



# ENVIRONMENTAL MONITORING REPORT, SEPTEMBER 2022

## PARRAMATTA LIGHT RAIL INFRASTRUCTURE WORKS

6 October 2022

**Parramatta**  
Connect

# Contents

<b>1. Introduction</b> .....	<b>1</b>
1.1. Background .....	1
1.1.1. Statutory Context .....	2
1.2. Scope .....	2
<b>2. Site Activities</b> .....	<b>4</b>
<b>3. Monitoring Results</b> .....	<b>5</b>
3.1. Inspections .....	5
3.2. Weather .....	5
3.3. Noise and Vibration .....	7
3.4. Soil and Water .....	8
3.4.1. Water quality in receiving waters .....	8
3.4.2. Discharge and dewatering .....	9
3.5. Air Quality .....	9
3.5.1. Dust Deposition Monitoring .....	9
3.5.2. Asbestos Fibre Monitoring .....	9
3.6. Flora and Fauna .....	9
3.6.1. Grey-Headed Flying Fox Monitoring .....	9
3.7. Issues/incidents/non-compliance .....	10
<b>Appendices</b> .....	<b>11</b>
A-1 Weather Observations .....	11
A-2 Noise and Vibration Monitoring Results .....	13
A-3 Water Sampling and Discharge Results .....	15
A-4 Air Quality Monitoring Results .....	17



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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

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

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](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8285).

A Construction Environmental Management Plan (CEMP) has been 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
- Revised Environmental Mitigation and Management Measures (REMMMs)
- Environmental Performance Outcomes (EPOs)
- Applicable legislation and contractual requirements, including the PLR Stage 1 Infrastructure Contract Project Deed (ISD-17-6721).

The REMMMs and EPOs are 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) (March 2018) (the SPIR). The CEMP and associated Sub-plans were approved the Secretary on the 21 November 2019.

## 1.2. Scope

The scope of this report is report is to present monthly results of the inspection and monitoring programs outlined in the Infrastructure Works CEMP and associated Sub-plans, including the results of the construction monitoring programs referred to in Condition C9 of the Planning Infrastructure Approval.

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 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 Report.



**Table 1-1 Monthly Environmental Monitoring Reporting Requirements**

<b>CEMP or Sub-plan</b>	<b>Monitoring program</b>	<b>Distribution</b>
Noise and Vibration Management Sub-plan	<ul style="list-style-type: none"> <li>- Locations and descriptions of monitoring undertaken</li> <li>- Noise monitoring results</li> <li>- Summary of any exceedance of the nominated criteria</li> <li>- Corrective actions</li> </ul>	<ul style="list-style-type: none"> <li>- City of Paramatta Council</li> <li>- Cumberland Council</li> <li>- EPA</li> <li>- NSW Health</li> <li>- TfNSW</li> <li>- IC</li> <li>- ER</li> <li>- AA</li> <li>- Made publicly available</li> </ul>
Soil and Water Management Sub-plan	<ul style="list-style-type: none"> <li>- Weather forecasts and observations</li> <li>- Water Quality (Turbidity) monitoring</li> <li>- Discharge and dewatering monitoring</li> </ul>	<ul style="list-style-type: none"> <li>- City of Paramatta Council</li> <li>- Cumberland Council</li> <li>- EPA</li> <li>- DOI Water</li> <li>- TfNSW</li> <li>- IC</li> <li>- Made publicly available</li> </ul>
Air Quality and Dust Management Sub-plan	<ul style="list-style-type: none"> <li>- Weather observations</li> <li>- Dust deposition monitoring</li> <li>- Real time aerosol dust monitors</li> <li>- Asbestos fibre air monitoring</li> </ul>	<ul style="list-style-type: none"> <li>- EPA</li> <li>- TfNSW</li> <li>- IC</li> <li>- Made publicly available</li> </ul>
Grey-headed Flying-fox (GHFF) Construction Monitoring Program	<ul style="list-style-type: none"> <li>- Weekly visual checks of GHFF camp during high risk periods (1 September to 31 January)</li> </ul>	<ul style="list-style-type: none"> <li>- TfNSW</li> </ul>



