Southwest Metro Station Upgrade Works Package 4:

Marrickville, Canterbury & Lakemba Stations

HSEJV Construction Monitoring Report: March – August 2022



Document Number: SMCSWSW4-HSE-WEC-EM-REP-007659
Revision Date: 31/10/2022
Revision: B

Construction Consultative Committee


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Revision History

REV	DATE	DESCRIPTION	REVIEW	APPROVED
A	26/09/2022	Original Content Development	Jake Iskenderian	Andrew Lynam
B	31/10/2022	Updated following comments by SM and ER	Jake Iskenderian	Andrew Lynam

Terms and Definitions

TERMS	EXPLANATION
AMMs	Additional Mitigation Measures
AMMM	Additional Mitigation Measures Matrices
CEMP	Construction Environmental Management Plan
CoA	Condition of Approval
CNVS	Sydney Metro Construction Noise and Vibration Strategy (2016)
CNVMP	Construction Noise and Vibration Management Plan
CoCB	City of Canterbury Bankstown
CSSI	Critical State Significant Infrastructure
EIS	Environmental Impact Statement
DPE	Department of Planning and Environment
EPA	NSW Environment Protection Authority
ER	Environmental Representative
HSEJV	Haslin Construction & Stephen Edwards Joint Venture
IWC	Inner West Council
M	Monitoring
NATA	National Association of Testing Authorities
NML	Noise Management Level
NVMP	Noise and Vibration Management Plan
REMM	Revised Environmental Mitigation Measure
SWMP	Soil and Water Management Plan
VML	Vibration Management Level

1. Introduction

1.1. Project Summary

The Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of the Metro Northwest Line at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney. Sydney Metro City & Southwest comprises two core components – the Chatswood to Sydenham project, and the Sydenham to Bankstown upgrade. This document refers to the Sydenham to Bankstown Section, Southwest Metro Station Upgrade Works Package 4. In particular to the Station Upgrades at Marrickville, Canterbury, and Lakemba, refer to Figure 1 below.

Figure 1: Location of the Project

1.2. Planning Approval Requirements

The Sydney Metro Authority received planning approval to construct the project from the Department of Planning and Environment (DPE). The Conditions of Approval (CoA) Critical State Significant Infrastructure (CSSI) 8256 granted 12 December 2018 cover the works from Marrickville to Bankstown.

A Construction Environmental Management Plan (CEMP) and sub-plans were developed for the project to address all environmental aspects, including construction monitoring. Approval of the plans enabled commencement of Construction on 20 March 2021. Construction monitoring requirements are detailed in the CEMP, the Soil and Water Management Sub-Plan (SWMP) (CoA C3(b) and the Construction Noise and Vibration Management Plan (CNVMP) (CoA C3(a). These plans can be accessed at the HSEJV website: https://hsejv.com.au/home.

Environmental monitoring was undertaken to validate the impacts predicted for the Project, to measure the effectiveness of environmental controls and implementation of the CEMP and supplementary plans, and to address approval requirements.

The objectives for this report are to provide construction monitoring results for the 6 months of work on the HSEJV Project as required in the Construction Monitoring Program, from the start of March 2022 to the end of August 2022.

1.3. Submission Requirements

This Construction Monitoring Report will be submitted to the Planning Secretary (DPE), and relevant regulatory agencies, for information in accordance with Condition C14 of CSSI 8256 every six months as outlined in the Construction Monitoring Program.

1.4. Role of the ER in Reviewing the Report

Sydney Metro engaged, and received DPE approval, for an Independent ER for the Project. The role of the ER, in this instance, is to review documents identified in Condition A26 (d) and in this case reviewing this Construction Monitoring Report (CMR) prior to submission to DPE. The Independent Environmental Representative (ER) has reviewed this CMR prior to submission to the DPE, Inner West Council (IWC) and City of Canterbury Bankstown (CoCB).

2. Details of Pre-Construction Monitoring

Works commenced in February 2021 with non-intrusive survey works, dilapidation reports and site familiarisation.

The Southwest Metro Early Works (SMEW) project conducted water quality monitoring at the Cooks River, adjacent to the rail corridor for the purpose of establishing baseline water quality data from May 2019 to September 2020 at quarterly intervals and also during a number of rainfall events. These monitoring locations (on Broughton Street, Canterbury) are located approximately 150m from the nearest works at Canterbury Station. It is noted that the data captured as part of the monitoring indicates that the water quality within the Cooks River at the monitoring location exceeds several of the ANZECC/ANZG criteria regularly including pH and turbidity. Due to fluctuating results, they offer little in terms of interpretation or predictable trends. No further baseline water quality monitoring is proposed by the Project. HSEJV did not conduct any baseline water quality monitoring further to what was provided by the SMEW project.

The NSW Water Quality and River Flow Objectives (refer Tables below) provide water quality objectives for the Cooks River and Georges River catchments, for the protection of the following within waterways affected by urban development, or estuaries:

- Aquatic ecosystems
- Visual amenity.

As per the Sydney Metro – Water Discharge or Reuse Procedure and HSEJV Soil and Water Management Plan, pH, total suspended solids (TSS)/ turbidity (NTU) and oil and grease are considered the main potential contamination for surface water.

Table 1-2NSW water quality objectives

Water quality objective	Indicators	Associated trigger values or criteria	Catchments to which it applies
Aquatic ecosystems			
Maintaining or improving the ecological condition of waterbodies and their riparian zones over the long term	Total phosphorus	Lowland rivers: 0.025 mg/L for rivers flowing to the coast Estuaries: 0.03 mg/L	Cooks River Georges River (Salt Pan Creek)
	Total nitrogen	Lowland rivers: 0.350 mg/L for rivers flowing to the coast Estuaries: 0.300 mg/L	
	Chlorophyll-a	Lowland rivers: 0.005 mg/L. Estuaries: 0.004 mg/L.	
	Turbidity	Lowland rivers: 6–50 NTU Estuaries: 0.5–10 NTU	
	Salinity (electrical conductivity)	Lowland rivers: 125–2200 µS/cm	
	Dissolved oxygen	Lowland rivers: 85–110 % Estuaries: 80–110 %	
	pH	Lowland rivers: 6.5–8.5 Estuaries: 7.0–8.5	

Water quality objective	Indicators	Associated trigger values or criteria	Catchments to which it applies
Visual amenity			
Maintain aesthetic qualities of waters	Visual clarity and colour	Natural visual clarity should not be reduced by more than 20 % Natural hue of water should not be changed by more than 10 points on the Munsell Scale Natural reflectance of water should not be changed by more than 50 %	Cooks River Georges River (Salt Pan Creek)
	Surface film and debris	Oils and petrochemicals should not be noticeable as a visible form on the water, nor should they be detectable by odour Waters should be free from floating debris and litter	
	Nuisance organisms	Macrophytes, phytoplankton scums, filamentous algal mats, blue-green algae, sewage fungus and leeches should not be present in unsightly amounts	

3. Construction Water Quality Monitoring

The Sydney Metro - Water Discharge or Reuse Procedure regulates both onsite reuse and offsite point source discharge. Prior to any discharge, the water is tested and if suitable, the HSEJV Environment Manager (or delegate) approves the discharge, either that the water is suitable for reuse onsite or discharge on/off site, by using the permit to discharge.

3.1. Reuse or discharge on site

Where practicable, water may be reused on site, for example, for dust suppression, to assist with compaction or for watering landscape/ retained vegetation. If water cannot be reused onsite, water can be discharged to land within the project site boundary if complying with the following criteria:

- No potential for water to leave the premises;
- No surface runoff will be generated from the reuse (reuse includes dust suppression, watering retained vegetation etc.); and
- No potential for water to reach any watercourse.

As with discharges to land, the TSS criterion does not apply as water will not be discharged to any watercourse. However, to avoid impacts to vegetation pH testing and a visual inspection for oil or grease must be undertaken as outlined in Table 1 below.

Table 1 – Criteria for Onsite Reuse or Discharge

Parameter	Criterion	Method	Time prior to discharge
Oil and grease	Non-visible	Visual inspection	< 1 hour
pH	6.5 – 8.5	Probe/Meter	< 1 hour

Due to wet weather conditions, there were no instances of water reuse onsite during this reporting period at Marrickville, Canterbury and Lakemba Stations. Daily rainfall data for the reporting period is provided in Appendix A.

Marrickville

During the reporting period approximately 30,000 litres of groundwater was discharged to land within the rail corridor at Marrickville Station. All discharged groundwater was treated and tested in accordance with the groundwater management plan (GWMP) to ensure that discharged water meets required criteria (refer to table 5 in the GWMP) and, therefore, the ANZG/ANZECC guideline criteria. Treatment is carried out to ensure that discharged waters will not result in additional contamination to the proposed area for discharge. The primary approach would be to dewater the groundwater to storage tanks, treat in an onsite facility and re-use/discharge on site.

A dewatering register and laboratory analysis results are provided in Appendix B. There were no instances of water reuse.

Canterbury

During the reporting period approximately 6,000 litres of stormwater was discharged to land within the rail corridor at Canterbury Station. All discharged waters were tested in accordance with the onsite discharge criteria to ensure that discarded water meets required criteria (refer to Table 1). A dewatering register is provided in Appendix B. There were no instances of water reuse.

Lakemba

During the reporting period approximately 17,100 litres of waters were discharged to land within the rail corridor at Canterbury Station. All discharged waters were tested in accordance with the onsite discharge criteria to ensure that discarded water meets required criteria (refer to Table 1). A dewatering register is provided in Appendix B. There were no instances of water reuse.

3.2. Water discharge offsite to receiving waters

The SWMP includes the Water Quality Monitoring Program which requires water quality monitoring to be undertaken for controlled discharges offsite to ensure compliance with the discharge criteria defined in Section 5.2.2 of the SWMP (refer Table 2 below). The Water Quality Monitoring Program requires a 6-monthly report from the results of monitoring undertaken prior to controlled discharge offsite.

Table 2 – Criteria for Offsite Discharge

Parameter	Criterion	Method	Time prior to discharge
Oil and grease	Non-visible	Visual inspection	< 1 hour
pH	6.5 – 8.5	Probe/Meter	< 1 hour
Total Suspended Solids (TSS)	<50 mg/L	Meter/grab sample	< 1 hour/ <24 hours

During the reporting period approximately 12,000 litres of stormwater was discharged to the stormwater system at Canterbury Station. All discharged water was treated and tested in accordance with the onsite discharge criteria to ensure that discarded water meets required criteria (refer to Table 2). A dewatering register is provided in Appendix B.

No controlled discharge off site at Marrickville and Lakemba stations occurred during the reporting period.

3.3. Permit to Dewater

HSEJV has an internal Permit to Dewater system, which ensures compliance with discharge criteria at all times. Monitoring is done prior to each dewatering event and must be in compliance with Section 5.2.2 of the SWMP.

During the reporting period, two (2) Permit to Discharge forms were issued at Marrickville Station, four (4) Permit to Discharge forms were issued at Canterbury Station and five (5) Permit to Discharge forms were issued at Lakemba Station. Refer to Appendix B for the dewatering register.

3.4. Environmental Condition Surveys

HSEJV did not undertake any works at major drainage crossings and outlets within the localised catchments during this reporting period. Therefore, no environmental conditions survey on major drainage crossings/outlets was required.

Also, no works are within or near the immediate vicinity of watercourses including the Cooks River.

The ancillary facility at 6 Charles Street (approved under A17) is located close to the Cooks River at a distance of approximately 20 m.

The Marrickville MSB area is located along a drainage channel that is connected with the Cooks River.

Erosion and sediment controls are in place to prevent discharge offsite to the Cooks River. Refer to Appendix A for inspection reports.

3.5. Monitoring following a Rain Event (>20mm) in 24 hours

Regular and ongoing maintenance of erosion and sediment controls and inspection of access/egress locations at all three Stations was conducted. The HSEJV Environment team conducted inspections pre, during and post rainfall events (>20mm) in 24 hours. Refer to records in Appendix A.

3.6. Uncontrolled Discharge from Site

Discharge occurred via stabilised controls into the urban stormwater catchment at Lakemba, Canterbury and Marrickville Stations. One (1) uncontrolled discharge was recorded during this reporting at Lakemba Station on 6 April 2022, during a significant rainfall event. Controls were in place at the time, however, overwhelmed due to such a large volume of water being received during the rain event. This was raised as an incident and rectified accordingly, which included the bolstering of erosion sediment controls. The incident was not notifiable.

4. Noise and Vibration

The CNVMP includes the Construction Noise and Vibration Monitoring Program. This program requires a 6-monthly report from the results of construction noise and vibration monitoring. The results for the 1st March 2022 to 31st August 2022 monitoring period are included in this report.

Below are details regarding noise and vibration modelling and monitoring:

- Renzo Tonin and Associates have been engaged on the project since 3 June 2021 to conduct noise and vibration modelling as well as part of the noise monitoring and all of the vibration monitoring. A web-based Construction noise modelling tool (Gatewave) has been used to produce Construction Noise and Vibration Assessment (CNVIA) reports for this project during the reporting period.

4.1. Noise Monitoring

In accordance with CoA C13, the Noise and Vibration Monitoring Program is to be carried out for the duration of Construction.

As per Section 7.2 of the CNVMP, noise monitoring is required:

- In response to noise complaints
- If requested by Sydney Metro, the Environmental Representative (ER), Department of Planning and Environment (DPE) or NSW Environment Protection Authority (EPA)
- To augment baseline noise levels, if the noise environment at a receiver is considered to be different from the noise logger locations used for the Environmental Impact Statement (EIS)
- To verify predictions
- As part of a plant noise audit
- If predicted noise levels exceed the trigger levels requiring “M” (Monitoring) in accordance with the additional mitigation measures matrices (AMMM) provided in Section 6.18 of the CNVMP.

Noise monitoring is required if the predicted airborne noise level is above the applicable additional mitigation measures (AMM) trigger level, which is set relative to the noise management level (NML).

Ground borne noise measurements were reviewed and it was agreed with the HSEJV noise consultant, Sydney Metro and the ER that air borne noise would be dominant from the surface works. Therefore, ground borne noise does not require further assessment in accordance with the Sydney Metro Construction Noise and Vibration Strategy (2016) (CNVS) (refer Section 6.5 of the CNVMP).

Generally, noise monitoring which is triggered by the CNVS AMMs is to be carried out in a location representing the receiver. HSEJV has determined the most appropriate monitoring locations, based on construction activities, noise modelling undertaken and community feedback. Gatewave provides NMLs

for monitoring locations to directly compare the measured NMLs against predicted noise levels modelled in the CNVIA reports.

Nominated noise monitoring locations are provided in Appendix C, however these locations can be changed for specific construction activities. Noise summary results of attended noise monitoring conducted by HSEJV in the reporting period are provided in Appendix D, demonstrating compliance with project requirements, including the above extract from the management plan.

Noise monitoring equipment details for the Class 1 sound level meter and calibrator, including make, model, serial number, last calibration date and The National Association of Testing Authorities (NATA) testing facility, are provided in Appendix E.

Further details are collected for each field reading, including time, duration, description of works and extraneous noise sources during reading. Sample Noise Monitoring Record Sheets are provided in Appendix F. Where exceedances have occurred above predicted noise levels, these have been explained/justified with a response.

4.2. Vibration Monitoring

In accordance with CoA C13, the Noise and Vibration Monitoring Program is to be carried out for the duration of Construction.

As per section 8.2 of the CNVMP, vibration monitoring is required:

- In response to vibration complaints;
- If requested by Sydney Metro, the ER, DPE or EPA;
- To confirm baseline vibration levels currently experienced at heritage-listed structures and at any vibration-sensitive equipment;
- To verify predictions, particularly at the commencement of vibration-generating works;
- Where vibration levels are predicted to exceed the vibration screening level, attended vibration monitoring would be carried out to ensure vibration levels remain below appropriate limits for that structure, in accordance with the revised environmental mitigation measure (REMM) NVC12;
- If predicted vibration levels exceed the trigger levels requiring “M” (Monitoring) in accordance with the AMMM matrices provided in Section 7.12 of the CNVMP.

Vibration monitoring is required if vibration-generating works are carried out within the safe working distances provided in Section 6.4 in the CNVMP.

Generally, vibration monitoring which is triggered by the CNVS AMMs are to be carried out in a location representing the receiver. HSEJV has determined the most appropriate monitoring locations, based on

construction activities and vibration modelling undertaken. The measurements include a method to derive or directly compare the measured levels with the applicable vibration management level (VML).

During the reporting period, there were numerous locations and work campaigns where vibration monitoring was conducted. Gatewave modelling predicted cosmetic damage of heritage structure/s within/adjacent to the platforms at Marrickville, Canterbury and Lakemba Stations. Monitoring was conducted by the vibration consultant to determine whether there were any exceedances of vibration limits. Summary results demonstrating compliance with vibration criteria are included in Appendix G.

Samples of Vibration Monitoring Reports are provided in Appendix H. Where exceedances have occurred above predicted noise levels, these have been explained/justified with a response.

4.3. Complaints

A total of twelve (12) noise & vibration complaints were received at Marrickville and Canterbury Stations during the reporting period. No complaints were received at Lakemba Station. The complaints were received during standard and out of hours (OOH) work and have been summarised in table 3 below.

Table 3 - Noise and Vibration Complaints

Location	Date/time received	Topics raised by the Stakeholder
Marrickville	12/08/2022 6:08	Noise & Vibration – OOHW. Not related to Sydney Metro activities.
Marrickville	13/08/2022 3:23	Noise & Vibration – OOHW; Worker behaviour.
Canterbury	25/07/2022 23:14	Noise & Vibration – OOHW. Not related to Sydney Metro activities.
Canterbury	11/07/2022 13:13	Noise & Vibration – OOHW; Respite & AA - Alternative Accommodation; Respite & AA – Respite.
Canterbury	9/07/2022 10:06	Noise & Vibration – OOHW.
Canterbury	11/07/2022 1:46	Noise & Vibration – OOHW.
Marrickville	4/07/2022 2:27	Noise & Vibration - OOHW; Worker behaviour; Traffic, Transport & Parking. Not related to Sydney Metro activities.
Marrickville	2/07/2022 4:13	Noise & Vibration - OOHW; Worker behaviour; Traffic, Transport & Parking. Not related to Sydney Metro activities.
Canterbury	17/05/2022 21:37	Noise & Vibration – OOHW. Not related to Sydney Metro activities.
Canterbury	9/05/2022 10:10	Noise & Vibration - OOHW; Respite & AA – Respite.
Marrickville	17/03/2022 10:05	Noise & Vibration - Standard hours.
Marrickville	11/03/2022 16:00	Noise & Vibration - Standard hours.

5. Conclusion

This report presents surface water, noise and vibration monitoring data and observations for the 6-month reporting period of 1st March 2022 to 31st August 2022.

At Marrickville Station, approximately 30,000 litres of groundwater were discharged to land within the rail corridor. All discharged groundwater was treated and tested in accordance with the groundwater management plan (GWMP) to ensure that discharged water meets required criteria (refer to table 5 in the GWMP) and, therefore, the ANZG/ANZECC guideline criteria.

At Canterbury Station, approximately 6,000 litres of stormwater were discharged to land within the rail corridor.

At Lakemba Station, 17,100 litres of waters were discharged to land within the rail corridor.

All discharged water met the criteria for onsite discharge. There were no instances of water reuse.

No uncontrolled discharge offsite at all three (3) stations occurred during the reporting period.

Verification noise and vibration monitoring was undertaken at all three (3) stations during the reporting period. The noise monitoring results did not identify any exceedances of the predicted noise levels that were related to HSEJV construction activities.

However, two exceedances of the predicted noise levels were recorded during the reporting period at Lakemba Station. These were related to the local traffic, train replacement buses and bird noises. Refer to Appendix E for noise monitoring results and clarifications.

The vibration monitoring results have indicated that that monitored vibration levels were below the established vibration screening level for infrastructure and buildings. Some exceedances were recorded during the reporting period at Canterbury Station. It was confirmed that electricians working inside the Station master's office caused the timber floor to oscillate moving the vibration monitor triggering these exceedances. Refer to Appendix E for vibration monitoring results and clarifications.

It is noted that vibration monitoring conducted at the beginning of vibratory works was used to adjust or modify equipment settings to meet established vibration limits for the project.

A total of twelve (12) noise & vibration complaints were received at Marrickville and Canterbury Stations during the reporting period. No complaints were received at Lakemba Station.

