ENVIRONMENTAL MONITORING REPORT, SEPTEMBER 2021

PARRAMATTA LIGHT RAIL INFRASTRUCTURE WORKS

27 September 2021

Parramatta Connect

Contents

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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.

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

CEMP or Sub-plan	Monitoring program	Distribution
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	– City of Paramatta Council – Cumberland Council – EPA – NSW Health – TfNSW – IC – ER – AA – Made publicly available
Soil and Water Management Sub-plan	– Weather forecasts and observations – Water Quality (Turbidity) monitoring – Discharge and dewatering monitoring	– City of Paramatta Council – Cumberland Council – EPA – DOI Water – TfNSW – IC – Made publicly available
Air Quality and Dust Management Sub-plan	– Weather observations – Dust deposition monitoring – Real time aerosol dust monitors – Asbestos fibre air monitoring	– EPA – TfNSW – IC – Made publicly available
Grey-headed Flying-fox (GHFF) Construction Monitoring Program	– Weekly visual checks of GHFF camp during high risk periods (1 September to 31 January)	– TfNSW

2. Site Activities

Table 2-1 provides a summary of the site activities for this reporting period (26 August 2021 to 25 September 2021).

Table 2-1 Site Activities During Reporting Period

Precinct	Site Activities
Westmead and North Parramatta	**Westmead** – Ongoing property adjustment, drainage, Combined Service Route (CSR), track works – Urban design landscaping works commenced **Cumberland** – Ongoing property adjustment, drainage, CSR, track works – Urban design landscaping works commenced **North Parramatta** – Ongoing property adjustment, drainage, CSR, track works – Urban design landscaping works commenced
Parramatta CBD	**Area 2 West (CBD)** – Ongoing general utility works including Multi-Function Poles (MFP) and Low Voltage (LV) – Civil Works (CSR, pavement adjustments, etc): Church Street; Macquarie Street; North Lennox Bridge – Drainage: North Lennox Bridge; Macquarie Street, Smith Street, Harris Street – Track works: Church Street (North Lennox), Macquarie Street – Paving: Church St (including intersections) – Intersection works: – Church/ Phillip including footpath, paving, MFP and Traffic Control Signals (TCS) – Church/George including footpath, paving, MFP and TCS – Macquarie/Smith Street (investigations, drainage, utility adjustments) **Area 2 East (Smith Street to Arthur Street)** – Ongoing general utility works including MFPs, LV and lighting – Civil Works (CSR etc): Macquarie Street; Robin Thomas Reserve; George Street; Tramway Avenue – Drainage Works: Macquarie St; Harris St; George St; – Road construction: Macquarie Street, George Street, Tramway Avenue – George Street Underbore: road construction and reinstatement – Track work: Macquarie Street, George Street – Paving work: Macquarie Street, Tramway Avenue – Landscaping: Tramway Avenue

Precinct	Site Activities

	– Intersection works:
	  ○ Macquarie/Harris
	  ○ George/Purchase
	  ○ George/Alfred

Camellia and Carlingford line	**Camellia** – James Ruse Drive Bridge fit out works and track works. – CSR & drainage at Camellia, Rydalmere & Dundas Stops Final track slab works. **Carlingford Line** – ATL in Carlingford and at the stops – Ballast Tamping and Rail grinding ongoing (Camellia to Carlingford). – Soft landscaping works from Camellia to Carlingford – Camellia, Telopea & Carlingford Stop works ongoing – Footpath connections from Camellia to Carlingford.

3. Monitoring Results

Section 3 presents a summary of the environmental inspection and monitoring programs completed during the reporting period (26 August 2021 to 25 September 2021). Detailed monitoring results for each activity are presented in the appendices to this report.

3.1. Inspections

A total of three ER inspections and two AA inspections were completed during the reporting period in addition to ten internal inspections. It is noted that due to COVID-related restrictions, TfNSW were not able to attend ER inspections or conduct 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
30/08/21	1	Internal Inspection	2	Yes
31/08/21	2	Internal Inspection	7	Yes
31/08/21	1	ER Inspection	3	Yes
02/09/21	1	Internal Inspection	1	Yes
08/09/21	1	Internal Inspection	2	Yes
10/09/21	1	AA Inspection	0	-
13/09/21	1	Internal Inspection	6	Yes
16/09/21	2	Internal Inspection	1	Yes
16/09/21	1	ER Inspection	10	Yes
21/09/21	2	Internal Inspection	11	Yes
21/09/21	1	ER Inspection	9	Yes
23/09/21	1	AA Inspection	1	Yes
Total	**15**	**-**	**53**	**-**

3.2. Weather

The total rainfall recorded during the reporting period was 29.2 mm with two days exceeding one millimetre of rain. No events exceeded the 80th percentile (25.8mm).

During the reporting period, there were 25 days where the maximum wind gust recorded was greater than 25km/hr and two days where the maximum wind gust recorded was greater than 50km/hr. There was a total of nine days where wind speeds greater than 25km/hr were forecast. On those 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[1]

Weather Event	Forecast	Observation
Minimum temperature	4.0°C	5.0°C
Maximum temperature	29.0°C	30.0°C
Total rainfall	38.0 mm	29.2 mm
Number of days with rain (>1mm)	6 days	2 days
>80th percentile (25.8mm) rain events	No days	No days
>80th percentile (33.1mm) rain events	No days	No days
Flood warning / events	No events	No events
>25km/hr wind[2]	9 days	25 days
>50km/hr wind	No days	2 days
>60km/hr wind	No days	No days

[1]Weather summary based on data from the 26 August 2021 to 25 September 2021 (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 indicates observation greater than forecast.

