



Warrell Creek to Nambucca Heads – Pacific Highway Upgrade Project

ENVIRONMENT PROTECTION AUTHORITY MONTHLY REPORT

■ March 2015

Pacifico Project Number: WC2NH



A team consisting of RMS and Pacifico (ACCIONA Ferrovial JV) to upgrade the Pacific Highway at Warrell Creek to Nambucca Heads

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1. Introduction

Environmental Protection Licence (EPL) 20533 was issued to ACCIONA Infrastructure for the Warrell Creek to Nambucca Heads Pacific Highway Upgrade project on the 16th December 2014. Condition R1.8 of the EPL requires the licensee to provide the EPA with a monthly report containing the following information:

- a) details of all non-compliances with the conditions of this licence and measures taken, or proposed, to prevent a recurrence of such a non-compliance; and
- b) details of all discharges from the sediment basins where the water quality results exceed the limits prescribed by Condition L2.4 including the results of rainfall measurements to demonstrate compliance with Condition M4.1; and

The report referred to in this condition must be received by the EPA within 10 working days of the end of each month.

This document has been prepared to fulfil the requirements of Condition R1.8.

1.1 Description of Works

The project's construction activities during March 2015 were limited to the following:

- Demolition of existing structures;
- Vegetation clearing for installation of fencing;
- Installation of permanent boundary fencing;
- Vegetation clearing for access tracks;
- Vegetation clearing for sediment basins and other sediment controls;
- Mainline clearing and grubbing;
- Excavation for sediment basins and other sediment controls;
- Threatened plant species translocation;
- Site compound establishment;
- Installation of Frog Fencing at Upper Warrell Creek;
- Geotechnical Investigations; and
- Site Survey

The works scheduled for next month include:

- Clearing and Grubbing;
- Topsoil stripping;
- Trial blasting and commencement of production blasting;
- Earthworks including crushing;
- Clearing through the Flying Fox area;
- Commencement of bridge works including temporary work platforms;
- Installation of erosion and sediment controls;
- Installation of permanent boundary fencing;
- Commencement of culvert installation;
- Site compound establishment (Northern Compound);
- Geotechnical Investigations;
- Demolition of existing structures;

- Installation of temporary waterway crossings; and
- Site Survey.

1.2 Consultation Activities

The project's consultation activities during March 2015 included various community letterbox drop notifications and the following:

Groups	Date	Key Topics
Environmental Review Group	17/03/15	Construction Progress, Design Update, Upcoming works, EWMS discussion, Environmental Update, Monitoring update.

Other consultation activities:

- Consultation with residents regarding construction access, installation of boundary flagging, fencing, eroded controls and clearing, survey.
- Notification and consultation with residents regarding relocation of utilities outside the project boundary.

At House Noise Treatments

The At House noise treatment program is currently being managed by RMS and is not part of the ACCIONA (Pacífico) Scope of Works and Technical Criteria.

Upcoming community and stakeholder activities for April 2015

- Quarterly construction update letterbox dropped to residents within 750 metres of the alignment and uploaded to website
- Information stand at the Nambucca Agricultural Show on 18 April 2015
- Community information sessions at Macksville on 22 April 2015 and Nambucca Heads on 23 April 2015
- Letterbox drop including notification and fact sheet to residents within 500m of controlled blasting locations
- Estuary Committee Meeting planned for the 23rd April 2015.

2. Weather

2.1 Discussion

The automatic recording weather station at the main site compounds (north and south) records rainfall totals daily at 9AM. The daily summaries for rainfall received in March at the Albert Drive compound and Northern Compound are shown below in Table 2.1 and 2.2. The total rainfall received for the month is as follows:-

Month	Total monthly rainfall	Location
12/03/15 – 31/03/15	93.4mm	Northern Compound
1/03/15 – 31/03/15	57.2mm	Albert Drive Compound

The site experienced a total of 17 rain days throughout the month of February 2015.