Appendices

Appendix A: Daily Rainfall Data and Inspections Records

Daily Rainfall (millimetres)

MARRICKVILLE GOLF CLUB

Station Number: 066036 · State: NSW · Opened: 1904 · Status: Open · Latitude: 33.92°S · Longitude: 151.14°E · Elevation: 6 m

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	*0*	*0*	*23.0*	*11.0*	*2.0*	*0*	*7.0*	*0*	*2.0*			
2nd	*0*	*10.0*	*28.0*	*0*	*0*	*0*	*14.0*	*0*	*0*			
3rd	*0*	*3.0*	*65.0*	*0*	*0*	*0*	*96.0*	*0*	*4.0*			
4th	*0*	*0*	*28.0*	*0*	*0*	*0*	*30.0*	*0*	*15.0*			
5th	*2.0*	*8.0*	*14.0*	*0*	*1.0*	*0*	*74.0*	*1.0*	*2.0*			
6th	*13.0*	*2.0*	*23.0*	*12.0*	*0*	*1.0*	*3.0*	*0*	*0*			
7th	*0*	*7.0*	*50.0*	*111.0*	*0*	*0*	*13.0*	*0*	*0*			
8th	*24.0*	*11.0*	*147.0*	*29.0*	*0*	*0*	*0*	*0*	*0*			
9th	*0*	*1.0*	*52.0*	*7.0*	*1.0*	*0*	*0*	*0*	*3.0*			
10th	*0*	*0*	*0*	*0*	*11.0*	*0*	*21.0*	*8.0*	*2.0*			
11th	*0*	*7.0*	*0*	*1.0*	*15.0*	*0*	*18.0*	*0*	*0*			
12th	*0*	*5.0*	*0*	*0*	*30.0*	*0*	*0*	*1.0*	*0*			
13th	*14.0*	*17.0*	*0*	*0*	*13.0*	*0*	*0*	*1.0*				
14th	*17.0*	*0*	*5.0*	*9.0*	*0*	*0*	*8.0*	*0*				
15th	*1.0*	*0*	*1.0*	*0*	*0*	*0*	*0*	*0*				
16th	*0*	*0*	*16.0*	*0*	*0*	*0*	*1.0*	*0*				
17th	*0*	*0*	*10.0*	*0*	*0*	*0*	*0*	*0*				
18th	*0*	*1.0*	*0*	*0*	*0*	*0*	*0*	*0*				
19th	*8.0*	*2.0*	*28.0*	*0*	*0*	*0*	*0*	*0*				
20th	*3.0*	*0*	*1.0*	*9.0*	*3.0*	*2.0*	*16.0*	*0*				
21st	*0*	*0*	*0*	*0*	*31.0*	*0*	*4.0*	*0*				
22nd	*3.0*	*6.0*	*0*	*6.0*	*9.0*	*0*	*18.0*	*0*				
23rd	*4.0*	*170.0*	*0*	*7.0*	*5.0*	*0*	*17.0*	*0*				
24th	*2.0*	*36.0*	*3.0*	*1.0*	*50.0*	*0*	*6.0*	*17.0*				
25th	*0*	*20.0*	*10.0*	*3.0*	*2.0*	*0*	*0*	*0*				
26th	*0*	*47.0*	*30.0*	*0*	*0*	*0*	*2.0*	*1.0*				
27th	*0*	*36.0*	*7.0*	*1.0*	*0*	*0*	*0*	*6.0*				
28th	*0*	*5.0*	*11.0*	*7.0*	*0*	*0*	*0*	*7.0*				
29th	*0*		*29.0*	*5.0*	*0*	*1.0*	*0*	*0*				
30th	*0*		*22.0*	*2.0*	*0*	*0*	*0*	*0*				
31st	*0*		*23.0*		*5.0*		*0*	*0*				
Highest daily	*24.0*	*170.0*	*147.0*	*111.0*	*50.0*	*2.0*	*96.0*	*17.0*	*15.0*			
Monthly Total	*91.0*	*394.0*	*626.0*	*221.0*	*178.0*	*4.0*	*348.0*	*42.0*				

↓ This day is part of an accumulated total
Quality control: 12.3 Done & acceptable, *12.3* Not completed or unknown

Product code: IDCJAC0009 reference: 89226583

Australian Government
Bureau of Meteorology

Daily Rainfall (millimetres)

MARRICKVILLE GOLF CLUB

Station Number: 066036 · State: NSW · Opened: 1904 · Status: Open · Latitude: 33.92°S · Longitude: 151.14°E · Elevation: 6 m

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	80.2	108.3	117.0	103.7	94.3	109.4	82.7	65.6	55.4	63.3	69.2	73.8
Median	66.8	79.9	92.2	75.4	68.8	79.8	50.0	42.0	46.2	46.3	58.4	59.7
Highest daily	139.7	*194.0*	215.9	*123.0*	111.8	*104.0*	127.0	78.7	73.7	*124.0*	143.5	88.9
Date of highest daily	13th 1911	10th 2020	9th 1913	21st 2015	5th 1919	5th 2016	10th 1904	31st 1906	29th 1916	15th 2014	14th 1969	13th 1910

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml.

Product code: IDCJAC0009 reference: 89226583 Created on Mon 12 Sep 2022 10:37:35 AM AEST

Daily Rainfall (millimetres)

CANTERBURY RACECOURSE AWS

Station Number: 066194 · State: NSW · Opened: 1995 · Status: Open · Latitude: 33.91°S · Longitude: 151.11°E · Elevation: 3 m

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	0	0	23.0	8.8	1.8	0.2	7.2	0	0.6			
2nd	0	9.6	30.8	0.4	0	0	10.0	0	0.2			
3rd	0	3.0	70.8	0	0	0	111.4	0	3.8			
4th	0	0	32.2	0	0	0	28.4	0	18.2			
5th	2.8	9.6	8.2	0	0.6	0.2	79.2	1.0	3.8			
6th	18.6	1.2	27.0	12.4	0	0.2	5.6	0.2	0.2			
7th	0.2	8.0	50.8	85.4	0	0	9.6	0	0.2			
8th	15.8	10.2	125.2	33.0	0	0	0	0	0			
9th	0.8	1.8	52.2	11.8	0.6	0	0	0.2	2.8			
10th	0.2	0	0	5.0	10.8	0	23.0	4.4	1.8			
11th	0.6	6.2	0	0.2	12.0	0	18.8	0.2	0			
12th	0	1.2	0.4	0.2	24.8	0	0.2	1.0	0			
13th	13.8	18.0	0	0	4.4	0	0.2	2.6				
14th	7.8	0	7.6	7.6	0.4	0	4.6	0.2				
15th	0.4	0	0.6	0.2	0.2	0	1.2	0				
16th	0.2	0	13.4	0	0	0	0	0				
17th	0	0	6.6	0	0	0	0	0				
18th	0	1.2	0	0	0	0	0	0				
19th	7.2	1.6	33.8	0	0	0	0	0				
20th	2.0	0.2	1.2	9.0	0	2.2	14.4	0				
21st	0.6	0	0	0	11.2	0.6	4.0	0				
22nd	3.0	5.0	0	6.4	5.0	0	14.4	0				
23rd	4.8	119.4	0	5.8	2.8	0	14.8	0				
24th	1.6	34.4	2.6	0.2	20.8	0	3.4	19.0				
25th	0.2	14.2	11.6	2.6	1.0	0	0.2	0				
26th	0	49.8	25.8	0.4	0	0	3.6	0.6				
27th	0	36.2	21.2	1.4	0.2	0	0	5.6				
28th	0	4.6	12.6	4.0	0	0.4	0	6.6				
29th	0		22.4	5.8	0	0.2	0	0				
30th	0		29.2	2.2	0.2	0	0	0.4				
31st	0		17.4		6.0		0	0				
Highest daily	18.6	119.4	125.2	85.4	24.8	2.2	111.4	19.0	18.2			
Monthly Total	80.6	335.4	626.6	202.8	102.8	4.0	354.2	42.0				

↓ This day is part of an accumulated total
Quality control: 12.3 Done & acceptable, *12.3* Not completed or unknown

Product code: IDCJAC0009 reference: 89226616

Daily Rainfall (millimetres)

CANTERBURY RACECOURSE AWS

Station Number: 066194 · State: NSW · Opened: 1995 · Status: Open · Latitude: 33.91°S · Longitude: 151.11°E · Elevation: 3 m

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	78.1	123.6	117.3	98.9	75.2	101.7	67.8	62.1	48.5	63.9	73.8	65.1
Median	59.8	108.6	75.2	69.7	45.8	76.8	51.3	41.6	46.8	37.0	56.6	66.4
Highest daily	*128.0*	*189.2*	*125.2*	*123.0*	*84.8*	*110.0*	*111.4*	*121.0*	*70.2*	*121.2*	*64.6*	*67.0*
Date of highest daily	31st 2001	10th 2020	8th 2022	21st 2015	14th 2003	5th 2016	3rd 2022	31st 1996	7th 2006	15th 2014	5th 2010	11th 2002

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml.

Product code: IDCJAC0009 reference: 89226616 Created on Mon 12 Sep 2022 10:38:58 AM AEST

Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

To be completed by Site Manager, Environmental/ Sustainability Manager or delegated person at least once a week. Possible more than one inspection per week may be required for high-risk sites.

Project / Site Inspected: Marrickville Site

Inspection undertaken by: Elena Ivanova – Environmental Advisor, Brett McLennan – Environmental Representative, Candice Somerville – Sydney Metro Environmental Manager.

Date: 06/04/2022 Time: 7:00-8:00 Signature: Elena Ivanova

Complete Relevant sections only:

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template

Question		Y	N	N/A	Details
23.	General / Community (Applicable to works site and compound)				
**	Have the previous week's actions been addressed and actioned?	☐	☒	☐	No new actions were raised during the inspection. Actions status is outlined in the action section below.
23a	Is the site clean and free of waste and debris?	☒	☐	☐	No rubbish was observed left on the ground during the inspection.
23b	Is the site secured appropriately (e.g. fencing) with appropriate signage?	☒	☐	☐	ATF fencing in place.
23c	Has appropriate provision been made for passage of pedestrians around the work site (including footpath protection)?	☒	☐	☐	Footpath and fenced access in place.
23d	Does the equipment on site appear to be in appropriate working order (noise, exhaust fumes, leakage)?	☒	☐	☐	No issues observed.
23e	Are construction elements (Plant, equipment, materials, etc) located in area to minimise visual impacts, ie within site compounds and behind fencing/hoarding?	☒	☐	☐	Within work site fence.
23f	Have parking changes been communicated?	☒	☐	☐	
23g	Are all environmental no-go zones well delineated and protected?	☒	☐	☐	
23h	Are hoardings clean of graffiti and bill posters?	☒	☐	☐	No graffiti.
23i	Is the community signage up to date?	☒	☐	☐	
23j	Is the shade cloth up with legible contact details?	☒	☐	☐	In good condition.
23k	Is the hoarding and fencing be maintained in a neat and tidy condition	☒	☐	☐	Fence well maintained.
23l	Is fencing, walls, and hoarding designed and implemented to increase natural surveillance with straight runs	☒	☐	☐	
23m	Has the latest community notification been sent out on time?	☒	☐	☐	
23n	Has the next OOHW been communicated to relevant sensitive receivers?	☐	☐	☒	No night works are scheduled.
23o	Are night works planned to ensure light spill is minimised? Is this reflected in ECM and/or OOHW application?	☐	☐	☒	No night works are scheduled.
23p	Is site lighting directed away from sensitive receivers and direct views minimised?	☐	☐	☒	
24.	Flora and Fauna (Applicable to works site and compound)				
24a	Are exclusion areas appropriately marked and isolated (e.g. heritage sites, flora/ fauna,	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
	Question	Y	N	N/A	Details
	environment sensitive areas, wetlands, water courses)?				
24b	Do the trees have adequate protection around the TPZ (bunting, fencing or other delineating signs)? (No storage allowed under the TPZ)	☒	☐	☐	Tree protection in place.
24c	Has landscaping/offset commenced on site to stabilise exposed areas? Strive to minimise clearance of vegetation	☐	☐	☒	
24d	Are the works area free of weeds? Are the controls adequate to prevent weeds?	☒	☐	☐	
24e	Is there any tree trimming or vegetation removal planned to minimise the tree remove? Are the required Pre-Clearing Checklist, Permit to Clear and approvals in place as per Flora and Fauna Management Procedure (SEQ-PR-035)?	☐	☐	☒	No clearing or pruning taking place this week.
24f	Local Wires numbers on emergency plan?	☒	☐	☐	
25.	Surface Water Quality/Soil Conservation (Applicable to works site and compound)				
25a	Sediment transport to stormwater drains and nearby water courses controlled by silt traps/ barriers? (check adequacy of controls after rain event)	☒	☐	☐	The drains are protected. No discharges from the site were observed during rain.
25b	Silt traps/barriers effective and maintained? Are they compostable and/or reusable?	☒	☐	☐	
25c	Are erosion and sediment controls in place in accordance with ECMS and/or ESCPs?	☒	☐	☐	
25d	Is water discharged in accordance with conditions of approval / EPL? (Water Discharge Permit may be required) No construction water can leave site premises without being tested.	☐	☐	☒	No discharge was required from the site.
25e	No harmful discharges to nearby water course?	☒	☐	☐	No discharges from the site were observed during rain.
25f	Any Dewatering of trenches, water storage, or dams, discharged into local water ways? If so has SEQ-CL-44 been used? Or local authority's approvals been met?	☐	☐	☒	No discharges to waterways.
25g	Where necessary, wheel wash facility in place and effective?	☐	☐	☒	Not in place at this site.
25h	Stockpiles adequately segregated, covered & protected with sediment controls (refer to CEMP)	☒	☐	☐	
25i	Vegetation maintained where possible	☒	☐	☐	
25j	Public Roads Clean with Entry/exit points stabilized / wheel cleaning available? Haul road integrity maintained?	☒	☐	☐	
25k	Is the Erosion and Sediment Control Plan being implemented and effective?	☒	☐	☐	Controls being effective.
26.	Waste & Spoil (Applicable to works site and compound)				
26a	Have adequate bins for waste and reusable/recyclable materials been provided?	☒	☐	☐	Bins available in compound area.
26b	Concrete Waste Area provided and disposed of at regular intervals	☐	☐	☒	Bags used for concrete residuals.
26c	No waste stored or left in unauthorised areas?	☒	☐	☐	No issues sighted.
26d	Recyclable and reusable waste are segregated and stored in separate bins?	☒	☐	☐	Skip bin used for construction waste and recyclables bins available.

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
26e	Waste dockets kept for records?	☒	☐	☐	
26f	Waste removed from site at required intervals and disposed of in authorised manner?	☒	☐	☐	Disposed to licensed facilities.
26g	Is topsoil correctly segregated & stored for reuse or recycling?	☐	☐	☒	
26h	Is spoil (uncontaminated excavated material) correctly stored for reuse or recycling?	☒	☐	☐	Classified and managed in accordance with classification.
26i	Is green waste mulched, composted and stockpiled for reuse on site?	☐	☐	☒	NIL green waste on site.
26j	Is office waste being segregated and recycled?	☒	☐	☐	
27.	Traffic Management (Applicable to works site and compound)				
27a	Where required, a Traffic Management Plan is in place and effectively implemented?	☒	☐	☐	
27b	Speed restriction and warning signs are in place?	☒	☐	☐	
27c	Where required, trained Traffic Controllers engaged for ensuring safe pedestrian movements?	☒	☐	☐	
27d	Vehicle parking facility for employees, sub-contractors and visitors established and adequate?	☒	☐	☐	
27e	Material loading and unloading areas have no interface with pedestrian and vehicular movement?	☒	☐	☐	
28.	Contamination and Spills (Applicable to works site and compound)				
28a	No spillage of hydrocarbons or chemicals on site? Or potential for contamination (i.e. Asbestos Containing Materials (ACM) adequately managed)	☒	☐	☐	No spills sighted.
28b	Spill kits provided and where? Are personal trained in using it?	☒	☐	☐	
28c	No harmful discharges to nearby water course?	☒	☐	☐	NIL discharges.
28d	Has a concrete washout facility been established and maintained?	☒	☐	☐	
28e	Are materials, product and equipment appropriately stored on site?(e.g. hazardous chemical storage, bunding)	☒	☐	☐	
28f	Is there an appropriate refuelling area?	☐	☐	☒	
29.	Heritage (Applicable to works site and compound)				
29a	Heritage buildings or artefacts identified and delineated	☒	☐	☐	
29b	Are all current works covered by appropriate heritage approvals?	☒	☐	☐	
29c	Does the site induction cover heritage topic and on the ECM?	☒	☐	☐	
29d	Are heritage items being managed, fenced & signposted as per CEMP and is the unexpected finds protocol being implemented?	☒	☐	☐	
29e	Are temporary works on heritage fully reversible with no impacts to fabric?	☒	☐	☐	
30	Noise and Vibration (Applicable to works site and compound)				
30a	Construction activities kept within working hours and high noise and vibrating generating activities adhere to defined requirements	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
30b	Are standard noise and vibration mitigation measures working effectively and adequately maintained? (Any Non-tonal reversing alarm installed?)	☒	☐	☐	Non-tonal alarms in use.
30c	Dilapidation reports done for possible vibration close to other buildings	☒	☐	☐	
30d	Are out of hours works planned? Are the noise or vibration controls suitable?	☐	☐	☒	OOHW is not scheduled on the day of the inspection.
30e	Is noise and vibration monitoring taking place as defined in the Project Monitoring Plan or as required for OOHW?	☐	☐	☒	
31.	Materials (Applicable to works site and compound)				
31a	Are deliveries of materials being tracked and recorded?	☒	☐	☐	
31b	Are internal spoil / topsoil movements being tracked (for tracking onsite re-use)?	☒	☐	☐	
32.	Air Quality (Applicable to works site and compound)				
32a	Dust suppression practices implemented as required in the Air Quality Procedure (SEQ-PR-033)? Minimal to no dust leaving site?	☒	☐	☐	
32b	Trucks are leaving site with loads adequately covered?	☐	☐	☒	No trucks observed leaving site.
32c	No excessive fumes or smoke from plants / vehicles?	☒	☐	☐	
33.	Sustainability Reporting (Applicable to works site and compound)				
33a	Is water usage being monitored (e.g. water trucks) and recorded on at least a monthly basis?	☐	☐	☐	Sustainability aspects were not checked during the inspection.
33b	Is potable water use being minimised?	☐	☐	☐	
33c	Are rainwater tanks in place/to be set up on site?	☐	☐	☐	
33d	Is rain/recycled water being used for washdown/dust suppression/irrigation etc?	☐	☐	☐	
33e	Is energy usage being monitored and recorded on a monthly basis (e.g. office compound electricity, fuel use)?	☐	☐	☐	
33f	Do vehicles, plant and equipment meet the following requirements? - Operated for optimum energy efficiency. - Are not left idling when not in use. - fitted with catalytic converters, diesel particulate filters or equivalent devices. - Well maintained and serviced?	☐	☐	☐	
33g	Is waste and recycling being monitoring for both office and construction waste and recorded on at least a monthly basis?	☐	☐	☐	
33h	Is the TfNSW non-road diesel plant workbook being completed as required by the contract?	☐	☐	☐	
33i	Does the works and compound site have energy and water efficient fixtures, fittings and controls?	☐	☐	☐	
33j	Does all plug-in electrical equipment at the site compound has at least a five-star Energy Rating Label?	☐	☐	☐	
33k	Has the selection of materials used on site been undertaken to meet the SMP Materials Management Sub-Plan?	☐	☐	☐	
33l	Are there any construction and demolition waste/materials being reused or recycled on site? (provide details)	☐	☐	☐	

Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
33m	Have any additional fuel/energy/water/material use reduction opportunities been identified?	☐	☐	☐	
34.	Document Checklist				
34a	Last revision of CEMP, CEMP sub-plans, SMP, and correspondent procedures	☒	☐	☐	Current version approved and being updated.
34b	Environment Control Map and Erosion and Sediment Control Plans	☒	☐	☐	Being implemented.
34c	Community Liaison Management Plan	☒	☐	☐	Community and communications strategy implemented.
	OTHER:				
		☐	☐	☐	

Inspection Criteria Ref:	Items of observation needing correction:	Actioned by:	Signature:	Date closed out:
Previous inspections	The status of groundwater disposal (two green drums) from groundwater investigations was discussed further with HSEJV. *Discuss disposal of stored groundwater with a company that will provide treatment for groundwater from ULX construction.*	JBlanch/ MBroughton		

Signature: _____ Date: 11/04/2022

HSE JV Environmental Manager

Subcontractor Sign-Off

A representative from a Sub Contractor company on site to sign off that they have completed and gone through the Weekly Inspection with Haslin Staff.

Name	Company	Position/Role	Signature	Date

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

To be completed by Site Manager, Environmental/ Sustainability Manager or delegated person at least once a week. Possible more than one inspection per week may be required for high-risk sites.