## 2. Site Activities

**Table 2-1** provides a summary of the site activities for this reporting period (26 August 2022 to 25 September 2022).

**Table 2-1 Site activities during reporting period**

Precinct	Site Activities
Westmead and North Parramatta	<ul style="list-style-type: none"><li>– Line marking</li><li>– Defects</li><li>– Demobilisation</li></ul>
Parramatta CBD	<ul style="list-style-type: none"><li>– Defects</li><li>– Demobilisation</li></ul>
Camellia and Carlingford line	<ul style="list-style-type: none"><li>– Defects</li><li>– Demobilisation</li></ul>



## 3. Monitoring Results

Section 3 presents a summary of the environmental inspection and monitoring programs completed during the reporting period (26 August 2022 to 25 September 2022). Detailed monitoring results for each activity are presented in the appendices to this report.

### 3.1. Inspections

A total of two ER inspections and one AA inspection were completed during the reporting period in addition to 16 internal inspections. It is also noted that TfNSW attend all ER inspections.

**Table 3-1** provides a summary of the number of actions raised and closed within the agreed timeframe.

**Table 3-1 Inspections for reporting period**

Date	Number of Inspections	Type	Actions	Closed in Time
29/08/22	3	Internal Inspection	5	Yes
30/08/22	1	Internal Inspection	1	Yes
30/08/22	1	ER Inspection	4	Yes
31/08/22	1	Internal Inspection	1	Yes
01/09/22	1	Internal Inspection	1	Yes
02/09/22	2	Internal Inspection	2	Yes
05/09/22	2	Internal Inspection	1	Yes
05/09/22	1	AA Inspection	0	N/A
06/09/22	1	Internal Inspection	0	N/A
09/09/22	1	Internal Inspection	0	N/A
10/09/22	1	Internal Inspection	0	N/A
14/09/22	1	Internal Inspection	2	Yes
14/09/22	1	ER Inspection	2	Yes
15/09/22	1	Internal Inspection	2	Yes
19/09/22	1	Internal Inspection	1	Yes
<b>Total</b>	<b>19</b>	<b>-</b>	<b>22</b>	<b>-</b>





## 3.2. Weather

The total rainfall recorded during the reporting period was 77.4 mm with 14 days exceeding one millimetre of rain. No events exceeded the 80<sup>th</sup> percentile (25.8mm).

During the reporting period, there were 26 days where the maximum wind gust recorded was greater than 25km/hr and no days where the maximum wind gust recorded was greater than 50km/h. There were four days where wind speeds greater than 25km/hr were forecast and no days where wind speeds greater than 50km/hr were forecast. On these days, a notification was issued to the construction team to alert them of the strong winds forecast, including direction for necessary controls to be implemented.

A summary of the weather observations and weather events during the reporting period of relevance to the Soil and Water Management Sub-plan and Air Quality Management Sub-plan Trigger Action Response Plans (TARPs) are summarised in **Table 7-2**. A comparison between long term monthly means and recorded values can be found in **Figure 3-2**.

Detailed weather observation records for the reporting period are presented in **Appendix A-1**.

