



ENVIRONMENT PROTECTION LICENCE NO: 21029

November 2019 Monthly Report

FOR

**Princes Highway Upgrade
between Berry and Bomaderry**

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Approved by:



Michael Phillips-Ryder

Downer Seymour Whyte
Project Director



Jacqueline McKenzie

Downer Seymour Whyte
Environmental Site
Representative

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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.

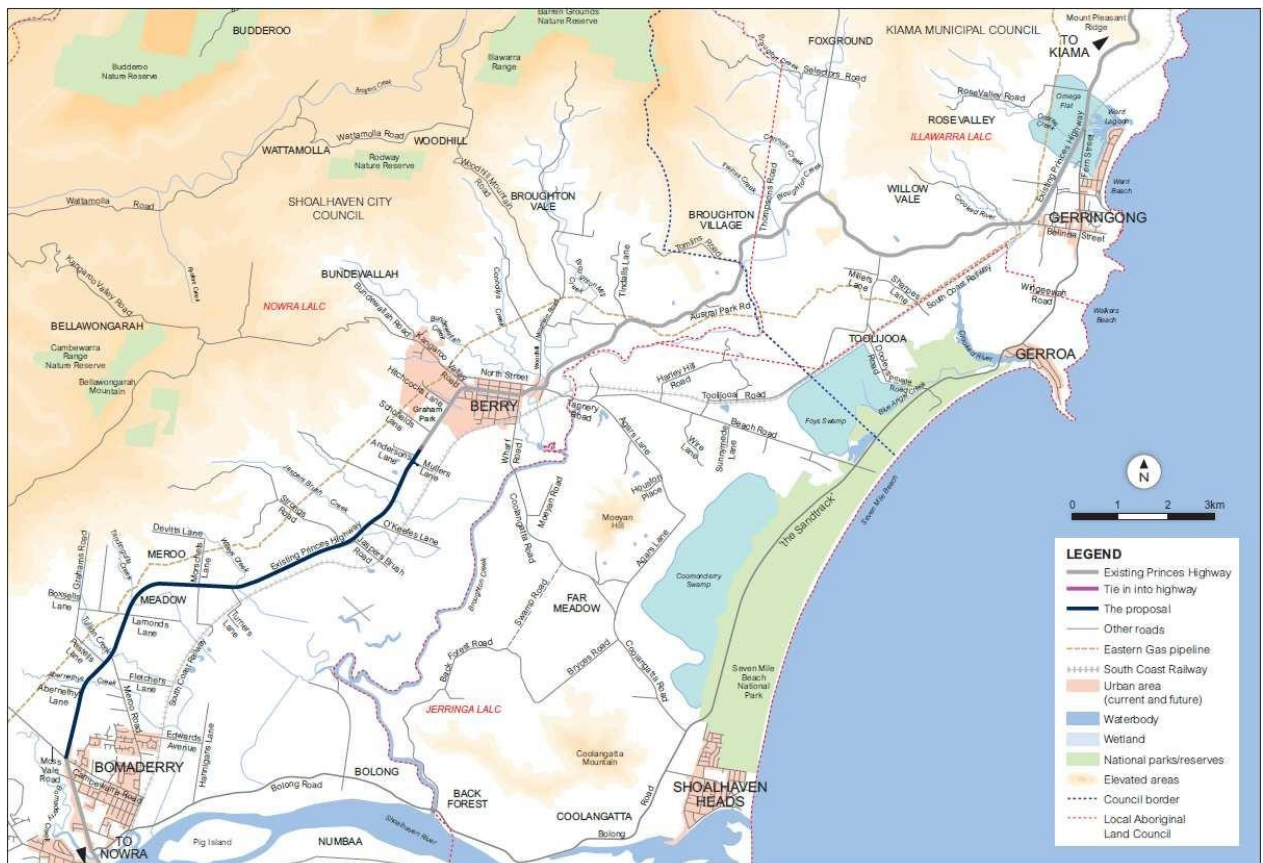


Figure 1-1 Project location

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

2 NON-COMPLIANCES

One non-compliance with EPL conditions occurred during November:

1. Kerbing works continued past 6pm in the evening on 22/11/2019 due to a late delivery of concrete. Only hand tools were used past 6pm and all work was completed by 7.15pm. It is not expected that any sensitive receivers were impacted by this breach and no complaints were received by the project.