Project / Site Inspected: Marrickville Site

Inspection undertaken by: Ryan O'Leary – Environment Manager

Date: 25/05/2022 Time: 8:00-9:00 Signature: Ryan O'Leary

Complete Relevant sections only:

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
23.	General / Community (Applicable to works site and compound)				
**	Have the previous week's actions been addressed and actioned?	☐	☒	☐	No new actions were raised during the inspection. Actions status is outlined in the action section below.
23a	Is the site clean and free of waste and debris?	☒	☐	☐	No rubbish was observed left on the ground during the inspection.
23b	Is the site secured appropriately (e.g. fencing) with appropriate signage?	☒	☐	☐	ATF fencing in place.
23c	Has appropriate provision been made for passage of pedestrians around the work site (including footpath protection)?	☒	☐	☐	Footpath and fenced access in place.
23d	Does the equipment on site appear to be in appropriate working order (noise, exhaust fumes, leakage)?	☒	☐	☐	No issues observed.
23e	Are construction elements (Plant, equipment, materials, etc) located in area to minimise visual impacts, ie within site compounds and behind fencing/hoarding?	☒	☐	☐	Within work site fence.
23f	Have parking changes been communicated?	☒	☐	☐	
23g	Are all environmental no-go zones well delineated and protected?	☒	☐	☐	
23h	Are hoardings clean of graffiti and bill posters?	☒	☐	☐	No graffiti.
23i	Is the community signage up to date?	☒	☐	☐	
23j	Is the shade cloth up with legible contact details?	☒	☐	☐	In good condition.
23k	Is the hoarding and fencing be maintained in a neat and tidy condition	☒	☐	☐	Fence well maintained.
23l	Is fencing, walls, and hoarding designed and implemented to increase natural surveillance with straight runs	☒	☐	☐	
23m	Has the latest community notification been sent out on time?	☒	☐	☐	
23n	Has the next OOHW been communicated to relevant sensitive receivers?	☐	☐	☒	No night works are scheduled.
23o	Are night works planned to ensure light spill is minimised? Is this reflected in ECM and/or OOHW application?	☐	☐	☒	No night works are scheduled.
23p	Is site lighting directed away from sensitive receivers and direct views minimised?	☐	☐	☒	
24.	Flora and Fauna (Applicable to works site and compound)				
24a	Are exclusion areas appropriately marked and isolated (e.g. heritage sites, flora/ fauna, environment sensitive areas, wetlands, water courses)?	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
24b	Do the trees have adequate protection around the TPZ (bunting, fencing or other delineating signs)? (No storage allowed under the TPZ)	☒	☐	☐	Tree protection in place.
24c	Has landscaping/offset commenced on site to stabilise exposed areas? Strive to minimise clearance of vegetation	☐	☐	☒	
24d	Are the works area free of weeds? Are the controls adequate to prevent weeds?	☒	☐	☐	
24e	Is there any tree trimming or vegetation removal planned to minimise the tree remove? Are the required Pre-Clearing Checklist, Permit to Clear and approvals in place as per Flora and Fauna Management Procedure (SEQ-PR-035)?	☐	☐	☒	No clearing or pruning taking place this week.
24f	Local Wires numbers on emergency plan?	☒	☐	☐	
25.	Surface Water Quality/Soil Conservation (Applicable to works site and compound)				
25a	Sediment transport to stormwater drains and nearby water courses controlled by silt traps/ barriers? (check adequacy of controls after rain event)	☒	☐	☐	The drains are protected. No discharges from the site were observed during rain.
25b	Silt traps/barriers effective and maintained? Are they compostable and/or reusable?	☒	☐	☐	
25c	Are erosion and sediment controls in place in accordance with ECMS and/or ESCPs?	☒	☐	☐	Apply controls around the base of the stockpile generated during WE45 works and cover.
25d	Is water discharged in accordance with conditions of approval / EPL? (Water Discharge Permit may be required) No construction water can leave site premises without being tested.	☐	☐	☒	No discharge was required from the site.
25e	No harmful discharges to nearby water course?	☒	☐	☐	No discharges from the site were observed during rain.
25f	Any Dewatering of trenches, water storage, or dams, discharged into local water ways? If so has SEQ-CL-44 been used? Or local authority's approvals been met?	☐	☐	☒	Return WTP to site and treat, test and dewater ULX pit. Daily Groundwater Management Checklists to be completed for each volume of water discharged from the holding tank (~15,000L).
25g	Where necessary, wheel wash facility in place and effective?	☐	☐	☒	Not in place at this site.
25h	Stockpiles adequately segregated, covered & protected with sediment controls (refer to CEMP)	☒	☐	☐	
25i	Vegetation maintained where possible	☒	☐	☐	
25j	Public Roads Clean with Entry/exit points stabilized / wheel cleaning available? Haul road integrity maintained?	☒	☐	☐	
25k	Is the Erosion and Sediment Control Plan being implemented and effective?	☒	☐	☐	Review and update the ESCP and display in the site office.
26.	Waste & Spoil (Applicable to works site and compound)				
26a	Have adequate bins for waste and reusable/recyclable materials been provided?	☒	☐	☐	Bins available in compound area.
26b	Concrete Waste Area provided and disposed of at regular intervals	☐	☐	☒	Bags used for concrete residuals.
26c	No waste stored or left in unauthorised areas?	☒	☐	☐	No issues sighted.
26d	Recyclable and reusable waste are segregated and stored in separate bins?	☒	☐	☐	Skip bin used for construction waste and recyclables bins available.
26e	Waste dockets kept for records?	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
26f	Waste removed from site at required intervals and disposed of in authorised manner?	☒	☐	☐	Disposed to licensed facilities.
26g	Is topsoil correctly segregated & stored for reuse or recycling?	☐	☐	☒	
26h	Is spoil (uncontaminated excavated material) correctly stored for reuse or recycling?	☒	☐	☐	Classified and managed in accordance with classification.
26i	Is green waste mulched, composted and stockpiled for reuse on site?	☐	☐	☒	NIL green waste on site.
26j	Is office waste being segregated and recycled?	☒	☐	☐	
27.	Traffic Management (Applicable to works site and compound)				
27a	Where required, a Traffic Management Plan is in place and effectively implemented?	☒	☐	☐	
27b	Speed restriction and warning signs are in place?	☒	☐	☐	
27c	Where required, trained Traffic Controllers engaged for ensuring safe pedestrian movements?	☒	☐	☐	
27d	Vehicle parking facility for employees, sub-contractors and visitors established and adequate?	☒	☐	☐	
27e	Material loading and unloading areas have no interface with pedestrian and vehicular movement?	☒	☐	☐	
28.	Contamination and Spills (Applicable to works site and compound)				
28a	No spillage of hydrocarbons or chemicals on site? Or potential for contamination (i.e. Asbestos Containing Materials (ACM) adequately managed)	☒	☐	☐	No spills sighted.
28b	Spill kits provided and where? Are personal trained in using it?	☒	☐	☐	
28c	No harmful discharges to nearby water course?	☒	☐	☐	NIL discharges.
28d	Has a concrete washout facility been established and maintained?	☒	☐	☐	
28e	Are materials, product and equipment appropriately stored on site?(e.g. hazardous chemical storage, bunding)	☒	☐	☐	
28f	Is there an appropriate refuelling area?	☐	☐	☒	
29.	Heritage (Applicable to works site and compound)				
29a	Heritage buildings or artefacts identified and delineated	☒	☐	☐	
29b	Are all current works covered by appropriate heritage approvals?	☒	☐	☐	
29c	Does the site induction cover heritage topic and on the ECM?	☒	☐	☐	
29d	Are heritage items being managed, fenced & signposted as per CEMP and is the unexpected finds protocol being implemented?	☒	☐	☐	
29e	Are temporary works on heritage fully reversible with no impacts to fabric?	☒	☐	☐	
30	Noise and Vibration (Applicable to works site and compound)				
30a	Construction activities kept within working hours and high noise and vibrating generating activities adhere to defined requirements	☒	☐	☐	
30b	Are standard noise and vibration mitigation measures working effectively and adequately maintained? (Any Non-tonal reversing alarm installed?)	☒	☐	☐	Non-tonal alarms in use.

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
30c	Dilapidation reports done for possible vibration close to other buildings	☒	☐	☐	
30d	Are out of hours works planned? Are the noise or vibration controls suitable?	☐	☐	☒	OOHW is not scheduled on the day of the inspection.
30e	Is noise and vibration monitoring taking place as defined in the Project Monitoring Plan or as required for OOHW?	☐	☐	☒	
31.	Materials (Applicable to works site and compound)				
31a	Are deliveries of materials being tracked and recorded?	☒	☐	☐	
31b	Are internal spoil / topsoil movements being tracked (for tracking onsite re-use)?	☒	☐	☐	
32.	Air Quality (Applicable to works site and compound)				
32a	Dust suppression practices implemented as required in the Air Quality Procedure (SEQ-PR-033)? Minimal to no dust leaving site?	☒	☐	☐	
32b	Trucks are leaving site with loads adequately covered?	☐	☐	☒	No trucks observed leaving site.
32c	No excessive fumes or smoke from plants / vehicles?	☒	☐	☐	
33.	Sustainability Reporting (Applicable to works site and compound)				
33a	Is water usage being monitored (e.g. water trucks) and recorded on at least a monthly basis?	☐	☐	☐	Sustainability aspects were not checked during the inspection.
33b	Is potable water use being minimised?	☐	☐	☐	
33c	Are rainwater tanks in place/to be set up on site?	☐	☐	☐	
33d	Is rain/recycled water being used for washdown/dust suppression/irrigation etc?	☐	☐	☐	
33e	Is energy usage being monitored and recorded on a monthly basis (e.g. office compound electricity, fuel use)?	☐	☐	☐	
33f	Do vehicles, plant and equipment meet the following requirements? - Operated for optimum energy efficiency. - Are not left idling when not in use. - fitted with catalytic converters, diesel particulate filters or equivalent devices. - Well maintained and serviced?	☐	☐	☐	
33g	Is waste and recycling being monitoring for both office and construction waste and recorded on at least a monthly basis?	☐	☐	☐	
33h	Is the TfNSW non-road diesel plant workbook being completed as required by the contract?	☐	☐	☐	
33i	Does the works and compound site have energy and water efficient fixtures, fittings and controls?	☐	☐	☐	
33j	Does all plug-in electrical equipment at the site compound has at least a five-star Energy Rating Label?	☐	☐	☐	
33k	Has the selection of materials used on site been undertaken to meet the SMP Materials Management Sub-Plan?	☐	☐	☐	
33l	Are there any construction and demolition waste/materials being reused or recycled on site? (provide details)	☐	☐	☐	
33m	Have any additional fuel/energy/water/material use reduction opportunities been identified?	☐	☐	☐	
34.	Document Checklist				

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
34a	Last revision of CEMP, CEMP sub-plans, SMP, and correspondent procedures	☒	☐	☐	Current version approved and being updated.
34b	Environment Control Map and Erosion and Sediment Control Plans	☒	☐	☐	Being implemented.
34c	Community Liaison Management Plan	☒	☐	☐	Community and communications strategy implemented.
	OTHER:				
		☐	☐	☐	

Inspection Criteria Ref:	Items of observation needing correction:	Actioned by:	Signature:	Date closed out:
25f 25052022	Return WTP to site and treat, test and dewater ULX pit. Daily Groundwater Management Checklists to be completed for each volume of water discharged from the holding tank (~15,000L). 	GGiakoumatos		
25c 25052022	Apply controls around the base of the stockpile generated during WE45 works and cover. 	KWormleaton		27052022 

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

				
25k 25052022	Review and update the ESCP and display in the site office.	KWormleaton		27052022 
-	For future – dispose of wastewater from groundwater from previous works. To be done as liquid waste with dockets to be retained.	BMulligan	-	-

Signature: _____ Date: 1/06/2022

HSE JV Environmental Manager

Subcontractor Sign-Off

A representative from a Sub Contractor company on site to sign off that they have completed and gone through the Weekly Inspection with Haslin Staff.

Name	Company	Position/Role	Signature	Date

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

To be completed by Site Manager, Environmental/ Sustainability Manager or delegated person at least once a week. Possible more than one inspection per week may be required for high-risk sites.

Project / Site Inspected: Canterbury Site

Inspection undertaken by: Elena Ivanova – Environmental Advisor, Brett McLennan – Environmental Representative, Candice Somerville – Sydney Metro Environmental Manager.

Date: 06/04/2022 Time: 08:00-09:00 Signature: Elena Ivanova

Complete Relevant sections only:

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
23.	General / Community (Applicable to works site and compound)				
**	Have the previous week's actions been addressed and actioned?	☒	☐	☐	Actions/recommendations for improvement are outlined in the action section below.
23a	Is the site clean and free of waste and debris?	☒	☐	☐	
23b	Is the site secured appropriately (e.g. fencing) with appropriate signage?	☒	☐	☐	ATF fencing in place.
23c	Has appropriate provision been made for passage of pedestrians around the work site (including footpath protection)?	☒	☐	☐	Footpath and fenced access in place.
23d	Does the equipment on site appear to be in appropriate working order (noise, exhaust fumes, leakage)?	☒	☐	☐	No issues observed.
23e	Are construction elements (Plant, equipment, materials, etc) located in area to minimise visual impacts, ie within site compounds and behind fencing/hoarding?	☒	☐	☐	Within work site fence.
23f	Have parking changes been communicated?	☒	☐	☐	
23g	Are all environmental no-go zones well delineated and protected?	☒	☐	☐	
23h	Are hoardings clean of graffiti and bill posters?	☒	☐	☐	No graffiti observed.
23i	Is the community signage up to date?	☒	☐	☐	
23j	Is the shade cloth up with legible contact details?	☒	☐	☐	
23k	Is the hoarding and fencing be maintained in a neat and tidy condition	☒	☐	☐	
23l	Is fencing, walls, and hoarding designed and implemented to increase natural surveillance with straight runs	☒	☐	☐	
23m	Has the latest community notification been sent out on time?	☒	☐	☐	
23n	Has the next OOHW been communicated to relevant sensitive receivers?	☐	☐	☒	No night works are scheduled for this weekend.
23o	Are night works planned to ensure light spill is minimised? Is this reflected in ECM and/or OOHW application?	☐	☐	☒	No night works are scheduled for this weekend.
23p	Is site lighting directed away from sensitive receivers and direct views minimised?	☐	☐	☒	
24.	Flora and Fauna (Applicable to works site and compound)				
24a	Are exclusion areas appropriately marked and isolated (e.g. heritage sites, flora/ fauna, environment sensitive areas, wetlands, water courses)?	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
24b	Do the trees have adequate protection around the TPZ (bunting, fencing or other delineating signs)? (No storage allowed under the TPZ)	☒	☐	☐	Tree protection in place.
24c	Has landscaping/offset commenced on site to stabilise exposed areas? Strive to minimise clearance of vegetation	☐	☐	☒	
24d	Are the works area free of weeds? Are the controls adequate to prevent weeds?	☒	☐	☐	
24e	Is there any tree trimming or vegetation removal planned to minimise the tree remove? Are the required Pre-Clearing Checklist, Permit to Clear and approvals in place as per Flora and Fauna Management Procedure (SEQ-PR-035)?	☐	☐	☒	No clearing or pruning taking place this week.
24f	Local Wires numbers on emergency plan?	☒	☐	☐	
25.	Surface Water Quality/Soil Conservation (Applicable to works site and compound)				
25a	Sediment transport to stormwater drains and nearby water courses controlled by silt traps/ barriers? (check adequacy of controls after rain event)	☒	☐	☐	Due to rainy weather, work was kept to a minimum.
25b	Silt traps/barriers effective and maintained? Are they compostable and/or reusable?	☒	☐	☐	It is recommended to restore the sediment controls at the main compound along Charles Street.
25c	Are erosion and sediment controls in place in accordance with ECMS and/or ESCPs?	☒	☐	☐	
25d	Is water discharged in accordance with conditions of approval / EPL? (Water Discharge Permit may be required) No construction water can leave site premises without being tested.	☐	☐	☒	No discharge was required from the site.
25e	No harmful discharges to nearby water course?	☒	☐	☐	No discharges from the site were observed during rain.
25f	Any Dewatering of trenches, water storage, or dams, discharged into local water ways? If so has SEQ-CL-44 been used? Or local authority's approvals been met?	☐	☐	☒	No discharges to waterways.
25g	Where necessary, wheel wash facility in place and effective?	☐	☐	☒	Not in place at this site.
25h	Stockpiles adequately segregated, covered & protected with sediment controls (refer to CEMP)	☒	☐	☐	
25i	Vegetation maintained where possible	☒	☐	☐	
25j	Public Roads Clean with Entry/exit points stabilized / wheel cleaning available? Haul road integrity maintained?	☒	☐	☐	It is recommended to clean the rumble grid and stabilise the main site access point.
25k	Is the Erosion and Sediment Control Plan being implemented and effective?	☒	☐	☐	
26.	Waste & Spoil (Applicable to works site and compound)				
26a	Have adequate bins for waste and reusable/recyclable materials been provided?	☒	☐	☐	
26b	Concrete Waste Area provided and disposed of at regular intervals	☐	☐	☒	
26c	No waste stored or left in unauthorised areas?	☒	☐	☐	
26d	Recyclable and reusable waste are segregated and stored in separate bins?	☒	☐	☐	Skip bin used for construction waste and recyclables bins available.
26e	Waste dockets kept for records?	☒	☐	☐	
26f	Waste removed from site at required intervals and disposed of in authorised manner?	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
26g	Is topsoil correctly segregated & stored for reuse or recycling?	☐	☐	☒	
26h	Is spoil (uncontaminated excavated material) correctly stored for reuse or recycling?	☒	☐	☐	Classified and managed in accordance with classification.
26i	Is green waste mulched, composted and stockpiled for reuse on site?	☐	☐	☒	NIL green waste on site.
26j	Is office waste being segregated and recycled?	☒	☐	☐	
27.	Traffic Management (Applicable to works site and compound)				
27a	Where required, a Traffic Management Plan is in place and effectively implemented?	☒	☐	☐	
27b	Speed restriction and warning signs are in place?	☒	☐	☐	
27c	Where required, trained Traffic Controllers engaged for ensuring safe pedestrian movements?	☒	☐	☐	
27d	Vehicle parking facility for employees, sub-contractors and visitors established and adequate?	☒	☐	☐	
27e	Material loading and unloading areas have no interface with pedestrian and vehicular movement?	☐	☐	☒	Due to rainy weather, no delivery was scheduled for that day.
28.	Contamination and Spills (Applicable to works site and compound)				
28a	No spillage of hydrocarbons or chemicals on site? Or potential for contamination (i.e. Asbestos Containing Materials (ACM) adequately managed)	☒	☐	☐	No spills sighted.
28b	Spill kits provided and where? Are personal trained in using it?	☒	☐	☐	
28c	No harmful discharges to nearby water course?	☒	☐	☐	NIL discharges.
28d	Has a concrete washout facility been established and maintained?	☒	☐	☐	
28e	Are materials, product and equipment appropriately stored on site?(e.g. hazardous chemical storage, bunding)	☒	☐	☐	
28f	Is there an appropriate refuelling area?	☐	☐	☒	
29.	Heritage (Applicable to works site and compound)				
29a	Heritage buildings or artefacts identified and delineated	☒	☐	☐	
29b	Are all current works covered by appropriate heritage approvals?	☒	☐	☐	As per HMP and AMS.
29c	Does the site induction cover heritage topic and on the ECM?	☒	☐	☐	
29d	Are heritage items being managed, fenced & signposted as per CEMP and is the unexpected finds protocol being implemented?	☒	☐	☐	
29e	Are temporary works on heritage fully reversible with no impacts to fabric?	☒	☐	☐	
30	Noise and Vibration (Applicable to works site and compound)				
30a	Construction activities kept within working hours and high noise and vibrating generating activities adhere to defined requirements	☒	☐	☐	
30b	Are standard noise and vibration mitigation measures working effectively and adequately maintained? (Any Non-tonal reversing alarm installed?)	☒	☐	☐	Non-tonal alarms in use.
30c	Dilapidation reports done for possible vibration close to other buildings	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
30d	Are out of hours works planned? Are the noise or vibration controls suitable?	☐	☐	☒	OOHW is not scheduled on the day of the inspection.
30e	Is noise and vibration monitoring taking place as defined in the Project Monitoring Plan or as required for OOHW?	☐	☐	☒	
31.	Materials (Applicable to works site and compound)				
31a	Are deliveries of materials being tracked and recorded?	☐	☐	☒	Not checked during the inspection. Reported to sustainability team monthly.
31b	Are internal spoil / topsoil movements being tracked (for tracking onsite re-use)?	☐	☐	☒	
32.	Air Quality (Applicable to works site and compound)				
32a	Dust suppression practices implemented as required in the Air Quality Procedure (SEQ-PR-033)? Minimal to no dust leaving site?	☒	☐	☐	
32b	Trucks are leaving site with loads adequately covered?	☐	☐	☒	Due to rainy weather, no delivery was scheduled for that day.
32c	No excessive fumes or smoke from plants / vehicles?	☒	☐	☐	
33.	Sustainability Reporting (Applicable to works site and compound)				
33a	Is water usage being monitored (e.g. water trucks) and recorded on at least a monthly basis?	☐	☐	☐	Sustainability aspects were not checked during the inspection.
33b	Is potable water use being minimised?	☐	☐	☐	
33c	Are rainwater tanks in place/to be set up on site?	☐	☐	☐	
33d	Is rain/recycled water being used for washdown/dust suppression/irrigation etc?	☐	☐	☐	
33e	Is energy usage being monitored and recorded on a monthly basis (e.g. office compound electricity, fuel use)?	☐	☐	☐	
33f	Do vehicles, plant and equipment meet the following requirements? - Operated for optimum energy efficiency. - Are not left idling when not in use. - fitted with catalytic converters, diesel particulate filters or equivalent devices. - Well maintained and serviced?	☐	☐	☐	
33g	Is waste and recycling being monitoring for both office and construction waste and recorded on at least a monthly basis?	☐	☐	☐	
33h	Is the TfNSW non-road diesel plant workbook being completed as required by the contract?	☐	☐	☐	
33i	Does the works and compound site have energy and water efficient fixtures, fittings and controls?	☐	☐	☐	
33j	Does all plug-in electrical equipment at the site compound has at least a five-star Energy Rating Label?	☐	☐	☐	
33k	Has the selection of materials used on site been undertaken to meet the SMP Materials Management Sub-Plan?	☐	☐	☐	
33l	Are there any construction and demolition waste/materials being reused or recycled on site? (provide details)	☐	☐	☐	
33m	Have any additional fuel/energy/water/material use reduction opportunities been identified?	☐	☐	☐	
34.	Document Checklist				
34a	Last revision of CEMP, CEMP sub-plans, SMP, and correspondent procedures	☒	☐	☐	
34b	Environment Control Map and Erosion and Sediment Control Plans	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template				
Question	Y	N	N/A	Details
34c Community Liaison Management Plan	☒	☐	☐	Community and communications strategy implemented.
OTHER:				
	☐	☐	☐	

Inspection Criteria Ref:	Items of observation needing correction:	Actioned by:	Signature:	Date closed out:
25b 06.04.2022	It is recommended to restore the sediment controls at the main compound along Charles Street.	V. Reis		
25j 06.04.2022	It is recommended to clean the rumble grid and stabilise the main site access point.	V. Reis		

HSE JV Environmental Manager

Date: 11/04/2022

Subcontractor Sign-Off

A representative from a Sub Contractor company on site to sign off that they have completed and gone through the Weekly Inspection with Haslin Staff.

Name	Company	Position/Role	Signature	Date

1. It is recommended to restore the sediment controls at the main compound along Charles Street.

2. It is recommended to clean the rumble grid and stabilise the main site access point.

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

To be completed by Site Manager, Environmental/ Sustainability Manager or delegated person at least once a week. Possible more than one inspection per week may be required for high-risk sites.

