



ENVIRONMENT PROTECTION LICENCE NO: 21029

December 2019 Monthly Report

FOR

**Princes Highway Upgrade
between Berry and Bomaderry**

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1 INTRODUCTION

The Downer Seymour Whyte Joint Venture (DSWJV) is contracted by Roads and Maritime Services (Roads and Maritime) to upgrade 10.3 kilometres of the Princes Highway between Mullers Lane (south of Berry) and Cambewarra Road, Bomaderry in New South Wales (NSW) (the Project). The project will provide a four-lane divided highway (two lanes in each direction) with median separation.

The project is one of a series of upgrades to sections of the Princes Highway which aims to provide a four-lane divided highway between Waterfall and Jervis Bay Road, Falls Creek. This would improve road safety and traffic efficiency, including for freight, on the NSW South Coast.

Figure 1 provides an overview of the project location.

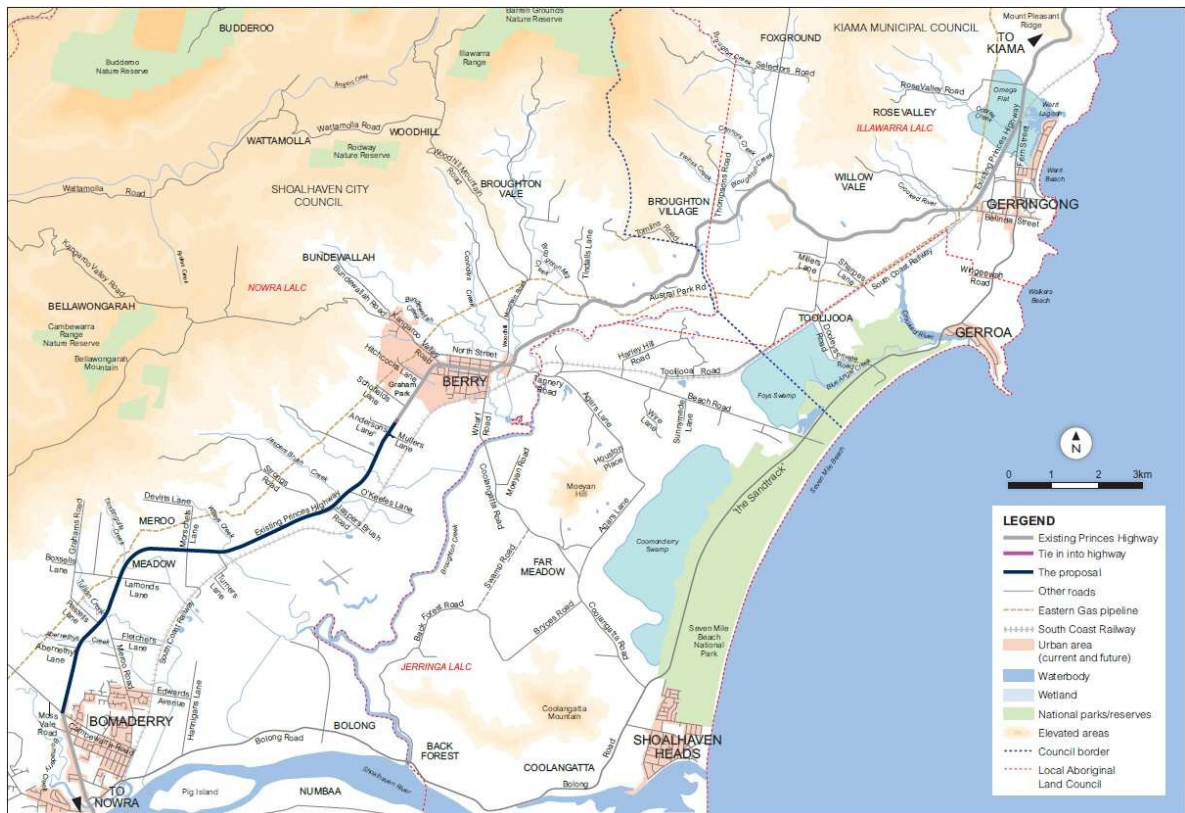


Figure 1-1 Project location

This report provides the results of monitoring undertaken during December 2019 as required by the project’s Environment Protection Licence (EPL 21029) Condition R4.1.

