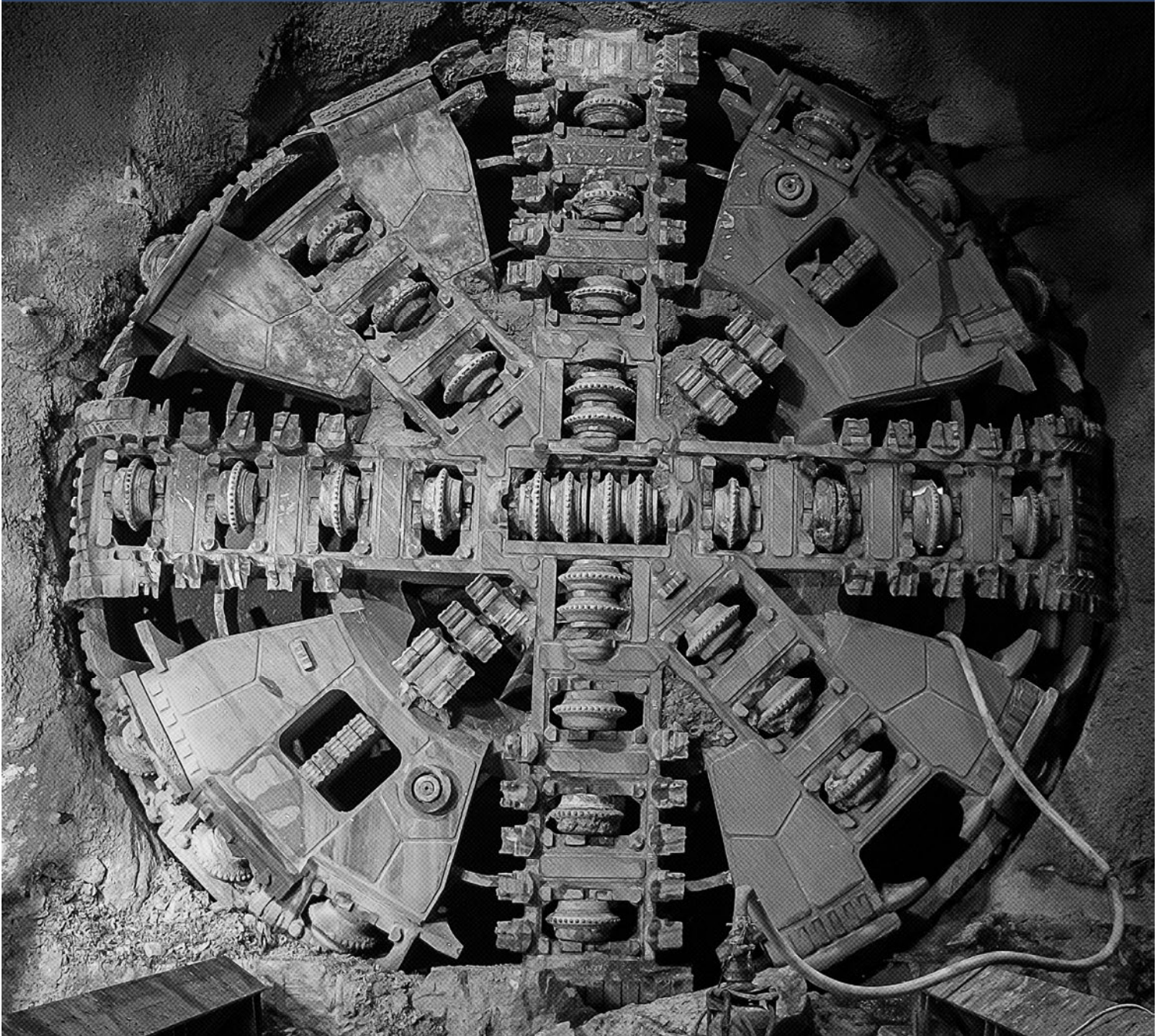


EPL 21784 POLLUTION MONITORING REPORT

May 2023



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May 2023

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1. Introduction

1.1. Background

Sydney Metro West is a new 24-kilometre metro line that will connect Greater Parramatta with the Sydney CBD via stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street (Sydney CBD).