During February, rainfall received on site was higher than the February monthly average of 172.2mm. A summary of weather conditions recorded over the month for Smoky Cape by the Bureau of Meteorology is detailed below in Table 2.2.

Table 2.1 – Rainfall recorded at Albert Drive compound automated weather station

Date	Time	TOTAL Rain Gauge
1/03/2015	9:00:00	0
2/03/2015	9:00:00	1.4
3/03/2015	9:00:00	0
4/03/2015	9:00:00	0
5/03/2015	9:00:00	0
6/03/2015	9:00:00	0
7/03/2015	9:00:00	0
8/03/2015	9:00:00	0
9/03/2015	9:00:00	0.4
10/03/2015	9:00:00	0.2
11/03/2015	9:00:00	0
12/03/2015	9:00:00	0
13/03/2015	9:00:00	1.8
14/03/2015	9:00:00	14.2
15/03/2015	9:00:00	0
16/03/2015	9:00:00	0
17/03/2015	9:00:00	0
18/03/2015	9:00:00	0
19/03/2015	9:00:00	0

20/03/2015	9:00:00	0
21/03/2015	9:00:00	0
22/03/2015	9:00:00	13.8
23/03/2015	9:00:00	21.6
24/03/2015	9:00:00	0.2
25/03/2015	9:00:00	0
26/03/2015	9:00:00	0
27/03/2015	9:00:00	0
28/03/2015	9:00:00	0
29/03/2015	9:00:00	0
30/03/2015	9:00:00	0
31/03/2015	9:00:00	3.6

Table 2.2 – Rainfall recorded at the Northern compound automated weather station

Date	Time	TOTAL Rain Gauge
12/03/2015	9:00:00	33.6
13/03/2015	9:00:00	4.6
14/03/2015	9:00:00	21.6
15/03/2015	9:00:00	0.2
16/03/2015	9:00:00	0
17/03/2015	9:00:00	0
18/03/2015	9:00:00	0
19/03/2015	9:00:00	0
20/03/2015	9:00:00	0
21/03/2015	9:00:00	0
22/03/2015	9:00:00	5.8
23/03/2015	9:00:00	20.6
24/03/2015	9:00:00	0
25/03/2015	9:00:00	0
26/03/2015	9:00:00	0
27/03/2015	9:00:00	0
28/03/2015	9:00:00	0
29/03/2015	9:00:00	0
30/03/2015	9:00:00	0
31/03/2015	9:00:00	7

Table 2.2: Weather conditions recorded in March 2015 at Smoky Cape by the Bureau of Meteorology.

Observations from Smoky Cape Lighthouse.

March 2015

date	min to 9am	anomaly	max from 9am	anomaly	rain to 9am	
	°C	°C	°C	°C	mm	
Sun 01/03/2015	22.4	+3.7	29.1	+2.9	0.0	
Mon 02/03/2015	20.2	+1.5	26.1	-0.1	2.8	
Tue 03/03/2015	18.8	+0.1	29.0	+2.8	5.4	
Wed 04/03/2015	21.3	+2.6	28.0	+1.8	0.0	
Thu 05/03/2015	22.8	+4.1	32.8	+6.6	0.0	
Fri 06/03/2015	18.3	-0.4	26.8	+0.6	0.0	
Sat 07/03/2015	19.6	+0.9	25.9	-0.3	0.0	
Sun 08/03/2015	21.9	+3.2	28.1	+1.9	0.2	
Mon 09/03/2015	21.7	+3.0	30.0	+3.8	0.0	
Tue 10/03/2015	21.8	+3.1	30.4	+4.2	0.0	
Wed 11/03/2015	22.6	+3.9	30.0	+3.8	0.0	
Thu 12/03/2015	21.5	+2.8	29.3	+3.1	0.0	
Fri 13/03/2015	19.0	+0.3	27.5	+1.3	0.2	
Sat 14/03/2015	17.0	-1.7	26.1	-0.1	25.0	
Sun 15/03/2015	17.7	-1.0	28.0	+1.8	0.0	
Mon 16/03/2015	16.2	-2.5	25.8	-0.4	1.4	
Tue 17/03/2015	18.2	-0.5	27.0	+0.8	0.0	
Wed 18/03/2015	20.5	+1.8	27.0	+0.8	1.6	
Thu 19/03/2015	22.3	+3.6	30.7	+4.5	0.0	
Fri 20/03/2015	22.3	+3.6	30.0	+3.8	0.0	
Sat 21/03/2015	20.5	+1.8	22.4	-3.8	0.0	
Sun 22/03/2015	19.3	+0.6	23.0	-3.2	27.2	
Mon 23/03/2015	18.4	-0.3	26.1	-0.1	38.0	
Tue 24/03/2015	18.9	+0.2	27.8	+1.6	10.0	
Wed 25/03/2015	22.0	+3.3	25.8	-0.4	0.2	
Thu 26/03/2015	20.8	+2.1	29.6	+3.4	0.0	
Fri 27/03/2015	18.2	-0.5	26.1	-0.1	0.0	
Sat 28/03/2015	16.1	-2.6	26.7	+0.5	0.0	
Sun 29/03/2015	18.3	-0.4	28.6	+2.4	0.0	
Mon 30/03/2015	20.1	+1.4	27.3	+1.1	0.0	