2 NON-COMPLIANCES

Two non-compliances with EPL conditions occurred during December:

1. Kerbing works continued past 6pm in the evening on 3/12/2019 and therefore were non-compliant with EPL condition L4.1. Only hand tools were used past 6pm and all work was completed by 6.45pm. It is not expected that any sensitive receivers were impacted by this breach and no complaints were received by the project.
2. Dust deposition gauges for the project were installed on 25 November 2019 and changed on 18 December 2019 for a total of 23 days of deployment. This is not in accordance with the approved method (30 days +/- 2 days), as per the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016), and EPL condition M3.1. Dust deposition gauges were required to be retrieved early due to the holiday shutdown period of the laboratory and the Project.

3 RAINFALL AND WEATHER

The RMS automatic weather station is situated at Ison Lane, Jaspers Brush, located adjacent to the project's main ancillary compound (Ison Lane Compound) for the project. The results of rainfall monitoring for December 2019 are provided in Table 3-1 and Figure 3-1 below.

Table 3-1 December 2019 Rainfall monitoring results

Location	Monthly rainfall recorded (mm)
Ison Lane, Jaspers Brush (RMS automatic weather station)	11.6

December was much drier than average with 11.6 mm of rainfall recorded at the project specific weather station at Ison Lane, Jaspers Brush (RMS automatic weather station). The long term average expected rainfall is 63.3 mm for December as taken from the Nowra RAN Air Station Bureau of Meteorology Weather Station (Station Number 068076).