The planning process for Sydney Metro West was assessed as a staged infrastructure application under section 5.20 of the *Environment Planning and Assessment Act 1979* (EP&A Act).

Stage 1 of the development, the Sydney Metro West Concept and major civil construction work for Sydney Metro West between Westmead and The Bays (SSI-10038 Schedule 2), was approved on 11 March 2021 and includes:

- Construction and operation of new passenger rail infrastructure between Westmead and the central business district of Sydney, including:
 - Tunnels, stations (including surrounding areas) and associated rail facilities
 - Stabling and maintenance facilities (including associated underground and overground connections to tunnels)
- Modification of existing rail infrastructure, including stations and surrounding areas
- Ancillary development.

The Eastern Tunnelling Package (ETP or this Project) is addressed under the Stage 2 Planning Approval (SSI 19238057). This Project includes all major civil construction work including station excavation (at the Pyrmont Station and Hunter Street Station (Sydney CBD) construction sites) and tunnelling between The Bays and Sydney CBD (Figure 1).

It is noted that the existing Sydney Metro West precast facility at Eastern Creek will be utilised in the delivery of the ETP Works. The facility, which was assessed by Sydney Metro in a Review of Environmental Factors (REF) and approved on 11 March 2021, is outside of the scope of the SWMP.

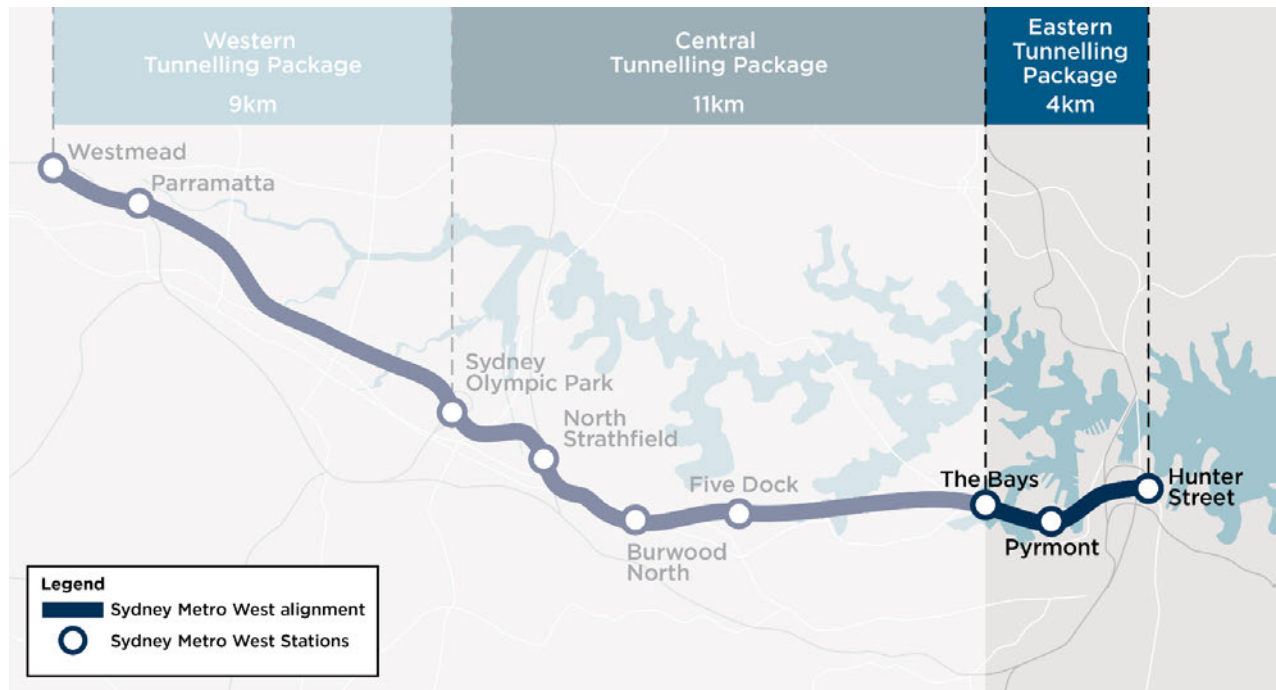


Figure 1: Overview of the Sydney Metro West between The Bays and Sydney CBD (Source: EIS)