Project / Site Inspected: Canterbury Site

Inspection undertaken by: Ryan O'Leary – Environment Manager

Date: 25/05/2022 Time: 09:00-10:00 Signature: Ryan O'Leary

Complete Relevant sections only:

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
23.	General / Community (Applicable to works site and compound)				
**	Have the previous week's actions been addressed and actioned?	☒	☐	☐	Actions/recommendations for improvement are outlined in the action section below.
23a	Is the site clean and free of waste and debris?	☒	☐	☐	
23b	Is the site secured appropriately (e.g. fencing) with appropriate signage?	☒	☐	☐	ATF fencing in place.
23c	Has appropriate provision been made for passage of pedestrians around the work site (including footpath protection)?	☒	☐	☐	Footpath and fenced access in place.
23d	Does the equipment on site appear to be in appropriate working order (noise, exhaust fumes, leakage)?	☒	☐	☐	No issues observed.
23e	Are construction elements (Plant, equipment, materials, etc) located in area to minimise visual impacts, ie within site compounds and behind fencing/hoarding?	☒	☐	☐	Within work site fence.
23f	Have parking changes been communicated?	☒	☐	☐	
23g	Are all environmental no-go zones well delineated and protected?	☒	☐	☐	
23h	Are hoardings clean of graffiti and bill posters?	☒	☐	☐	No graffiti observed.
23i	Is the community signage up to date?	☒	☐	☐	
23j	Is the shade cloth up with legible contact details?	☒	☐	☐	Replace shadecloth in accordance with the VAMP in one location on the boundary fence where it had come down.
23k	Is the hoarding and fencing be maintained in a neat and tidy condition	☒	☐	☐	
23l	Is fencing, walls, and hoarding designed and implemented to increase natural surveillance with straight runs	☒	☐	☐	
23m	Has the latest community notification been sent out on time?	☒	☐	☐	
23n	Has the next OOHW been communicated to relevant sensitive receivers?	☐	☐	☒	No night works are scheduled for this weekend.
23o	Are night works planned to ensure light spill is minimised? Is this reflected in ECM and/or OOHW application?	☐	☐	☒	No night works are scheduled for this weekend.
23p	Is site lighting directed away from sensitive receivers and direct views minimised?	☐	☐	☒	
24.	Flora and Fauna (Applicable to works site and compound)				
24a	Are exclusion areas appropriately marked and isolated (e.g. heritage sites, flora/ fauna, environment sensitive areas, wetlands, water courses)?	☒	☐	☐	
24b	Do the trees have adequate protection around the TPZ (bunting, fencing or other delineating signs)?	☒	☐	☐	Tree protection in place.

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
	Question	Y	N	N/A	Details
	(No storage allowed under the TPZ)				
24c	Has landscaping/offset commenced on site to stabilise exposed areas? Strive to minimise clearance of vegetation	☐	☐	☒	
24d	Are the works area free of weeds? Are the controls adequate to prevent weeds?	☒	☐	☐	
24e	Is there any tree trimming or vegetation removal planned to minimise the tree remove? Are the required Pre-Clearing Checklist, Permit to Clear and approvals in place as per Flora and Fauna Management Procedure (SEQ-PR-035)?	☐	☐	☒	No clearing or pruning taking place this week.
24f	Local Wires numbers on emergency plan?	☒	☐	☐	
25.	Surface Water Quality/Soil Conservation (Applicable to works site and compound)				
25a	Sediment transport to stormwater drains and nearby water courses controlled by silt traps/ barriers? (check adequacy of controls after rain event)	☒	☐	☐	
25b	Silt traps/barriers effective and maintained? Are they compostable and/or reusable?	☒	☐	☐	
25c	Are erosion and sediment controls in place in accordance with ECMS and/or ESCPs?	☒	☐	☐	
25d	Is water discharged in accordance with conditions of approval / EPL? (Water Discharge Permit may be required) No construction water can leave site premises without being tested.	☐	☐	☒	No discharge was required from the site.
25e	No harmful discharges to nearby water course?	☒	☐	☐	No discharges from the site were observed during rain.
25f	Any Dewatering of trenches, water storage, or dams, discharged into local water ways? If so has SEQ-CL-44 been used? Or local authority's approvals been met?	☐	☐	☒	No discharges to waterways.
25g	Where necessary, wheel wash facility in place and effective?	☐	☐	☒	Not in place at this site.
25h	Stockpiles adequately segregated, covered & protected with sediment controls (refer to CEMP)	☒	☐	☐	
25i	Vegetation maintained where possible	☒	☐	☐	
25j	Public Roads Clean with Entry/exit points stabilized / wheel cleaning available? Haul road integrity maintained?	☒	☐	☐	Review controls at the site access to stabilize the area and reduce the risk of tracking onto public roads. Engage the street sweeper.
25k	Is the Erosion and Sediment Control Plan being implemented and effective?	☒	☐	☐	
26.	Waste & Spoil (Applicable to works site and compound)				
26a	Have adequate bins for waste and reusable/recyclable materials been provided?	☒	☐	☐	
26b	Concrete Waste Area provided and disposed of at regular intervals	☐	☐	☒	
26c	No waste stored or left in unauthorised areas?	☒	☐	☐	
26d	Recyclable and reusable waste are segregated and stored in separate bins?	☒	☐	☐	Skip bin used for construction waste and recyclables bins available.
26e	Waste dockets kept for records?	☒	☐	☐	
26f	Waste removed from site at required intervals and disposed of in authorised manner?	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
26g	Is topsoil correctly segregated & stored for reuse or recycling?	☐	☐	☒	
26h	Is spoil (uncontaminated excavated material) correctly stored for reuse or recycling?	☒	☐	☐	Classified and managed in accordance with classification.
26i	Is green waste mulched, composted and stockpiled for reuse on site?	☐	☐	☒	NIL green waste on site.
26j	Is office waste being segregated and recycled?	☒	☐	☐	
27.	Traffic Management (Applicable to works site and compound)				
27a	Where required, a Traffic Management Plan is in place and effectively implemented?	☒	☐	☐	
27b	Speed restriction and warning signs are in place?	☒	☐	☐	
27c	Where required, trained Traffic Controllers engaged for ensuring safe pedestrian movements?	☒	☐	☐	
27d	Vehicle parking facility for employees, sub-contractors and visitors established and adequate?	☒	☐	☐	
27e	Material loading and unloading areas have no interface with pedestrian and vehicular movement?	☒	☐	☐	
28.	Contamination and Spills (Applicable to works site and compound)				
28a	No spillage of hydrocarbons or chemicals on site? Or potential for contamination (i.e. Asbestos Containing Materials (ACM) adequately managed)	☒	☐	☐	No spills sighted.
28b	Spill kits provided and where? Are personal trained in using it?	☒	☐	☐	
28c	No harmful discharges to nearby water course?	☒	☐	☐	NIL discharges.
28d	Has a concrete washout facility been established and maintained?	☒	☐	☐	
28e	Are materials, product and equipment appropriately stored on site?(e.g. hazardous chemical storage, bunding)	☒	☐	☐	
28f	Is there an appropriate refuelling area?	☐	☐	☒	
29.	Heritage (Applicable to works site and compound)				
29a	Heritage buildings or artefacts identified and delineated	☒	☐	☐	
29b	Are all current works covered by appropriate heritage approvals?	☒	☐	☐	As per HMP and AMS.
29c	Does the site induction cover heritage topic and on the ECM?	☒	☐	☐	
29d	Are heritage items being managed, fenced & signposted as per CEMP and is the unexpected finds protocol being implemented?	☒	☐	☐	
29e	Are temporary works on heritage fully reversible with no impacts to fabric?	☒	☐	☐	
30	Noise and Vibration (Applicable to works site and compound)				
30a	Construction activities kept within working hours and high noise and vibrating generating activities adhere to defined requirements	☒	☐	☐	
30b	Are standard noise and vibration mitigation measures working effectively and adequately maintained? (Any Non-tonal reversing alarm installed?)	☒	☐	☐	Non-tonal alarms in use.
30c	Dilapidation reports done for possible vibration close to other buildings	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
30d	Are out of hours works planned? Are the noise or vibration controls suitable?	☐	☐	☒	OOHW is not scheduled on the day of the inspection.
30e	Is noise and vibration monitoring taking place as defined in the Project Monitoring Plan or as required for OOHW?	☐	☐	☒	
31.	Materials (Applicable to works site and compound)				
31a	Are deliveries of materials being tracked and recorded?	☐	☐	☒	Not checked during the inspection. Reported to sustainability team monthly.
31b	Are internal spoil / topsoil movements being tracked (for tracking onsite re-use)?	☐	☐	☒	
32.	Air Quality (Applicable to works site and compound)				
32a	Dust suppression practices implemented as required in the Air Quality Procedure (SEQ-PR-033)? Minimal to no dust leaving site?	☒	☐	☐	
32b	Trucks are leaving site with loads adequately covered?	☒	☐	☐	
32c	No excessive fumes or smoke from plants / vehicles?	☒	☐	☐	
33.	Sustainability Reporting (Applicable to works site and compound)				
33a	Is water usage being monitored (e.g. water trucks) and recorded on at least a monthly basis?	☐	☐	☐	Sustainability aspects were not checked during the inspection.
33b	Is potable water use being minimised?	☐	☐	☐	
33c	Are rainwater tanks in place/to be set up on site?	☐	☐	☐	
33d	Is rain/recycled water being used for washdown/dust suppression/irrigation etc?	☐	☐	☐	
33e	Is energy usage being monitored and recorded on a monthly basis (e.g. office compound electricity, fuel use)?	☐	☐	☐	
33f	Do vehicles, plant and equipment meet the following requirements? - Operated for optimum energy efficiency. - Are not left idling when not in use. - fitted with catalytic converters, diesel particulate filters or equivalent devices. - Well maintained and serviced?	☐	☐	☐	
33g	Is waste and recycling being monitoring for both office and construction waste and recorded on at least a monthly basis?	☐	☐	☐	
33h	Is the TfNSW non-road diesel plant workbook being completed as required by the contract?	☐	☐	☐	
33i	Does the works and compound site have energy and water efficient fixtures, fittings and controls?	☐	☐	☐	
33j	Does all plug-in electrical equipment at the site compound has at least a five-star Energy Rating Label?	☐	☐	☐	
33k	Has the selection of materials used on site been undertaken to meet the SMP Materials Management Sub-Plan?	☐	☐	☐	
33l	Are there any construction and demolition waste/materials being reused or recycled on site? (provide details)	☐	☐	☐	
33m	Have any additional fuel/energy/water/material use reduction opportunities been identified?	☐	☐	☐	
34.	Document Checklist				
34a	Last revision of CEMP, CEMP sub-plans, SMP, and correspondent procedures	☒	☐	☐	
34b	Environment Control Map and Erosion and Sediment Control Plans	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template				
Question	Y	N	N/A	Details
34c Community Liaison Management Plan	☒	☐	☐	Community and communications strategy implemented.
OTHER:				
	☐	☐	☐	

Inspection Criteria Ref:	Items of observation needing correction:	Actioned by:	Signature:	Date closed out:
23j 25052022	Replace shadecloth in accordance with the VAMP in one location on the boundary fence where it had come down. 	PO'Neill		
25j 25052022	Review controls at the site access to stabilize the area and reduce the risk of tracking onto public roads. Engage the street sweeper.  	PO'Neill		

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

HSE JV Environmental Manager

Date: 01/06/2022

Subcontractor Sign-Off

A representative from a Sub Contractor company on site to sign off that they have completed and gone through the Weekly Inspection with Haslin Staff.

Name	Company	Position/Role	Signature	Date

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

To be completed by Site Manager, Environmental/ Sustainability Manager or delegated person at least once a week. Possible more than one inspection per week may be required for high-risk sites.

Project / Site Inspected: Lakemba Station

Inspection undertaken by: Jo-Ann Poole

Date: 12/04/2022 Time: 13:00 Signature: Jo-Ann Poole

Complete Relevant sections only:

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
23.	General / Community (Applicable to works site and compound)				
**	Have the previous week's actions been addressed and actioned?	☒	☒	☐	Sediment controls being reinstalled and maintained today
23a	Is the site clean and free of waste and debris?	☒	☒	☐	Waste and debris on site being cleaned up
23b	Is the site secured appropriately (e.g. fencing) with appropriate signage?	☒	☐	☐	
23c	Has appropriate provision been made for passage of pedestrians around the work site (including footpath protection)?	☒	☐	☐	
23d	Does the equipment on site appear to be in appropriate working order (noise, exhaust fumes, leakage)?	☒	☐	☐	
23e	Are construction vehicles parked in designated areas?	☒	☐	☐	
23f	Have parking changes been communicated?	☒	☐	☐	
23g	Are all environmental no-go zones well delineated and protected?	☒	☐	☐	
23h	Are hoardings clean of graffiti and bill posters?	☒	☐	☐	
23i	Is the community signage up to date?	☐	☐	☒	
23j	Is the shade cloth up with legible contact details?	☒	☐	☐	
23k	Has the latest community notification been sent out on time?	☒	☐	☐	
23l	Has the next OOHW been communicated to relevant sensitive receivers?	☐	☐	☒	No OOH works scheduled
23m	Are night works planned to ensure light spill is minimised? Is this reflected in ECM and/or OOHW application?	☐	☐	☒	No night works planned
23n	Is site lighting directed away from sensitive receivers and direct views minimised?	☐	☐	☒	No lighting as no night works planned
24.	Flora and Fauna (Applicable to works site and compound)				
24a	Are exclusion areas appropriately marked and isolated (e.g. heritage sites, flora/ fauna, environment sensitive areas, wetlands, water courses)?	☒	☐	☐	
24b	Do the trees have adequate protection around the TPZ (bunting, fencing or other delineating signs)? (No storage allowed under the TPZ)	☒	☐	☐	
24c	Has landscaping/offset commenced on site to stabilise exposed areas? Strive to minimise clearance of vegetation	☐	☐	☒	
24d	Are the works area free of weeds? Are the controls adequate to prevent weeds?	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
24e	Is there any tree trimming or vegetation removal planned? Are the required Pre-Clearing Checklist, Permit to Clear and approvals in place as per Flora and Fauna Management Procedure (SEQ-PR-035)?	☐	☐	☒	None planned
24f	Local Wires numbers on emergency plan?	☒	☐	☐	
25.	Surface Water Quality/Soil Conservation (Applicable to works site and compound)				
25a	Sediment transport to stormwater drains and nearby water courses controlled by silt traps/ barriers? (check adequacy of controls after rain event)	☒	☐	☐	Sediment controls currently being maintained and cleaned out at lower end of the compound
25b	Silt traps/barriers effective and maintained? Are they compostable and/or reusable?	☒	☐	☐	
25c	Are erosion and sediment controls in place in accordance with ECMS and/or ESCPs?	☒	☐	☐	
25d	Is water discharged in accordance with conditions of approval / EPL? (Water Discharge Permit may be required) No construction water can leave site premises without being tested.	☒	☐	☐	Water is being discharged to land (within the 6-foot) with permits to dewater
25e	No harmful discharges to nearby water course?	☒	☐	☐	Reinstalling erosion and sediment controls for potential rainfall event this week
25f	Any Dewatering of trenches, water storage, or dams, discharged into local water ways? If so has SEQ-CL-44 been used? Or local authority's approvals been met?	☐	☒	☐	
25g	Where necessary, wheel wash facility in place and effective?	☐	☐	☒	
25h	Stock piles adequately segregated & protected with sediment controls (refer to CEMP)	☒	☐	☐	Stockpiles currently being covered when not being accessed
25i	Vegetation maintained where possible	☒	☐	☐	
25j	Public Roads Clean with Entry/exit points stabilised / wheel cleaning available? Haul road integrity maintained?	☒	☐	☐	Roads clean
25k	Is the Erosion and Sediment Control Plan being implemented and effective?	☒	☐	☐	Coir logs are in place, however, sediment to be cleared and controls maintained after rain event. Old coir logs to be removed and placed with clean ones.
26.	Waste & Spoil (Applicable to works site and compound)				
26a	Have adequate bins for waste and reusable/recyclable materials been provided?	☒	☐	☐	
26b	Concrete Waste Area provided and disposed of at regular intervals	☐	☐	☒	No concreting
26c	No waste stored or left in unauthorised areas?	☒	☐	☐	
26d	Recyclable and reusable waste are segregated and stored in separate bins?	☒	☐	☐	
26e	Waste dockets kept for records?	☒	☐	☐	
26f	Waste removed from site at required intervals and disposed of in authorised manner?	☒	☐	☐	
26g	Is topsoil correctly segregated & stored for reuse or recycling?	☐	☐	☒	Spoil at Lakemba classified as GSW. Cannot be used for recycling.
26h	Is spoil (uncontaminated excavated material) correctly stored for reuse or recycling?	☒	☐	☐	Unused spoil to be covered, long term unused spoil sprayed with polymer
26i	Is green waste mulched, composted and stockpiled for reuse on site?	☐	☐	☒	To be done when landscaping starts

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
26j	Is office waste being segregated and recycled?	☒	☐	☐	
27.	Traffic Management (Applicable to works site and compound)				
27a	Where required, a Traffic Management Plan is in place and effectively implemented?	☒	☐	☐	
27b	Speed restriction and warning signs are in place?	☒	☐	☐	
27c	Where required, trained Traffic Controllers engaged for ensuring safe pedestrian movements?	☒	☐	☐	
27d	Vehicle parking facility for employees, sub-contractors and visitors established and adequate?	☒	☐	☐	
27e	Material loading and unloading areas have no interface with pedestrian and vehicular movement?	☒	☐	☐	
28.	Contamination and Spills (Applicable to works site and compound)				
28a	No spillage of hydrocarbons or chemicals on site? Or potential for contamination (i.e. Asbestos Containing Materials (ACM) adequately managed)	☒	☐	☐	
28b	Spill kits provided and where? Are personal trained in using it?	☒	☐	☐	
28c	No harmful discharges to nearby water course?	☒	☐	☐	
28d	Has a concrete washout facility been established and maintained?	☐	☐	☒	
28e	Are materials, product and equipment appropriately stored on site?(e.g. hazardous chemical storage, bunding)	☒	☐	☐	
28f	Is there an appropriate refuelling area?	☒	☐	☐	
29.	Heritage (Applicable to works site and compound)				
29a	Heritage buildings or artefacts identified and delineated	☒	☐	☐	
29b	Are all current works covered by appropriate heritage approvals?	☒	☐	☐	
29c	Does the site induction cover heritage topic and on the ECM?	☒	☐	☐	
29d	Are heritage items being managed, fenced & signposted as per CEMP and is the unexpected finds protocol being implemented?	☒	☐	☐	
29e	Are temporary works on heritage fully reversible with no impacts to fabric?	☐	☐	☒	
30	Noise and Vibration (Applicable to works site and compound)				
30a	Construction activities kept within working hours and high noise and vibrating generating activities adhere to defined requirements	☒	☐	☐	
30b	Are standard noise and vibration mitigation measures working effectively and adequately maintained? (Any Non-tonal reversing alarm installed?)	☒	☐	☐	
30c	Dilapidation reports done for possible vibration close to other buildings	☐	☐	☒	
30d	Are out of hours works planned? Are the noise or vibration controls suitable?	☐	☐	☒	
30e	Is noise and vibration monitoring taking place as defined in the Project Monitoring Plan or as required for OOHW?	☐	☐	☒	No noise monitoring required as no OOHW to be undertaken

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
31.	Materials (Applicable to works site and compound)				
31a	Are deliveries of materials being tracked and recorded?	☒	☐	☐	Yes, reported to sustainability
31b	Are internal spoil / topsoil movements being tracked (for tracking onsite re-use)?	☐	☐	☒	As above
32.	Air Quality (Applicable to works site and compound)				
32a	Dust suppression practices implemented as required in the Air Quality Procedure (SEQ-PR-033)? Minimal to no dust leaving site?	☒	☐	☐	Rain event, no dust evident
32b	Trucks are leaving site with loads adequately covered?	☐	☐	☒	No trucks observed onsite
32c	No excessive fumes or smoke from plants / vehicles?	☒	☐	☐	None observed
33.	Sustainability Reporting (Applicable to works site and compound)				
33a	Is water usage being monitored (e.g. water trucks) and recorded on at least a monthly basis?	☒	☐	☐	
33b	Is potable water use being minimised?	☒	☐	☐	
33c	Are rainwater tanks in place/to be set up on site?	☐	☐	☒	
33d	Is rain/recycled water being used for washdown/dust suppression/irrigation etc?	☒	☐	☐	Used in toilets and water barriers
33e	Is energy usage being monitored and recorded on a monthly basis (e.g. office compound electricity, fuel use)?	☒	☐	☐	
33f	Do vehicles, plant and equipment meet the following requirements? - Operated for optimum energy efficiency. - Are not left idling when not in use. - fitted with catalytic converters, diesel particulate filters or equivalent devices. - Well maintained and serviced?	☒	☐	☐	
33g	Is waste and recycling being monitoring for both office and construction waste and recorded on at least a monthly basis?	☒	☐	☐	
33h	Is the TfNSW non-road diesel plant workbook being completed as required by the contract?	☐	☐	☒	
33i	Does the works and compound site have energy and water efficient fixtures, fittings and controls?	☒	☐	☐	
33j	Does all plug-in electrical equipment at the site compound has at least a five-star Energy Rating Label?	☐	☐	☒	
33k	Has the selection of materials used on site been undertaken to meet the SMP Materials Management Sub-Plan?	☒	☐	☐	
33l	Are there any construction and demolition waste/materials being reused or recycled on site? (provide details)	☐	☒	☐	
33m	Have any additional fuel/energy/water/material use reduction opportunities been identified?	☐	☒	☐	
34.	Document Checklist				
34a	Last revision of CEMP, CEMP sub-plans, SMP, and correspondent procedures	☒	☐	☐	Current version being approved and updated
34b	Environment Control Map and Erosion and Sediment Control Plans	☒	☐	☐	Being implemented
34c	Community Liaison Management Plan	☒	☐	☐	Community and communications strategy implemented
34f		☐	☐	☐	