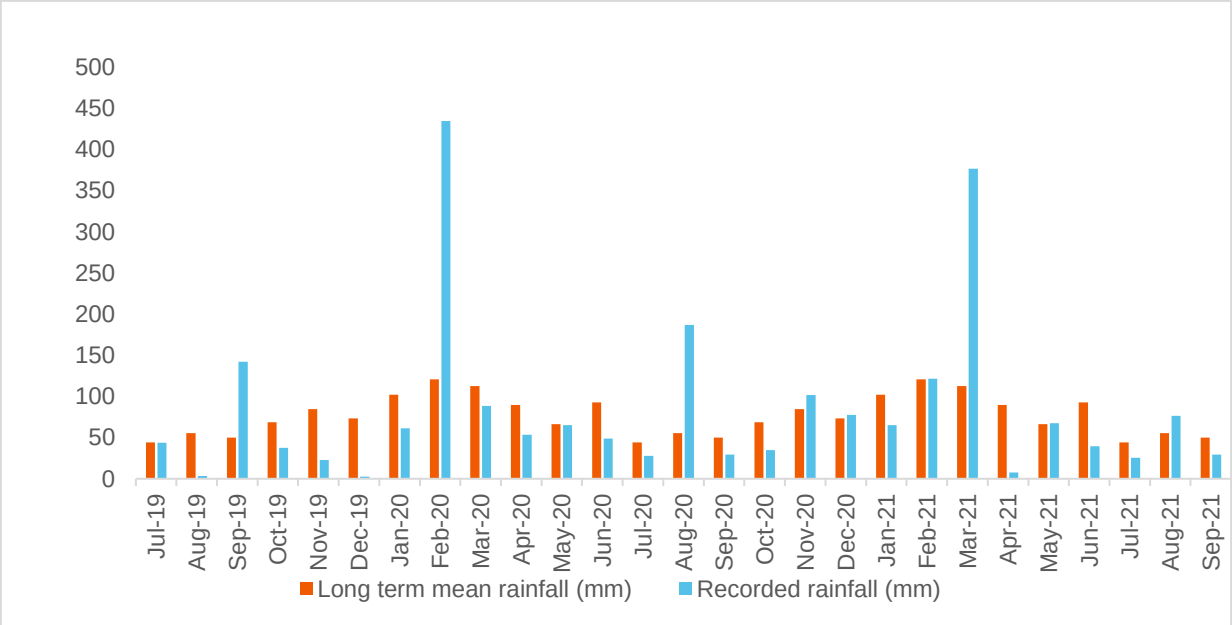

Figure 3-1 Monthly rainfall comparison

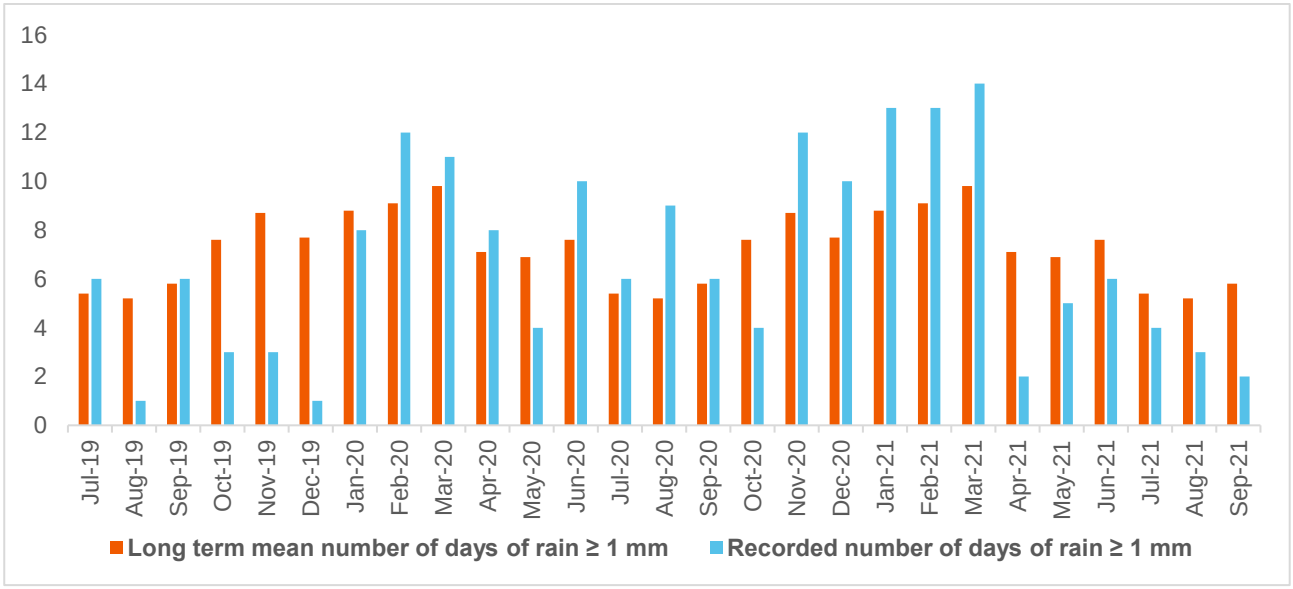

Figure 3-2 Monthly rain days comparison

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 was one exceedance of the predicted noise level ($L_{Aeq15min}$) during the reporting period. In this case, the monitoring activity documented the noise could not be attributable to PLR activities.

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 results and comments are presented in **Appendix A-2**. During the reporting period, no attended vibration monitoring was undertaken.

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 was undertaken during the reporting period at medical facilities in Westmead that have been identified as sensitive receivers. In consultation with the Health Administration Corporation, monitoring will be ongoing for 12 months. Locations of the noise and vibration monitors are provided in **Table 3-6.**

Table 3-3 Summary of Noise Monitoring for reporting period

Date	Monitoring Location	Attended/Continuous	Description
31/08/21	70 Dudley Street, Rydalmere	Attended	Ballast Tamping
7/09/21	8-12 Alexandra Avenue	Attended	Concrete Works
7/09/21	157 Hawkesbury Rd, Westmead	Attended	Concrete Works
7/09/21	199 Hawkesbury Rd, Westmead	Attended	Trackworks
7/09/21	Cumberland Hospital East	Attended	Earthworks - Excavation
7/09/21	55 O'Connell St, North Parramatta	Attended	Earthworks – Hammering and NDD
7/09/21	St Patricks Cemetery, North Parramatta	Attended	Earthworks
7/09/21	20 Victoria Rd, Parramatta	Attended	Earthworks – Hammering and NDD
7/09/21	Arthur Phillip High School, Parramatta	Attended	Concrete Works
7/09/21	9 Noller Pde, Parramatta	Attended	Trackworks
8/09/21	5 Hope St, Rosehill	Attended	Earthworks – Material Movements
8/09/21	14 Dudley St, Rydalmere	Attended	Site Services and Utilities
8/09/21	Dundas Station	Attended	Earthworks
8/09/21	22 Adderton Rd, Telopea	Attended	Trackworks - Excavation
8/09/21	Telopea Station	Attended	Trackworks - Tamping
8/09/21	89 Marshall Rd, Telopea	Attended	Trackworks – Excavation
8/09/21	Carlingford Station	Attended	Finishing Works
23/09/21	Tiptrees Avenue	Attended	Rail Grinding
26/06/2020 -ongoing	Westmead Institute for Medical Research (Sleep Lab)	Continuous	General construction
26/06/2020 -ongoing	Westmead Institute for Medical Research (Brain Dynamics Centre)	Continuous	General construction
26/06/2020 -ongoing	Children's Medical Research Institute (Microscopy Labs)	Continuous	General construction

Date	Monitoring Location	Attended/Continuous	Description
26/06/2020 -ongoing	Cumberland Hospital (Clinical psychology rooms)	Continuous	General construction

Table 3-4 Summary of Vibration Monitoring for reporting period

Date	Monitoring Location	Attended/Continuous	Description
26/06/2020	Westmead Institute for Medical Research (HAL incubators)	Continuous	General construction
26/06/2020	Westmead Institute for Medical Research (Microscopy Labs)	Continuous	General construction
26/06/2020	Children's Medical Research Institute (Microscopy Labs)	Continuous	General construction

Table 3-5 Noise and Vibration Monitors and NATA Calibration

Equipment	Serial Number	Calibration Date
Noise Level Meter	00973277	2/12/2021
Noise Level Meter	00661732	01/06/2022
Noise Level Meter	00973275	17/12/2021
Vibration Monitor	BE14639	10/02/2023
Vibration Monitor	BE17441	14/07/2022

Table 3-6 HAC Noise and Vibration Monitor Locations

Organisation	Monitor Type	Location
Westmead Institute for Medical Reach	Vibration Monitor	HAL incubators
		Microscopy Labs
	Noise Monitor	Sleep Lab
		Brain Dynamics Centre
Children's Medical Research Institute	Vibration Monitor	Microscopy Labs
	Noise Monitor	Labs (Level 1)
Cumberland Hospital	Noise Monitor	Clinical psychology rooms

Note: The calibration of the monitoring equipment is checked in the field before and after the noise measurement period per Standards Australia AS/IEC 60942:2004/IEC 60942:2003–Electroacoustic – Sound Calibrators.