1.2. Project scope

The ETP Works include design and construction of:

- Demolition of existing buildings at Pyrmont East and West shaft sites and at Hunter Street East and West shaft sites

- Tunnel Boring Machine (TBM) assembly, launch, tunnelling support from an existing shaft at The Bays
- Approximately 2.5 km twin underground eastbound and westbound bored railway tunnels between The Bays and Hunter Street and six cross passages spaced up to 500 metres apart
- Pyrmont Station excavation, including two shaft excavations, associated access adits and nozzle enlargements, including temporary ground support and cast in situ cavern linings
- Excavation and lining of a mined crossover cavern to allow trains to cross from one track to the other
- Hunter Street station mined cavern excavation, including:
 - Two shaft excavations, associated access adits
 - Nozzle enlargements
 - Conversion of an existing temporary connection adit at Bligh Street linking Hunter Street Station to Martin Place Station into a permanent pedestrian connection linking the stations (including temporary ground support and cast in situ linings)
- A turnback extension tunnel, of approximately 675 metres, east of the Hunter Street Station works to enable Sydney Metro train storage and to change tracks and travel direction (eastbound to westbound)
- TBM disassembly and retrieval from Hunter Street East.

1.3. Scope of this report

John Holland CPB Contractors Ghella (JCG) have been issued an Environmental Protection Licence (EPL No. 21784) from the NSW Environment Protection Authority (EPA) for the Sydney Metro West Eastern Tunnelling Package (ETP) Project.

The EPL applies to the works approved under the Infrastructure Approval SSI-19238057 associated with the delivery of the Sydney Metro West Eastern Tunnelling Package (ETP) Project.

This EPL Pollution Monitoring Report provides the results of all pollution monitoring required to be measured or monitored by the licensee of EPL 21784 as required by Section 66 of the Protection of the Environment Operations Act 1997 (POEO Act) and with reference to EPA Publication Requirements for publishing pollution monitoring data (Environment Protection Authority, 2013).

Table 1 provides a summary of the EPL 21784 details.

Table 1 Licence details

Licence Details	
Number	21784
Copy of Licence	https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=266460&SYSUID=1&LICID=21784
Anniversary Date	16-March
Licensee	John Holland Pty Ltd
Premises	Sydney Metro West - Eastern Tunnelling Package
Scheduled Activity	Railway activities – railway infrastructure construction

2. Reporting Requirements

Under the *POEO Act*, holders of environment protection licences (licensees) must publish or make pollution monitoring data available to members of the public.

The *POEO Act* Section 66 requires:

“66 Conditions requiring monitoring, certification or provision of information, and related offences

(1) **Monitoring** The conditions of a licence may require—

(a) monitoring by the holder of the licence of the activity or work authorised, required or controlled by the licence, including with respect to—

(i) the operation or maintenance of premises or plant, and

(ii) discharges from premises, and

(iii) relevant ambient conditions prevailing on or outside premises,
and

(iv) anything required by the conditions of the licence, and

(b) the provision and maintenance of appropriate measuring and recording devices for the purposes of that monitoring, and

(c) the analysis, reporting and retention of monitoring data.

(2) **False or misleading information** A holder of a licence who supplies information, or on whose behalf information is supplied, to the appropriate regulatory authority under the conditions of the licence is guilty of an offence if the information is false or misleading in a material respect.”

The primary objective of the pollution monitoring reporting requirements is that members of the public have access to the results of all pollution monitoring (which a licence specifies must be carried out) in a way that is meaningful to them. Data for the Sydney Metro West Eastern Tunnelling Package is presented on a monthly sampling period.

The monitoring data that must be published and/or made available on request is any data that is obtained as a result of a monitoring condition on a licence that relates to air, water (surface or groundwater), noise and/or land pollution. The data to be published or provided is limited to data that relates to pollutants generated, discharged or emitted from the licensed premises.

