-4.2	26.3	38.0	11.7	128.3	106.0	-22.3	609.3
2023	Apr	13.2	9.6	-3.6	23.7	27.2	3.5	109.5	118.4	8.9	618.2
2023	May	10.1	3.3	-6.8	20.4	24.7	4.3	108.5	86.6	-21.9	596.3
2023	Jun	8	0.9	-7.1	17.7	23.4	5.7	121.5	8.8	-112.7	483.6
2023	Jul	6.5	2.7	-3.8	17.2	23.6	6.4	75.6	38.4	-37.2	446.4
2023	Aug	6.9	3.1	-3.8	18.8	26.1	7.3	72	47.6	-24.4	422.0
2023	Sep	9.2	4.3	-4.9	21.5	34.1	12.6	60.1	16.6	-43.5	378.5
2023	Oct	12	5.9	-6.1	23.8	35.4	11.6	75.9	59.6	-16.3	362.2
2023	Nov	16	11.2	-4.8	25.6	33.0	7.4	82.7	65.4	-17.3	344.9
2023	Dec	19.1	13.8	-5.3	27.4	41.7	14.3	76.8	61.4	-15.4	329.5