



ENVIRONMENTAL MONITORING REPORT, JANUARY 2020

PARRAMATTA LIGHT RAIL INFRASTRUCTURE WORKS

29 January 2020

Parramatta
Connect

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1. Introduction

1.1. Background

Parramatta Light Rail Stage 1 ('Stage 1') will connect Westmead to Carlingford via Parramatta Central Business District (CBD) and Camellia. Stage 1 is expected to be operational in 2023.

Stage 1 will create new communities, connect great places and help both local residents and visitors move around and explore what the region has to offer. The route will link Parramatta's CBD and train station to a number of key locations, including the Westmead Precinct, the Parramatta North Growth Centre, the new Western Sydney Stadium, the Camellia Town Centre, the new Powerhouse Museum and Riverside Theatre arts and cultural precinct, the private and social housing redevelopment at Telopea, the Rosehill Gardens Racecourse and the three Western Sydney University campuses.

Key features of Stage 1 include:

- A new dual track light rail network of approximately twelve (12) kilometres in length, including approximately seven (7) kilometres within the existing road corridor and approximately five (5) kilometres within the existing Carlingford Line and Sandown Line, replacing current heavy rail services
- Sixteen (16) stops that are fully accessible and integrated into the urban environment including a terminus stop at each end of Westmead and Carlingford
- High frequency 'turn-up-and-go' services operating seven days a week from 5am to 1am. Weekday services will operate approximately every 7.5 minutes in the peak period between 7am and 7pm
- Modern and comfortable air-conditioned light rail vehicles, nominally 45 metres long and driver-operated, each carrying up to 300 passengers.
- Intermodal interchanges with existing public transport services at Westmead terminus, Parramatta CBD and the Carlingford terminus
- Creation of two light rail and pedestrian zones (no general vehicle access) within the Parramatta CBD along Church Street (generally between Market Street and Macquarie Street) and along Macquarie Street (generally between Horwood Place and Smith Street)
- A Stabling and Maintenance (SaM) Facility located in Camellia for light rail vehicles to be stabled, cleaned and maintained
- New bridge structures along the alignment including over James Ruse Drive and Clay Cliff Creek, Parramatta River (near the Cumberland Hospital), Kissing Point Road and Vineyard Creek, Rydalmere
- Alterations to the existing road network including line marking, additional traffic lanes and turning lanes, new traffic signals, and changes to traffic flows
- Relocation and protection of existing utilities
- Public domain and urban design works along the corridor and at Stop precincts
- Closure of the heavy rail line between Carlingford and Clyde
- Active transport corridors and additional urban design features along sections of the alignment and within Stop precincts
- Integration with the Opal Electronic Ticketing System (ETS)
- Real time information in light rail vehicles and at Stops via visual displays and audio.



1.1.1. Statutory Context

A Construction Environmental Management Plan (CEMP) is being prepared for the Parramatta Light Rail Package 4 – Infrastructure Works (Infrastructure Works). The purpose of the CEMP and associated Sub-plans is to address the requirements of the Minister’s Conditions of Approval (CoA) SSI-8285, the Revised Environmental Mitigation and Management Measures (REMMMs) and Environmental Performance Outcomes (EPO’s) listed in Parramatta Light Rail Stage 1 Westmead to Carlingford via Parramatta CBD and Camellia Environmental Impact Statement (the EIS), as amended by the Parramatta Light Rail (Stage 1) Westmead to Carlingford via Parramatta CBD and Camellia Submissions Report (incorporating Preferred Infrastructure Report) (February 2018) (the SPIR). In addition, the CEMP addresses all applicable legislation and contractual requirements, including the PLR Stage 1 Infrastructure Contract Project Deed (ISD-17-6721).

The Parramatta Light Rail was subject to environmental impact assessment under the *Environmental Planning and Assessment Act 1979* (EP&A Act). It is classified as Critical State Significant Infrastructure (CSSI). The EIS assessed impacts for Parramatta Light Rail Stage 1 (Westmead to Carlingford). This covered the light rail and associated works including road enabling work.