Tue 31/03/2015	18.2	-0.5	24.4	-1.8	3.2	
March 2015 Average	19.9	+1.2	27.6	+1.4		
Mar 1957-2014 Average	18.7		26.2			
Mar 1957-2014 Highest	24.4	26th 1963	34.3	1st 2011		
Mar 1957-2014 Lowest	11.0	24th 1998	18.9	12th 1961		

3. Surface Water Monitoring

The Surface Water Monitoring Program is still being undertaken by RMS in March 2015.

Sampling was undertaken by ACCIONA (Pacífico) on the 17th March after rainfall and 24th March during a dry period. Field tests and laboratory samples were taken. The field test results are available in Appendix A.

4. Sediment Basin Water Monitoring

Water was released from sediment basins on five occasions in March. The table below has the water quality results recorded for the water release events:



Water Release Register

Date	Time	Basin ID	Oil and Grease (visible)	pH	Turbidity (NTU)	TSS (mg/L)	Approx Volume Discharged (L)
3/03/2015	4:00 PM	B47.6	N	7.43	64	50	660,000
3/03/2015	2:00 PM	B46.4	N	7.4	19.1	21	900,000
6/03/2015	2:00 PM	B55.8	N	7.12	3.4	6	765,000
27/03/2015	4:00 PM	B56.7	N	6.87	19	9	332,000
27/03/2015	4:00 PM	B55.8	N	7.02	15	18	765,000

5. Noise Monitoring

Monthly routine construction noise monitoring was undertaken on the 25th March at three locations near to the construction works. Noise monitoring results are indicative of background noise levels. The Noise monitoring results are available in Appendix A.

6. Vibration Monitoring

No vibration monitoring was conducted in March 2015.

7. Dust Monitoring

Dust gauges were placed at nearby sensitive receivers on the 0/02/15 – 09/03/15. Dust gauge results are available in Appendix A.

8. Groundwater Monitoring

ACCIONA (Pacifco) have not yet taken over the Groundwater Monitoring Program from RMS. RMS collected groundwater monitoring data during March 2015.

9. Acoustic Investigations

Two activities were undertaken outside of construction hours during March 2015. Out of hours works were required to reconfigure traffic lanes on the existing Pacific Highway near Browns Crossing Road at Eungai Creek and the corner of Old Coast Road and the Pacific Highway North Macksville.

The works undertaken on the corner of Old Coast Road and the Pacific Highway were undertaken over the 16-17th March. This work was undertaken under L4.2 d). The acoustic investigation report prepared by Jacobs is attached in Appendix B.