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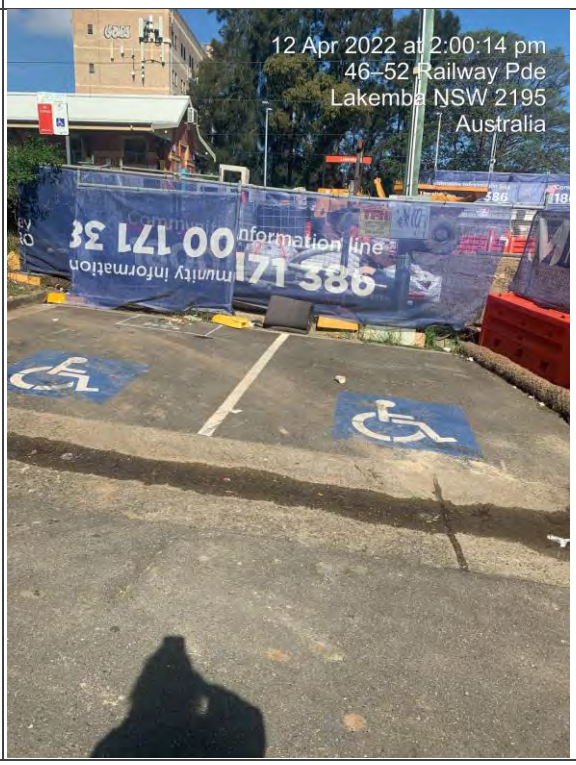
Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template				
Question	Y	N	N/A	Details
OTHER:				
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	

ER inspection close outs

Inspection Criteria Ref:	Items of observation needing correction:	Actioned by:	Signature:	Date closed out:
32.06 The Boulevarde car park	Issue: it was noted that community notification signs were not installed to notify of the car park closure. Action: HSEJV agreed to install community notification signage. The Boulevarde car park has been reinstated to the public. (See photo). No temporary fencing in the car park. The Boulevarde car park will only be potentially used for WE45 possession. Community notification signs will be installed a week prior to WE45 possession if it is being used.	Jo-Ann Poole		24.03.22
				

32.09 Railway Parade Accessible car parks	Issue: It was noted that signage for the car park relocation did not indicate a period for the relocation. Action: HSEJV agreed to include a timeframe on the signage. Signage for the possession of the car parks has been removed (See photo), as the timeframe for these works has been extended to the beginning of May. New signage will be installed closer to the date of possession with the period of relocation on the signs	Jo-Ann Poole		12.4.22
				

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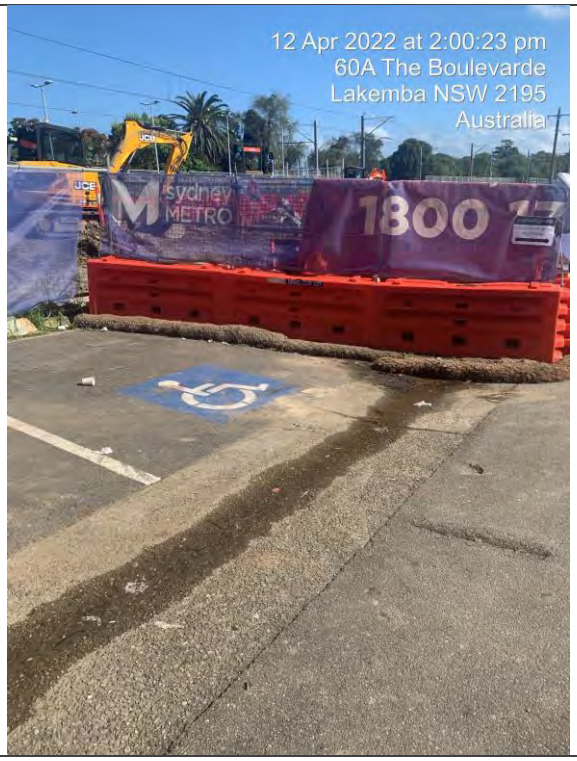
Weekly Site Environmental & Sustainability Inspection SEQ-CL-005 (1)

Signature: Jo-Ann Poole Date: 12/04/2022

Subcontractor Sign-Off

A representative from a Sub Contractor company on site to sign off that they have completed and gone through the Weekly Inspection with Haslin Staff.

Name	Company	Position/Role	Signature	Date

HASLIN

Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

To be completed by Site Manager, Environmental/ Sustainability Manager or delegated person at least once a week. Possible more than one inspection per week may be required for high-risk sites.

Project / Site Inspected: Lakemba Station

Inspection undertaken by: Jo-Ann Poole

Date: 25/05/2022 Time: 10:00 – 11:00 Signature: Jo-Ann Poole

Complete Relevant sections only:

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
23.	General / Community (Applicable to works site and compound)				
**	Have the previous week's actions been addressed and actioned?	☒	☐	☐	
23a	Is the site clean and free of waste and debris?	☒	☐	☐	
23b	Is the site secured appropriately (e.g. fencing) with appropriate signage?	☒	☐	☐	
23c	Has appropriate provision been made for passage of pedestrians around the work site (including footpath protection)?	☒	☐	☐	
23d	Does the equipment on site appear to be in appropriate working order (noise, exhaust fumes, leakage)?	☒	☐	☐	
23e	Are construction vehicles parked in designated areas?	☒	☐	☐	
23f	Have parking changes been communicated?	☒	☐	☐	
23g	Are all environmental no-go zones well delineated and protected?	☒	☐	☐	
23h	Are hoardings clean of graffiti and bill posters?	☒	☐	☐	
23i	Is the community signage up to date?	☐	☐	☒	
23j	Is the shade cloth up with legible contact details?	☒	☐	☐	
23k	Has the latest community notification been sent out on time?	☒	☐	☐	
23l	Has the next OOHW been communicated to relevant sensitive receivers?	☐	☐	☒	No OOH works scheduled.
23m	Are night works planned to ensure light spill is minimised? Is this reflected in ECM and/or OOHW application?	☐	☐	☒	No night works planned.
23n	Is site lighting directed away from sensitive receivers and direct views minimised?	☐	☐	☒	No lighting as no night works planned.
24.	Flora and Fauna (Applicable to works site and compound)				
24a	Are exclusion areas appropriately marked and isolated (e.g. heritage sites, flora/ fauna, environment sensitive areas, wetlands, water courses)?	☒	☐	☐	
24b	Do the trees have adequate protection around the TPZ (bunting, fencing or other delineating signs)? (No storage allowed under the TPZ)	☒	☐	☐	
24c	Has landscaping/offset commenced on site to stabilise exposed areas? Strive to minimise clearance of vegetation	☐	☐	☒	
24d	Are the works area free of weeds? Are the controls adequate to prevent weeds?	☒	☐	☐	

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
24e	Is there any tree trimming or vegetation removal planned? Are the required Pre-Clearing Checklist, Permit to Clear and approvals in place as per Flora and Fauna Management Procedure (SEQ-PR-035)?	☐	☐	☒	None planned.
24f	Local Wires numbers on emergency plan?	☒	☐	☐	
25.	Surface Water Quality/Soil Conservation (Applicable to works site and compound)				
25a	Sediment transport to stormwater drains and nearby water courses controlled by silt traps/ barriers? (check adequacy of controls after rain event)	☒	☐	☐	
25b	Silt traps/barriers effective and maintained? Are they compostable and/or reusable?	☐	☒	☐	Scrape up sediment from inside the site and clean/replace controls as required.
25c	Are erosion and sediment controls in place in accordance with ECMS and/or ESCPs?	☒	☐	☐	
25d	Is water discharged in accordance with conditions of approval / EPL? (Water Discharge Permit may be required) No construction water can leave site premises without being tested.	☒	☐	☐	Water is being discharged to land (within the 6-foot) with permits to dewater.
25e	No harmful discharges to nearby water course?	☒	☐	☐	Reinstalling erosion and sediment controls for potential rainfall event this week.
25f	Any Dewatering of trenches, water storage, or dams, discharged into local water ways? If so has SEQ-CL-44 been used? Or local authority's approvals been met?	☐	☒	☐	
25g	Where necessary, wheel wash facility in place and effective?	☐	☐	☒	
25h	Stock piles adequately segregated & protected with sediment controls (refer to CEMP)	☒	☐	☐	Stockpiles currently being covered when not being accessed.
25i	Vegetation maintained where possible	☒	☐	☐	
25j	Public Roads Clean with Entry/exit points stabilised / wheel cleaning available? Haul road integrity maintained?	☒	☐	☐	Roads are clean.
25k	Is the Erosion and Sediment Control Plan being implemented and effective?	☒	☐	☐	Coir logs are in place, however, sediment to be cleared and controls maintained after rain event. Old coir logs to be removed and placed with clean ones.
26.	Waste & Spoil (Applicable to works site and compound)				
26a	Have adequate bins for waste and reusable/recyclable materials been provided?	☒	☐	☐	
26b	Concrete Waste Area provided and disposed of at regular intervals	☐	☐	☒	No concreting.
26c	No waste stored or left in unauthorised areas?	☒	☐	☐	
26d	Recyclable and reusable waste are segregated and stored in separate bins?	☒	☐	☐	
26e	Waste dockets kept for records?	☒	☐	☐	
26f	Waste removed from site at required intervals and disposed of in authorised manner?	☒	☐	☐	
26g	Is topsoil correctly segregated & stored for reuse or recycling?	☐	☐	☒	Spoil at Lakemba classified as GSW. Cannot be used for recycling.
26h	Is spoil (uncontaminated excavated material) correctly stored for reuse or recycling?	☒	☐	☐	Unused spoil to be covered, long term unused spoil sprayed with polymer.
26i	Is green waste mulched, composted and stockpiled for reuse on site?	☐	☐	☒	To be done when landscaping starts.

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
26j	Is office waste being segregated and recycled?	☒	☐	☐	
27.	Traffic Management (Applicable to works site and compound)				
27a	Where required, a Traffic Management Plan is in place and effectively implemented?	☒	☐	☐	
27b	Speed restriction and warning signs are in place?	☒	☐	☐	
27c	Where required, trained Traffic Controllers engaged for ensuring safe pedestrian movements?	☒	☐	☐	
27d	Vehicle parking facility for employees, sub-contractors and visitors established and adequate?	☒	☐	☐	
27e	Material loading and unloading areas have no interface with pedestrian and vehicular movement?	☒	☐	☐	
28.	Contamination and Spills (Applicable to works site and compound)				
28a	No spillage of hydrocarbons or chemicals on site? Or potential for contamination (i.e. Asbestos Containing Materials (ACM) adequately managed)	☒	☐	☐	
28b	Spill kits provided and where? Are personal trained in using it?	☒	☐	☐	
28c	No harmful discharges to nearby water course?	☒	☐	☐	
28d	Has a concrete washout facility been established and maintained?	☐	☐	☒	
28e	Are materials, product and equipment appropriately stored on site?(e.g. hazardous chemical storage, bunding)	☒	☐	☐	
28f	Is there an appropriate refuelling area?	☒	☐	☐	
29.	Heritage (Applicable to works site and compound)				
29a	Heritage buildings or artefacts identified and delineated	☒	☐	☐	
29b	Are all current works covered by appropriate heritage approvals?	☒	☐	☐	
29c	Does the site induction cover heritage topic and on the ECM?	☒	☐	☐	
29d	Are heritage items being managed, fenced & signposted as per CEMP and is the unexpected finds protocol being implemented?	☒	☐	☐	
29e	Are temporary works on heritage fully reversible with no impacts to fabric?	☐	☐	☒	
30	Noise and Vibration (Applicable to works site and compound)				
30a	Construction activities kept within working hours and high noise and vibrating generating activities adhere to defined requirements	☒	☐	☐	
30b	Are standard noise and vibration mitigation measures working effectively and adequately maintained? (Any Non-tonal reversing alarm installed?)	☒	☐	☐	
30c	Dilapidation reports done for possible vibration close to other buildings	☐	☐	☒	
30d	Are out of hours works planned? Are the noise or vibration controls suitable?	☐	☐	☒	
30e	Is noise and vibration monitoring taking place as defined in the Project Monitoring Plan or as required for OOHW?	☐	☐	☒	No noise monitoring required as no OOHW to be undertaken.

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Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template					
Question		Y	N	N/A	Details
31.	Materials (Applicable to works site and compound)				
31a	Are deliveries of materials being tracked and recorded?	☒	☐	☐	Yes, reported to sustainability.
31b	Are internal spoil / topsoil movements being tracked (for tracking onsite re-use)?	☐	☐	☒	As above.
32.	Air Quality (Applicable to works site and compound)				
32a	Dust suppression practices implemented as required in the Air Quality Procedure (SEQ-PR-033)? Minimal to no dust leaving site?	☒	☐	☐	Rain event, no dust evident.
32b	Trucks are leaving site with loads adequately covered?	☐	☐	☒	No trucks observed onsite.
32c	No excessive fumes or smoke from plants / vehicles?	☒	☐	☐	None observed.
33.	Sustainability Reporting (Applicable to works site and compound)				
33a	Is water usage being monitored (e.g. water trucks) and recorded on at least a monthly basis?	☒	☐	☐	
33b	Is potable water use being minimised?	☒	☐	☐	
33c	Are rainwater tanks in place/to be set up on site?	☐	☐	☒	
33d	Is rain/recycled water being used for washdown/dust suppression/irrigation etc?	☒	☐	☐	Used in toilets and water barriers.
33e	Is energy usage being monitored and recorded on a monthly basis (e.g. office compound electricity, fuel use)?	☒	☐	☐	
33f	Do vehicles, plant and equipment meet the following requirements? - Operated for optimum energy efficiency. - Are not left idling when not in use. - fitted with catalytic converters, diesel particulate filters or equivalent devices. - Well maintained and serviced?	☒	☐	☐	
33g	Is waste and recycling being monitoring for both office and construction waste and recorded on at least a monthly basis?	☒	☐	☐	
33h	Is the TfNSW non-road diesel plant workbook being completed as required by the contract?	☐	☐	☒	
33i	Does the works and compound site have energy and water efficient fixtures, fittings and controls?	☒	☐	☐	
33j	Does all plug-in electrical equipment at the site compound has at least a five-star Energy Rating Label?	☐	☐	☒	
33k	Has the selection of materials used on site been undertaken to meet the SMP Materials Management Sub-Plan?	☒	☐	☐	
33l	Are there any construction and demolition waste/materials being reused or recycled on site? (provide details)	☐	☒	☐	
33m	Have any additional fuel/energy/water/material use reduction opportunities been identified?	☐	☒	☐	
34.	Document Checklist				
34a	Last revision of CEMP, CEMP sub-plans, SMP, and correspondent procedures	☒	☐	☐	Current version being approved and updated.
34b	Environment Control Map and Erosion and Sediment Control Plans	☒	☐	☐	Being implemented.
34c	Community Liaison Management Plan	☒	☐	☐	Community and communications strategy implemented.
34f		☐	☐	☐	

HASLIN

Weekly Site Environmental & Sustainability Inspection

SEQ-CL-005 (1)

TfNSW Environment Sustainability Inspection Questions combined with Haslin Template				
Question	Y	N	N/A	Details
OTHER:				
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	

ER inspection close outs

Inspection Criteria Ref:	Items of observation needing correction:	Actioned by:	Signature:	Date closed out:
25b 25022022	Issue: Large volume of thick sediment sludge had accumulated at the bottom of the site. Controls were in place reducing the risk of entry to the stormwater pit. 	Jo-Ann Poole		

	 Action: Scrape up sediment from inside the site and clean/replace controls as required.			

Signature: Jo-Ann Poole Date: 25/05/2022

Subcontractor Sign-Off

A representative from a Sub Contractor company on site to sign off that they have completed and gone through the Weekly Inspection with Haslin Staff.

Name	Company	Position/Role	Signature	Date

Appendix B: HSEJV Dewatering Register

HSE JV Dewatering Register

Reference No.	Date	Site / Station	Type of Water	Quantity (L)	Sample Method	Laboratory Report No.	Oil & grease visable (Y/N)	pH	TSS (<50mg/L)	Turbidity (NTU)	Discharge proposal / resuse	Authorised by:	Date Approved	Notes
HSE-PTD-017	3/04/2022	Lakemba	Surface	5000	N/A	N/A	N	7.5	N/A	N/A	Discharge to Land (rail corridor)	Lauren Clackson	3/04/2022	
HSE-PTD-018	3/09/2022	Canterbury	Surface	12000	N/A	N/A	N	7.6	N/A	N/A	Settlement tank	Ryan O'Leary	3/09/2022	
HSE-PTD-019	4/08/2022	Lakemba	Surface	10000	N/A	N/A	N	7.5	N/A	N/A	Discharge to Land (rail corridor)	Lauren Clackson	4/08/2022	
HSE-PTD-020	4/12/2022	Marrickville	Groundwater	15000	Grab	ES2212266	N	6.58	N/A	N/A	Discharge to Land (rail corridor)	Elena Ivanova	4/12/2022	
HSE-PTD-021	5/11/2022	Marrickville	Groundwater	15000	Grab	ES2215653	N	6.7	N/A	N/A	Discharge to Land (rail corridor)	Elena Ivanova	5/12/2022	The laboratory results of the treated groundwater quality (TW2) indicate an acceptable water quality to discharge in the Sydney Trains rail corridor.
HSE-PTD-022	7/02/2022	Lakemba	Surface	1000	Probe	N/A	N	7	N/A	N/A	Discharge to Land (rail corridor)	Andrew Lynam	7/02/2022	
HSE-PTD-023	21/7/2022	Canterbury	Surface	4000	Probe	N/A	N	7.2	N/A	N/A	Discharge to Land (rail corridor)	Andrew Lynam	21/7/2022	
HSE-PTD-024	8/01/2022	Lakemba	Surface	1000	Probe	N/A	N	7	N/A	N/A	Discharge to Land (rail corridor)	Andrew Lynam	8/01/2022	
HSE-PTD-025	17/8/202	Lakemba	Surface	100	Probe	N/A	N	7	N/A	N/A	Discharge to Land (rail corridor)	Andrew Lynam	17/8/202	
HSE-PTD-026	24/8/2022	Canterbury	Surface	1000	Probe	N/A	N	7	N/A	N/A	Discharge to Land (rail corridor)	Jake Iskenderian	24/8/2022	
HSE-PTD-027	29/8/2022	Canterbury	Surface	1000	Probe	N/A	N	7	N/A	N/A	Discharge to Land (rail corridor)	Jake Iskenderian	29/8/2022	

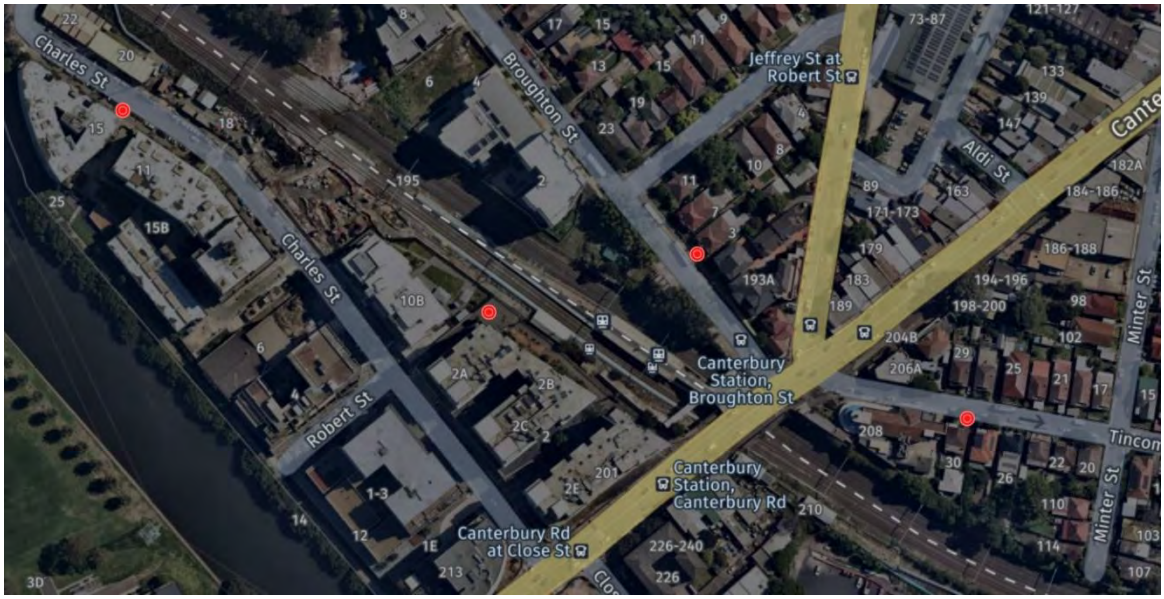
Appendix C: Noise Monitoring Locations

Lakemba:

- 15-19 Croydon Street, Lakemba
- 64 The Boulevarde, Lakemba
- 17 Railway Parade, Lakemba (near Quigg St North)
- 89 The Boulevarde, Lakemba

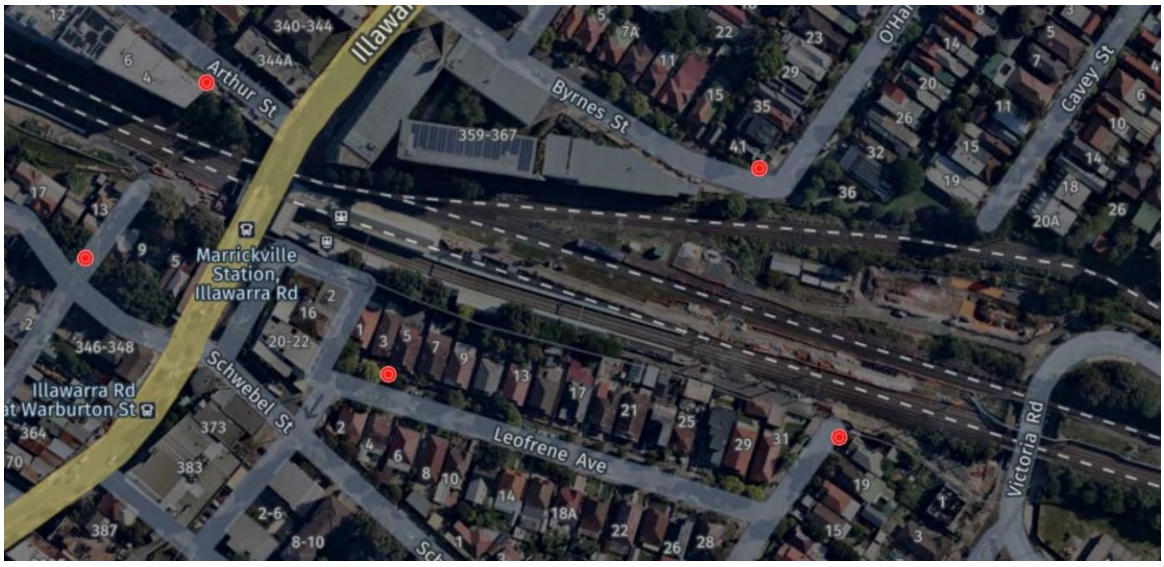
Canterbury:

- 3 Broughton Street, Canterbury
- 30 Tincombe Street, Canterbury
- 2 Charles Street, Canterbury
- 15 Charles Street Canterbury



Marrickville

- 13 Warburton Street, Marrickville
- 5 Leofrene Avenue, Marrickville
- 21 Riverdale Avenue, Marrickville
- 2 Arthur Street, Marrickville
- 41 O'Hara Street, Marrickville



Appendix D: HSEJV Noise Monitoring Register

Reporting Period	Type (Noise or Vibration)	Date	Time Started	Time Finished	Station	Description of Works	Monitorining Address	Predicted L_{Aeq}	Measured L_{Aeq}	Max L_{amax}	Measured Vibration PPV (mm/s)	Below Predicted Level Y/N	Was monitoring in response to a complaint?	Notes	Consultant	Link
WE38	Noise	19/03/2022	6:00:00 AM	8:00:00 AM	Lakemba	Framework delivery								No measurements taken due to rain	RENZO TONIN & ASSOCIATES	RENZO Message RE. LAK WE38 (P2).jpg
	Noise	19/03/2022	4:41:00 PM	4:56:00 PM	Marrickville	Plant: Pilling Rig	21 Riverdale Ave, Marrickville	61	59	82.1	N/A	Y	N		SIC (Lauren)	WE38 Noise Monitorng 20220319 MAR
	Noise	19/03/2022	5:08:00 PM	5:23:00 PM	Marrickville	Plant: Pilling Rig	41 O'Hara Street, , Marrickville	69	64.2	80.7	N/A	Y	N	Measurement influenced by traffic		
	Noise	19/03/2022	5:27:00 PM	5:43:00 PM	Marrickville	Plant: Pilling Rig	19 Cavey Street, Marrickville	69	65.1	88.6	N/A	Y	N			
	Noise	19/03/2022	5:49:00 PM	6:04:00 PM	Marrickville	Plant: Pilling Rig	End of Platform 0/1, Marrickville	N/A	64.6	87.2	N/A	Y	N			
	Noise	19/03/2022	6:14:00 PM	6:29:00 PM	Marrickville	Plant: Pilling Rig + lighting tower	End of Platform 0/1, Marrickville	N/A	61.1	78.2	N/A	Y	N			
	Noise	19/03/2022	6:37:00 PM	6:52:00 PM	Marrickville	Plant: Pilling Rig + lighting tower	19 Cavey Street, Marrickville	69	67	87.1	N/A	Y	N	Birds and wind influenced noise		
	Noise	19/03/2022	6:58:00 PM	7:13:00 PM	Marrickville	Plant: Pilling Rig + lighting tower	41 O'Hara Street, Marrickville	69	64.1	64.1	N/A	Y	N			
	Noise	19/03/2022	7:30:00 PM	7:45:00 PM	Marrickville	Plant: Pilling Rig + lighting tower	21 Riverdale Ave, Marrickville	61	53.2	81.5	N/A	Y	N			
	Noise	20/03/2022	10:57:00 AM	11:12:00 AM	Marrickville	1 x 30T Excavator	20 Cavey Street, Marrickville	70	61.9	95.9	N/A	Y	N	Sunny	SIC (Ryan)	MAR 20 Mar 22.xlsx
	Noise	20/03/2022	11:35:00 AM	11:50:00 AM	Marrickville	1 x 30T Excavator	24 Queen Street, Marrickville	67	59.2	92.7	N/A	Y	N	Sunny		
WK38	Noise	24/03/2022	8:00:00 PM	10:00:00 PM	Marrickville	ULX excavation								No measurements taken due to rain	SIC (Lauren)	Noise Monitoring Thursday 24 March.msg
WE39	Noise	26/03/2022	7:23:00 AM	7:38:00 AM	Lakemba	2x excavators, hand tools and material delivery	15 Croydon Street, Lakemba	73	65.9	100.4	N/A	Y	N		SIC (Lauren)	Noise monitoring 20220326 LAK P2.pdf
	Noise	26/03/2022	7:47:00 AM	8:02:00 AM	Lakemba	2x excavators, hand tools and material movements by hand	64 The Boulevarde, Lakemba	63	66.5	85.4	N/A	N	N	Traffic was dominant noise, measurements were heavily influenced by traffic and bird calls. Isolated sound from construction was between 48-61 dB.		
	Noise	27/03/2022	10:07:00 AM	10:23:00 AM	Lakemba	Small excavator, vac truck, bobcat, hand tools in the MSB area	15 Croydon Street, Lakemba	73	60.1	77.6	N/A	Y	N		SIC (Elena)	LAK 27 MAR 22.xlsx
	Noise	27/03/2022	10:56:00 AM	11:11:00 AM	Lakemba	Small excavator, vac truck, bobcat, hand tools in the MSB area	64 The Boulevarde, Lakemba	63	65.4	82.9	N/A	N	N	No construction works were audible at 64 The Boulevard, Lakemba due to background noise (local/ replacement bus traffic and birds noise). Slight elevation of the noise attributed to traffic on The Boulevarde.		
WE45	Noise	6/05/2022	1:02:00 AM	1:17:00 AM	Canterbury	25T Franna crane and 400T franna Crane	3 Broughton Street, Cantebury	73	62	74	N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to the intermittent nature of the crane operation as the most noise intensive crane activity (lifting materials) was not constant.	RENZO TONIN & ASSOCIATES	WE45 Noise and Vibration Monitoring Report (r1).pdf
	Noise	7/05/2022	4:04:00 AM	4:19:00 AM	Marrickville	Plant: Auger Machine (ULX Underbore), 30T Excavator	21 Riverdale Avenue, Marrickville	69	46.5	60.1	N/A	Y	N		SIC (Ryan)	MAR 7 May 2022.xlsx
	Noise	7/05/2022	4:58:00 AM	5:13:00 AM	Marrickville	Plant: Auger Machine (ULX Underbore), 30T Excavator	41 O'Hara Street, Marrickville	70	49.5	72.3	N/A	Y	N			
	Noise	7/05/2022	10:36:00 PM	10:51:00 PM	Lakemba	Plant included 2 excavators, 2 hydremas at the MSB area, power hand tools at at the station, 1 excavator and 1 hydrema in the Cess (country end)	15 Croydon Street, Lakemba	80	66.2	83.6	N/A	Y	N		SIC (Elena)	07-08.05.22 Noise monitoring summary.xlsx
	Noise	7/05/2022	11:10:00 PM	11:35:00 PM	Lakemba	Plant included 2 excavators, 2 hydremas at the MSB area, power hand tools at at the station, 1 excavator and 1 hydrema in the Cess (country end) Vac truck at the Bulevard.	64 The Boulevarde, Lakemba	78	83.5	83.5	N/A	Y	N	Noise monitoring was affected by road traffic.		
	Noise	7/05/2022	11:40:00 PM	11:55:00 PM	Lakemba	Works were not audible. Plant included a Light tower.	89 The Boulevarde, Wiley Park	74	72.4	72.4	N/A	Y	N	Noise monitoring was affected by road traffic.		
	Noise	8/05/2022	12:16:00 AM	12:31:00 AM	Canterbury	Crane, power tools at Councourse	3 Broughton Street, Cantebury	87	52.4	66.3	N/A	Y	N			
	Noise	8/05/2022	12:39:00 AM	12:54:00 AM	Canterbury	Crane, power tools at Councourse	30 Tincombe Street, Canterbury	77	62.1	71.2	N/A	Y	N			
	Noise	8/05/2022	1:05:00 AM	1:20:00 AM	Canterbury	3 Excavators, crane lifting precasts in the MSB area, hydremas	15 Charles Street, Canterbury	84	59.3	74.1	N/A	Y	N			
	Noise	8/05/2022	1:30:00 AM	1:45:00 AM	Canterbury	Crane, power tools at Councourse	2 Charles Sreet, Canterbury	89	60.7	74.9	N/A	Y	N			
	Noise	8/05/2022	2:35:00 AM	2:50:00 AM	Marrickville	One excataor in the Cess (ULX pit), light towers	21 Riverdale Avenue, Marrickville	75	48.8	55.3	N/A	Y	N	No other works at Marrickville Station (ULX in the ARTC was cancelled)		
	Noise	8/05/2022	10:48:00 AM	11:03:00 AM	Lakemba	Plant: Concrete truck, excavators (bucket and rock hammer)	15-19 Croydon Street	80	58.4	81.4	N/A	Y	N	Monitoring results are influenced by traffic noise	SIC (Ryan)	LAK CAN MAR 8 May 2022.xlsx
	Noise	8/05/2022	11:20:00 AM	11:35:00 AM	Lakemba	Plant: Bobcat and telehandler	64 The Boulevarde	72	59	78.3	N/A	Y	N	Monitoring results are influenced by traffic noise (dominant) and bird noise		
	Noise	8/05/2022	11:55:00 AM	12:10:00 PM	Lakemba	Plant: Bogie (delivering spoil)	89 The Boulevarde	64	62.4	88.2	N/A	Y	N	Monitoring results are influenced by traffic noise (dominant)		
	Noise	8/05/2022	1:21:00 PM	1:36:00 PM	Canterbury	Plant: Crane (400T), occasional power tools	3 Broughton Street, Cantebury	74	63.2	80.6	N/A	Y	N	Monitoring results are influenced by traffic noise (dominant)		
	Noise	8/05/2022	1:47:00 PM	2:02:00 PM	Canterbury	Plant: Crane (400T), occasional power tools (drilling, cutting, grinding sound) and hand tools (knocking sound) for stair / lift / platform works	2 Charles Street, Canterbury	78	64.1	78.7	N/A	Y	N	Monitoring results are influenced by traffic noise (dominant)		
	Noise	8/05/2022	2:07:00 PM	2:22:00 PM	Canterbury	Plant: Excavators	15 Charles Street, Canterbury	79	75	108.9	N/A	Y	N	Monitoring results are influenced by traffic noise		

Reporting Period	Type (Noise or Vibration)	Date	Time Started	Time Finished	Station	Description of Works	Monitorining Address	Predicted L_{Aeq}	Measured L_{Aeq}	Max L_{amax}	Measured Vibration PPV (mm/s)	Below Predicted Level Y/N	Was monitoring in response to a complaint?	Notes	Consultant	Link
	Noise	8/05/2022	3:10:00 PM	3:25:00 PM	Marrickville	Plant: Excavators (x2), occasional hand tools (shovel)	21 Riverdale Avenue, Marrickville	72	58.9	85	N/A	Y	N			
	Noise	8/05/2022	3:34:00 PM	3:49:00 PM	Marrickville	Plant: Excavator and telehandler	13 Warburton Street, Marrickville	69	58.1	78.9	N/A	Y	N	Monitoring results are influenced by traffic noise		
	Noise	8/05/2022	4:04:00 PM	4:19:00 PM	Marrickville	Plant: Excavator, occasional hand tools (shovel)	41 O'Hara Street, Marrickville	70	64.1	94.7	N/A	Y	N	Monitoring results are influenced by traffic noise		
WE51	Noise	19/06/2022	9:36:00 AM	10:51:00 AM	Marrickville	Small excavator, battery powered grinder	21 Riverdale Avenue, Marrickville	70	58.7	86.9	N/A	Y	N	Intermittent noise from trains running and aircraft/s	SIC (Ryan)	
WE52	Noise	26/06/2022	8:28:00 AM	8:43:00 AM	Marrickville	Hand tools	21 Riverdale Avenue, Marrickville	70	57.0	73.3	N/A	Y	N	Intermittent noise from trains running and aircraft/s	SIC (Ryan)	
Shutdown 3	Noise	9/07/2022	10:22:00 PM	10:37:00 PM	Canterbury	Excavator with bucket attachment, excavator with hammer attachment and dump truck	3 Broughton Street, Canterbury	78	62		N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.	RENZO TONIN & ASSOCIATES	Shutdown 3 Noise and Vibration Monitoring Report (r1).pdf
	Noise	9/07/2022	10:33:00 PM	10:48:00 PM	Canterbury	Excavator with bucket attachment and excavator with hammer attachment	2A Charles Street, Canterbury	86	65		N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.	RENZO TONIN & ASSOCIATES	Noise and Vibration Monitoring Report (r1).pdf
	Noise	9/07/2022	10:39:00 PM	10:54:00 PM	Canterbury	Excavator with bucket attachment, excavator with hammer attachment and dump truck	11 Broughton Street, Canterbury	74	60		N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.	RENZO TONIN & ASSOCIATES	Shutdown 3 Noise and Vibration Monitoring Report (r1).pdf
	Noise	9/07/2022	11:09:00 PM	11:24:00 PM	Canterbury	Excavator with bucket attachment	15 Charles Street, Canterbury	70	65		N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.	RENZO TONIN & ASSOCIATES	Shutdown 3 Noise and Vibration Monitoring Report (r1).pdf
	Noise	10/07/2022	12:01:00 AM	12:16:00 AM	Lakemba	Excavator with bucket attachment and power hand tools	64 The Boulevarde, Lakemba	70	63		N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.	RENZO TONIN & ASSOCIATES	Shutdown 3 Noise and Vibration Monitoring Report (r1).pdf
	Noise	10/07/2022	12:19:00 AM	12:34:00 AM	Lakemba	Vacuum truck and power hand tools	15-19 Croydon Street, Lakemba	80	63		N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.	RENZO TONIN & ASSOCIATES	Shutdown 3 Noise and Vibration Monitoring Report (r1).pdf
	Noise	12/07/2022	9:23:00 PM	9:38:00 PM	Lakemba	Powered hand tools including small jackhammer and grinder	15 Croydon Street, Lakemba	80	54.1	69.6	N/A	Y	N	1. Works audible (powered handools used to install rios on the platform) 2. Measurement influenced by road traffic.	SIC (Elena)	
	Noise	12/07/2022	11:42:00 PM	11:57:00 PM	Lakemba	Powered hand tools including small jackhammer and grinder	15 Croydon Street, Lakemba	80	52.7	68.1	N/A	Y	N	1. Works audible (powered handools used to install rios on the platform) 2. Measurement influenced by road traffic.	SIC (Elena)	
	Noise	12/07/2022	11:20:00 PM	11:35:00 PM	Lakemba	Powered hand tools including small jackhammer and grinder	64 The Boulevarde, Lakemba	70	52.7	68.1	N/A	Y	N	1. Works audible (powered handools used to install rios on the platform) 2. Measurement influenced by bus replacement traffic.	SIC (Elena)	
	Noise	14/08/2022	10:30:00 AM	10:45:00 AM	Marrickville	Plant: light vehicles, 3x excavators, hydrema	21 Riverdale Ave	86	66.6	83.7	N/A	Y	N		SIC (Lauren)	MAR_Noise monitoring field data_WE07_14.08.2022.pdf
	Noise	14/08/2022	11:03:00 AM	11:18:00 AM	Marrickville	Plant: light vehicles, 3x excavators, hydrema (in distance not visable and almost inaudible	5 Leofrene Ave	72	61.5	83.1	N/A	Y	N	Dominant noise source was not HSEJV works, there was another resident builder moving scrap into a skip bin for entire reading		
	Noise	14/08/2022	11:24:00 AM	11:39:00 AM	Marrickville	excavator, light vehicles and power tools in distance	13 Warburton St	75	62.8	80.9	N/A	Y	N	Noise monitoring was affected by road traffic		
	Noise	14/08/2022	12:00:00 PM	12:15:00 PM	Marrickville	Plant: telehandler, 2x excavators, hydrema	41 O'Hara St	73	60.5	79.1	N/A	Y	N	Noise monitoring was affected by road traffic		

Appendix E: Noise and Vibration Monitoring Equipment Details

Owner	Instrument	Make	Model	Serial Number	Date of Calibration	Place of Calibration
HSEJV	Sound Level Meter	Svantek	Svan-958	92326	13/10/2020	Acu-Vib Electronics
HSEJV	Sound Level Meter	Svantek	Svan-971	107409	29/04/2021	Acu-Vib Electronics
HSEJV	Sound Level Calibrator	Svantek	SV-33B	109918	25/05/2022	Acu-Vib Electronics
HSEJV	Sound Level Calibrator	Svantek	SV-33B	109918	22/04/2022	Acu-Vib Electronics
Renzo Tonin & Associates	Sound Level Meter	NTi	XL2	A2A-08004-E0	21/12/2020	NATacoustic
Renzo Tonin & Associates	Sound Level Calibrator	Bruel & Kjaer	Type 4231	2162834	08/02/2022	NATacoustic
Renzo Tonin & Associates	Sound Level Meter	NTi	XL2	A2A-16117-E0	06 July 2021	NATacoustic
Renzo Tonin & Associates	Sound Level Meter	NTi	XL2	A2A-19156-E0	10 March 2022	NATacoustic
Renzo Tonin & Associates	Sound Level Meter	NTi	XL2	A2A-04105-D1	24/08/2021	NATacoustics
Renzo Tonin & Associates	Type 1 Signal Analyser	Sinus	Soundbook-2	07039	28/04/2021	NATacoustic

Renzo Tonin & Associates	Accelerometer	Endevco	61C3	#21124	18/05/2021	NATacoustic

Appendix F: Noise Monitoring Record Sheet Samples

Noise Monitoring Record Sheet

DATE:	19 MAR-22	**MAIN ACTIVITY**	UX works	
CONDUCTED BY:	Lauren. C	**LOCATION OF WORKS:**	Marrickville station	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
Overcast	24km p/h	-	22°	63%.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.66	**POST CALIBRATION CHECK:**		

MONITORING DETAILS				
LOCATION No:		**ADDRESS:**	21 Riverdale Ave.	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	Pilling ~~rig~~ UX	**MITIGATION MEASURES INSTALLED:**	ballast & creating small embankment	
PLANT OPERATION:	Pilling rig.	**DISTANCE FROM PLANT (m):**	30m	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	Car 1.5m	**MEASUREMENT NEAR BUILDING?**	Y / N	
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	Y / N	**IN RESPONSE TO COMPLAINT?**	Y / N	

START TIME	END TIME	MEASUREMENT PERIOD (DS, DO, E, N)	NML (dBA)	PREDICTED LEVEL (dBA)
16:41	16:56	DS	~~55~~ 51	61

MEASUREMENT RESULTS (15 MIN PERIOD) from activity					
L_{aeq}	L_{max}	L_{min}	~~L_{A10}~~ Utm 3	~~L_{A90}~~ Utm 5	~~Utm~~ C01
59.0	82.1	45.6	68.0	69.3	70.6

MONITORING OBSERVATIONS:

XL2 file number:	L1817

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01			49.0 -65	windy
XX:02	banging noise, screeching		56, 70.6	
XX:03	"		56-58	
XX:04	intermitant banging		56.	
XX:05	engine start		58.1	
XX:06	engine stop		49.9	birds flying overhead. 60.5
XX:07	engine start. → stop.		55.3 - 50.6	"
XX:08	faint banging.		48.9	plane overhead. 56
XX:09	"		57.8	" 56.7
XX:10	banging noise		68.	very windy 62.
XX:11	"		65.	plane overheard. 61.
XX:12	engine start		57.9. -62.	birds 63.
XX:13	engine	+ squeek	56.5 - 60	wind & leaves rustling 63.
XX:14	"	"	55.6	" 63.
XX:15		"	62.3	car engine 68
Further actions required to reduce noise?				
Additional comments	no tripod.			

Community information line

1800 171 386

Noise Monitoring Record Sheet

DATE:	19 MAR 22	**MAIN ACTIVITY**	Pilling - UCX	
CONDUCTED BY:	Lauren C.	**LOCATION OF WORKS:**	Marrickville	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
Overcast	23 km/h	–	22°c	62%.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.6	**POST CALIBRATION CHECK:**		

MONITORING DETAILS				
LOCATION No:		**ADDRESS:**	~~40~~ 41 O'Hara St	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	Pilling UCX		**MITIGATION MEASURES INSTALLED:**	N/A
PLANT OPERATION:	Pilling Rig		**DISTANCE FROM PLANT (m):**	~~40-50m~~ 30-40m.
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	4-5m		**MEASUREMENT NEAR BUILDING?**	Y / (N)
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	(Y) / N		**IN RESPONSE TO COMPLAINT?**	Y / (N)

START TIME	END TIME	MEASUREMENT PERIOD (DS, DO, E, N)	NML (dBA)	PREDICTED LEVEL (dBA)
17:08	17:23	DS	~~46~~ 51	69

MEASUREMENT RESULTS (15 MIN PERIOD) from activity					
L_{eq}	L_{max}	L_{min} ~~47.6~~ 36 min	L_{AF} ~~L[illegible]~~ 43	L_{A90} ~~47.5~~ 40.1	
64.2	80.7	~~47.6~~ 48.7	67.6	68.3	73.3

MONITORING OBSERVATIONS:

XL2 file number: L1818

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01	works not audible.			traffic 60-65
XX:02	engine start		55.0	people talking 56 siren in distance
XX:03	pilling rig		57.7	" train 71.8-73.9
XX:04	engine stop, banging		50.2 76.6	
XX:05	intermitant. banging		71.	traffic
XX:06	pilling rig (engine off		53.7.	motorbike 79.
XX:07	intermitant banging		72.	traffic
XX:08	engine start / stop		68.3 56.9	"
XX:09	"		65.4-67 / 57	"
XX:10	pilling rig / stop		65.9 / 54.8	" windpickeel up
XX:11	"		60.7	"
XX:12	"		59.9	"
XX:13	"		56.1	"
XX:14	"		54.5	"
XX:15	bang, just pilling rig.		64.7, 54.1	"

Further actions required to reduce noise?	N/A.
Additional comments	~~K~~ constant traffic flow 60-70 dB.