The data is provided in tabular format that is easy for the general public to understand. Tables definitively display raw data values, while graphs and charts are useful for overviews and visualisation of long-term trends. Raw data will be provided upon request.

An upfront note will be included on the licensee’s website or in this report to explain why any data may appear to be missing because there is no discharge or the level of pollutant being below the detection level of the measurement instrument.

It is possible from time to time that incorrect data may be published in good faith. As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading (refer to **Section 4**).

Table 2 provides a summary of the pollution monitoring requirements of EPL 21784.

Table 2 EPL 21784 Pollution Monitoring Requirements

EPL Condition	Requirement	Report Reference																																
Weather																																		
M5.1	The licensee must monitor and record temperature, humidity, wind direction, wind velocity and rainfall at either the project weather station, or through analysis of equivalent weather information obtained from the Australia Bureau of Meteorology. Monitoring must: a) be representative of each catchment area; b) commence prior to any works that may cause sediment to leave the premises; and c) continue to be operated until soil disturbance activities cease at the premises and the site has been stabilised.	Section 3.1 Appendix A3.1																																
Noise																																		
L5.9	In undertaking any works and activities outside of standard construction hours under condition L5.8, the licensee must comply with the following: a) Prepare a construction noise and vibration impact assessment in accordance with the Interim Construction Noise Guideline (DEC,2009) that is to include: i. a description of the proposed works and activities outside of standard constructions hours; ii. predictions of LAeq(15 minute) dB noise levels at noise sensitive receivers from these works and activities, where noise levels are predicted to be greater than those permitted under condition L5.3; and iii. a monitoring plan to validate the noise predictions, based on monitoring at the boundary of representative sensitive receivers during noise generating activities that are representative of the works and activities, including during the period/s predicted to have the highest noise level impacts. b) Undertake noise monitoring in accordance with the monitoring plan required by condition L5.9(a)(iii).	Section 3.2 Appendix B																																
M4.4	The licensee must undertake noise and vibration monitoring as directed by an authorised officer of the EPA. If a licensee is unable to obtain permission, they must provide the response to the EPA.	N/A																																
Water																																		
P1.1	The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point. <table border="1"> <thead> <tr> <th>EPA Identification no.</th> <th>Type of Monitoring Point</th> <th>Type of Discharge Point</th> <th>Location Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Discharge & Monitoring</td> <td>Discharge & Monitoring</td> <td>Discharge from the Hunter St Station WTP to Sydney Harbour</td> </tr> </tbody> </table>	EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description	1	Discharge & Monitoring	Discharge & Monitoring	Discharge from the Hunter St Station WTP to Sydney Harbour	Section 3.3																								
EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description																															
1	Discharge & Monitoring	Discharge & Monitoring	Discharge from the Hunter St Station WTP to Sydney Harbour																															
M2.1	For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns.	Section 3.3																																
M2.2	POINT 1 <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Units of measure</th> <th>Frequency</th> <th>Sampling Method</th> </tr> </thead> <tbody> <tr> <td>Ammonia</td> <td>micrograms per litre</td> <td>Monthly during discharge</td> <td>Grab sample</td> </tr> <tr> <td>Arsenic</td> <td>micrograms per litre</td> <td>Monthly during discharge</td> <td>Grab sample</td> </tr> <tr> <td>Manganese</td> <td>micrograms per litre</td> <td>Monthly during discharge</td> <td>Grab sample</td> </tr> <tr> <td>Nitrogen (total)</td> <td>micrograms per litre</td> <td>Monthly during discharge</td> <td>Grab sample</td> </tr> <tr> <td>pH</td> <td>pH</td> <td>Daily during any discharge</td> <td>Probe</td> </tr> <tr> <td>Phosphorus (total)</td> <td>micrograms per litre</td> <td>Monthly during discharge</td> <td>Grab sample</td> </tr> <tr> <td>TSS</td> <td>milligrams per litre</td> <td>Daily during any discharge</td> <td>Grab sample</td> </tr> </tbody> </table>	Pollutant	Units of measure	Frequency	Sampling Method	Ammonia	micrograms per litre	Monthly during discharge	Grab sample	Arsenic	micrograms per litre	Monthly during discharge	Grab sample	Manganese	micrograms per litre	Monthly during discharge	Grab sample	Nitrogen (total)	micrograms per litre	Monthly during discharge	Grab sample	pH	pH	Daily during any discharge	Probe	Phosphorus (total)	micrograms per litre	Monthly during discharge	Grab sample	TSS	milligrams per litre	Daily during any discharge	Grab sample	Section 3.3
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TSS	milligrams per litre	Daily during any discharge	Grab sample																															