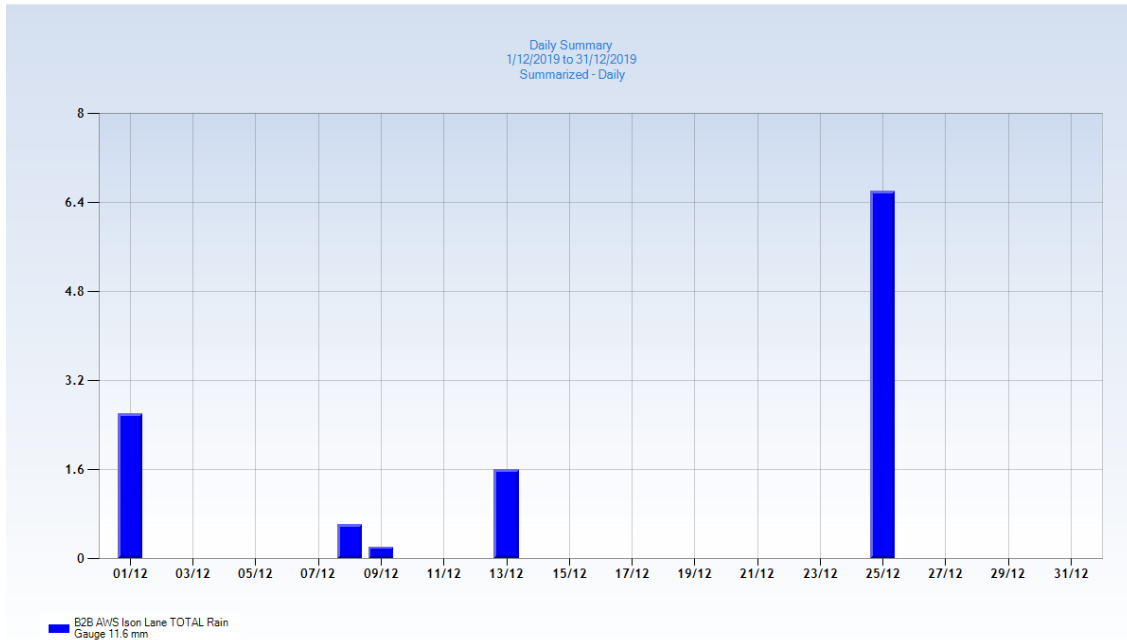


Figure 3-1 December Rainfall Results from Ison Compound Weather Station

Mild conditions prevailed during December with several days of moderate to high winds. The predominant wind directions for December were from the southwest and west-southwest. The highest wind gust recorded was 68.6 km/h and maximum wind speed was 44.1 km/h (refer Figure 3-2). DSWJV continue to monitor site activities, implement dust suppressant across site, utilise a fleet of water carts during working hours and limit dust generating activities and/or suspend work activities on days of high wind.

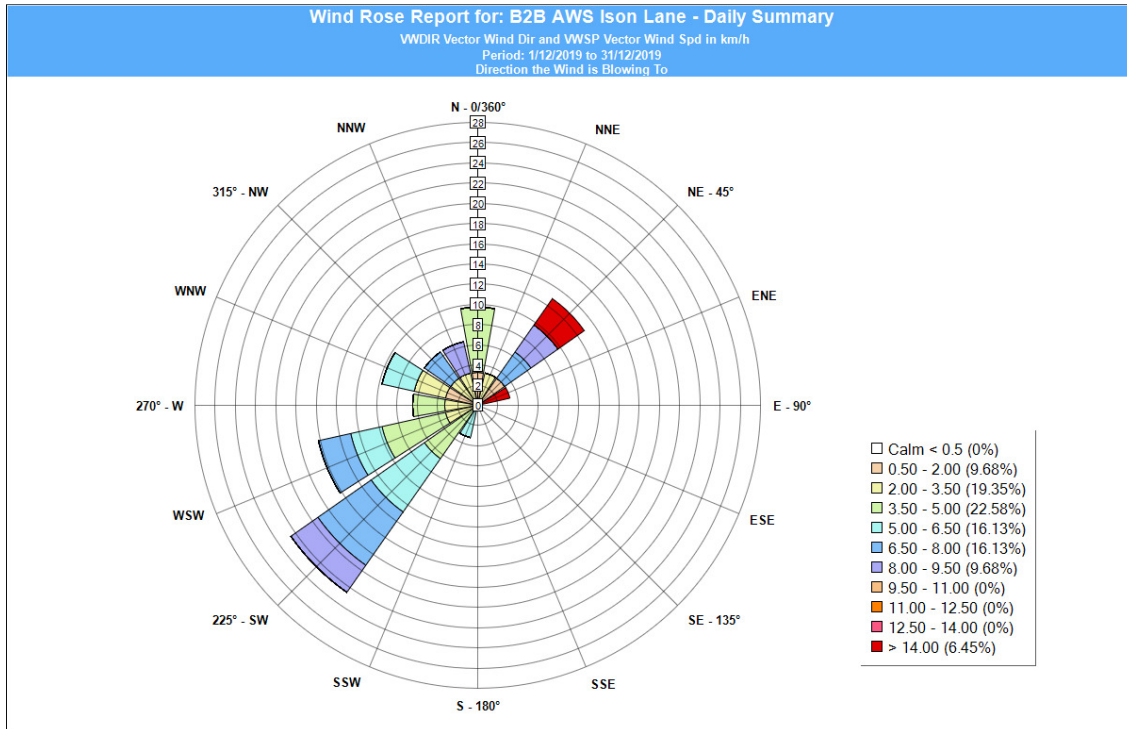


Figure 3-2 December 2019 Wind Rose Results from Isons Compound Weather Station. Average Wind direction and Average Wind Speed shown.

4 SEDIMENT BASIN DISCHARGE

Nineteen sediment basins were licensed under the EPL during December 2019. Notification for the decommissioning of Basins TB26.15S (located near Tandingulla Creek) and TB22.65S has been provided to the EPA. Stabilisation works are completed in each of these catchments and the basins will be decommissioned once the discharge points are no longer required. One new basin (TB26.15N) north of Tandingulla Creek was commissioned during December 2019 for new a work area.