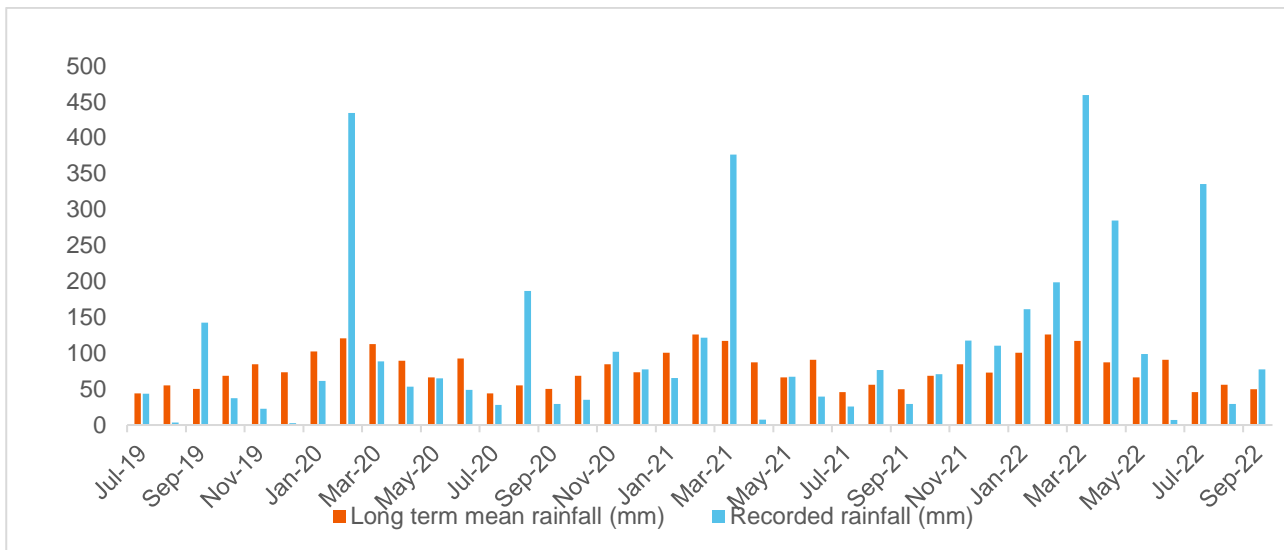
**Table 3-2 Weather summary and trigger weather events for reporting period<sup>1</sup>**

Weather Event	Forecast	Observation
Minimum temperature	7.0°C	5.2°C
Maximum temperature	24.0°C	24.2°C
Total rainfall	118.8 mm	77.4 mm
Number of days with rain (>1mm)	18 days	14 days
>80 <sup>th</sup> percentile (25.8mm) rain events	No events	No events
>85 <sup>th</sup> percentile (33.1mm) rain events	No events	No events
Flood warning / events	No events	No events
>25km/hr wind <sup>2</sup>	4 days	26 days
>50km/hr wind	No days	No days
>60km/hr wind	No days	No days

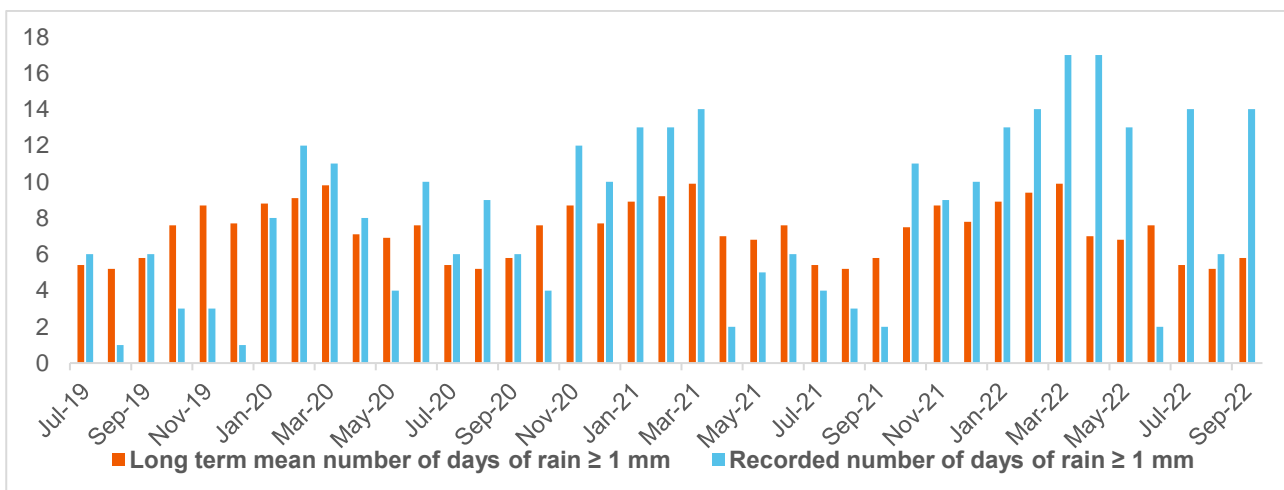
<sup>1</sup>Weather summary based on data from the 26 August 2022 to 25 September 2022 (31 days).