Noise Monitoring Record Sheet

DATE:	19 Mar 22	**MAIN ACTIVITY**	Pilling. ULX	
CONDUCTED BY:	Lauren. C.	**LOCATION OF WORKS:**	Marrickville	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
Overcast	23km/h	-	22°C	62%.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.6	**POST CALIBRATION CHECK:**		

MONITORING DETAILS				
LOCATION No:		**ADDRESS:**	19 Carey St, Marrickville.	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	Pilling ULX		**MITIGATION MEASURES INSTALLED:**	N/A
PLANT OPERATION:	Pilling Rig		**DISTANCE FROM PLANT (m):**	20m
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	N/A		**MEASUREMENT NEAR BUILDING?**	Y / (N) / Sm
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	(Y) / N		**IN RESPONSE TO COMPLAINT?**	Y / (N)

START TIME	**END TIME**	**MEASUREMENT PERIOD (DS, DO, E, N)**	**NML (dBA)**	**PREDICTED LEVEL (dBA)**
17:27	17:43	DS	51	69

MEASUREMENT RESULTS (15 MIN PERIOD) from activity					
L_{aeq}	L_{max}	L_{min}	~~L_{90}~~ Lem3	~~L_{90}~~ Lem5	L01
65.1	88.6	55.2	69.5	69.9	70.9

MONITORING OBSERVATIONS:

XL2 file number:	L1819

Time	**Source noise**	**Extraneous noise**	**LAF**	**Other comments**
XX:01	piling rig		70.0.	car door. 68.2
XX:02	"		65.9	"
XX:03	"		66.1	
XX:04	"		64.6.	car horn
XX:05	"		61.5	bird,
XX:06	"		57.6	
XX:07	intermit. banging		72	
XX:08	piling rig low rumble		56.7	
XX:09	" bang.		58.9, 80	
XX:10	"		62.1	birds 68.0
XX:11	"	banging	58, 83.0	traffic in distance.
XX:12	engine start		68.	
XX:13	"		62.	
XX:14	low rumble of rig		58.8	beep. 69.2.
XX:15	engine on		69.2	
Further actions required to reduce noise?				
Additional comments	Construction dominant source. birds & wind influenced noise.			

Noise Monitoring Record Sheet

DATE:	19-Mar 22	**MAIN ACTIVITY**	Piling ULX	
CONDUCTED BY:	Lauren. C	**LOCATION OF WORKS:**	Martinville	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
Overcast	29km/h	-	22°C	63%.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.66, 0.35 diff	**POST CALIBRATION CHECK:**		

MONITORING DETAILS				
LOCATION No:		**ADDRESS:**	Platform 011	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	Pilling ULX	**MITIGATION MEASURES INSTALLED:**	N/A	
PLANT OPERATION:	Pilling Rig, lighting tower	**DISTANCE FROM PLANT (m):**	40-50m	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	N/A	**MEASUREMENT NEAR BUILDING?**	Y (N)	
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	(Y) N	**IN RESPONSE TO COMPLAINT?**	Y / (N)	

START TIME	END TIME	MEASUREMENT PERIOD (DS, DO, E, N)	NML (dBA)	PREDICTED LEVEL (dBA)
17:49	18:04	DS	N/A	N/A

MEASUREMENT RESULTS (15 MIN PERIOD) from activity

L_{aeq}	L_{max}	L_{min}	~~L_{A10}~~ Ltm3	~~L_{A90}~~ Ltm5	L01
64.6	87.2	50.0	71.0	72.6	74.1

MONITORING OBSERVATIONS:

XL2 file number: L1820

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01	loud bang x 3		58.	workers chatting quietly in distance
XX:02	pilling rig low hum.		51.3	
XX:03	engine start 60.		51.2	plane 55 dB
XX:04	"		66.3	
XX:05	pilling rig		69.4	plane overhead
XX:06	"		66.9	
XX:07	excavator + pilling rig		60.3	
XX:08	"		56.	
XX:09	"		53.1	wind
XX:10	"		60.9	plane overheed.
XX:11	"		53.2	
XX:12	intermittent banging *		78	train horn 64 + plane
XX:13	pilling rig low rumble		54.3	train 70
XX:14	works inaudible			" 73.9
XX:15	when train passing			train "
Further actions required to reduce noise?				
Additional comments	Construction dominant noise			

Noise Monitoring Record Sheet

DATE:	19 March 22	**MAIN ACTIVITY**	ULX pilling	
CONDUCTED BY:	Lauren C	**LOCATION OF WORKS:**	Marrickville	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
overcast	19km/h	-	21°	631.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.6	**POST CALIBRATION CHECK:**		

MONITORING DETAILS				
LOCATION No:		**ADDRESS:**	Platform 011	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	Pilling for ULX		**MITIGATION MEASURES INSTALLED:**	N/A
PLANT OPERATION:	Pilling rig + Lighting tower		**DISTANCE FROM PLANT (m):**	40m
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	N/A		**MEASUREMENT NEAR BUILDING?**	Y (N)
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	(Y) N		**IN RESPONSE TO COMPLAINT?**	Y (N)

START TIME	**END TIME**	**MEASUREMENT PERIOD (DS, DO, E, N)**	**NML (dBA)**	**PREDICTED LEVEL (dBA)**
18:14	18:29	E	~~45~~ N/A	N/A

MEASUREMENT RESULTS (15 MIN PERIOD) from activity				
L_{aeq}	L_{max}	L_{min}	~~L_{A10}~~ L_{tm3}	L_{A90} L_{tm5} / L_{01}
61.1	78.2	45.9	63.5	64.2 / 69.6

MONITORING OBSERVATIONS:				
XL2 file number:	L1821			
Time	**Source noise**	**Extraneous noise**	**LAF**	**Other comments**
XX:01	works inaudible while train passing			ARTC train 65-~~69~~ 77
XX:02	"			"
XX:03	pilling Rig start		69.4	"
XX:04	"		63.8	moto bike in distand. 64.
XX:05	"	idle	54.9	plane overhead. 57
XX:06	pilling stopped (paused)		49.5	wind picking up. birds 57.
XX:07	pilling lowering		53.	plane in distance & wind 53.
XX:08	engine start		57.5	
XX:09	"		56.7	plane 62.6
XX:10	pilling	Idle & Soft bang.	51.9	birds 60.1
XX:11	pilling engine start		57.6	"
XX:12	"	(mostly idle)	50.4 48.2(stopped).	
XX:13	works almost inaudible.		48.5	traffic in distance
XX:14		"	46.3	birds
XX:15		"	49.1	
Further actions required to reduce noise?				
Additional comments	Construction dominant noise source. no tripod.			

Noise Monitoring Record Sheet

DATE:	19-Mar 22	**MAIN ACTIVITY**	ULX Pilling	
CONDUCTED BY:	Lauren. C	**LOCATION OF WORKS:**	Marrickville	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
Overcast	19 km/h	-	21°	63%.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.6	**POST CALIBRATION CHECK:**		

MONITORING DETAILS					
LOCATION No:		**ADDRESS:**	19 Cavey St		
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	ULX Pilling		**MITIGATION MEASURES INSTALLED:**	N/D	
PLANT OPERATION:	Pilling Rig + Ligh Kingtower		**DISTANCE FROM PLANT (m):**	30m	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	N/A		**MEASUREMENT NEAR BUILDING?**	Y (N) ~ 4-5m	
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):		(Y) / N	**IN RESPONSE TO COMPLAINT?**	(Y) / N	
START TIME	**END TIME**	**MEASUREMENT PERIOD (DS, DO, E, N)**	**NML (dBA)**	**PREDICTED LEVEL (dBA)**	
18:37	18:52	E	46	69	
MEASUREMENT RESULTS (15 MIN PERIOD) from activity					
L_{aeq}	L_{max}	~~L_{min}~~ Lmin	L_{A10} Ltm3	~~L_{A90}~~ Ltm5	L01
67.0	87.1	47.6	68.8	69.7	82.2

MONITORING OBSERVATIONS:

XL2 file number:	L1822

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01	Rilling rig	Idle	56.6	
XX:02	"		55.4	traffic 57.8 - 62
XX:03		"	51.8	"
XX:04		"	52.6	birds 58.8
XX:05	works inaudible.			train 65 - 68.4.
XX:06	Soft hum generator/rig		58.5	+ car turning. motor bike
XX:07		"	61.0	car door 56.
XX:08	engine start		53.9	talking. 60. w/ resident.
XX:09	engine hum		54.	
XX:10		"	55.5	resident + sweeping 58
XX:11	hum stop		49.2	traffic 53.9 - 55 in distance
XX:12	engine	start + bang	55.6-57	
XX:13		"	54.3 - 60	
XX:14		"	58.9	
XX:15		"	59	train - 85.1
Further actions required to reduce noise?				
Additional comments				

Noise Monitoring Record Sheet

DATE:	19 March 22	MAIN ACTIVITY	ULX Pilling	
CONDUCTED BY:	Lauren. C	LOCATION OF WORKS:	Marrickville	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	Wind speed (m/s) / Wind direction	Precipitation (mm)	Temp (°C)	RH (%) / Pressure (hPa)
50%.	19 km/h	-	21	66%.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	SERIAL NUMBER:	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	FREQUENCY WEIGHTING:		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.6	POST CALIBRATION CHECK:		

MONITORING DETAILS				
LOCATION No:		ADDRESS:	41 OHara St.	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	Pilling ULX		MITIGATION MEASURES INSTALLED:	N/A
PLANT OPERATION:	Pilling rig + Lighting tower		DISTANCE FROM PLANT (m):	30m
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	1m fence		MEASUREMENT NEAR BUILDING?	Y / (N)
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	(Y) / N		IN RESPONSE TO COMPLAINT?	Y / (N)

START TIME	END TIME	MEASUREMENT PERIOD (DS, DO, E, N)	NML (dBA)	PREDICTED LEVEL (dBA)
18:58	19:13	E	46	69

MEASUREMENT RESULTS (15 MIN PERIOD) from activity					
L_{eq}	L_{max}	L_{min}	L_{A10} Ltm3	L_{A90} Ltm5	/ L01
64.1	79.2	48.1	67.0	61.8	/ 73.6

MONITORING OBSERVATIONS:

XL2 file number: L1823

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01	pilling Rig	chain/lowering	73	traffic 55 - 75
XX:02	pilling Rig	engine start	66.9	"
XX:03	"		65.0	"
XX:04	"	hum	657.6	skateboard 68.
XX:05		"	55.2	birds 55.7
XX:06		"	52.0	traffic 74.4
XX:07	"	engine start	59.2	
XX:08	"	hum	57.2	
XX:09	works	inaudible with train		ARTC train 65 - 75.3
XX:10		"		"
XX:11		1 bang	77.0	"
XX:12	pilling rig hum, light bang		55.6, 57	"
XX:13		"	52.7	
XX:14	engine start	bang - 69,	62.7	motor bike + cars 65
XX:15	"	grind noise	67, 70.3	
Further actions required to reduce noise?				
Additional comments	traffic was fairly constant.			

Noise Monitoring Record Sheet

DATE:	19 Mar. 22	**MAIN ACTIVITY**	ULX Pilling	
CONDUCTED BY:	Lauren. C	**LOCATION OF WORKS:**	Marrickville Station	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
overcast	21 km/h	-	21°	68/.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.6	**POST CALIBRATION CHECK:**		

MONITORING DETAILS					
LOCATION No:		**ADDRESS:**	21 Riverdale		
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	ULX pilling		**MITIGATION MEASURES INSTALLED:**	N/A	
PLANT OPERATION:	Pilling Rig + Lighting tower		**DISTANCE FROM PLANT (m):**	40m	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	N/A		**MEASUREMENT NEAR BUILDING?**	Y / (N)	
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	(Y) / N		**IN RESPONSE TO COMPLAINT?**	Y / (N)	
START TIME	**END TIME**	**MEASUREMENT PERIOD (DS, DO, E, N)**	**NML (dBA)**	**PREDICTED LEVEL (dBA)**	
19:30	19:45	E	46	61	
MEASUREMENT RESULTS (15 MIN PERIOD) from activity					
L_{aeq}	L_{max}	L_{min}	L_{A10} Ltm3	L_{A90} Ltm5	L01
53.2	81.5	44.3	60.3	60.4	59.6

MONITORING OBSERVATIONS:

XL2 file number: L 1824

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01	pilling rig	hum/slight sheet	52.9	
XX:02			52.4	distant car horn / plane
XX:03		〃	47.2	
XX:04	engine start		50.3	trees rustling.
XX:05	pilling 〃	/ hum	49.1	
XX:06	pilling rig moving		47.5	plane 54 - 55
XX:07	〃	hum/idle	47.2	
XX:08		sheet bang	74	
XX:09	pilling rig	hum / covering sheet	46.2 / 60	
XX:10	〃	tapping noise	66	
XX:11	engine start		58	
XX:12		squeek	52.1	
XX:13		hum	48.2	
XX:14		tonal alarm	45.6	
XX:15		hum	48.1 banging	60.7
Further actions required to reduce noise?				
Additional comments	construction dominant noise		no tripod.	


Community information line
1800 171 386

Noise Monitoring Record Sheet

DATE:	26-March	MAIN ACTIVITY	MSB works	
CONDUCTED BY:	Lauren. C	LOCATION OF WORKS:	Lakemba Station	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	Wind speed (m/s) / Wind direction	Precipitation (mm)	Temp (°C)	RH (%) / Pressure (hPa)
Overcast	14km/h		17°C	96/.
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek971	SERIAL NUMBER:	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	FREQUENCY WEIGHTING:		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.97	POST CALIBRATION CHECK:		

MONITORING DETAILS				
LOCATION No:		ADDRESS:	15 Croydon St	
ACTIVITIES ON SITE (If applicable, Gatewave scenario ID):	excavator x2 hand tools, material delivery.	MITIGATION MEASURES INSTALLED:	N/A	
PLANT OPERATION:	MSB area CST works	DISTANCE FROM PLANT (m):	20m	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	fence <1m	MEASUREMENT NEAR BUILDING?	Y/(N)	
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):	(Y)/N	IN RESPONSE TO COMPLAINT?	Y/(N)	

START TIME	END TIME	MEASUREMENT PERIOD (DS, DO, E, N)	NML (dBA)	PREDICTED LEVEL (dBA)
07:~~13~~	07:38	N	46	73

MEASUREMENT RESULTS (15 MIN PERIOD) from activity

L_{eq}	L_{max}	L_{min}	~~L_{A10}~~ Ltm3	~~L_{A90}~~ Ltm5 / L01
65.9	100.4	53.5	76.3	78.4 / 71.8

MONITORING OBSERVATIONS:

XL2 file number: L1832

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01		truck (tipper arriving)	64	person chatting.
XX:02		excavator start ✓	65	birds chirping 69.6
XX:03		excavator hum	54	
XX:04		excavator start	57.	birds 54-60
XX:05	excavator	+ handtools	57	
XX:06		"	62.1	
XX:07	noisy engine ~~start + handtool~~		79.	
XX:08		excavator + hand tools	62.4	
XX:09		"	64	
XX:10		"	63.8	
XX:11		"	60.1	
XX:12		excavator changed	72	
XX:13	excavator	attachment + handtools.	56.7 → 64, 74.	
XX:14		"	62.3	
XX:15		"	58.7	
Further actions required to reduce noise?				
Additional comments	birds noisy, right next to monitor. works most dominant noise.			

Noise Monitoring Record Sheet

DATE:	26-March	MAIN ACTIVITY	MSB works	
CONDUCTED BY:	Lauren. C	LOCATION OF WORKS:	Lakemba Station	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	Wind speed (m/s) / Wind direction	Precipitation (mm)	Temp (°C)	RH (%) / Pressure (hPa)
overcast	14km/h	-	17°C	961
INSTRUMENTATION				
SLM MAKE / MODEL:	Svantek 971	SERIAL NUMBER:	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	FREQUENCY WEIGHTING:		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	113.97	POST CALIBRATION CHECK:		

MONITORING DETAILS					
LOCATION No:		ADDRESS:	64 The boulevarde		
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):	hand tools excavator & some material movements by tanker		MITIGATION MEASURES INSTALLED:	N/A	
PLANT OPERATION:			DISTANCE FROM PLANT (m):	40m	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:	Car 1m		MEASUREMENT NEAR BUILDING?	Y/(N)	
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):		(Y)/N	IN RESPONSE TO COMPLAINT?	Y/(N)	
START TIME	END TIME	MEASUREMENT PERIOD (DS, DO, E, N)	NML (dBA)	PREDICTED LEVEL (dBA)	
~~7:47~~ 7:47	~~8:15~~ 8:02	N	46	63	
MEASUREMENT RESULTS (15 MIN PERIOD) from activity					
L_{aeq}	L_{max}	L_{min}	~~L_{A10}~~ Ltm 3	~~L_{A90}~~ Ltm 5	L01
66.5	85.4	46.0	71.1	72.5	76.5

MONITORING OBSERVATIONS:

XL2 file number: ~~L1824~~ L1833

Time	Source noise	Extraneous noise	LAF	Other comments
XX:01	excavator +	handtools	52.	traffic 60-78 dB
XX:02		"	61	" bus 80
XX:03	"	~~bang~~	52	"
XX:04		"	51.7	"
XX:05		banging	57.4	1bis 57.2 → 60
XX:06	~~rain started.~~	"	54.3	door slam 64.
XX:07	excavator +	handtools.	52.6	traffic 64-80 ×2 + 1bis 65
XX:08		"	54.2	"
XX:09		"	53.1	"
XX:10		bang	56.4	"
XX:11	excavator	+ handtools	54.6	"
XX:12		"	51.7	"
XX:13		"	48.9	"
XX:14		"	51.3	"
XX:15		"	55.5	"
Further actions required to reduce noise?				
Additional comments	1bis were quite loud, traffic dominant noise rain subsided but dripping from trees / onto nearby car influenced recording			

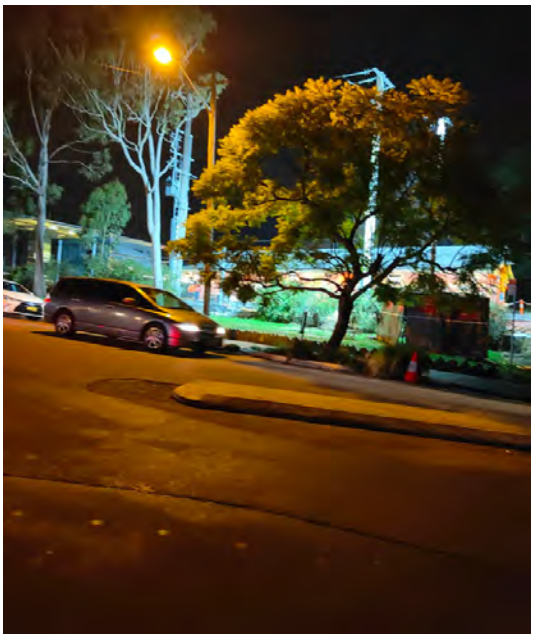

13cabs
13cabs

Noise Monitoring Record Sheet

DATE:	12-July-2022	**MAIN ACTIVITY**		
CONDUCTED BY:	Elena Ivanova	**LOCATION OF WORKS:**	Lakemba	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
clear	CALM/0 km/hr	0	9.4	
INSTRUMENTATION				
SLM MAKE / MODEL:	SVAN971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	Yes	**POST CALIBRATION CHECK:**		No

MONITORING DETAILS				
LOCATION No:	1	**ADDRESS:**	15 Croydon Street, Lakemba	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):			**MITIGATION MEASURES INSTALLED:**	
PLANT OPERATION:	Powered hand tools including samll jackhammer and grinder		**DISTANCE FROM PLANT (m):**	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:			**MEASUREMENT NEAR BUILDING?**	Y / ~~N~~
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):		Y / ~~N~~	**IN RESPONSE TO COMPLAINT?**	~~Y~~ / N
START TIME	**END TIME**	**MEASUREMENT PERIOD (DS, DO, E, N)**	**NML (dBA)**	**PREDICTED LEVEL (dBA)**
21:23	21:38	E	52	80
MEASUREMENT RESULTS (15 MIN PERIOD) from activity				
L_{aeq}	**L_{max}**	**L_{min}**	**L_{A10}**	**L_{A90}**
54.1	69.6	49.4	-	-
MONITORING OBSERVATIONS:				
XL2 file number:				
Time	**Source noise**	**Extraneous noise**	**LAF**	**Other comments**
XX:01	hand tool - hammering		56.9	
XX:02	people talks		63	
XX:03	hand tool - hammering		56.3	
XX:04	hand tool - hammering		56.9	
XX:05	hand tool - hammering		53.9	
XX:06	car passed		56.9	
XX:07	car passed		56.5	
XX:08	car passed		55.8	
XX:09	car passed		61.6	
XX:10	people talks		54.3	
XX:11	car passed		66.5	
XX:12	car passed		63.2	
XX:13				
XX:14				
XX:15				
Further actions required to reduce noise?				
Additional comments	1. Works audible (powered handools used to install rios on the platform) 2. Measurement influenced by road traffic.			