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.

During the reporting period, quarterly dry weather monitoring was undertaken summarised in **Table 3-7** and detailed in **Table A-3-1.** Water levels were low to medium during the dry sampling. Overall, there was a moderate to large amount of debris or leaf litter present. All results were within the water quality objectives during the reporting period.

Table 3-7 Water Quality in Receiving Waters

Date	Type	Type of Results	Wet / Dry	Locations
21/09/21	Monitoring during construction	Laboratory	Dry	Parramatta River: PR1, PR2, PR3, PR4, PR5 and PR6 Clay Cliff Creek: CC1, CC2
22/09/21	Monitoring during construction	Laboratory	Dry	Parramatta River: PR6 Vineyard Creek: VY1, VY2 A'becketts Creek: AC1, AC2

Table 3-8 Water Monitor Calibration

Equipment[1]	Serial Number	Calibration Date
Water Quality Monitor	DV7F6E7J	23/07/2022

[1]All equipment is calibrated by NATA standards.

3.4.2. Discharge and dewatering

There were two discharge events during the reporting period as presented in **Table A-3-2**. All events were compliant with discharge criteria.

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. Baseline data indicated that the value of Total Insoluble Matter (TIM) was 3.9 g/m^2 before the commencement of construction activities at 13A Grand Avenue.

Additional dust gauges were progressively installed at Rydalmere Station, Dundas Station, Carlingford and Telopea in advance of large-scale earthworks.

From December 2020 onwards, results have been presented as both TIM and Ash Content. The Ash Content method of analysis involves burning the TIM in a furnace to rid the sample of combustible materials such as vegetative matter, coal and insects. The remaining non-combustible material is then weighed to provide a more accurate dust monitoring result.

Dust deposition results are summarised in **Table A-4-1** in **Appendix A-4**, noting that data is received one month in arrears. Due to the halt of construction within the last reporting period, the results presented are for two months in arrears. All results from the previous reporting period had a satisfactory level of TIM with the exception of 13A Grand Ave which was recorded at 4.2 g/m^2. While the recorded Ash Content of 13A Grand Ave was below the trigger, dust management controls were reviewed at the site and the use of the water cart was subsequently increased.

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-4-2** 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**). As these works have concluded, it was determined that weekly visual inspections and Narla monitoring were not required for the reporting period.

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

Date	Time	Works	Notification Triggers[1]	Comments
-	-	-	-	-

[1]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 two environmental incidents and no non-compliances identified during the reporting period.

Table 3-10 Issues/incidents/non-compliances

Date	Location	Description
16/09/21	Sturt Street, Telopea	A minor concrete agitator fuel spill occurred. Spill kit materials were deployed and the spill was successfully cleaned up.
23/09/21	George/Alfred Street, Parramatta	NSW EPA notified that emergency works were to be undertaken due to a Sydney watermain rupture at approximately 2:45pm. Sydney Water attended site at approximately 5:00pm to turn off the watermain. An incident report will be provided to both EPA and DPI&E.

Appendices

A-1 Weather Observations

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

Date	Temperatures		Rain	9:00 AM				
	Min	Max		Temp	RH	Cld	Dir	Spd
	°C	°C	mm	°C	%	8th	km/h	
26/08/2021	7.8	19.7	0	13.6	60	0	SW	7
27/08/2021	7.2	19.3	0	14.2	65	2	WSW	4
28/08/2021	8	18.8	0	13.8	61	8	SW	11
29/08/2021	5.2	18.3	0	12	76	8	W	4
30/08/2021	7.2	20.2	0.4	14.5	67	6	W	2
31/08/2021	7.3	22.9	0	14.6	67	0	NW	4
1/09/2021	7.3	25.2	0	15.4	63	4	W	6
2/09/2021	11.3	22.7	0	16.2	79	7	ENE	2
3/09/2021	10.7	25	0	18	78	0	W	4
4/09/2021	13.8	22.1	0	19.5	64	7	NE	7
5/09/2021	13.1	18.2	12.4	15.8	50	3	WSW	26
6/09/2021	7.2	18.6	0.2	14.5	57	0	SSW	9
7/09/2021	5.5	24	0	14.4	54	0	W	2
8/09/2021	7.4	23.8	0	14.4	68	0	W	4
9/09/2021	5	28.3	0	14.8	58	5	NW	4
10/09/2021		28	0	22.5	26	5	NW	7
11/09/2021	7.5	29.5	0	18.5	54	0	W	2
12/09/2021	12.2	30	0	23.8	28	0	NNW	9
13/09/2021	10.2	18	0	15.4	50	5	SW	6
14/09/2021	8.6	16	16	13	69	6	SW	15
15/09/2021	7.6	18.7	0.2	13.3	61	0	SW	11
16/09/2021	8	18	0	14	67	4	SSW	4
17/09/2021	9	22.6	0	15.4	67	0	NW	2
18/09/2021	10.4	25	0	21.2	44	8	N	9
19/09/2021	9	23.8	0	17	43	0	NW	6
20/09/2021	9.2	26	0	20.5	34	0	NE	9
21/09/2021	8.2	17.3	0	13	40	5	SSW	28
22/09/2021	8.2	20	0	14.5	49	0	SW	4
23/09/2021	9	27.6	0	16.8	51	0	W	2
24/09/2021	10.5	26.8	0	20.5	49	0	W	6
25/09/2021	12.2	22	0	19.4	36	0	SW	7

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	
26/08/2021	S	26	10:12	W	11	SE	15
27/08/2021	W	30	13:03	WNW	7	WSW	9
28/08/2021	WSW	35	10:27	W	11	SSW	7
29/08/2021	NNE	19	11:56	WNW	7	Calm	
30/08/2021	WNW	22	10:28	NW	9	Calm	
31/08/2021	W	19	11:39	WNW	6	N	9
1/09/2021	E	22	14:24	WNW	13	E	13
2/09/2021	E	33	12:51	Calm		ENE	15
3/09/2021	NE	35	15:38	NNW	4	NE	13
4/09/2021	NW	33	13:49	N	9	NW	7
5/09/2021	WNW	48	12:36	NW	15	WNW	22
6/09/2021	SE	39	15:29	W	13	SSE	19
7/09/2021	WNW	31	12:08	NW	11	WSW	13
8/09/2021	W	22	10:58	WSW	7	N	6
9/09/2021	NW	31	17:29	NW	9	NW	17
10/09/2021	SSE	35	11:42	WNW	15	E	17
11/09/2021	WNW	35	16:11	W	6	WNW	19
12/09/2021	WNW	59	13:17	NNW	19	WNW	22
13/09/2021	SSE	37	14:40	WSW	7	S	15
14/09/2021	S	46	11:59	SSW	20	SSE	17
15/09/2021	SE	39	16:23	WSW	11	SSE	20
16/09/2021	SE	31	12:02	WSW	6	SE	17
17/09/2021	NE	31	16:08	WNW	6	NE	13
18/09/2021	WNW	41	14:04	N	15	WNW	19
19/09/2021	WNW	35	12:28	NW	15	WNW	13
20/09/2021	NW	56	15:47	NE	7	NW	20
21/09/2021	S	48	15:13	WSW	13	S	24
22/09/2021	SSE	28	12:30	W	11	ESE	17
23/09/2021	NW	20	9:10	NW	9	NW	9
24/09/2021	WNW	50	12:52	NW	9	WNW	22
25/09/2021	SSE	43	13:37	WSW	11	SE	24