In addition to the above non-compliance, two incidents of access/minor intrusion outside of the EPL premised area occurred during November. No harm to the environment occurred as a result of these incidents.

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 November 2019 are provided in Table 3-1 and Figure 3-1 below.

Table 3-1 November 2019 Rainfall monitoring results

Location	Monthly rainfall recorded (mm)
Ison Lane, Jaspers Brush (RMS automatic weather station)	21.6

November was drier than average with 21.6 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 72.9 mm for November as taken from the Nowra RAN Air Station Bureau of Meteorology Weather Station (Station Number 068076).

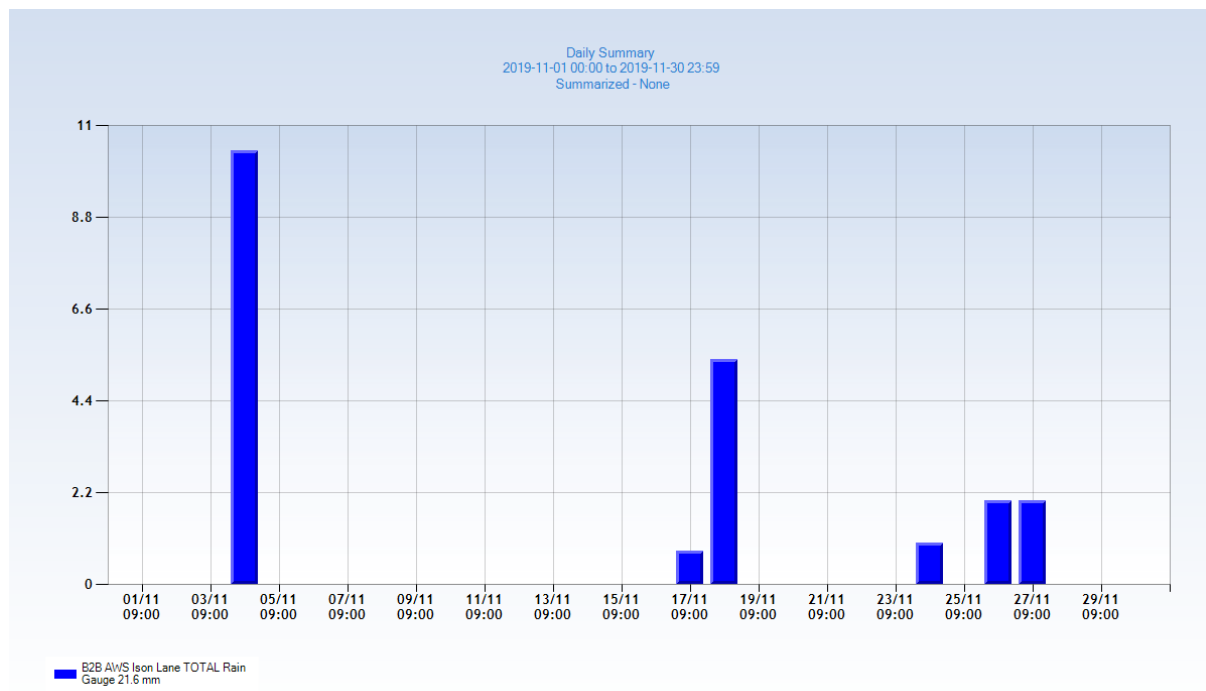


Figure 3-1 November Rainfall Results from Ison Compound Weather Station

Mild conditions prevailed during November with several days of moderate to high winds. The predominant wind directions for November were from the west-southwest and southwest. The highest wind gust recorded was 69.8 km/h and maximum wind speed was 44 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.