<sup>2</sup>Wind data from Sydney Olympic Park AWS (Archery Centre) {station 066212}. Weather data from Parramatta North (Masons Drive) {station 066124}.

Note: Red text indicates observation greater than forecast.



**Figure 3-1 Monthly rainfall comparison**



**Figure 3-2 Monthly rain days comparison**

### 3.3. Noise and Vibration

**Table 3-3** provides a summary of noise monitoring events conducted during the reporting period. Detailed noise monitoring results and comments are presented in **Appendix A-2**. There were no exceedances of the predicted noise level ( $L_{Aeq15min}$ ) during the reporting period.

Additional information on the hours of works, respite requirements and alternative accommodation is provided in the Noise and Vibration Management Sub-plan (Section 11.3).

Vibration monitoring events completed during the reporting period are summarised in **Table 3-4** and detailed in **Appendix A-2**. During the reporting period, no attended vibration monitoring was undertaken and as such, there are no entries in **Table A-2-2**.

All noise and vibration monitors available during the reporting period, together with current NATA calibration data, are provided in **Table 3-5**.

Continuous noise and vibration monitoring commenced in June 2020 at medical facilities in Westmead that have been identified as sensitive receivers. The locations of the noise and vibration monitors and the trigger levels were developed by noise and vibration consultant Renzo Tonin in December 2019 (HAC Assessment



System, 19 December 2019). Reflecting the completion of significant construction works, the continuous noise and vibration monitoring program was concluded on 6 July 2022. On this date, all noise and vibration monitors were removed with the agreement of HAC.

**Table 3-3 Summary of noise monitoring for reporting period**

Date	Monitoring Location	Attended/Continuous	Description
23/09/2022	157 Hawkesbury Rd, Westmead	Attended	Trackworks
23/09/2022	Arthur Phillip High School, Parramatta	Attended	Finishing Works
23/09/2022	9 Noller Pde, Parramatta	Attended	Finishing Works

**Table 3-4 Summary of vibration monitoring for reporting period**

Date	Monitoring Location	Attended/Continuous	Description
-	-	-	-

**Table 3-5 Noise and vibration monitors and NATA Calibration**

Equipment	Serial Number	Calibration Date
Noise Level Meter	00973277	2/12/2023
Noise Level Meter	00661732	15/06/2023
Noise Level Meter	00973275	17/12/2023
Vibration Monitor	BE14639	10/02/2023
Vibration Monitor	BE17441	14/07/2023

## 3.4. Soil and Water


### 3.4.1. Water quality in receiving waters

A pre-construction investigation to establish water quality objectives for the project is included within the EIS Technical Paper 6 – Water Quality Assessment.

Wet weather monitoring undertaken during the reporting period is summarised in **Table 3-6** and detailed in **Table A-3-1**. The monitoring was undertaken during a 23.3 mm, 4-day rainfall event. Water levels were low to medium during the wet sampling. Overall, there was a moderate amount of debris or leaf litter present. All results were within the water quality objectives during the reporting period except for CC1 and CC2 which exceeded the trigger value for turbidity. In this case, the downstream turbidity result was less than the upstream result. As such, the Site-Specific Trigger Value was not exceeded.