On the 20th of June in accordance with licence condition L2.6, DSWJV began to use a statistical correlation for the calculation of TSS (mg/L) from Turbidity (NTU). The correlation uses the formula of $TSS (mg/L) = 0.43 * (NTU) + 1.00$. Given that the threshold value for TSS is 50mg/l, samples if less than 114 NTU would be deemed suitable for discharge. For a factor of safety, the acceptable discharge limit was reduced to 90 NTU.

See Table 4.1 below for details on sediment basin discharges.

Table 4-1 December 2019 Sediment basin discharge(s)

EPA Identification No.	Location (adjacent address)	Discharge Date	pH (6.5-8.5)	Nephelometric Turbidity Units (<90NTU)	Oil and Grease (none visible)
PB19.82.S	Mullers Lane	No discharges in December 2019			
PB24.45.N	B660 Princes Highway	No discharges in December 2019			
TB21.15.N	Opposite O'Keefes Lane	No discharges in December 2019			
TB21.50.N	Opposite Jaspers Brush Road	No discharges in December 2019			
TB21.70.S	Intersection at Jaspers Brush Road	No discharges in December 2019			
TB21.90.S	Jaspers Brush Ancillary Site	No discharges in December 2019			
TB22.10.N	Strongs Road	No discharges in December 2019			
TB22.25S	Opposite Strongs Road	No discharges in December 2019			
TB22.30.N	South of Strongs Road	No discharges in December 2019			
TB22.65.S	Opposite Ison Lane	No discharges in December 2019			
TB22.65N	North of Ison Lane	No discharges in December 2019			
TB22.80.N	Ison Compound	No discharges in December 2019			
TB23.60N	South of Ison Lane	No discharges in December 2019			
TB25.10.N	Devitts Lane	No discharges in December 2019			
TB25.70N	South of Devitts Lane	No discharges in December 2019			
TB25.75.N	South of Devitts Lane	No discharges in December 2019			
TB26.15S	North of Tandingulla Creek	No discharges in December 2019			
TB26.15N	North of Tandingulla Creek	No discharges in December 2019			
TB28.90.N	Abernethy's Lane	No discharges in December 2019			

TSS (mg/L) modelled from Turbidity (NTU) based on approved correlation formula of $TSS = 0.43(NTU) + 1.00$*

5 AIR MONITORING RESULTS

Dust deposition gauges for the project were installed on 25 November 2019 and changed on 18 December 2019 for a total of 23 days of deployment. This does not fall within the NATA accredited window (30 days +/- 2 days), as air quality should be assessed according to the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016). Dust deposition gauges were required to be retrieved early due to the holiday shutdown period of the laboratory and the Project.

Results are summarised in Table 5-1 below.

Figure 5-1 provides air quality data from the nearest OEH ambient air quality monitoring stations to the project (Wollongong, Kembla Grange and Albion Park, approximately 25 km north of the project area). Very poor to hazardous regional air quality was experienced for much of December, likely due to smoke haze resulting from numerous bushfires in NSW.