Notes:

Blue text indicates a rain event greater than 1mm of rain.
The 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.
* 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	LAmax	Recorded $L_{eq, 15min}$ (dBA)	Exceedance of Predicted (dBA)	Exceedance of Predicted	Comments
31/08/21	8:45	Standard Hours	Ballast Tamping	Rydalmere Rail Corridor	70 Dudley Street, Rydalmere	50	77	V	89.4	76	-1	No	Construction noise is dominant noise source.
7/09/21	8:31	Standard Hours	Concrete Works	28 Railway Parade	8-12 Alexandra Avenue	59	60	-	86.8	73.2	+13.2	Yes	Monthly verification noise monitoring. Construction noise inaudible. Traffic is dominant noise source including bus and train.
7/09/21	8:54	Standard Hours	Concrete Works	Hawkesbury Road	157 Hawkesbury Rd, Westmead	61	89	PN, RP, SN	94.4	78.8	-10.2	No	Monthly verification noise monitoring. Construction noise sometimes audible. Non-PLR construction hammering dominant noise source.
7/09/21	9:17	Standard Hours	Trackworks	Hawkesbury Road	199 Hawkesbury Rd, Westmead	59	73	-	77.6	65.4	-7.6	No	Monthly verification noise monitoring. Construction noise sometimes audible.
7/09/21	11:46	Standard Hours	Earthworks - Excavation	Bunya East	Cumberland Hospital East	59	77	-	81.9	74.5	-2.5	No	Monthly verification noise monitoring. Construction noise clearly audible.
7/09/21	12:33	Standard Hours	Earthworks – Hammering and NDD	Factory/O'Connell	55 O'Connell St, North Parramatta	52	87	-	98	84.1	-2.9	No	Monthly verification noise monitoring. Construction noise is dominant noise source.
7/09/21	13:05	Standard Hours	Earthworks	Church/Pennant Hills Road	St Patricks Cemetery, North Parramatta	61	77	-	86.2	72.8	-4.2	No	Monthly verification noise monitoring. Construction noise is dominant noise source.
7/09/21	13:33	Standard Hours	Earthworks – Hammering and NDD	Church Street	20 Victoria Rd, Parramatta	69	87	-	92.8	83.9	-3.1	No	Monthly verification noise monitoring. Construction noise is dominant noise source.
7/09/21	14:49	Standard Hours	Concrete Works	Macquarie Street	Arthur Phillip High School, Parramatta	68	78	-	86.9	76	-2	No	Monthly verification noise monitoring. Construction noise audible at most times. Non-PLR construction is dominant noise source.
7/09/21	14:27	Standard Hours	Trackworks	George Street	9 Noller Pde, Parramatta	53	71	-	82	63.1	-7.9	No	Monthly verification noise monitoring. Construction noise sometimes audible.
8/09/21	13:14	Standard Hours	Earthworks – Material Movements	Camellia	5 Hope St, Rosehill	61	75	-	90.8	73.7	-1.3	No	Monthly verification noise monitoring. Construction noise inaudible. Traffic on James Ruse Drive is dominant noise source.
8/09/21	13:47	Standard Hours	Site Services and Utilities	Dudley Street	14 Dudley St, Rydalmere	55	73	-	95.9	72	-1	No	Monthly verification noise monitoring. Construction noise sometimes audible. Traffic is dominant noise source.
8/09/21	14:15	Standard Hours	Earthworks	Dundas	Dundas Station	55	81	-	82.8	67.5	-13.5	No	Monthly verification noise monitoring. Construction noise sometimes audible.
8/09/21	15:14	Standard Hours	Trackworks - Excavation	Adderton Road	22 Adderton Rd, Telopea	56	79	-	96	74.4	-4.6	No	Monthly verification noise monitoring. Construction noise is dominant noise source.
8/09/21	15:44	Standard Hours	Trackworks - Tamping	Telopea	Telopea Station	53	88	-	96	85.1	-2.9	No	Monthly verification noise monitoring. Construction noise is dominant noise source.
8/09/21	14:22	Standard Hours	Trackworks – Excavation	Telopea	89 Marshall Rd, Telopea	52	79	-	73.7	60.4	-18.6	No	Monthly verification noise monitoring. Construction noise sometimes audible.
8/09/21	14:50	Standard Hours	Finishing Works	Carlingford	Carlingford Station	62	72	-	83.4	66.2	-5.8	No	Monthly verification noise monitoring. Construction noise sometimes audible.

Date	Time	Works Period	Construction Activity	Activity Location	Monitoring Location	NML (dBA)	Predicted (dBA)	Additional Mitigation Measures	LAmax	Recorded $L_{eq, 15min}$ (dBA)	Exceedance of Predicted (dBA)	Exceedance of Predicted	Comments
23/09/21	12:15	Standard Hours	Rail Grinding	Carlingford Rail Corridor	Tiptrees Avenue	47	79	-	80.9	69.2	-9.8	No	Construction noise is dominant noise source.
26/06/2020 - ongoing	Continuous monitoring		Construction works	Hawkesbury Road works	Westmead Institute for Medical Research (Sleep Lab)	65	*	*	*	*	*	No	Activities are reviewed in response to exceedance alerts. Where the exceedance is attributed to construction, a review is undertaken of works and plant/equipment or methodology is modified where necessary. No exceedances were attributed to Parramatta Connect construction activities. Continuous monitoring values are available on request.
26/06/2020 - ongoing	Continuous monitoring		Construction works	Hawkesbury Road works	Westmead Institute for Medical Research (Brain Dynamics Centre)	65	*	*	*	*	*	No	
26/06/2020 - ongoing	Continuous monitoring		Construction works	Hawkesbury Road works	Children's Medical Research Institute (Microscopy Labs)	65	*	*	*	*	*	No	
26/06/2020 - ongoing	Continuous monitoring		Construction works	Cumberland Hospital	Cumberland Hospital (Clinical psychology rooms)	55	*	*	*	*	*	No	

[1]Sound Pressure Level (SPL) used instead of NML

Notes:

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

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	Works Period	Construction Activity	Activity Location	Monitoring Location	Trigger Value (mm/s)	95th Percentile PPV (mm/s)	Maximum PPV (mm/s)	Exceedance of Target	Construction Vibration Exceedance	Comments
26/06/2020	Continuous monitoring		Hawkesbury Road works	Hawkesbury Road	Westmead Institute for Medical Research (HAL incubators)	0.1 mm/s	*		No	No	Activities are reviewed in response to exceedance alerts. Where the exceedance is attributed to construction, a review is undertaken of works and plant/equipment or methodology is modified where necessary. No exceedances were attributed to PLR construction activities. Continuous monitoring values are available on request.
26/06/2020	Continuous monitoring		Hawkesbury Road works	Hawkesbury Road	Westmead Institute for Medical Research (Microscopy Labs)	0.1 mm/s	*		No	No	
26/06/2020	Continuous monitoring		Hawkesbury Road works	Hawkesbury Road	Children's Medical Research Institute (Microscopy Labs)	0.1 mm/s	*		No	No	