**Table 3-6 Water Quality in Receiving Waters**

Date	Type	Type of Results	Wet / Dry	Locations
07/09/22	Monitoring during construction	Laboratory	Wet	Domain Creek: DC1 Clay Cliff Creek: CC1, CC2 Parramatta River: PR3, PR4, PR5, PR6 Subiaco Creek: SC1



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A'beckets Creek (AC1, AC2), Parramatta River (PR1, PR2) and Vineyard Creek (VY1, VY2) were inaccessible during the monitoring event.

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**Table 3-7 Water Monitor Calibration**

Equipment <sup>1</sup>	Serial Number	Calibration Date
Water Quality Monitor	TN4DYW19	03/02/2023

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<sup>1</sup>All equipment is calibrated by NATA standards.

### 3.4.2. Discharge and dewatering

There were no discharge events during the reporting period.

## 3.5. Air Quality

### 3.5.1. Dust Deposition Monitoring

A dust deposition gauge was installed at 13A Grand Avenue in Camellia in December 2019 in advance of works which commenced at the beginning of February 2020. Additional dust gauges were progressively installed at Rydalmere Station, Dundas Station, Carlingford and Telopea in advance of large-scale earthworks.

As of November 2021, the gauges at Carlingford, Telopea and 13A Grand Avenue were removed following conclusion of large-scale earthworks. In December 2021 and early January 2022, the gauges at Rydalmere Station and Dundas Station, respectively, were similarly removed. As such, the dust deposition monitoring program has concluded.

### 3.5.2. Asbestos Fibre Monitoring

Asbestos air monitoring is completed in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC: 3003(2005)], with NATA certification applying to all sample collection, handling and analytical procedures.

Asbestos Fibre Monitoring results are summarised in **Table A-4-1** in **Appendix A-4**. All reported results were satisfactory and conform with the minimum action level of <0.01 fibres /mL for control monitoring as outlined in Work, Health and Safety (2017) Regulation; and SafeWork NSW (2019) Code of Practice – How to Safely Remove Asbestos.

## 3.6. Flora and Fauna

### 3.6.1. Grey-Headed Flying Fox Monitoring

A Grey-Headed Flying Fox (GHFF) camp is located in Parramatta Park which lies approximately 150m from the project boundary at the nearest point.

Under Condition of Approval C9, a GHFF Construction Monitoring Program has been developed by TfNSW. The requirements of this Program have been reflected in the Flora and Fauna Management Sub-plan and include visual inspections on a weekly basis during the 'high risk' months of September to January. If distress is observed within the camp, immediate notification must be provided to TfNSW.



In addition, as required by the Environmental Work Method Statement for Bridge Road Bridge, a trained ecologist from Narla Environmental is required to undertake additional inspections of the camp during bridge piling works (**Table 3-9**).

During the reporting period, no indicators of stress or abnormal behaviour were observed during inspections.

**Table 3-9 Observations from Visual Monitoring of Grey Headed Flying Fox Camp**

Date	Time	Weather Conditions	Works	Notification Triggers <sup>1</sup>	Comments
07/09/22	16:36	Sunny	No works near vicinity of camp	No	No disturbance identified.
15/09/22	10:33	Overcast	No works near vicinity of camp	No	No disturbance identified.
19/09/22	16:20	Fair	No works near vicinity of camp	No	No disturbance identified.

<sup>1</sup>Notification triggers include: >50% of the roost takes flight for over 20 minutes, GHFF leaving the roost in daylight hours, unusual vocalisations, located on or 2m from the ground, panting, saliva spreading, adults moving away from young, GHFF injured or killed on site (including aborted foetuses).

### 3.7. Issues/incidents/non-compliance

**Table 3-10** provides a summary of environmental compliance during the reporting period. There were no environmental incidents or non-compliances identified during the reporting period.