3. Monitoring

Section 3 presents a summary of the monitoring programs completed in the reporting period from 17 April 2023 to 16 May 2023.

Detailed monitoring results for each program are presented in the Appendices.

3.1. Meteorological Data

Meteorological data for the Project has been taken from the Observatory Hill Bureau of Meteorology Weather Station.

The total rainfall recorded during the reporting period was 63 mm with 9 days exceeding one millimetre of rain and 2 days of rain exceeding 10mm.

During the reporting period, there were 26 days where the maximum wind gust recorded was greater than 25km/h, 3 days where the maximum wind gust recorded was greater than 50km/h and 3 days where the maximum wind gust recorded was greater than 60km/h. Winds recorded during the reporting period were predominantly westerly in the mornings changing to easterly in the afternoons, however there was variability throughout the month.

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 3.

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

Table 3 Weather summary and trigger weather events for the reporting period

Weather Event	Observation
Minimum temperature	9.7 °C
Maximum temperature	27.5 °C
Total rainfall	63mm
Number of days with rain (>1 mm)	9 days
Number of days with rain (>10 mm)	2 days
>25 km/hr wind ²	26 days
>50 km/hr wind	3 days
>60 km/hr wind	3 days

3.2. Noise

Noise monitoring is a requirement of the following conditions of EPL 21784:

- L5.9 Monitoring to validate the noise predictions for works undertaken outside of the standard construction hours as per the construction noise impact assessment
- M7.5(c) Noise or vibration monitoring following noise and vibration complaints
- M4.4 Noise and vibration monitoring as directed by an authorised officer of the EPA.

Table 4 provides a summary of noise monitoring events conducted during the reporting period. Detailed noise monitoring results and comments are presented in Appendix B. There were no exceedances of the predicted noise level (LAeq15min) during the reporting period.

Table 4 Summary of noise and vibration monitoring completed during the reporting period

Date	Monitoring Location	Method	Description
26/04/23	8 Pyrmont Bridge Road, Pyrmont, NSW, 2009	Attended	Tree Clearing
27/04/23	27 O’Connell Street (Basement Level 4 – B4), Sydney, NSW, 2000	Attended	Roadhead Excavation at Hunter Street East (GBN monitoring)
27/04/23	27 O’Connell Street, Sydney, NSW, 2000	Attended	Tree Removal at O’Connell Street
27/04/23	27 O’Connell Street, Sydney, NSW, 2000	Attended	Tree Removal at corner of Hunter St and O’Connell St
27/04/23	66 Hunter Street, Sydney, NSW, 2000	Attended	Tree trimming and removal on Hunter Street
15/05/23	27 O’Connell Street, Sydney, NSW, 2000	Attended	Utilities Investigation for driveways at HSTE
15/05/23	2 Hunter Street, Sydney, NSW, 2000	Attended	Site establishment for awning removal at HSTW

3.3. Discharge to water

Discharge water quality monitoring is a requirement of the following conditions of EPL 21784:

- M2.1 Monitoring the concentration of each pollutant specified using the specified sampling method, units of measure and frequency

During the reporting period sampling was undertaken from Point 1 – Discharge from the Hunter St Station WTP.

Table 5 provides the detail of the concentration of pollutants discharged during the reporting period. There were no exceedances of the discharge criteria specified in L2.4.

Table 5 Concentration of pollutants discharged during the reporting period

Date	Type	Ammonia (µg/L)	Ph	Total Phosphorus (µg/L)	Total Nitrogen (µg/L)	Arsenic (µg/L)	Manganese (µg/L)	TSS (mg/L)
	Criteria	1900	6.5-8.5	570	5400	90	90	15
11/5/2023	Discharge	700	8.3	<50	2600	<1	12	6.9

4. Correction Log

It is possible from time to time for incorrect data to get published in good faith.