Stage 1 received Infrastructure Approval from the Minister for Planning under Section 5.19 of the EP&A Act on 29 May 2018 (Critical State Significant Infrastructure Application SSI-8285), subject to the conditions provided in the Instrument of Approval, specifically Schedule B – Ministerial Conditions of Approval.

The Infrastructure Approval was subsequently modified under Section 5.25 of the EP&A Act on 21 December 2018 and 25 January 2019.

The planning approval, modifications and related environmental assessment documents are located at: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8285

1.2. Scope

The scope of this report is to present monthly results of the inspection and monitoring programs outlined in the Infrastructure Works CEMP and associated Sub-plans.

Environmental inspections and monitoring are undertaken to:

- Validate the predicted impacts of the Infrastructure Works
- Measure the effectiveness of environmental controls
- Track progress against targets and objectives of the CEMP.

The monitoring requirements for nominated aspects are included in the relevant environmental management sub plans and summarised in **Table 1-1**.

Where relevant, data will be presented on a progressive basis (i.e. monthly summary) to identify trends.

The data of the monitoring programs will also be reviewed annually in the Annual Environment Reports.

Table 1-1 Monthly Environmental Monitoring Reporting Requirements

CEMP or Sub-plan	Monitoring program
CEMP	– External Inspections with TfNSW, ER or other interested parties
Noise and Vibration Management Sub-plan	– Locations and descriptions of monitoring undertaken – Noise monitoring results – Summary of any exceedance of the nominated criteria – Corrective actions
Flora and Fauna Management Sub-plan	– Weed survey



CEMP or Sub-plan	Monitoring program
	<ul style="list-style-type: none">- Nest boxes- Pre-clearing and clearing supervision- Grey headed flying fox monitoring- Tree removals, relocations and pruning
Soil and Water Management Sub-plan	<ul style="list-style-type: none">- Weather forecasts and observations- Water Quality (Turbidity) monitoring- Discharge and dewatering monitoring
Landscape and Temporary Works Management Sub-plan	<ul style="list-style-type: none">- Light spill observations- Crime Prevention Through Environmental Design (CPTED) inspections- Graffiti and advertising observations and actions
Air Quality Management Sub-plan	<ul style="list-style-type: none">- Weather observations- Dust Deposition Monitoring- Real time aerosol dust monitors- Asbestos fibre air monitoring



2. Site Activities

Table 2-1 provides a summary of the site activities for January 2020.

Table 2-1 Monthly Environmental Monitoring Reporting Requirements

Precinct	Site Activities
Westmead and North Parramatta	<ul style="list-style-type: none">- Utility Investigations- Utility Relocations
Parramatta CBD	<ul style="list-style-type: none">- Utility Investigations- Utility Relocations
Camellia and Carlingford line	<ul style="list-style-type: none">- Utility Investigations- Utility Relocations- T6 Rail Decommissioning



3. Monitoring Results

Section 3 presents summaries of the environmental inspection and monitoring programs completed in January 2020 (reporting period from the 26th of December to the 25th of January). Detailed monitoring results for each program are presented in the Appendices.

No monitoring or inspections were completed under the following programs during January 2020:

- Landscape and Temporary Works
- Air Quality Management.

3.1. Inspections

Two inspections were completed in January 2020. **Table 3-1** provides a summary of the number of actions raised and closed within the agreed timeframe.

Table 3-1 Inspections for January 2019

Date	Type	Actions	Closed in time
14/01/2020	ER Inspection	1	Yes
21/01/2020	ER Inspection	0	-
Total	2	1	Yes

3.2. Weather

Weather during January 2020 was dry and windy. The total rainfall was 61.4 mm with 8 rain day (days with >1mm of rain). No rain days exceeded the 80th percentile.

During this reporting period there were 28 days (31 days in the reporting period) where the maximum wind gust recorded was greater than 25km/hr, and 3 days where the maximum wind gust recorded was greater than 50km/hr. 7 days of wind greater than 25km/hr were forecast and on each of those days notifications were issued to the construction team to alert them of the strong winds forecast. This month there was minimal ground disturbance works, so risk of dust generation was low. No complaints relating to dust generation were received.