The works undertaken near Browns Crossing Road at Eungai Creek were subject to written agreements with affected residents pursuant to condition L4.3.

10. Complaints

9.1 Summary of Complaints for the month

The following is a brief summary of environmental complaints received in March 2015.

A complaint was received on 19 March 2015 from a resident of Letitia Close, north Macksville regarding being woken by noise at about 6am from person/s and vehicle/s moving around in the dark at a house removal site on Old Coast Road. The complaint was investigated and it was found not to be project workers but in all probability a community member/s looking to salvage items from the demolition works. The information was passed on to the project's security team. The resident was thanked and advised accordingly. The resident also was advised that project pre-starts in this area would be held at 122 Old Coast Road, further away from residents. The complainant acknowledged the advice.

A complaint was received on 30 March 2015 from a resident of Old Coast Road regarding the safety of asbestos removal on a demolition site opposite him. The site was inspected by the safety team for the project. The inspection found that, as per all house removal on the project, the work was being undertaken by workers accredited in house removal work, with WorkCover licences for removing asbestos in accordance with Australian and international standards and the requirements of NSW WorkCover (2011) *How to safely remove Asbestos Code of Practice*. The activities carried out as part of the removal work included fencing exclusion zones for safety reasons, erosion and sediment controls in place before work started, removal of the house and other structures from the property and clean-up of the property. The complainant was advised of the results of the inspection and that the house removal process has been audited by representatives from Roads and Maritime, the project verifier and WorkCover. The complainant was advised that WorkCover has not raised concerns regarding the process. The complainant thanked the community team for the advice.

11. Non-Compliance

10.1 Summary of Non-compliances

No non-compliances with the EPL conditions were recorded in March 2015.

Appendix A – Monitoring Results

Table 1 - Surface Water Sampling Results – 1 dry and 1 wet event.

Location		SW01 (WCU)	SW02 (WCD)	SW03 (SCU)	SW04 (SCD)	SW05 (LWCU)	SW06 (LWCD)	SW07 (UD1)	SW08 (UD2)	SW09 (UDD)	SW10 (NRU)	SW11 (NRD)
Date of Sampling	Units	17-Mar-15	17-Mar-15	17-Mar-15	17-Mar-15	17-Mar-15	17-Mar-15	18-Mar-15	18-Mar-15	18-Mar-15	17-Mar-15	17-Mar-15
Weather		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
<i>Laboratory data</i>												
Metals												
Aluminium	mg/L	0.05	0.02	0.04	0.02	0.06	0.07	0.13	0.06	0.1	<0.01	<0.01
Arsenic	mg/L	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.002	<0.001	0.002	0.001	<0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	0.047	0.006	0.023	0.026	0.011	0.026	0.034	0.002	0.338	0.017	<0.001
Nickel	mg/L	0.001	0.002	<0.001	<0.001	0.002	0.001	<0.001	0.001	0.001	<0.001	<0.001
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
Zinc	mg/L	<0.005	0.006	<0.005	<0.005	0.007	0.008	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	1	1.14	0.69	0.76	0.89	0.95	2.01	0.42	1.18	<0.05	<0.05
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nutrients												
Total Phosphorus	mg/L	0.02	0.03	0.04	0.02	0.06	0.06	0.1	0.09	0.08	0.12	0.12
Phosphate	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Total Nitrogen	mg/L	1	0.5	<0.1	<0.1	0.6	0.6	1.4	1.8	1.8	1.2	0.8
Total Kjeldahl Nitrogen	mg/L	1	0.5	<0.1	<0.1	0.6	0.6	1.4	1.8	1.8	1.2	0.8
Nitrate	mg/L							<0.01	<0.01	<0.01		
Nitrite	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	mg/L	0.04	0.02	<0.01	0.01	0.16	0.1	<0.01	0.06	0.03	<0.01	0.03
TSS	mg/L	<5	9	<5	<5	<5	<5	31	9	44	44	34
Turbidity	NTU	7.6	13.5	3.5	4.6	6.6	6.8	14	3.6	9.4	25.7	28.4
<i>Field Physical data</i>												
Temperature	°C	22.17	24.65	22.32	23.7	28.15	28.14	27.99	24.99	28.48	27.84	28.14
pH	pH	6.78	6.46	7.02	6.47	7.59	7.34	6.1	6.14	6.34	8.29	8.32
pHmV	pHmV	5	24	-9	23	-42	-27	45	43	31	-83	-85
ORPmV	ORPmV	175	122	158	184	164	160	121	10	52	171	173
Conductivity	mS/cm	0.248	0.235	0.223	0.216	0.684	0.674	0.318	0.409	0.622	23.7	25.3
Turbidity	NTU	0	5.9	0	0	13.4	0	13.5	17.2	10.7	35.9	28
Dissolved Oxygen	mg/L	1.7	1.2	7.3	2.89	3.08	3.54	2.24	0.21	1.09	6.87	7.26
ppt	ppt	0.161	0.153	0.145	0.141	0.438	0.434	0.206	0.266	0.412	14.7	15.7
ot	ot	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.3	14.4	15.4
m	m	0	0	0	0	0	0	0	0	0	7.2	7.9