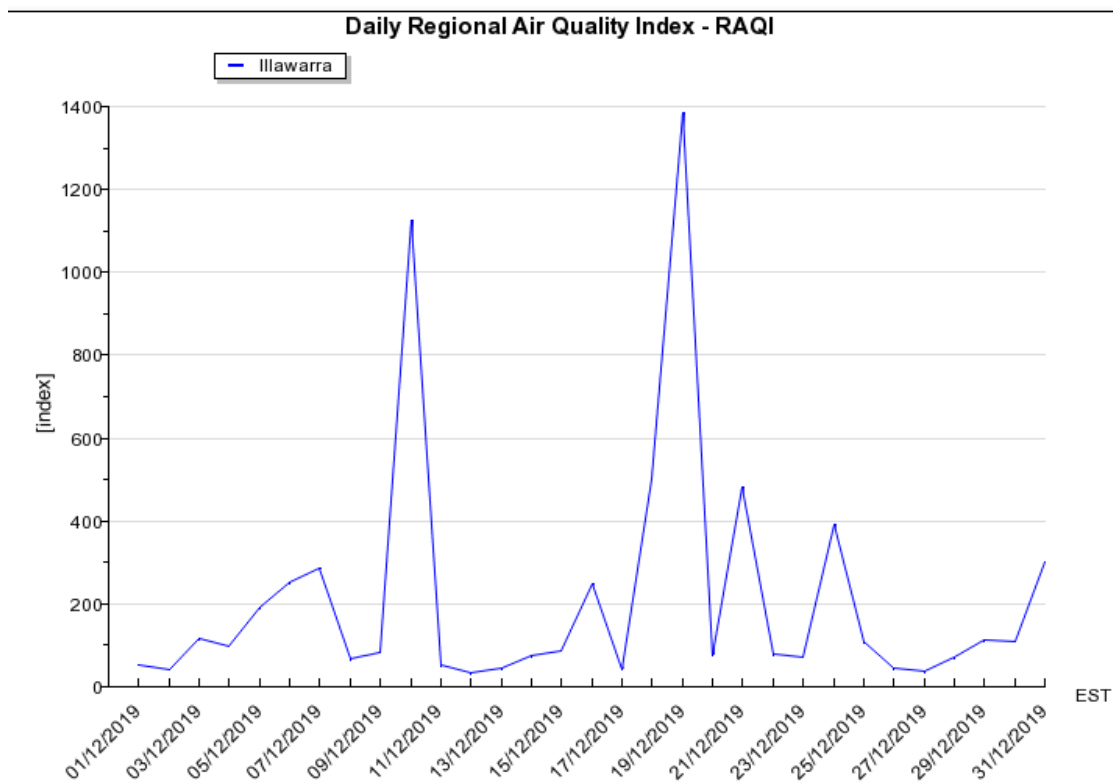


Figure 5-1: Regional Air Quality Index for December from the nearest OEH air quality monitoring stations – Illawarra (NSW OEH).

Total insoluble matter exceeded the relevant criteria of 4g/m²/month at most monitoring locations across the Project during the month of December. This is likely due to extended dry conditions in NSW and also several large bushfires burning in the region creating poor air quality. All project monitoring locations remained below a rolling 12-month average of 4g/m²/month.

Refer to Table 5.1 below for detailed results.

Table 5-1 December 2019 Air quality monitoring results

EPA Identification No.	Location (adjacent address)	Ash Content g/m ² ,month	Combustible Matter g/m ² ,month	Total Insoluble Matter g/m ² ,month	Rolling Average (Total Insoluble Matter) g/m ² ,month
1-DDG A	10 Croziers Lane, Jaspers Brush	3.5	7.0	10.5	2.8
2-DDG B	10A Jaspers Brush Road, Jaspers Brush	3.6	1.6	5.2	2.7
3-DDG C	20C Strongs Road, Jaspers Brush	3.8	0.8	4.6	2.3
4-DDG D	10C Jaspers Brush Road, Jaspers Brush	2.1	2.3	4.4	2.6
5-DDG E	30 Ison Lane, Jaspers Brush	2.0	0.5	2.5	1.1
6-DDG F	Lot 209 DP 1210788	2.9	1.7	4.6	2.5
7-DDG H	10 Lamonds Lane, Meroo Meadow	3.5	0.9	4.4	3.9
8-DDG I	19 Boxsells Lane, Meroo Meadow	3.2	1.2	4.4	1.8
9-DDG J/K	265 Princes Highway, Meroo Meadow	3.3	3.3	6.6	3.8
10-DDG L	1028 Meroo Meadow, Meroo Meadow	1.8	0.5	2.3	2.4
11-DDG M	32 Elvin Drive, Bomaderry	3.2	5.2	8.4	2.9
12-DDG N	9 Devitt's Lane, Meroo Meadow	2.5	0.3	2.8	1.6
13-DDG P	24 Abernethys Lane, Meroo Meadow	1.8	0.4	2.2	1.6

Note: bold type indicates a result above the relevant criteria

6 NOISE MONITORING RESULTS

Noise monitoring was undertaken in accordance with the Construction Noise and Vibration Management Plan (CNVMP) for the project in December 2019. No exceedances above predicted levels for the relevant activity were recorded.