A summary of the month's weather observations and weather events relevant to the Soil and Water Management Sub-plan and Air Quality Management Sub-Plan Trigger Action Response Plans (TARPs) are summarised in **Table 3-2**. A comparison between long term monthly means and recorded values can be found in **Figure 3-1** for rainfall and **Figure 3-2** for rain days >1mm.

Detailed weather observations records for January 2020 are presented in **Appendix A-1**.

Table 3-2 Weather Summary and Trigger Weather Events for January¹ 2020

Weather event	Forecast	Observation
Minimum temperature	-	14.5 °C
Maximum temperature	-	47 °C
Total rainfall	-	61.4 mm



Weather event	Forecast	Observation
Number of days with rain (>1mm)	-	8 day
>80 th percentile (25.8mm) rain events	-	0
>85 th percentile (33.1mm) rain events	-	0
Flood warning / events	0	0
>25km/hr wind ²	7 days	28 days
>50km/hr wind	0 days	3 days

1. Weather summary based on data from the 26 December to 25 January (31 days).
2. Wind data from Sydney Olympic Park AWS (Archery Centre) {station 066212}. Weather data from Parramatta North (Masons Drive) {station 066124}.

Note: Red text in Observation column indicates observation greater than forecast.

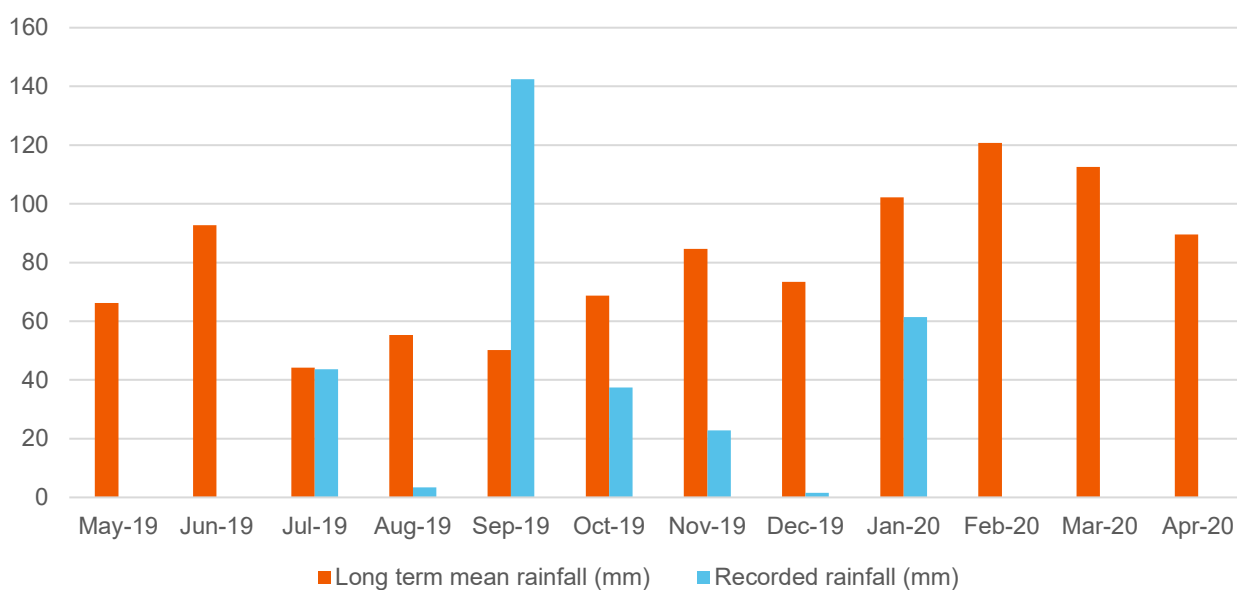


Figure 3-1 Monthly rainfall comparison

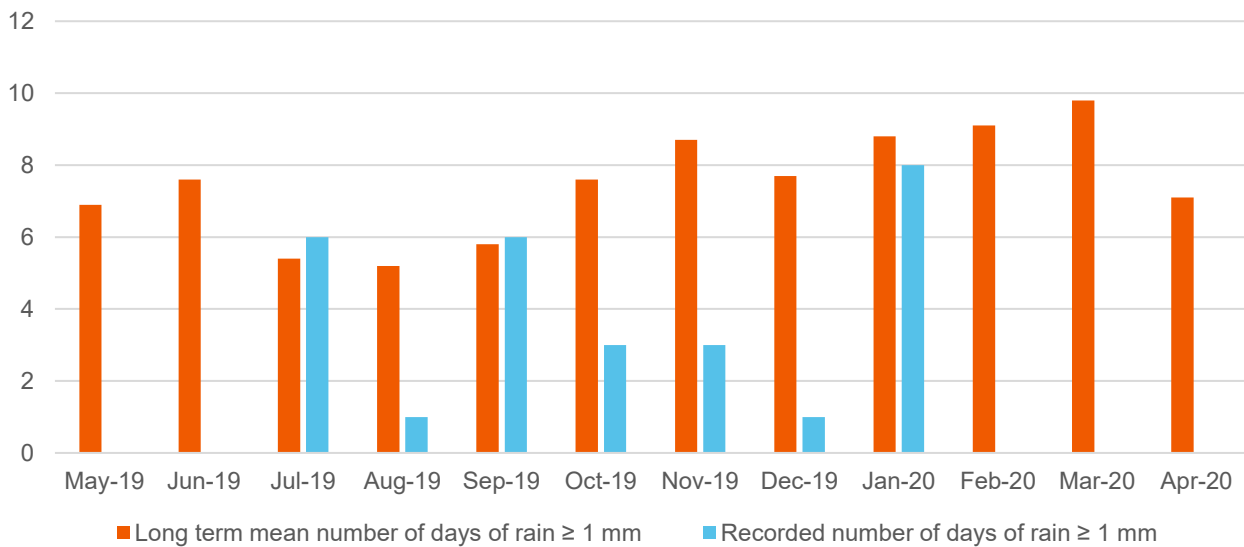


Figure 3-2 Monthly rain days comparison

3.3. Noise and Vibration

During January 2020, one new work commenced.

- T6 Rail Corridor Decommissioning works – Out of hours and standard hours

Out of hours noise monitoring was conducted for works requiring noise monitoring.

Table 3-3 provides a summary of noise monitoring events completed in January 2020. Detailed noise monitoring results and comments for January 2020 are presented in **Appendix A-2**.