A-3 Water Sampling and Discharge Results

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

Location	Waterway	Upstream/ Downstream of Works	Type[3]	Date	Time	pH 5.5-8.5[2]	Elec. Conduct. (µS/cm) LR[1]: 125–2200[2] E: None	Turbidity (NTU) 6-50[2]	Comments and Observations
AC1	A'becketts Creek	Upstream	Dry	22/09/2021	8:58	7.61	17600	4.2	Sunny weather, large amount of rubbish, slight turbidity, large amount of leaf litter and vegetation. AC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
AC2	A'becketts Creek	Downstream	Dry	22/09/2021	9:07	7.61	17400	3.9	Sunny weather, large amount of rubbish, slight turbidity, large amount of leaf litter and vegetation. AC2 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
CC1	Clay Cliff Creek	Upstream	Dry	21/09/2021	13:55	7.22	28100	4.3	Fair weather, large amount of rubbish, slight turbidity, large amount of leaf litter and vegetation. 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	Dry	21/09/2021	14:25	7.59	22500	3.5	Sunny weather, large amount of rubbish, slight turbidity, large amount of leaf litter and vegetation. CC2 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
DC1	Domain Creek	Upstream	Dry	21/09/2021	10:11	7.48	230	24.7	Sunny weather, no rubbish, moderate turbidity, moderate leaf litter and vegetation.
PR1	Parramatta River	Upstream	Dry	21/09/2021	9:30	6.46	262	5	Fair weather, no rubbish, slightly turbid, large amount of leaf litter and vegetation.
PR2	Parramatta River	Downstream	Dry	21/09/2021	9:48	6.65	252	13	Fair weather, no rubbish, slightly turbid, minimal leaf litter and vegetation.
PR3	Parramatta River	Upstream	Dry	21/09/2021	11:17	6.67	237	6.9	Sunny weather, no rubbish, slightly turbid, minimal leaf litter and vegetation.

PR4	Parramatta River	Downstream	Dry	21/09/2021	11:30	6.93	433	10.4	Sunny weather, no rubbish, slight turbidity, no leaf litter and vegetation.
PR5	Parramatta River	Upstream	Dry	21/09/2021	13:40	7.18	31200	3.7	Sunny weather, no rubbish, clear water, minimal leaf litter and 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	Dry	22/09/2021	10:00	7.35	31800	1.5	Sunny weather, no rubbish, minimal turbidity, 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	Dry	22/09/2021	11:10	7.43	31100	2.5	Sunny weather, no rubbish, clear water, large 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.
VY1	Vineyard Creek	Upstream	Dry	22/09/2021	10:30	7.48	505	18.9	Sunny weather, no rubbish, moderate turbidity, large amount of leaf litter and vegetation, low water level.
VY2	Vineyard Creek	Downstream	Dry	22/09/2021	10:42	7.45	472	8.4	Sunny weather, no rubbish, moderate turbidity, large amount of leaf litter and vegetation, low water level.

1. ANZECC Waterway types: Fresh water (PR1, PR2, PR3, PR4, VY1 and VY2); E: Estuarine (CC1, CC2, AC1, AC2, PR5, PR6 and SC1).
2. Trigger values were established by Parramatta Connect within the Pre-Construction Sampling (Baseline Review) Water Quality Monitoring Report (PLR1INF-CPBD-ALL-WA-RPT-000003). Red text indicates values outside of the baseline trigger values.
3. Charles Street Weir separates Parramatta River from up and downstream.

Table A-3-2 Discharge Water Quality

Discharge monitoring Point ID	Type of Monitoring Point	Type of Discharge Point	Date	Discharge Permit #	Oil and Grease (Not visible)	pH (6.5 - 8.5)	Turbidity (NTU)	Comments
A3.3	Basins and settling containers	Creek	31/08/2021	DW-A3-039	Not visible	8.37	13.5	Discharge into watercourse/creek
A1.10	Basins and settling containers	Stormwater inlet	20/09/2021	DW-A1-059	Not visible	8.04	25.8	Discharge to stormwater A1.10

A-4 Air Quality Monitoring Results

Table A-4-1 Summary of Dust Deposition Data (Ash Content)

Date	Monitoring Location	Ash Content g/m^2/month	Total Insoluble Matter (g/m^2/month)
July	13a Grand Avenue	3.6	4.2
July	Rydalmere Station	<0.1	0.1
July	Dundas Station	0.5	0.7
July	Telopea	0.1	0.3
July	Carlingford	0.4	0.6

Red text indicates exceedance of the ash content trigger value 4.0 g/m^2/month.

Table A-4-2 Summary of Asbestos Fibre Monitoring

Report Number	Date	Location	Start time	End time	Result (Fibres/Fields)	Result (Fibres/mL)
AMR316	28-Aug	SANDOWN LINE- TRENCHING WORK, NORTH OF TRENCH	7:49	14:48	0/100	<0.01
AMR316	28-Aug	SANDOWN LINE- TRENCHING WORK WEST OF TRENCH	7:50	14:49	0/100	<0.01
AMR316	28-Aug	SANDOWN LINE- TRENCHING WORK SOUTH OF TRENCH	7:52	14:50	0/100	<0.01
AMR316	28-Aug	SANDOWN LINE- TRENCHING WORK EAST OF TRENCH	7:53	14:52	0/100	<0.01
AMR316	28-Aug	SANDOWN LINE- TRENCHING WORK NE OF TRENCH ADJACENT SITE SHEDS	7:54	14:53	0/100	<0.01
AMR316	28-Aug	GRAND AVE OVERPASS AREA- SW OF STORMWATER EXCAVATION	8:14	15:01	0/100	<0.01
AMR316	28-Aug	GRAND AVE OVERPASS AREA- SE OF STORMWATER EXCAVATION	8:15	15:02	0/100	<0.01
AMR316	28-Aug	GRAND AVE OVERPASS AREA- NW OF STORMWATER EXCAVATION	8:18	15:05	0/100	<0.01
AMR316	28-Aug	GRAND AVE OVERPASS AREA- NE OF	8:20	15:07	0/100	<0.01

		STORMWATER EXCAVATION				
AMR317	1-Sep	CAMELLIA JUNCTION, SOUTH EAST SECTION, BOUNDARY FENCING	7:10	15:05	0/100	<0.01
AMR317	1-Sep	CAMELLIA JUNCTION, SOUTH WEST SECTION, BOUNDARY FENCING	7:12	15:17	0/100	<0.01
AMR317	1-Sep	CAMELLIA JUNCTION, NORTH EAST SECTION, BOUNDARY FENCING	7:13	15:20	0/100	<0.01
AMR317	1-Sep	CAMELLIA JUNCTION, NORTH WEST SECTION, BOUNDARY FENCING	7:14	15:23	0/100	<0.01
AMR317	1-Sep	GATE 22 SECTION, SOUTH WEST SECTION, EAST FENCING ADJACENT DRIVEWAY	7:30	15:06	0/100	<0.01
AMR317	1-Sep	GATE 22 SECTION, SOUTH EAST SECTION, EAST BOUNDARY FENCING	7:34	15:08	0/100	<0.01
AMR317	1-Sep	GATE 22 SECTION, NORTH WEST SECTION, ATTACHED TO SUPPORT BEAMS	7:38	15:02	0/100	<0.01
AMR317	1-Sep	GATE 22 SECTION, NORTH EAST SECTION, EAST FENCE	7:42	15:04	0/100	<0.01
AMR317	1-Sep	GATE 22, AREA, SOUTH WEST SECTION, ATTACHED TO SOUTH WEST CORNER FENCE	8:59	15:10	1/100	<0.01