**Table 3-10** Issues/incidents/non-compliances

Date	Location	Description
-	-	-

# Appendices

## A-1 Weather Observations

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

Date	Temperatures		Rain	Temp	RH	9:00 AM		
	Min	Max				Cld	Dir	Spd
	°C	°C	mm	%	8th			
26/08/2022	6.3	17.8	0	14.2	55	6	SSW	4
27/08/2022	8.8	17.2	3	12.8	91	7	SW	2
28/08/2022	7.2	21.2	3.4	11.5	96	6	SW	2
29/08/2022	9	19.8	0	14.8	96	7	NW	4
30/08/2022	10.5	23.2	0.8	18.6	73	6	N	9
31/08/2022	8	19.6	0	16.2	62	3	SSW	2
1/09/2022	13	22.2	0.2	15.6	91	7	NW	4
2/09/2022	12	17	0	15	87	7	SW	4
3/09/2022	10	15	5.2	10.8	96	8	SSW	9
4/09/2022	9.8	17.5	20.6	13	94	7	SSE	9
5/09/2022	6.2	18.2	2.2	14.4	62	5	SW	4
6/09/2022	7.2	17.2	0	14.5	68	3	SW	4
7/09/2022	7	19.2	0.4	14.6	70	2	WSW	4
8/09/2022	9.2	22	0	17	74	6	N	4
9/09/2022	13.8	20.8	3.6	14.8	94	8	N	2
10/09/2022	11.5	22.7	2	17.2	68	5	NW	4
11/09/2022	8	21.7	0	15.2	53	5	WSW	6
12/09/2022	5.2	20.5	0	13.8	48	0	WSW	15
13/09/2022	8	17.3	0	14.7	69	6	SSE	11
14/09/2022	5.3	18.3	0	14.4	67	2	SW	2
15/09/2022	9.2	18.5	1.2	12.8	93	8	NNW	2
16/09/2022	12	24.2	21	18.2	64	4	NW	4
17/09/2022	13.2	23	0	19.8	50	2	WNW	6
18/09/2022	11.8	22.2	1.4	17	52	5	WNW	6
19/09/2022	10.6	22.7	0	16	57	6	WNW	2
20/09/2022	5.7	21.5	0	15.3	55	0	WSW	2
21/09/2022	11.3	21.2	0	19.7	*	6	NNE	11
22/09/2022	15.2	17.2	6	17	84	7	NE	19
23/09/2022	14.2	20	2.4	17.2	94	8	Calm	
24/09/2022	14.8	21.2	1.6	18.4	86	7	WSW	2
25/09/2022	7.6	22.5	2.4	13.2	97	0	WNW	2



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

Date	Maximum Wind Gusts			9:00 AM		3:00 PM	
	Direction	Speed	Time	Direction	Speed	Direction	Speed
		km/h	local		km/h		km/h
26/08/2022	SE	41	14:10	WSW	9	SSE	20
27/08/2022	SSE	20	11:29	W	6	ESE	11
28/08/2022	ESE	24	14:09	NW	2	E	13
29/08/2022	ESE	20	12:16	NW	9	ENE	7
30/08/2022	N	48	10:24	NNW	17	NNW	20
31/08/2022	E	33	13:20	WSW	11	ESE	19
1/09/2022	E	26	14:48	NNW	6	E	17
2/09/2022	SSE	44	15:16	WNW	6	S	24
3/09/2022	SSE	46	14:02	SSW	11	SSE	15
4/09/2022	SSE	44	9:55	SSE	20	SSE	20
5/09/2022	S	35	15:30	SW	7	SE	19
6/09/2022	ESE	26	13:11	SW	7	SE	15
7/09/2022	ENE	30	14:35	N	2	ENE	11
8/09/2022	NE	33	16:47	N	9	NE	17
9/09/2022	NW	30	23:15	N	2	N	4
10/09/2022	NW	35	13:13	NW	15	WNW	17
11/09/2022	WNW	31	11:45	WNW	17	N	9
12/09/2022	W	41	8:14	W	20	W	9
13/09/2022	ESE	33	15:40	SSW	9	SSE	19
14/09/2022	E	26	14:29	WNW	6	E	17
15/09/2022	WNW	20	11:10	WNW	7	N	6
16/09/2022	WNW	37	14:12	WNW	9	WNW	17
17/09/2022	WNW	46	15:38	NW	11	WNW	15
18/09/2022	NW	43	15:06	NW	9	WNW	19
19/09/2022	WNW	30	12:45	WNW	4	WNW	15
20/09/2022	NE	30	16:19	NW	6	ENE	13
21/09/2022	N	28	9:47	N	9	NE	11
22/09/2022	NE	35	4:18	ENE	11	NE	15
23/09/2022	NNE	24	15:09	Calm		NE	9
24/09/2022	SE	28	11:08	NW	9	ESE	15
25/09/2022	ESE	26	15:42	WNW	7	E	9