Table 3-3 Summary of noise monitoring January 2020

Date	Monitoring Location	Description
06/01/2020	24 Hamilton Street, Granville	OOHW Period 2: Overhead wire removal for T6 Rail Corridor Decommissioning
08/01/2020	213 Victoria Road, Rydalmere	OOHW Period 2: Overhead wire removal for T6 Rail Corridor Decommissioning
11/01/2020	2-8 East Street, Granville	OOHW Period 2: Piling for the T6 Rail Corridor Decommissioning

Vibration monitoring was conducted as required. **Table 3-4** provides a summary of vibration monitoring events completed in January 2020. Detailed vibration monitoring results and comments for January 2020 are presented in **Appendix A-2**.



Table 3-4 Summary of vibration monitoring January 2020

Date	Monitoring Location	Description
11/01/2020	Monitoring place attached to base of the bridge on the south-eastern side.	Parramatta Road Heritage Bridge at the intersection of the T6 Rail Line and Parramatta Road

3.4. Flora and Fauna

3.4.1. Tree removals

A summary of tree removals in January 2020 has been included in **Table 3-5** below.

Table 3-5 Summary of Tree Removals January 2020

Tree Protection Plan Name (Document Number)	Trees Removed	Date of Approval	Date of Removal
Grand Avenue North UTC (PLR1INF-CPBD-A03-EO-RPT-000007)	4772, 4773, 4775	29/11/2019	24/01/2020

3.5. Soil and Water

3.5.1. Water quality (turbidity) in receiving waters

There were no water quality monitoring events undertaken in January 2020.

3.5.2. Discharge and dewatering

There was no discharge or dewatering events in January 2020.



Appendices



A-1 Weather Observations

Table A-1-1 Weather observations: Parramatta North (Masons Drive) {station 066124}.