AMR318	7-Sep	SANDOWN LINE, NORTH FENCE, 30 M EAST OF SHED	7:33	13:20	0/100	<0.01
AMR318	7-Sep	SANDOWN LINE, NORTH FENCE, 60 M EAST OF SHED	7:34	13:21	0/100	<0.01
AMR318	7-Sep	SANDOWN LINE, SOUTH FENCE, 40 M EAST OF SHED	7:35	13:22	0/100	<0.01
AMR319	8-Sep	OVERPASS AREA, EASTERN BOUNDARY ADJACENT TO DECON UNIT	6:55	15:48	0/100	<0.01
AMR319	8-Sep	OVERPASS AREA, NORTHERN BOUNDARY, ADJACENT TO CENTRAL ACCESS GATE	6:56	15:49	0/100	<0.01
AMR319	8-Sep	OVERPASS AREA, WESTERN BOUNDARY, ADJACENT TO WESTERN ACCESS GATE	6:57	15:50	0/100	<0.01
AMR319	8-Sep	OVERPASS AREA, EASTERN BOUNDARY, APPROX 10M SOUTH OF OVERPASS	6:58	15:51	0/100	<0.01
AMR319	8-Sep	GATE 22 EASTERN BOUNDARY APPROX 20M NORTH OF ACM STOCKPILE	7:11	15:52	0/100	<0.01
AMR319	8-Sep	GATE 22 EASTERN BOUNDARY APPROX 20M SOUTH OF ACM STOCKPILE	7:12	15:53	0/100	<0.01

AMR319	8-Sep	GATE 22 ACCESS GATE, NEAR JAMES HARDIE BRIDGE	7:13	15:54	0/100	<0.01
AMR320	9-Sep	OVERPASS AREA, CASY BOUNDARY NEAR DECON	7:06	16:08	0/100	<0.01
AMR320	9-Sep	OVERPASS AREA, NORTH BOUNDARY, MIDDLE GATE	7:07	16:09	0/100	<0.01
AMR320	9-Sep	OVERPASS AREA NW CORNER NEAR WEST GATE	7:08	16:10	0/100	<0.01
AMR320	9-Sep	OVERPASS AREA, EAST BOUNDARY APPROX 10M SOUTH OF OVERPASS	7:09	16:11	0/100	<0.01
AMR320	9-Sep	GATE 22 AREA, EAST BOUNDARY APPROX 20M NORTH OF STOCKPILE	7:18	15:52	0/100	<0.01
AMR320	9-Sep	GATE 22 AREA, EAST BOUNDARY APPROX 20M SOUTH OF STOCKPILE	7:19	15:53	0/100	<0.01
AMR320	9-Sep	GATE 22 AREA, ACCESS GATE NEAR JAMES HARDIE BRIDGE	7:20	15:54	0/100	<0.01
AMR320	9-Sep	SANDOWN LINE WESERN END AT SW CORNER	9:27	16:15	0/100	<0.01
AMR320	9-Sep	SANDOWN LINE WESERN END AT NW CORNER	9:28	16:16	0/100	<0.01
AMR320	9-Sep	SANDOWN LINE WESERN END, 30M EAST OF NW CORNER	9:29	16:17	0/100	<0.01
AMR320	9-Sep	SANDOWN LINE WESERN END, 30M EAST OF SW CORNER	9:30	16:18	0/100	<0.01

AMR321	10-Sep	OVERPASS AREA, EAST BOUNDARY NEAR DECON	6:38	15:58	0/100	<0.01
AMR321	10-Sep	OVERPASS AREA, NORTH BOUNDARY, CENTRAL GATE	6:39	15:59	0/100	<0.01
AMR321	10-Sep	OVERPASS AREA, NORTH WEST CORNER NEAR WEST GATE	6:40	16:00	0/100	<0.01
AMR321	10-Sep	OVERPASS AREA, EAST BOUNDARY, APPROX 10M SOUTH OF OVERPASS	6:41	16:01	0/100	<0.01
AMR322	11-Sep	SANDOWN LINE SW GATE	6:32	15:17	0/100	<0.01
AMR322	11-Sep	ADJACENT TO CAR PARK DOOR	6:33	15:18	0/100	<0.01
AMR322	11-Sep	ADJACENT TO FOOTPATHS TO GRAND AVE, NEXT TO GARDEN BED	6:34	15:19	0/100	<0.01
AMR322	11-Sep	SANDOWN LINE WESTERN END, SOUTH BOUNDARY EASTERN END OF CELL	8:09	15:38	0/100	<0.01
AMR322	11-Sep	SANDOWN LINE WESTERN END, NORTH BOUNDARY APPROX M FROM EAST END OF CELL	8:10	15:39	0/100	<0.01
AMR322	11-Sep	SANDOWN LINE WESTERN END, SOUTH BOUNDARY APPROX M FROM EAST END OF CELL	8:11	15:40	0/100	<0.01
AMR322	11-Sep	GATE 22 AREA, EAST BOUNDARY 20M NORTH OF STOCKPILE	8:30	15:52	0/100	<0.01

AMR322	11-Sep	GATE 22, EAST BOUNDARY 20M NORTH OF STOCK PILE	8:31	15:53	0/100	<0.01
AMR322	11-Sep	GATE 22 AREA, APPROX 20M SW OF ACM STOCKPILE	8:32	15:54	0/100	<0.01
AMR323	12-Sep	SW OF EASTERN CEL EXCAVATION	7:12	15:11	0/100	<0.01
AMR323	12-Sep	NW OF EASTERN CELL EXCAVATION	7:13	15:12	0/100	<0.01
AMR323	12-Sep	NE OF EASTERN CELL EXCAVATION	7:14	15:13	0/100	<0.01
AMR323	12-Sep	SE OF EASTERN CELL EXCAVATION	7:15	15:15	0/100	<0.01
AMR323	12-Sep	EAST OF EASTERN CELL EXCAVATION	7:17	15:16	0/100	<0.01
AMR323	12-Sep	GATE 22, SOUTH OF EMBANKMENT CAPPING	7:42	13:40	0/100	<0.01
AMR323	12-Sep	GATE 22, NE OF EMBANKMENT CAPPING	7:36	13:41	0/100	<0.01
AMR323	12-Sep	GATE 22, EAST OF EMBANKMENT CAPPING	7:37	13:42	0/100	<0.01
AMR324	13-Sep	GRAND AVE OVERPASS - SOUTHERN EXTENT	8:10	14:10	0/100	<0.01
AMR324	13-Sep	GRAND AVE OVERPASS - SW EXTENT	8:12	14:11	0/100	<0.01
AMR324	13-Sep	GRAND AVE OVERPASS - WEST OF SOUTHERN CAPPING WORKS	8:14	14:12	0/100	<0.01
AMR324	13-Sep	GRAND AVE OVERPASS - ADJACENT STORMWATER WORKS	8:15	14:05	0/100	<0.01
AMR324	13-Sep	GRAND AVE OVERPASS - ADJACENT DECON UNIT	8:17	14:16	0/100	<0.01