Notes:

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

The orange text indicates a rain event greater than the 80<sup>th</sup> percentile of 25.8mm, and a wind speed of greater than 25km/hr

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

\* Data was unavailable.

# A-2 Noise and Vibration Monitoring Results

Table A-2-1 Noise Monitoring Results

Date	Time	Works Period	Construction Activity	Activity Location	Monitoring Location	NML (dBA)	Predicted (dBA)	Additional Mitigation Measures	L <sub>Amax</sub>	Recorded L <sub>eq, 15min</sub> (dBA)	Exceedance of Predicted (dBA)	Exceedance of Predicted	Comments
23/09/2022	15:57	Standard Hours	Trackworks	Hawkesbury Road	157 Hawkesbury Rd, Westmead	61	72	-	77.6	62.5	-9.5	No	Monthly verification noise monitoring. Traffic was dominant noise source.
23/09/2022	14:06	Standard Hours	Finishing Works	Macquarie Street	Arthur Phillip High School, Parramatta	68	79	-	72.9	64.3	-14.7	No	Monthly verification noise monitoring. Non-PLR construction noise was dominant noise source.
23/09/2022	14:38	Standard Hours	Finishing Works	Tramway/Arthur	9 Noller Pde, Parramatta	53	77	-	77.7	55.8	-21.2	No	Monthly verification noise monitoring. Fauna was dominant noise source.

**Standard hours:**

- a) All areas excluding Eat Street and Camellia – Monday to Friday 7:00 am to 7:00 pm. Saturday 8:00 am to 6:00 pm
- b) Eat Street (Church Street between Palmer Street and George Street) – Monday to Friday 7:00 am to 6:00 pm. Saturday 8:00 am to 12:00 pm)
- c) Camellia, Rosehill and Rydalmere (east of James Ruse Drive to Victoria Road) – 24 hours a day and seven days a week provided that sensitive receivers are not affected by noise levels of greater than 5 dBA above the rating background level at any residence