TDS	g/L	0.45	0.35	0.35	0.45	0.35	0.35	0.45	0.5	0.45	0.35	0.4
Location	Units	SW01 (WCU)	SW02 (WCD)	SW03 (SCU)	SW04 (SCD)	SW05 (LWCU)	SW06 (LWCD)	SW07 (UD1)	SW08 (UD2)	SW09 (UDD)	SW10 (NRU)	SW11 (NRD)
Date of Sampling		24-Mar-15	24-Mar-15	24-Mar-15	24-Mar-15	25-Mar-15	25-Mar-15	24-Mar-15	24-Mar-15	24-Mar-15	25-Mar-15	25-Mar-15
Time of Sampling		1:50pm	2:15pm	3:25pm	3:35pm	9:00am	9:05am	4:35pm	5:00pm	5:05pm	8:20am	8:30am
Low tide		12:37pm	12:37pm	12:37pm	12:37pm	1:26pm	1:26pm	12:37pm	12:37pm	12:37pm	1:26pm	1:26pm
Weather		Dry	Dry	Dry	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
Laboratory data												
Metals												
Aluminium	mg/L	0.19	0.13	0.05	0.03	0.05	0.06	0.13	0.06	0.1	<0.01	<0.01
Arsenic	mg/L	<0.001	<0.001	0.001	0.002	<0.001	0.001	0.002	<0.001	0.002	0.002	0.002
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	0.023	0.026	0.028	0.058	0.111	0.136	0.034	0.002	0.338	0.111	0.068
Nickel	mg/L	<0.001	0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	<0.001
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.15	0.14
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	mg/L	0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	1.02	1.14	0.94	1.09	0.79	0.96	2.01	0.42	1.18	<0.05	<0.05
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nutrients												
Total Phosphorus	mg/L	0.07	0.05	0.02	0.03	0.09	0.12	0.07	0.06	0.19	0.22	0.18
Phosphate	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
	mg/L											
Total Nitrogen	mg/L	0.6	0.6	0.3	0.4	0.6	0.5	1.3	1.3	2.6	<0.2	<0.2
Total Kjeldahl Nitrogen	mg/L	0.5	0.6	0.2	0.3	0.5	0.5	1.3	1.3	2.6	<0.2	<0.2
Nitrate	mg/L	0.05	0.05	0.09	0.05	0.05	0.04	0.04	0.02	0.03	0.04	0.04
Nitrite	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	mg/L	<0.01	0.02	0.02	0.02	0.14	0.12	<0.01	<0.01	<0.01	<0.01	0.06
TSS	mg/L	11	12	6	7	8	8	26	13	76	14	27
Turbidity	NTU	17.4	15.6	3.9	5.4	6.9	6.8	12	4.8	22.2	7.9	12.9
Field Physical data												
Temperature	°C	22.9	26.24	25.34	24.63	26.14	26.12	29.8	25.84	26.91	26.4	26.61
pH	pH	6.25	6.37	6.54	6.05	6.82	6.73	5.59	6.01	6.09	7.72	7.71
pHmV	pHmV	12	6	-4	24	-19	-14	52	26	22	-72	-71
ORPmV	ORPmV	197	254	204	175	112	139	199	92	1	145	165
Conductivity	mS/cm	0.235	0.249	0.228	0.217	0.7622	0.585	0.334	0.383	0.546	26.7	23.6
Turbidity	NTU	24	22.9	0.9	4.4	18.9	26.1	78.8	17.4	46.4	14.3	26.3