As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading.

There are no matters included in the correction log for this reporting period.

Appendix A Weather Data

Table 6 Weather Observations. Temperature and Relative Humidity. Observatory Hill BOM Station.

Date	Min temperature (°C)	Max temperature (°C)	Rainfall (mm)	9am Temperature (°C)	9am relative humidity (%)	3pm Temperature (°C)	3pm relative humidity (%)
17/04/2023	12.9	22.7	0	17.0	67	21.6	63
18/04/2023	13.0	23.7	0	17.3	84	23.2	56
19/04/2023	13.9	25.5	0	17.3	84	23.6	59
20/04/2023	17.3	19.8	1.6	18.6	79	17.8	92
21/04/2023	13.8	21.6	4.6	17.1	82	18.8	78
22/04/2023	13.5	20.0	0.4	15.8	82	18.6	93
23/04/2023	14.8	23.7	4.4	16.8	100	22.3	65
24/04/2023	16.8	23.1	1.2	20.5	69	23.0	68
25/04/2023	15.6	23.7	0.8	18.2	99	23.4	60
26/04/2023	14.8	21.7	0.2	17.0	92	21.1	73
27/04/2023	14.9	25.2	0	20.1	74	23.9	62
28/04/2023	14.7	27.5	0	17.2	92	25.6	62
29/04/2023	17.2	18.6	0	18.6	86	18.3	93
30/04/2023	14.1	21.1	27	16.2	88	19.8	63
01/05/2023	10.6	21.3	0	13.5	83	19.3	43
02/05/2023	11.2	22.9	0	15.9	68	21.9	45
03/05/2023	13.9	23.7	0	18.9	59	23.3	28
04/05/2023	11.6	20.8	0	14.1	52	19.7	48
05/05/2023	10.9	22.0	0	13.6	82	20.3	60
06/05/2023	10.5	22.5	0	13.6	77	22.3	40
07/05/2023	10.2	15.9	0	14.1	68	15.8	48
08/05/2023	7.1	16.3	10.2	11.6	50	15.4	35
09/05/2023	9.9	19.2	0	13.0	62	17.7	51
10/05/2023	9.7	19.8	0	13.1	68	19.6	47
11/05/2023	10.8	21.7	0	13.6	82	20.7	62
12/05/2023	11.1	22.7	1.6	13.9	88	20.6	69
13/05/2023	12.6	20.9	0	13.0	93	19.4	75
14/05/2023	11.9	20.0	7.6	14.6	99	18.7	83
15/05/2023	12.0	20.9	3.4	13.9	99	20.1	72
16/05/2023	11.2	19.0	0	13.3	97	20.5	38

Table 7 Wind Observations. Observatory Hill BOM Station.

Date	Direction of maximum wind gust	Speed of maximum wind gust (km/h)	Time of maximum wind gust	9am wind direction	9am wind speed (km/h)	3pm wind direction	3pm wind speed (km/h)
17/04/2023	W	37	4:24	WNW	17	SE	19
18/04/2023	E	22	15:44	WNW	11	E	13
19/04/2023	SSW	28	23:04	WNW	15	ENE	17
20/04/2023	nd	nd	nd	SSE	28	SSW	13
21/04/2023	SSW	33	10:28	SW	15	SSW	6
22/04/2023	S	33	11:39	W	22	SE	7
23/04/2023	ESE	41	21:40	W	17	SSE	15
24/04/2023	ESE	33	0:16	ESE	19	ESE	17
25/04/2023	ENE	26	13:40	NE	2	ENE	15
26/04/2023	ENE	35	20:35	WNW	11	E	11
27/04/2023	ENE	37	14:24	N	15	NE	20
28/04/2023	NNE	31	20:25	WNW	6	NE	19
29/04/2023	WNW	41	23:19	WNW	11	W	11
30/04/2023	WSW	39	0:01	WNW	20	W	19
01/05/2023	W	33	16:16	WNW	15	WNW	11
02/05/2023	W	46	12:37	WNW	19	WSW	17
03/05/2023	W	65	22:25	NNW	24	WNW	35
04/05/2023	W	48	0:09	W	26	S	13
05/05/2023	ENE	30	14:23	W	13	ENE	22
06/05/2023	W	31	11:29	WNW	17	NNW	11
07/05/2023	W	76	13:07	W	26	W	30
08/05/2023	W	67	3:31	W	33	SSW	24
09/05/2023	SSW	46	12:00	W	26	S	20
10/05/2023	W	30	2:30	WNW	24	SSE	19
11/05/2023	W	26	1:56	W	20	E	13
12/05/2023	W	20	4:29	WNW	17	E	15
13/05/2023	SSE	30	13:10	W	19	S	17
14/05/2023	ESE	26	14:31	WNW	11	ESE	20
15/05/2023	E	30	13:27	WNW	17	Calm	Calm
16/05/2023	nd	nd	nd	WNW	17	SSE	20