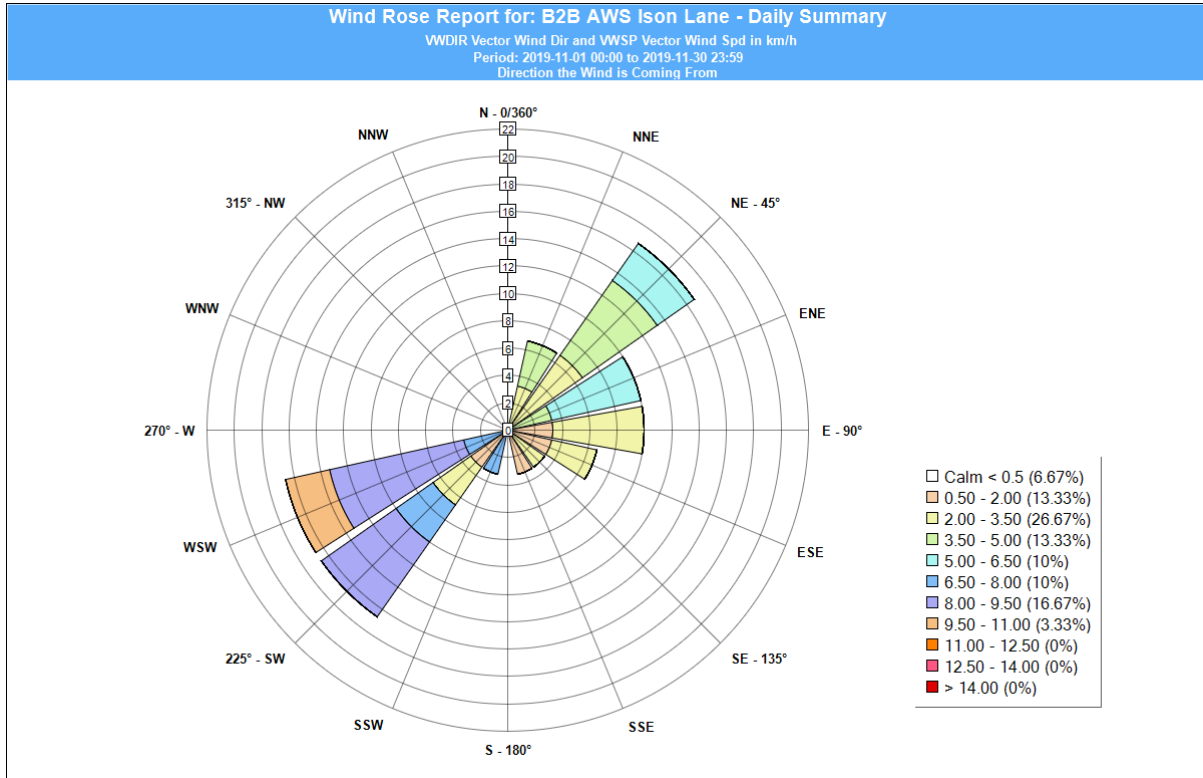


Figure 3-2 November 2019 Wind Rose Results from Isons Compound Weather Station. Average Wind direction and Average Wind Speed shown.

4 SEDIMENT BASIN DISCHARGE

Eighteen sediment basins were licensed under the EPL during November 2019. Notification for the decommissioning of Basins TB26.15 (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. Two new basins (TB2265N and TB2360N) were commissioned during November 2019 for new work areas.

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 November 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 November 2019			
PB24.45.N	B660 Princes Highway	No discharges in November 2019			
TB21.15.N	Opposite O'Keefes Lane	No discharges in November 2019			
TB21.50.N	Opposite Jaspers Brush Road	No discharges in November 2019			
TB21.70.S	Intersection at Jaspers Brush Road	No discharges in November 2019			
TB21.90.S	Jaspers Brush Ancillary Site	No discharges in November 2019			
TB22.10.N	Strongs Road	No discharges in November 2019			
TB22.25S	Opposite Strongs Road	No discharges in November 2019			
TB22.30.N	South of Strongs Road	No discharges in November 2019			
TB22.65.S	Opposite Ison Lane	06/11/19	7	50	None visible
TB22.65N	North of Ison Lane	27/11/19	6.98	4.3	None visible
TB22.80.N	Ison Compound	No discharges in November 2019			
TB23.60N	South of Ison Lane	No discharges in November 2019			
TB25.10.N	Devitts Lane	07/11/19	7	50	None visible
TB25.70N	South of Devitts Lane	No discharges in November 2019			
TB25.75.N	South of Devitts Lane	05/11/19	7.5	20	None visible
TB26.15S	North of Tandingulla Creek	06/11/19	7	80	None visible
TB28.90.N	Abernethy's Lane	05/11/19	7	15	None visible

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 24 November 2019 and changed on 25 November 2019 within the NATA accredited window (30 days +/- 2 days). Air quality has been assessed according to the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016). 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 November, likely due to smoke haze resulting from numerous bushfires in NSW.