AMR325	14-Sep	SANDOWN LINE, CONTAINMENT CELLS, EAST END, SOUTH BOUNDARY	7:32	15:48	0/100	<0.01
AMR325	14-Sep	SANDOWN LINE, CONTAINMENT CELLS, 30 M WEST OF EAST END, NORTH BOUNDARY	7:31	15:49	0/100	<0.01
AMR325	14-Sep	SANDOWN LINE, CONTAINMENT CELLS, 60 M WEST OF EAST END, NORTH BOUNDARY	7:30	15:50	0/100	<0.01
AMR325	14-Sep	SANDOWN LINE, CONTAINMENT CELLS, 60 M EAST OF WEST END, SOUTH BOUNDARY	7:29	15:51	0/100	<0.01
AMR325	14-Sep	SANDOWN LINE, CONTAINMENT CELLS, 30 EAST OF WEST END, NORTH BOUNDARY	7:28	15:52	0/100	<0.01
AMR325	14-Sep	SANDOWN LINE, CONTAINMENT CELLS, WEST END, SOUTH BOUNDARY	7:27	15:53	0/100	<0.01
AMR326	15-Sep	SANDOWN, CONTAINMENT CELL, NORTH BOUNDARY, EAST END OF CELL	7:08	15:52	0/100	<0.01
AMR326	15-Sep	SANDOWN, CONTAINMENT CELL, SOUTH BOUNDARY HALFWAY ALONG CELL	7:09	15:53	0/100	<0.01

AMR326	15-Sep	SANDOWN, CONTAINMENT CELL NORTH BOUNDARY WEST END OF CELL	7:10	15:54	0/100	<0.01
AMR326	15-Sep	GATE 22, NE CORNER OF SITE	7:46	15:42	0/100	<0.01
AMR326	15-Sep	GATE 22, ADJACENT TO EMBRAKMENT APPROX 30 M SOUTH OF BRIDGE	7:47	15:43	0/100	<0.01
AMR326	15-Sep	GATE 22, ACCESS GATE	7:48	15:44	0/100	<0.01
AMR327	15-Sep	WEST SANDOWN LINE - NW OF TRENCH EXCAVATIONS	18:40	4:00	0/100	<0.01
AMR327	15-Sep	WEST SANDOWN LINE - NE OF TRENCH EXCAVATIONS	18:41	3:59	0/100	<0.01
AMR327	15-Sep	WEST SANDOWN LINE - WEST OF TRENCH EXCAVATIONS	18:42	3:58	0/100	<0.01
AMR327	15-Sep	WEST SANDOWN LINE - SE OF TRENCH EXCAVATIONS	18:44	3:57	0/100	<0.01
AMR327	15-Sep	WEST SANDOWN LINE - SW OF TRENCH EXCAVATIONS	18:45	3:56	0/100	<0.01
AMR328	16-Sep	GATE 22- SITE ACCESS GATE	7:45	15:20	0/100	<0.01
AMR328	16-Sep	GATE 22- ADJACENT JAMES HARDIE BRIDGE	7:47	15:21	0/100	<0.01
AMR328	16-Sep	GATE 22- EASTERN BOUNDARY ADJ PARRAMATTE RIVER	7:49	15:23	0/100	<0.01
AMR328	16-Sep	GATE 22- NORTHERN BOUNDARY AND	7:50	15:24	0/100	<0.01

		PARRAMATTA RIVER BRIDGE				
AMR328	16-Sep	SANDOWN LINE- EAST END, SW OF STOCKPILE	8:05	15:37	0/100	<0.01
AMR328	16-Sep	SANDOWN LINE- EAST END, NW OF STOCKPILE	8:06	15:38	0/100	<0.01
AMR328	16-Sep	SANDOWN LINE- EAST END, NE OF STOCKPILE	8:07	15:39	0/100	<0.01
AMR328	16-Sep	SANDOWN LINE- EAST END, SE OF STOCKPILE	8:08	15:40	0/100	<0.01
AMR329	16-Sep	WEST SANDOWN LINE- NW OF TRENCH EXCAVATIONS	19:04	4:20	0/100	<0.01
AMR329	16-Sep	WEST SANDOWN LINE- NE OF TRENCH EXCAVATIONS	19:05	4:21	0/100	<0.01
AMR329	16-Sep	WEST SANDOWN LINE- SE OF TRENCH EXCAVATIONS	19:07	4:23	0/100	<0.01
AMR329	16-Sep	WEST SANDOWN LINE- SW OF TRENCH EXCAVATION	19:08	4:24	0/100	<0.01
AMR329	16-Sep	NW OF GRAND AVE ENTRY RAMP EXCAVATION WORKS	19:30	4:27	0/100	<0.01
AMR329	16-Sep	NE OF GRAND AVE ENTRY RAMP EXCAVATION WORKS	19:31	4:28	0/100	<0.01
AMR329	16-Sep	SW OF GRAND AVE ENTRY RAMP EXCAVATION WORKS	19:33	4:29	0/100	<0.01
AMR329	16-Sep	SE OF GRAND AVE ENTRY RAMP EXCAVATION WORKS	19:34	4:31	0/100	<0.01
AMR330	17-Sep	SANDOWN, NORTH FENCE, APPROX 140 M EAST OF WEST ENTRANCE	7:22	15:48	0/100	<0.01

AMR330	17-Sep	SANDOWN, SOUTH FENCE, APPROX 170 M EAST OF WEST ENTRANCE	7:23	15:47	0/100	<0.01
AMR330	17-Sep	SANDOWN, NORTH FENCE, APPROX 200 M EAST OF WEST ENTRANCE	7:24	15:46	0/100	<0.01
AMR330	17-Sep	SANDOWN, CONTAINMENT CELL, EAST END, SOUTH FENCE	7:33	15:35	0/100	<0.01
AMR330	17-Sep	SANDOWN, CONTAINMENTCELL, EAST END, NORTH FENCE	7:34	15:36	0/100	<0.01
AMR330	17-Sep	SANDOWN, CONTAINMENT CELL, WEST END, NORTH FENCE	7:35	15:37	0/100	<0.01
AMR330	17-Sep	SANDOWN, CONTAINMENT CELL, WEST END, SOUTH FENCE	7:36	15:38	0/100	<0.01
AMR331	17-Sep	NW OF ROAD BOX OUT- GRAND AVE RAMP	18:20	5:08	0/100	<0.01
AMR331	17-Sep	NE OF ROAD BOX OUT- GRAND AVE RAMP	18:21	5:09	0/100	<0.01
AMR331	17-Sep	EAST OF ROAD BOX OUT- GRAND AVE RAMP	18:23	5:10	0/100	<0.01
AMR331	17-Sep	SOUTH OF ROAD BOX OUT- GRAND AVE RAMP	18:24	5:11	0/100	<0.01
AMR331	17-Sep	SW OF ROAD BOX OUT- GRAND AVE RAMP	18:25	5:12	0/100	<0.01
AMR331	17-Sep	WEST OF ROAD BOX OUT- GRAND AVE RAMP	18:27	5:13	0/100	<0.01
AMR332	18-Sep	SANDOWN CONTAINMENT CELL WEST END SOUTH FENCE	7:01	16:55	0/100	<0.01