Note: nd = no data available

Appendix B Noise Monitoring Results

Date	Time	Works Period	Construction Activity	Activity Location	Monitoring Location	NML (dBA)	Predicted (dBA)	Recorded Leq, 15min (dBA)	LAmx	Exceedance of Predicted (dBA)	Exceedance of Predicted	Comments
Attended noise monitoring												
26/04/2023	19:40	Evening	Tree Clearing - Pymont Bridge Road	Pymont East	8 Pymont Bridge Road, Pymont, NSW, 2009	52	69	66.4	84.8	-2.6	No	Validation monitoring indicated construction work was the dominant noise source.
27/04/2023	21:00	Evening	Roadheader excavation under HSTE acoustic shed	Hunter St East	Radisson Blu Hotel, 27 O'Connell St	30	40	43.8	70.3	3.8	Yes	Validation monitoring indicated construction work was not the dominant noise source.
27/04/2023	21:30	Evening	Tree Removal on O'Connell Street	Hunter St East	Radisson Blu Hotel, 27 O'Connell St (Level B4)	60	88	74.1	87.7	-13.9	No	Validation monitoring indicated construction work was the dominant noise source.
27/04/2023	22:28	Night	Tree removal on corner of Hunter and O'Connell (TN1)	Hunter St East	Radisson Blu Hotel, 27 O'Connell St	60	88	72	84	-4	No	Validation monitoring indicated construction work was the dominant noise source.
27/04/2023	22:50	Night	Tree trimming and removal on Hunter Street	Hunter St East	66 Hunter Street, Sydney, 2000	70	81	68.8	88.2	-12.2	No	Validation monitoring indicated construction work was the dominant noise source.
15/05/2023	21:36	Evening	Utilities investigation for driveways	Hunter St East	27 O'Connell Street, Sydney, 2000	60	84	71.5	80.4	-8.6	No	Validation monitoring indicated construction work was the dominant noise source.
15/05/2023	22:11	Night	Site establishment for awning removal	Hunter St West (George Street)	2 Hunter Street, Sydney, 2000	60	72	67.2	84.8	-4.8	No	Validation monitoring indicated construction work was the dominant noise source.
Real time noise and vibration monitoring												
17/04/2023 – 16/05/2023	Continuous	Baseline	Pymont East	63 Edward St, Pymont	*	*	*	*	*	*	*	Real time noise and vibration monitoring data is available on request.
17/04/2023 – 16/05/2023	Continuous	Baseline	Hunter St East	Radisson Blu Hotel, 27 O'Connell St, B2 Level	*	*	*	*	*	*	*	
17/04/2023 – 16/05/2023	Continuous	Baseline	Hunter St East	Radisson Blu Hotel, 27 O'Connell St, Level 2	*	*	*	*	*	*	*	
17/04/2023 – 16/05/2023	Continuous	Baseline	Pymont West	125 Pymont St, Pymont	*	*	*	*	*	*	*	
17/05/2023 – 16/05/2023	Continuous	Baseline	Hunter St West	Tank Stream Hotel, Hunter St	*	*	*	*	*	*	*	

* Data is available on request