Dissolved Oxygen	mg/L	3.51	3.81	4.68	5.91	1.36	1.9	2.88	0.08	1.95	4.48	4.27
ppt	ppt	0.153	0.162	0.148	0.141	0.462	0.392	0.217	0.249	0.35	16.6	15.2
ot	ot	0.1	0.1	0.1	0.1	0.4	0.3	0.2	0.2	0.3	16.3	13.9
m	m	0	0	0	0	0	0	0	0	0	9.1	7.2
TDS	g/L	0.05	0	0	0	0	0.05	0	0	0	0	0.05

WCU = Upper Warrell Creek Upstream

WCD = Upper Warrell Creek Downstream

SCU = Stony Creek Upstream

SCD = Stony Creek Downstream

LWCU = Lower Warrell Creek Upstream

LWCD = Lower Warrell Creek Downstream

NRU = Nambucca River Upstream

NRD = Nambucca River Downstream

Table 2 - Noise Monitoring Results

Date	Time	Location	Noise Catchment Area	NML - Daytime	Site ID	Laeq	LAFMAX	LAFMIN	LCEQ	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions
25/03/2015	11:30	Albert Drive	NCA 1	50	4	60.8	86.2	40.9	68.1	61.8	55.2	46.2	43.3	BG: Traffic, birds, dogs	Dogs barking	NA
25/03/2015	12:35	Letitia Close	NCA 4	59	2	49.7	76.8	34.7	57.6	45.4	42.6	39.2	37.3	BG: Traffic, lawnmower, post driving - Lawnmower dominant noise source	NA	NA
25/03/2015	13:00	Mattick Rd	NCA 6	44	5	49.3	65.9	41.8	63	53.2	51.6	47.7	45.1	Clearers - excavators x2, Construction dominant noise source	Predicted noise levels for discreet clearing are 70dB(A) for this resident. The levels are currently under the predicted levels.	Further monitoring will be undertaken to monitor noise in this location.

Table 3 - Dust monitoring results

DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG A1	DDG A2	
Feb-15	Date of Sampling	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	
	Total Soluble Matter	g/m ² .month mg	<0.1 1	1.3 24	0.3 5	2.1 39	0.3 5	0.1 2	0.2 3	- -	- -
	Total Insoluble Matter	g/m ² .month mg	0.9 16	0.5 10	1.1 20	0.8 14	0.2 4	0.5 9	0.4 8	- -	- -
	Total Solids	g/m ² .month mg	0.9 17	1.8 34	1.4 25	2.9 53	0.5 9	0.6 11	0.6 11	- -	- -
	Arsenic	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001
	Comments										



Noelene Rutherford
Pacifico Acciona Ferrovia JV
38 Bald Hill Road
PO Box 254
Macksville NSW 2447

26 February 2015

IA049000

Dear Noelene,

Review of noise impacts associated with Old Coast Road intersection upgrade works

This letter report presents a review of potential noise impacts associated with construction works at the Pacific Highway and Old Coast Road intersection being completed as part of the Warrell Creek to Nambucca Heads Pacific Highway upgrade project.