**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

**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.







## A-3 Water Sampling and Discharge Results

Table A-3-1 Water Quality Monitoring - Comments and observations

Location	Waterway	Upstream/ Downstream of Works	Type <sup>3</sup>	Date	Time	pH	Elec. Conduct. (µS/cm)	Turbidity (NTU)	Comments and Observations
						5.5- 8.5 <sup>2</sup>	LR <sup>1</sup> : 125- 2200 <sup>2</sup> E: None	6-50 <sup>2</sup>	
CC1	Clay Cliff Creek	Upstream	Wet	07/09/2022	9:20	8.37	4270	79.4	Sunny weather, moderate amount of rubbish, high turbidity, large amount of leaf litter and vegetation. Exceedance of ANZECC Guideline Trigger Value for turbidity noted; location is upstream and not affected by Parramatta Connect works. CC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
CC2	Clay Cliff Creek	Downstream	Wet	07/09/2022	8:53	8.07	6910	52.6	Sunny weather, large amount of rubbish, high turbidity, large amount of leaf litter and vegetation. Exceedance of ANZECC Guideline Trigger Value for turbidity noted; value is less than the upstream location (CC1). CC2 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
DC1	Domain Creek	Upstream	Wet	07/09/2022	16:29	8.36	637	11.0	Fair weather, no rubbish, slight turbidity, moderate amount of leaf litter and vegetation.
PR3	Parramatta River	Upstream	Wet	07/09/2022	10:16	8.00	360	17.3	Sunny weather, no rubbish, slight turbidity, large amount of leaf litter and vegetation.
PR4	Parramatta River	Downstream	Wet	07/09/2022	10:05	8.11	516	24.1	Sunny weather, no rubbish, slight turbidity, minimal leaf litter and vegetation.
PR5	Parramatta River	Upstream	Wet	07/09/2022	9:35	7.86	15700	11.7	Sunny weather, no rubbish, clear water, no leaf litter or vegetation. PR5 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
PR6	Parramatta River	Downstream	Wet	07/09/2022	13:43	8.06	24400	15.9	Sunny weather, no rubbish, clear water, minimal leaf litter and vegetation. PR6 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
SC1	Subiaco Creek	Upstream	Wet	07/09/2022	13:55	7.92	25900	16.2	Sunny weather, no rubbish, clear water, moderate amount of leaf litter and vegetation. SC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.



## A-5 Air Quality Monitoring Results

Table A-4-1 Summary of Asbestos Fibre Monitoring

Report Number	Date	Location	Start time	End time	Result (Fibres/Fields)	Result (Fibres/mL)
AMR416	5-Sep	NE CORNER OF BRIDGE RAMP	12:00	16:13	0/100	<0.01
AMR416	5-Sep	SE CORNER OF BRIDGE RAMP	12:01	16:14	0/100	<0.01
AMR416	5-Sep	SW CORNER OF BRIDGE RAMP	12:02	16:15	0/100	<0.01
AMR416	5-Sep	SE CORNER OF BRIDGE RAMP	12:03	16:16	0/100	<0.01
AMR417	19-Sep	SOUTHERN PIT, SW BOUNDARY OF EXCLUSION ZONE	8:25	14:34	0/100	<0.01
AMR417	19-Sep	SOUTHERN PIT, E BOUNDARY OF EXCLUSION ZONE	8:28	14:35	0/100	<0.01
AMR417	19-Sep	SOUTHERN PIT, NW BOUNDARY OF EXCLUSION ZONE	8:27	14:36	0/100	<0.01
AMR417	19-Sep	NORTHERN PIT, SW BOUNDARY OF EXCLUSION ZONE	8:31	15:50	0/100	<0.01
AMR417	19-Sep	NORTHERN PIT, E BOUNDARY OF EXCLUSION ZONE	8:31	15:51	0/100	<0.01
AMR417	19-Sep	NORTHERN PIT, NW BOUNDARY OF EXCLUSION ZONE	8:33	15:52	0/100	<0.01
AMR418	20-Sep	SOUTH EXCLUSION ZONE, SOUTH WEST CORNER	7:26	12:11	0/100	<0.01
AMR418	20-Sep	SOUTH EXCLUSION ZONE, EAST BOUNDARY	7:27	12:12	0/100	<0.01
AMR418	20-Sep	SOUTH EXCLUSION ZONE, NORTH WEST CORNER	7:28	12:13	0/100	<0.01
AMR418	20-Sep	NORTH EXCLUSION ZONE, SOUTH WEST CORNER	7:32	12:17	0/100	<0.01
AMR418	20-Sep	NORTH EXCLUSION ZONE, EAST BOUNDARY	7:33	12:18	0/100	<0.01
AMR418	20-Sep	NORTH EXCLUSION ZONE, NORTH WEST CORNER	7:34	12:19	0/100	<0.01