Date	Temps		Rain	Temp	9:00 AM			
	Min	Max			RH	Cld	Dir	Spd
	°C	°C	mm	°C	%	8th	km/h	
26/12/2019	16.2	31.2	0	21.2	86	0	NE	2
27/12/2019	16	30.7	0	23.2	72	0	NNW	2
28/12/2019	15.2	37.5	0	24.5	62	0	NE	4
29/12/2019	16.6	32.5	0	22	76	6	NW	4
30/12/2019	16.3	36.5	0	23.3	76	4	SW	2
31/12/2019	17	44	0	29.2	48	0		
1/01/2020	19	27.5	0	21.5	62	7	SSE	2
2/01/2020	18.6	28	0	21.2	68	8	SSE	2
3/01/2020	20.2	33	0	24.5	71	5	SE	6
4/01/2020	19.2	47	0	29	56	0	NW	4
5/01/2020	21.2	26.8	0	23	59	5	SE	9
6/01/2020	16.5	23.8	0	21	73	8	E	2
7/01/2020	19.5	32.7	4.2	22.7	83	8	NNW	6
8/01/2020	21.2	29	0.4	23	83	8	S	2
9/01/2020	20.2	26	0	21.5	78	8	SE	2
10/01/2020	20.4	35	0	25	73	7	NW	6
11/01/2020	18	23.3	0.4	18.8	83	8	SSW	26
12/01/2020	18.2	21.8	0.2	21.2	58	6	ENE	4
13/01/2020	14.5	26.7	1.2	20.5	73	5	W	2
14/01/2020	15.2	28.4	0	23.5	73	7	E	2
15/01/2020	15.5	30.5	0	23.2	71	6	NE	2
16/01/2020	15.5	30.2	3.4	22	91	8	NW	4
17/01/2020	17.8	22	24	18.3	97	8	SSW	9
18/01/2020	17.6	23.3	14	21.3	82	8	SSW	11
19/01/2020	17.8	25.2	5.6	20.2	91	8	WSW	4
20/01/2020	18.2	32	0.4	24.2	83	5	SE	6
21/01/2020	18.8	33	0.2	25.8	41	0	WSW	9
22/01/2020	17.2	33.8	0	25.4	69	0	NNW	6
23/01/2020	17.2	41.2	0	31	44	3	NW	15
24/01/2020	20.6	29	2.2	22.4	91	7	SSE	2
25/01/2020	21.4	30.6	5.2	23.2	85	7	SE	2



Table A-1-2 Wind observations: Sydney Olympic Park AWS (Archery Centre) {station 066212}.

Date	Max Wind Gust			9:00 AM		3:00 PM	
	Dir	Spd	Time	Dir	Spd	Dir	Spd
		km/h	local		km/h		km/h
26/12/2019	E	41	14:03	N	11	ENE	17
27/12/2019	NE	43	17:17	N	9	E	20
28/12/2019	E	31	14:08	E	7	E	19
29/12/2019	SE	20	13:01	NW	6	SE	13
30/12/2019	E	31	14:24		Calm	E	17
31/12/2019	SSE	56	17:09		Calm	NNW	20
1/01/2020	SE	37	14:18	SW	4	ESE	20
2/01/2020	ESE	31	14:56	SSE	11	E	20
3/01/2020	NE	43	16:44	NNW	2	E	19
4/01/2020	SSE	48	20:51	WSW	2	WNW	19
5/01/2020	S	41	23:06	S	17	S	22
6/01/2020	E	24	15:16	E	11	ENE	11
7/01/2020	E	26	16:26	NNW	2	NNE	7
8/01/2020	SE	37	15:11	S	11	SSE	20
9/01/2020	SE	26	11:05	S	13	SE	13
10/01/2020	ENE	41	17:14	N	11	E	20
11/01/2020	SE	54	0:47	SE	20	SE	15
12/01/2020	SSE	31	16:26	SE	15	SSE	11
13/01/2020	ESE	35	16:23	W	4	ESE	19
14/01/2020	ESE	35	13:15		Calm	E	19
15/01/2020	E	31	13:13		Calm	E	13
16/01/2020	SSE	37	17:25	NNW	6	NNE	6
17/01/2020	S	35	6:37	SSW	11	S	11
18/01/2020	S	35	8:28	SSW	15	SW	6
19/01/2020	SE	20	16:10	WNW	4	WSW	6
20/01/2020	S	35	16:16	SE	7	ENE	15
21/01/2020	ESE	39	16:39	NW	17	SE	17
22/01/2020	E	39	14:55	NNW	2	ENE	11
23/01/2020	NW	61	12:23	NNW	19	NW	22
24/01/2020	NNW	43	23:04	SSE	9	ESE	11
25/01/2020	ESE	30	12:00	E	11	E	17