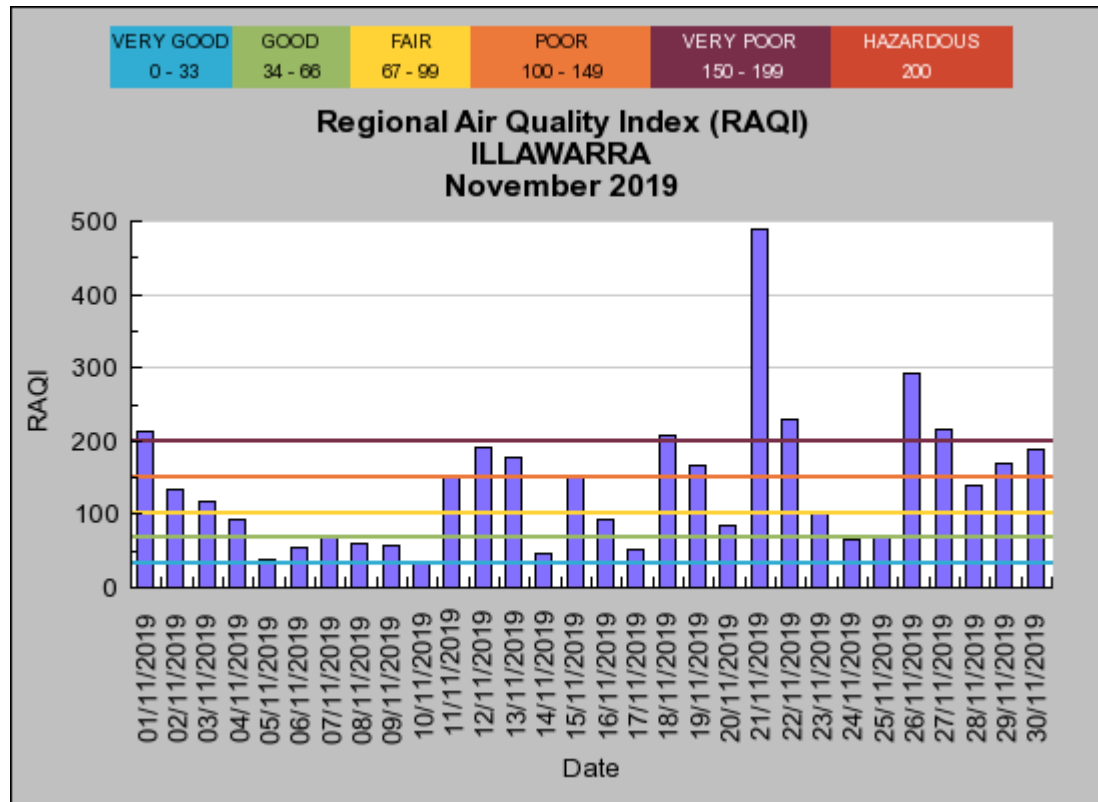


Figure 5-1: Regional Air Quality Index for November from the nearest OEH air quality monitoring stations – Illawarra (NSW OEH).

Total insoluble matter was within the relevant criteria of 4g/m²/month during November at all monitoring locations except for DDG-M. The elevated dust levels at this location may be due in part to earthworks and heavy vehicle movements associated with fill operations. Dust generation due to project activities is expected to reduce substantially at this location in the next period as surfaces are currently being sealed. All project monitoring locations remained below a rolling 12-month average of 4g/m²/month.

Refer to Table 5.1 below for detailed results.

As discussed in the November 2019 monthly report, dust gauge DDG-I at Boxsells Lane was missing at the time of collection. A replacement gauge was installed during November however was not in place for the compliant 30 days +/- 2 days.