1. Introduction

As part of the Warrell Creek to Nambucca Heads Pacific Highway upgrade project, the Pacifico Acciona Ferrovia JV (PAFJV) intends to complete upgrade works around the intersection of the Pacific Highway and Old Coast Road. These works involve the establishment of additional turning lanes and are programmed to be completed over several days during March 2015. Activities would be completed during all periods of the day (i.e. day, evening and night) and involve the use of the plant and equipment listed below in **Table 1**.

Table 1 Plant and equipment list

Activity	Plant & Equipment	Number	Overall Sound Power Level dB(A)
Establishment of additional turning lanes at Old Coast Road intersection	Daymaker	6	<ul style="list-style-type: none">• 106 dB(A) during evening and night• 104 dB(A) during the day when Daymakers not in use
	Multi tyred roller	1	
	Road sweeper	1	
	Support truck 10t	2	
	Light vehicle	4	
	Water cart	1	
	Spray sealing truck	1	
Line marking of new intersection configuration	Daymaker	6	<ul style="list-style-type: none">• 103 dB(A) during evening and night• 99 dB(A) during the day when Daymakers not in use
	Line marking plant	1	
	Support truck 10t	2	
	Light vehicle	4	

2. Assessment methodology

To evaluate potential noise impacts arising from the intersection upgrade works the activities were modelled using SoundPlan version 7.3. Noise impacts were calculated using the CONCAWE prediction method. The following components were incorporated in the model:

- Topography
- Buildings (first row back from the source)



- Representative construction noise sources (set at 2.5 meters high at the sound power levels shown in **Table 1**.)
- Discrete receivers (set at a height of 1.5 meters)
- Meteorology (worst-case meteorological conditions)

Noise levels were predicted at the nearest receivers shown below in **Figure 1**. Receivers 1 to 30 are located within noise catchment area (NCA) 3 and receivers 31 to 102 are located in NCA 4 as defined in the *Noise and Vibration Management Sub Plan (NVMP)*, (PAF JV / Jacobs, September 2014).



Figure 1 Source and receiver locations



3. Results

Predicted results at each receiver are presented below in **Table 2** against applicable day, evening and night time noise management levels (NMLs).

Receiver	NCA	NML dB(A)			Predicted maximum L _{Aeq 15min} dB(A)			
		Day	Evening	Night	Intersection (Evening / Night)	Intersection (Day)	Line marking (Evening / Night)	Line marking (Day)
1	3	50	41	39	30	28	27	23
2	3	50	41	39	30	28	27	23
3	3	50	41	39	30	28	27	23
4	3	50	41	39	30	28	27	23
5	3	50	41	39	30	28	27	23
6	3	50	41	39	30	28	27	23
7	3	50	41	39	30	28	27	23
8	3	50	41	39	20	18	17	13
9	3	50	41	39	18	16	15	11
10	3	50	41	39	11	9	8	4
11	3	50	41	39	8	6	5	1
12	3	50	41	39	7	5	4	0
13	3	50	41	39	7	5	4	0
14	3	50	41	39	6	4	3	0
15	3	50	41	39	6	4	3	0
16	3	50	41	39	6	4	3	0
17	3	50	41	39	6	4	3	0
18	3	50	41	39	6	4	3	0
19	3	50	41	39	8	6	5	1
20	3	50	41	39	6	4	3	0
21	3	50	41	39	5	3	2	0
22	3	50	41	39	5	3	2	0
23	3	50	41	39	5	3	2	0
24	3	50	41	39	5	3	2	0
25	3	50	41	39	5	3	2	0
26	3	50	41	39	5	3	2	0
27	3	50	41	39	5	3	2	0
28	3	50	41	39	4	2	1	0
29	3	50	41	39	4	2	1	0
30	3	50	41	39	4	2	1	0
31	4	59	48	46	6	4	3	0
32	4	59	48	46	6	4	3	0