AMR332	18-Sep	SANDOWN CONTAINMENT CELL WEST END NORTH FENCE	7:02	16:54	0/100	<0.01
AMR332	18-Sep	SANDOWN CONTAINMENT CELL EAST END SOUTH FENCE	7:03	16:53	0/100	<0.01
AMR332	18-Sep	SANDOWN CONTAINMENT CELL EAST END NORTH FENCE	7:04	16:52	0/100	<0.01
AMR332	18-Sep	SAND DOWN WEST END SOUTH FENCE APPROX 10M EAST OF GATE	8:46	17:05	0/100	<0.01
AMR332	18-Sep	SANDOWN WEST END NORTH FENCE APPROX 30M EAST OF GATE	7:13	17:06	0/100	<0.01
AMR332	18-Sep	SANDOWN WEST END AT GATE	7:14	17:07	0/100	<0.01
AMR332	18-Sep	SANDOWN WEST END SOUTH FENCE APPROX 20M EAST OF GATE	7:15	17:08	0/100	<0.01
AMR332	18-Sep	CAMELLIA JUNCTION CAR PARK NORTH CORNER OF CAR PARK	7:25	16:00	0/100	<0.01
AMR332	18-Sep	CAMELLIA JUNCTION CAR PARK SOUTH WEST CORNER OF CAR PARK	7:26	16:01	0/100	<0.01
AMR332	18-Sep	CAMELLIA JUNCTION CAR PARK EAST BOUNDARY OF CAR PARK	7:27	16:02	0/100	<0.01
AMR333	18-Sep	NW OF ROAD BOX OUT - GRAND AVE RAMP	18:01	23:29	0/100	<0.01
AMR333	18-Sep	NE OF ROAD BOX OUT - GRAND AVE RAMP	18:02	23:30	0/100	<0.01
AMR333	18-Sep	EAST OF ROAD BOX OUT - GRAND AVE RAMP	18:03	23:31	0/100	<0.01
AMR333	18-Sep	SOUTH OF ROAD BOX OUT - GRAND AVE RAMP	18:04	23:32	0/100	<0.01
AMR333	18-Sep	SW OF ROAD BOX OUT - GRAND AVE RAMP	18:05	23:33	0/100	<0.01

AMR333	18-Sep	WEST OF ROAD BOX OUT - GRAND AVE RAMP	18:06	23:34	0/100	<0.01
AMR334	19-Sep	NORTH WEST BOUNDARY EXCAVATION	7:21	13:05	0/100	<0.01
AMR334	19-Sep	NORTH EAST BOUNDARY EXCAVATION	7:20	13:07	0/100	<0.01
AMR334	19-Sep	SOUTH WEST BOUNDARY EXCAVATION	7:22	13:06	0/100	<0.01
AMR334	19-Sep	SOUTH EAST BOUNDARY EXCAVATION	7:25	13:08	0/100	<0.01
AMR334	19-Sep	SOUTH WEST BOUNDARY STOCKPILE	7:33	13:15	0/100	<0.01
AMR334	19-Sep	SOUTH EAST BOUNDARY STOCKPILE	7:30	13:18	0/100	<0.01
AMR334	19-Sep	NORTH BOUNDARY STOCKPILE	7:35	13:17	0/100	<0.01
AMR335	20-Sep	SANDDOWN DRAIN EXCAVATION APPROX 140M EAST OF GATE, SOUTH FENCE	7:08	16:04	0/100	<0.01
AMR335	20-Sep	SANDOWN DRAIN EXCAVATION APPROX 140M EAST OF GATE, NORTH FENCE	7:09	16:03	0/100	<0.01
AMR335	20-Sep	SANDOWN DRAIN EXCAVATION APPROX 200M EAST OF GATE, NORTH FENCE	7:10	16:02	0/100	<0.01
AMR335	20-Sep	SANDOWN DRAIN EXCAVATION APPROX 200M EAST OF GATE, SOUTH FENCE	7:11	16:01	0/100	<0.01
AMR335	20-Sep	SANDOWN CONTAINMENT CELLS SW CORNER	7:17	15:48	0/100	<0.01
AMR335	20-Sep	SANDOWN CONTAINMENT CELLS NW CORNER	7:18	15:47	0/100	<0.01
AMR335	20-Sep	SANDOWN CONTAINMENT CELLS NE CORNER	7:19	15:46	0/100	<0.01
AMR335	20-Sep	BLANK	7:20	15:45	0/100	<0.01
AMR336	21-Sep	SANDOWN, CONTAINMENT MOUND, WEST END NORTH FENCE	7:32	15:45	0/100	<0.01
AMR336	21-Sep	SANDOWN, CONTAINMENT MOUND, WEST END SOUTH FENCE	7:33	15:44	0/100	<0.01

AMR336	21-Sep	SANDOWN, CONTAINMENT MOUND, EAST END NORTH FENCE	7:34	15:43	0/100	<0.01
AMR336	21-Sep	SANDOWN, CONTAINMENT MOUND, EAST END SOUTH FENCE	7:35	15:42	0/100	<0.01
AMR337	22-Sep	SANDOWN LINE, WEST END, ADJACENT TO GATE	7:54	15:37	0/100	<0.01
AMR337	22-Sep	SANDOWN LINE, WEST END, 10 M SOUTH OF GATE	7:55	15:38	0/100	<0.01
AMR337	22-Sep	SANDOWN LINE, WEST END, ADJACENT TO GARAGE ENTRANCE	7:56	15:39	0/100	<0.01
AMR337	22-Sep	SANDOWN LINE, CONTAINMENT MOUND, EAST END, NORTH BOUNDARY	8:18	15:26	0/100	<0.01
AMR337	22-Sep	SANDOWN LINE, CONTAINMENT MOUND 30 M WEST OF EAST END, NORTH BOUNDARY	8:19	15:27	0/100	<0.01
AMR337	22-Sep	SANDOWN LINE, CONTAINMENT MOUND 20 M WEST OF EAST END, SOUTH BOUNDARY	8:20	15:28	0/100	<0.01
AMR338	23-Sep	OVERPASS AREA, NORTH EAST CORNER	6:48	15:31	0/100	<0.01
AMR338	23-Sep	OVERPASS AREA, NORTH BOUNDARY	6:49	15:32	0/100	<0.01
AMR338	23-Sep	OVERPASS AREA, NORTH WEST CORNER	6:50	15:33	0/100	<0.01
AMR338	23-Sep	SANDOWN LINE, WEST END, ADJACENT TO PARKING GARAGE ENTRANCE	6:54	15:37	0/100	<0.01
AMR338	23-Sep	SANDOWN LINE, WEST END, WESTERN BOUNDARY	6:55	15:38	0/100	<0.01

AMR338	23-Sep	SANDOWN LINE, WEST END, ADJACENT TO ACCESS GATE	6:56	15:39	0/100	<0.01
AMR339	24-Sep	SANDOWN LINE, WEST END, ADJACENT TO GATE	7:17	15:43	0/100	<0.01
AMR339	24-Sep	SANDOWN LINE, WEST END, ADJACENT TO FOOTPATH	7:08	15:44	0/100	<0.01
AMR339	24-Sep	SANDOWN LINE, WEST END, ADJACENT TO PARKING GARAGE ENTRANCE	7:09	15:45	0/100	<0.01
AMR339	24-Sep	OVERPASS AREA, NG CORNER	7:14	15:41	0/100	<0.01
AMR339	24-Sep	OVERPASS AREA, EAST BOUNDARY ADJACENT TO OVERPASS	7:15	15:40	0/100	<0.01
AMR339	24-Sep	OVERPASS AREA, EAST BOUNDARY, APPROX 5 M SOUTH OF OVERPASS	7:16	15:39	0/100	<0.01