Table 5-1 November 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	1.7	0.8	2.5	3.0
2-DDG B	10A Jaspers Brush Road, Jaspers Brush	2.1	0.5	2.6	2.5
3-DDG C	20C Strongs Road, Jaspers Brush	2.1	0.4	2.5	2.1
4-DDG D	10C Jaspers Brush Road, Jaspers Brush	2.0	1.2	3.2	2.6
5-DDG E	30 Ison Lane, Jaspers Brush	0.9	0.3	1.2	1.1
6-DDG F	Lot 209 DP 1210788	1.5	1.3	2.8	2.5
7-DDG H	10 Lamonds Lane, Meroo Meadow	3.1	0.7	3.8	3.9
8-DDG I	19 Boxsells Lane, Meroo Meadow	No data obtained			
9-DDG J/K	265 Princes Highway, Meroo Meadow	1.8	0.4	2.2	3.6
10-DDG L	1028 Meroo Meadow, Meroo Meadow	1.8	0.5	2.3	2.6
11-DDG M	32 Elvin Drive, Bomaderry	2.4	2.4	4.8	2.3
12-DDG N	9 Devitt's Lane, Meroo Meadow	1.2	0.3	1.5	1.8
13-DDG P	24 Abernethys Lane, Meroo Meadow	1.7	0.7	2.4	2.1

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 November 2019. No exceedances above predicted levels for the relevant activity were recorded.

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

Table 6-1 November 2019 Noise Monitoring Results

EPA ID No.	Location description	Construction activity	Date	Time	L(A) _{eq} 15min	Comments
15	L1 - B210 Princes Highway, Jaspers	No construction works audible	27/11/2019	12:03	66.8	<ul style="list-style-type: none"> Constant traffic from Princes Highway
16	L2 - 20C Strongs Road, Jaspers Brush	Retaining wall works	27/11/2019	11:00	70.0	<ul style="list-style-type: none"> Excavators rock hammering and crushing, loading material out. Rig drilling soil nails for construction of retaining wall.

EPA ID No.	Location description	Construction activity	Date	Time	L(A) _{eq} 15min	Comments
17	L3 - 30 Ison Lane, Jaspers Brush	No construction works audible	27/11/2019	10:38	50.5	<ul style="list-style-type: none"> Distant traffic from Princes Highway dominant noise source Car passing nearby to monitor on Ison Lane
18	L5 - 15 Turner Lane, Jaspers Brush	Earthworks	27/11/2019	12:10	57.1	<ul style="list-style-type: none"> Excavator and two moxy trucks operating in cut to fill operation on opposite side of Princes Highway. Traffic from Princes highway main noise source with some local traffic on Turners Lane.
19	L6 - B710 Princes Highway, Jaspers Brush	Earthworks	25/11/2019	10:08	61.9	<ul style="list-style-type: none"> Excavator operating to cut batter, front end loader pushing out material. Constant traffic from Princes Highway dominant noise source
20	L7 - 310C Princes Highway, Jaspers Brush	No construction works audible	27/11/2019	10:25	52.4	<ul style="list-style-type: none"> Constant traffic from the Princes Highway.
21	BG08 - 19 Boxsells Lane, Meroo Meadow	Culvert demolition	27/11/2019	9:17	64.6	<ul style="list-style-type: none"> Excavator cutting batter, grader trimming batter. Construction vehicles, trucks and LV's utilising U-turn bay.
22	BG09 - 1028 Meroo Road, Meroo Meadow	Bridgeworks	27/11/2019	10:57	54.8	<ul style="list-style-type: none"> Franna crane operating, light vehicles and some semi-trucks entering and exiting close to monitoring point Local traffic on Meroo Road
23	L8 - 24 Abernethys Lane, Meroo Meadow	Earthworks, Bridgeworks	26/11/2019	13:37	64.6	<ul style="list-style-type: none"> Haul road in operation with trucks and LV's passing near monitor. Concrete pour at Abernethys Bridge site Street sweeper operating in and around Abernethys Lane
24	BG10 - 35 Gardemia Crescent, Bomaderry	No construction works audible	27/11/2019	11:37	47.3	<ul style="list-style-type: none"> No construction works audible Local traffic on Gardemia Crescent
25	BG11 - 38 Elvin Drive, Bomaderry	Concrete works	26/11/2019	13:09	57.5	<ul style="list-style-type: none"> Kerb and gutter concrete pour , placement of material with trucks which was then placed and trimmed with a grader. Excavator tracking near monitor

7 ENVIRONMENTAL COMPLAINTS

There were no environmental complaints received in November 2019.