Receiver	NCA	NML dB(A)			Predicted maximum L _{Aeq 15min} dB(A)			
		Day	Evening	Night	Intersection (Evening / Night)	Intersection (Day)	Line marking (Evening / Night)	Line marking (Day)
33	4	59	48	46	6	4	3	0
34	4	59	48	46	7	5	4	0
35	4	59	48	46	11	9	8	4
36	4	59	48	46	15	13	12	8
37	4	59	48	46	17	15	14	10
38	4	59	48	46	11	9	8	4
39	4	59	48	46	14	12	11	7
40	4	59	48	46	28	26	25	21
41	4	59	48	46	28	26	25	21
42	4	59	48	46	29	27	26	22
43	4	59	48	46	27	25	24	20
44	4	59	48	46	30	28	27	23
45	4	59	48	46	33	31	30	26
46	4	59	48	46	22	20	19	15
47	4	59	48	46	23	21	20	16
48	4	59	48	46	24	22	21	17
49	4	59	48	46	10	8	7	3
50	4	59	48	46	25	23	22	18
51	4	59	48	46	30	28	27	23
52	4	59	48	46	27	25	24	20
53	4	59	48	46	25	23	22	18
54	4	59	48	46	25	23	22	18
55	4	59	48	46	25	23	22	18
56	4	59	48	46	10	8	7	3
57	4	59	48	46	29	27	26	22
58	4	59	48	46	16	14	13	9
59	4	59	48	46	5	3	2	0
60	4	59	48	46	25	23	22	18
61	4	59	48	46	27	25	24	20
62	4	59	48	46	9	7	6	2
63	4	59	48	46	5	3	2	0
64	4	59	48	46	46	44	43	39
65	4	59	48	46	34	32	31	27
66	4	59	48	46	14	12	11	7
67	4	59	48	46	30	28	27	23



Receiver	NCA	NML dB(A)			Predicted maximum L _{Aeq 15min} dB(A)			
		Day	Evening	Night	Intersection (Evening / Night)	Intersection (Day)	Line marking (Evening / Night)	Line marking (Day)
68	4	59	48	46	31	29	28	24
69	4	59	48	46	42	40	39	35
70	4	59	48	46	51	49	48	44
71	4	59	48	46	33	31	30	26
72	4	59	48	46	29	27	26	22
73	4	59	48	46	21	19	18	14
74	4	59	48	46	24	22	21	17
75	4	59	48	46	20	18	17	13
76	4	59	48	46	22	20	19	15
77	4	59	48	46	21	19	18	14
78	4	59	48	46	10	8	7	3
79	4	59	48	46	5	3	2	0
81	4	59	48	46	39	37	36	32
82	4	59	48	46	39	37	36	32
83	4	59	48	46	40	38	37	33
84	4	59	48	46	39	37	36	32
85	4	59	48	46	38	36	35	31
86	4	59	48	46	25	23	22	18
87	4	59	48	46	28	26	25	21
88	4	59	48	46	21	19	18	14
89	4	59	48	46	40	38	37	33
90	4	59	48	46	41	39	38	34
90	4	59	48	46	21	19	18	14
91	4	59	48	46	41	39	38	34
92	4	59	48	46	41	39	38	34
93	4	59	48	46	41	39	38	34
94	4	59	48	46	25	23	22	18
95	4	59	48	46	40	38	37	33
96	4	59	48	46	40	38	37	33
97	4	59	48	46	40	38	37	33
98	4	59	48	46	39	37	36	32
99	4	59	48	46	29	27	26	22
100	4	59	48	46	38	36	35	31
101	4	59	48	46	38	36	35	31
102	4	59	48	46	38	36	35	31



The noise levels calculated in **Table 2** were all found to be at or below the NMLs at each of the nearest receivers.

4. Conclusion

An assessment was completed using SoundPlan version 7.3 to evaluate whether noise impacts were likely to result from upgrade activities around the intersection of the Pacific Highway and Old Coast Road. Predictions indicated that NMLs were not likely to be exceeded at any of the nearest 102 receivers, and as such that no specific noise mitigation measures should be required during the works.

Yours sincerely

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