Table 6-1 below summarises the attended noise monitoring undertaken in December 2019.

Table 6-1 December 2019 Noise Monitoring Results

EPA ID No.	Location description	Construction activity	Date	Time	L(A) _{eq} 15min	Comments
15	L1 - B210 Princes Highway, Jaspers		16/12/2019	16:54	62.8	<ul style="list-style-type: none"> Truck hydraulically applying vegetative seed nearby, motor operating. LV's moving in construction area on opposite side of the highway, workers on foot. Constant traffic from Princes Highway nearby.

EPA ID No.	Location description	Construction activity	Date	Time	L(A)eq 15min	Comments
16	L2 - 20C Strongs Road, Jaspers Brush	Rock hammering	17/12/2019	7:40	75.9	<ul style="list-style-type: none"> • Tipper truck parking immediately adjacent to monitor (<5m) and reversing 5T excavator from the vehicle dominant noise source. • Excavator rock hammering audible prior to tipper truck arriving. • Constant traffic from Princes Highway
17	L3 - 30 Ison Lane, Jaspers Brush	Compound operation	17/12/2019	7:12	55.2	<ul style="list-style-type: none"> • LV's entering and exiting compound area in the distance. • Constant traffic from the Princes Highway further in the distance.
18	L5 - 15 Turner Lane, Jaspers Brush	Earthworks	17/12/2019	9:02	56.3	<ul style="list-style-type: none"> • Constant traffic from Princes Highway dominant noise source • Grader operating in the distance
19	L6 - B710 Princes Highway, Jaspers Brush	Earthworks	18/12/2019	7:21	64.5	<ul style="list-style-type: none"> • Truck and dogs moving along haul road and delivering materials to grader. • Water cart operating for dust suppression and material conditioning. • Constant traffic from Princes Highway
20	L7 - 310C Princes Highway, Jaspers Brush	Earthworks	18/12/2019	9:30	70.4	<ul style="list-style-type: none"> • Constant traffic from Princes Highway. • Excavator loading Moxy trucks to export material on opposite side of Princes Highway
21	BG08 - 19 Boxsells Lane, Meroo Meadow	Earthworks	18/12/2019	9:05	47.0	<ul style="list-style-type: none"> • No LOS to construction works or highway in the distance. • Moxy trucks revving audible in the distance • Birds chirping
22	BG09 - 1028 Meroo Road, Meroo Meadow	No construction works audible	16/12/2019	15:12	51.4	<ul style="list-style-type: none"> • No construction works audible in this area. Local traffic on Meroo Road.
23	L8 - 24 Abernethys Lane, Meroo Meadow	No construction works audible	16/12/2019	16:22	59.4	<ul style="list-style-type: none"> • Constant traffic from Princes Highway

EPA ID No.	Location description	Construction activity	Date	Time	L(A) _{eq} 15min	Comments
24	BG10 - 35 Gardenia Crescent, Bomaderry	No construction works audible	16/12/2019	15:34	50.1	<ul style="list-style-type: none"> No construction works audible in this area. Cars passing by monitor, lawn mower operating.
25	BG11 - 38 Elvin Drive, Bomaderry	Earthworks/Drainage	16/12/2019	15:59	63.1	<ul style="list-style-type: none"> Water cart driving past on haul road (5 occurrences), 5T excavator and front end loader working 100m away to place material. Constant Traffic from Princes Highway.

7 ENVIRONMENTAL COMPLAINTS

There were no environmental complaints received in December 2019.