Notes:

Blue text indicates a rain event greater than 1mm of rain.

Orange text indicates a rain event greater than the 80th percentile of 25.8mm, and a wind speed of greater than 25km/hr

Red text indicates a rain event greater than the 85th percentile of 33.1mm, and a wind speed greater than 50km/hr.



A-2 Noise and Vibration Monitoring Results

Table A-2-1 Noise monitoring results

Date	Time	Out of Hours Works Period	Construction Activity	Activity Location	Monitoring Location	NML (dBA)	Predicted (dBA)	Additional Mitigation Measures	Specified Noise Limit	Recorded _{Leq, 15min} (dBA)	Exceedance of Specified Noise Limit (dBA)	Construction noise exceedance	Comments
06/01/2020	22:00	OOHW Period 2	Overhead wire removal for T6 Rail Corridor Decommissioning	T6 Rail corridor south of Parramatta Road	24 Hamilton Street, Granville	47	52-62	PN, V	62	62.1	0.1	No	Construction noise audible; Works involve overhead wire removal using EWP. Work noise from EWP quacker when positioning Road noise from M4 bridge clearly audible during monitoring; Truck and motorcycle noise louder than construction noise.
08/01/2020	22:00	OOHW Period 2	Overhead wire removal for T6 Rail Corridor Decommissioning	T6 Rail corridor north of Victoria Road	213 Victoria Road, Rydalmere	43	48-58	PN, V	58	43.5	-14.5	No	Construction noise audible; Works involve overhead wire removal using EWP and hand equipment. Construction noise from light vehicles and EWP quacker during positioning. Traffic noise from Victoria Road.
11/01/2020	04:00	OOHW Period 2	Piling for the T6 Rail Corridor Decommissioning at the intersection of Parramatta Road and the T6 Rail Line	T6 Rail Corridor south of Parramatta Road	2-8 East Street, Granville	47	52-62	PN, V	62	30.7	-31.3	No	Construction noise inaudible;

Notes:

Standard hours: Monday to Friday 7:00 am to 6:00 pm. Saturday 8:00 am to 1:00 pm

OOHW Period 1 is defined as:

- a) 6:00pm to 10:00pm (evenings) Monday to Saturday
- b) 7:00am to 8:00am and 1:00pm to 10:00pm (day & evening) Saturday and
- c) 8:00am to 6:00pm Sunday and public holidays (days).

OOHW Period 2 is defined as:

- a) 10:00pm to 7:00am (nights) Monday to Saturday and
6:00pm to 8:00am (nights) Sundays and public holidays.

Additional Mitigation Measures

- PN = Project Notification
- V = Verification Monitoring
- RP = Respite Period
- AA = Alternate Accommodation
- SN = Specific Notification / individual briefing or phone call
- DR = Duration Reduction
- RO = Project Specific Respite Offer

Table A-2-2 Vibration monitoring results

Date	Time	Out of Hours Works Period	Construction Activity	Activity Location	Monitoring Location	Target	Recorded PPV	Exceedance of Target	Construction vibration exceedance	Comments
11/01/2020	03:54	OOHW Period 2	Bored piling (CFA) for impact wall construction	T6 Rail corridor south of Parramatta Road	Monitoring plate attached to the base of the Heritage Bridge on the south-eastern side	2.5 mm/s	Max: 0.4 mm/s	No	No	No construction vibration exceedance