DIAGRAMS AND PHOTOS
Insert: - Photo of works being monitored - Map showing monitoring location or Screenshot of GPS Location

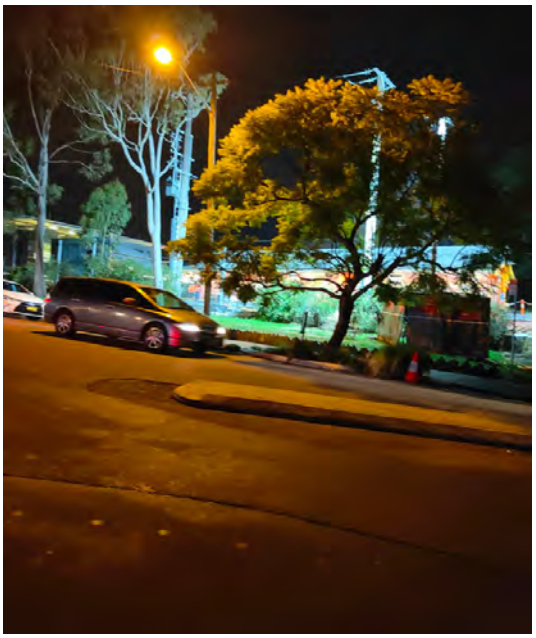


Noise Monitoring Record Sheet

DATE:	12-July-2022	**MAIN ACTIVITY**		
CONDUCTED BY:	Elena Ivanova	**LOCATION OF WORKS:**	Lakemba	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
clear	West /7 km/hr	0	9.4	
INSTRUMENTATION				
SLM MAKE / MODEL:	SVAN971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	Yes	**POST CALIBRATION CHECK:**		No

MONITORING DETAILS				
LOCATION No:	1	**ADDRESS:**	15 Croydon Street, Lakemba	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):			**MITIGATION MEASURES INSTALLED:**	
PLANT OPERATION:	Powered hand tools including samll jackhammer and grinder		**DISTANCE FROM PLANT (m):**	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:			**MEASUREMENT NEAR BUILDING?**	Y / ~~N~~
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):		Y / ~~N~~	**IN RESPONSE TO COMPLAINT?**	~~Y~~ / N
START TIME	**END TIME**	**MEASUREMENT PERIOD (DS, DO, E, N)**	**NML (dBA)**	**PREDICTED LEVEL (dBA)**
23:42	23:57	N	46	80
MEASUREMENT RESULTS (15 MIN PERIOD) from activity				
L_{aeq}	**L_{max}**	**L_{min}**	**L_{A10}**	**L_{A90}**
52.7	68.1	48.6	-	-
MONITORING OBSERVATIONS:				
XL2 file number:				
Time	**Source noise**	**Extraneous noise**	**LAF**	**Other comments**
XX:01	car passed		59.3	
XX:02				
XX:03	car passed		52.6	
XX:04	car passed		57.6	
XX:05	car passed		62.8	
XX:06	car passed		50.4	
XX:07	grinder used -hand tool		52.7	
XX:08	grinder used -hand tool		52.1	
XX:09	car passed		55.9	
XX:10	car passed		68	
XX:11	car passed		57.7	
XX:12	car passed		59.9	
XX:13				
XX:14				
XX:15				
Further actions required to reduce noise?				
Additional comments	1. Works audible (powered handools used to install rios on the platform) 2. Measurement influenced by road traffic.			

DIAGRAMS AND PHOTOS
Insert: - Photo of works being monitored - Map showing monitoring location or Screenshot of GPS Location



Noise Monitoring Record Sheet

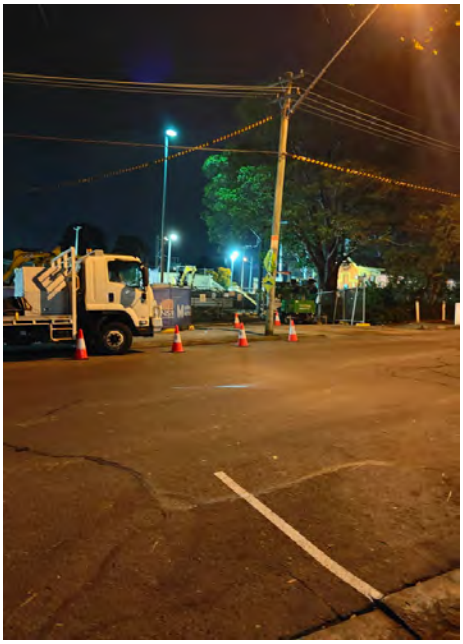
DATE:	12-July-2022	**MAIN ACTIVITY**		
CONDUCTED BY:	Elena Ivanova	**LOCATION OF WORKS:**	Lakemba	
METEROLOGICAL CONDITIONS:				
Cloud cover (x/8)	**Wind speed (m/s) / Wind direction**	**Precipitation (mm)**	**Temp (°C)**	**RH (%) / Pressure (hPa)**
clear	West/ 7 km/hr	0	9.4	
INSTRUMENTATION				
SLM MAKE / MODEL:	SVAN971	**SERIAL NUMBER:**	107409	
TIME WEIGHTING:	FAST / ~~SLOW~~	**FREQUENCY WEIGHTING:**		A / ~~C / FLAT~~
FIELD CALIBRATION CHECK:	Yes	**POST CALIBRATION CHECK:**		No

MONITORING DETAILS				
LOCATION No:	1	**ADDRESS:**	64 The Boulevarde, Lakemba	
ACTIVITIES ON SITE (if applicable, Gatewave scenario ID):			**MITIGATION MEASURES INSTALLED:**	
PLANT OPERATION:	Powered hand tools including samll jackhammer and grinder		**DISTANCE FROM PLANT (m):**	
DISTANCE FROM OBSTACLES OR REFLECTING SURFACES:			**MEASUREMENT NEAR BUILDING?**	Y / ~~N~~
PHOTOGRAPH TAKEN (MONITORING LOC, WORKS and CLOSEST RECEIVERS):		Y / ~~N~~	**IN RESPONSE TO COMPLAINT?**	~~Y~~ / N
START TIME	**END TIME**	**MEASUREMENT PERIOD (DS, DO, E, N)**	**NML (dBA)**	**PREDICTED LEVEL (dBA)**
23:20	23:35	N	46	70
MEASUREMENT RESULTS (15 MIN PERIOD) from activity				
L_{aeq}	**L_{max}**	**L_{min}**	**L_{A10}**	**L_{A90}**
52.7	68.1	48.6	-	-
MONITORING OBSERVATIONS:				
XL2 file number:				

Time	**Source noise**	**Extraneous noise**	**LAF**	**Other comments**
XX:01	bus passed		74.3	
XX:02	bus passed		67.4	
XX:03	car passed		70.1	
XX:04	car passed		70.8	
XX:05	car passed		74.6	
XX:06	hand tool - hammering		51.2	
XX:07	bus passed		75.5	
XX:08	bus passed		74.5	
XX:09	car passed		70.3	
XX:10	hand tool - hammering		51.2	
XX:11	bus passed		76.9	
XX:12	hand tool - hammering		50.2	
XX:13	bus passed		75.5	
XX:14	hand tool - hammering		49	
XX:15	bus passed		75.7	

Further actions required to reduce noise?	
Additional comments	1. Works audible (powered handools used to install rios on the platform) 2. Measurement influenced by bus replacement traffic.

DIAGRAMS AND PHOTOS
Insert: - Photo of works being monitored - Map showing monitoring location or Screenshot of GPS Location



Appendix G: HSEJV Vibration Monitoring Register

Reporting Period	Type (Noise or Vibration)	Date	Time Started	Time Finished	Station	Description of Works	Monitorining Address	Predicted L_{Aeq}	Measured L_{Aeq}	Max L_{amax}	Measured Vibration PPV (mm/s)	Below Predicted Level Y/N	Was monitoring in response to a complaint?	Notes	Consultant	Link
WK36	Vibration	10/03/2022	3:38:00 PM	3:40:00 PM	Marrickville	40T Vibratory piling rig	M1 (4m from plant: see appendix A of report)	N/A	N/A	N/A	8.5 (95th percentile) 13.2 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 4 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.	RENZO TONIN & ASSOCIATES	WK36 Marrickville Station Human Annoyance Vibration Monitoring (r1).pdf
	Vibration	10/03/2022	4:35:00 PM	4:53:00 PM	Marrickville	40T Vibratory piling rig	M2 (5m from plant: see appendix A of report)	N/A	N/A	N/A	7.5 (95th percentile) 9.57 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 5 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.		
	Vibration	9/03/2022	3:04:00 PM	15:15:00 PM	Marrickville	40T Vibratory piling rig	M3 (7m from plant: see appendix A of report)	N/A	N/A	N/A	6.45 (95th percentile) 7.06 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 7 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.		
	Vibration	10/03/2022	4:18:00 PM	4:26:00 PM	Marrickville	40T Vibratory piling rig	M4 (8m from plant: see appendix A of report)	N/A	N/A	N/A	5.24 (95th percentile) 6.15 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 8 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.		
	Vibration	10/03/2022	4:35:00 PM	4:53:00 PM	Marrickville	40T Vibratory piling rig	M5 (10m from plant: see appendix A of report)	N/A	N/A	N/A	3.99 (95th percentile) 4.5 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 10 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.		
	Vibration	11/03/2022	10:20:00 AM	10:29:00 AM	Marrickville	40T Vibratory piling rig	M6 (17m from plant: see appendix A of report)	N/A	N/A	N/A	0.85 (95th percentile) 1.17 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 17 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.		
	Vibration	11/03/2022	10:29:00 AM	10:40:00 AM	Marrickville	40T Vibratory piling rig	M7 (20m from plant: see appendix A of report)	N/A	N/A	N/A	0.75 (95th percentile) 0.9 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 20 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.		
	Vibration	11/03/2022	11:33:00 AM	11:36:00 AM	Marrickville	40T Vibratory piling rig	M8 (30m from plant: see appendix A of report)	N/A	N/A	N/A	0.41 (95th percentile) 0.46 (Max)	The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance	N	At 30 metres away, the 40T vibratory piling rig produced vibration levels that are below the screening level for human annoyance for day hours and above the screening level for human annoyance for night hours.		
WE45	Vibration	7/05/2022 - 08/05/2022	10:30:00 AM (Sat 07/05/2022)	12:30:00 PM (Sun 08/05/2022)	Marrickville	Excavator with bucket attachment and plate compactor	Overhead bridge on Illawarra Road	N/A	N/A	N/A	8mm/s	Y	N		RENZO TONIN & ASSOCIATES	WE45 Noise and Vibration Monitoring Report (r1).pdf
Shutdown 3	Vibration	02/07/2022 - 13/07/2022	09:00 AM (Sat 02/07/2022)	19:00 (Wed 13/07/2022)	Canterbury	Handheld jackhammer	Canterbury Station Concourse structure	N/A	N/A	N/A	Below 7.5 mm/s	Y	N	The results of the unattended vibration monitoring at Canterbury Station were typically below the established vibration criterion (unreinforced or light framed structure: 7.5 mm/s). There were electricians working inside the Station master's office which caused the timber floor to oscillate and moving the vibration monitor triggering an exceedance. This occurred on a number of occassions. No jackhammering works were occurring at this time. Exceedance was not caused by jackhammering activities.	RENZO TONIN & ASSOCIATES	Shutdown 3 Noise and Vibration Monitoring Report (r1).pdf

Appendix H: Vibration Monitoring Report Samples

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Acoustics
Vibration
Structural Dynamics

18 July 2022

TM150-1-17F01 Shutdown 3 Noise and Vibration Monitoring report (r1)

Smart Infrastructure Consulting
Level 1, 1301 Pacific Highway
Turramurra NSW 2074

Sydney Metro Southwest Station Upgrades - Shutdown 3 Canterbury and Lakemba Station Noise and Vibration Monitoring Report

1 Introduction

Renzo Tonin & Associates was engaged by Smart Infrastructure Consulting to conduct noise and vibration monitoring during the Station Upgrades Shutdown 3 possession works for Sydney Metro Southwest. The noise monitoring was undertaken to verify predicted noise levels in the Gatewave model prepared for the works (Gatewave scenario ID: 4732 for Canterbury Station works and Gatewave scenario ID: 4672 for Lakemba Station works). The vibration monitoring was undertaken to monitor potentially affected structures. This report provides a summary of the monitoring results.

2 Details of monitoring

Noise monitoring was undertaken at Canterbury Station and Lakemba Station on 9th July 2022. One unattended vibration monitor was installed at Canterbury Station between 09:00am 2nd July 2022 and 07:00pm 13th July 2022.

2.1 Measurement location

The noise measurement was conducted at the nominated verification monitoring locations specified in the corresponding Noise and Vibration Assessment Reports[1]. The measurement locations are listed in Table 2-1. Figures depicting the monitoring locations are included in APPENDIX A.

[1] CAN WK01-WK02 Noise and Vibration Assessment Report; Table 10 (Gatewave ID: 4732), LAK WK01-WK02 Noise and Vibration Assessment Report; Table 10 (Gatewave ID: 4672).

Table 2-1: Measurement locations

Measurement ID	Assessment Point	Date and time	Measured plant	Monitoring type	Approx. distance to measured plant	Temporary noise barrier between measured plant/receiver
M1	3 Broughton Street, Canterbury (Appendix A.1)	09.07.2022 10:22pm – 10:37pm	Excavator with bucket attachment, excavator with hammer attachment and dump truck	Noise	80m	No
M2	2A Charles Street, Canterbury (Appendix A.1)	09.07.2022 10:33pm – 10:48pm	Excavator with bucket attachment and excavator with hammer attachment	Noise	25m	No
M3	11 Broughton Street, Canterbury (Appendix A.1)	09.07.2022 10:39pm – 10:54pm	Excavator with bucket attachment, excavator with hammer attachment and dump truck	Noise	70m	No
M4	15 Charles Street, Canterbury (Appendix A.1)	09.07.2022 11:09pm – 11:24pm	Excavator with bucket attachment	Noise	100m	No
M5	64 The Boulevarde, Lakemba (Appendix A.2)	10.07.2022 12:01am – 12:16am	Excavator with bucket attachment and power hand tools	Noise	70m	No
M6	15-19 Croydon Street, Lakemba (Appendix A.2)	10.07.2022 12:19am – 12:34am	Vacuum truck and power hand tools	Noise	25m	No
M7	Canterbury Station Concourse structure (Appendix A.1)	02.07.2022 – 13.07.2022 09:00am – 07:00pm	Handheld jackhammer	Vibration	2m-10m	N/A

2.2 Measurement equipment

Noise measurement equipment consisted of one NTi Audio XL2 Type 1 sound level meter and microphone calibrator. The microphone was checked prior and after measurements using a Bruel & Kjaer Type 4231 calibrator. No significant drift in calibration was observed. All instrumentation complies with AS IEC 61672.1 2004 '*Electroacoustics - Sound Level Meters*' and carries current NATA certification (or if less than 2 years old, manufacturers certification).

Table 2-2 summarises the details of noise measurement equipment.

Table 2-2: Summary of noise measurement equipment

Instrument	Make	Model	Serial Number	Last Calibrated
Type 1 Sound Level Meter (RTA07-032)	NTi	XL2	A2A-16117-E0	06 July 2021
Type 1 Sound Level Meter	NTi	XL2	A2A-19156-E0	10 March 2022
Type 1 Sound Level Meter Calibrator	B&K	Type 4231	2162834	08 February 2022

2.3 Environmental conditions

Environmental conditions recorded during the measurements are provided in Table 2-3. Environmental conditions did not have an adverse effect on the measured noise levels.

Table 2-3: Environmental conditions

Measurement ID	Assessment Point	Date and Time	Environmental Conditions
M1	3 Broughton Street, Canterbury	09.07.2022 10:22pm – 10:37pm	Clear sky; air temperature 8°C, wind speed <5 m/s; relative humidity 70%.
M2	2A Charles Street, Canterbury	09.07.2022 10:33pm – 10:48pm	Clear sky; air temperature 14°C, wind speed <5 m/s; relative humidity 55%.
M3	11 Broughton Street, Canterbury	09.07.2022 10:39pm – 10:54pm	Clear sky; air temperature 8°C, wind speed <5 m/s; relative humidity 79%.
M4	15 Charles Street, Canterbury	09.07.2022 11:09pm – 11:24pm	Clear sky; air temperature 14°C, wind speed <5 m/s; relative humidity 60%.
M5	64 The Boulevarde, Lakemba	10.07.2022 12:01am – 12:16am	Clear sky; air temperature 7°C, wind speed <5 m/s; relative humidity 79%.
M6	15-19 Croydon Street, Lakemba	10.07.2022 12:19am – 12:34am	Clear sky; air temperature 12°C, wind speed <5 m/s; relative humidity 61%.

3 Noise monitoring results

The results of the noise monitoring are presented in Table 3-1 below.

Table 3-1: Measured noise levels $L_{Aeq(15min)}$

Meas. ID	Assessment Point	Measured plant	Predicted noise level dB(A)	Measured noise level dB(A)		Above predicted noise level?	Comments
				$L_{Aeq,(15min)}$	L_{Amax}		
M1	3 Broughton Street, Canterbury	Excavator with bucket attachment, excavator with hammer attachment and dump truck	78	67 (62+5)*	84	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.
M2	2A Charles Street, Canterbury	Excavator with bucket attachment and excavator with hammer attachment	86	70 (65+5)*	78	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.
M3	11 Broughton Street, Canterbury	Excavator with bucket attachment, excavator with hammer attachment and dump truck	74	66 (61+5)*	84	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured hammering works.
M4	15 Charles Street, Canterbury	Excavator with bucket attachment	70	65	87	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured works.
M5	64 The Boulevarde, Lakemba	Excavator with bucket attachment and power hand tools	70	63	77	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured works.
M6	15-19 Croydon Street, Lakemba	Vacuum truck and power hand tools	80	63	78	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured works.

Notes: * Measured $L_{Aeq, 15 minutes}$ was determined with a +5dB correction due to the measured high impact works.

It can be seen from Table 3-1 above, the measured $L_{Aeq, 15min}$ noise levels were below the predicted noise levels for all monitoring locations. The mitigation and management measures implemented were therefore considered suitable for the measured activities.

4 Vibration monitoring results

4.1 Measurement equipment

The instrumentation used for the vibration measurement is summarised in Table 4-1. The accelerometers used in the measurements have current calibration certificates.

Table 4-1: Summary of vibration measurement equipment

Type	Make / Model
Triaxial Transducers	Sigicom C12 (SN: 66890)

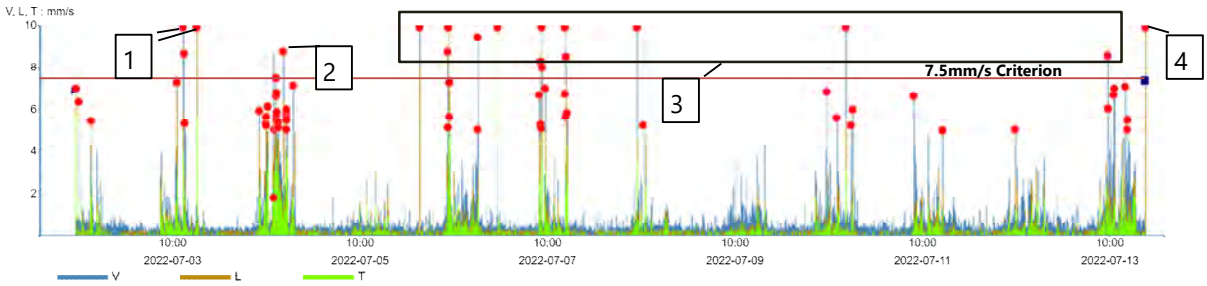
4.2 Unattended vibration monitoring

In accordance with the NVMP, the applicable vibration screening criterion for the concourse structure at Canterbury Station is shown below:

- Unreinforced or light framed structures: 7.5 mm/s

The results of the unattended vibration measurements for the affected structure are presented in Figure 4-1 below.

Figure 4-1: Unattended Canterbury Station vibration monitoring results (refer to Appendix A.2)



The discussion of the unattended vibration monitoring is summarised in Table 4-2 below.

Table 4-2: Unattended vibration monitoring summary

Exceedance ID	Date and Time	Cause of exceedance
1	03.07.2022 12:25pm & 03.07.2022 03:55pm	At this time, there were electricians working inside the Station master's office which caused the timber floor to oscillate and moving the vibration monitor. No jackhammering works were occurring at this time. Exceedance was not caused by jackhammering activities.
2	04.07.2022 02:04pm	At this time, there were electricians working inside the Station master's office which caused the timber floor to oscillate and moving the vibration monitor. The electricians were working in close proximity to the vibration monitor and may have inadvertently nudged the monitor. Exceedance was not caused by jackhammering activities.

Exceedance ID	Date and Time	Cause of exceedance
3	06.07.2022 01:03am – 13.07.2022 09:15am	At this time, there were electricians working inside the Station master's office which caused the timber floor to oscillate and moving the vibration monitor. The electricians were working in close proximity to the vibration monitor and may have inadvertently nudged the monitor. Furthermore, the sporadic nature of the exceedances coupled by the significant drop off in vibration levels do not match jackhammering vibration patterns. Therefore, the exceedances were deemed not jackhammering related.
4	13.07.2022 06:51pm	At this time, the vibration monitor was removed from the Station master's office to complete the unattended vibration monitoring. Exceedance was not caused by jackhammering activities.

It can be seen from Figure 4-1 that the measured vibration levels from the jackhammering works are typically below 7.5 mm/s. Note that there were events that resulted in an instantaneous vibration level of above 7.5 mm/s which are justified in Table 4-2.

5 Conclusion

Renzo Tonin & Associates has completed noise and vibration monitoring for the Station Upgrades Shutdown 3 possession works for Sydney Metro Southwest.

The results of the noise measurements were below the predicted $L_{Aeq\ 15minute}$ levels presented in the Gatewave model prepared for the works. The mitigation and management measures implemented were therefore considered suitable for the measured activities.

The results of the unattended vibration monitoring at Canterbury Station were typically below the established vibration criterion.

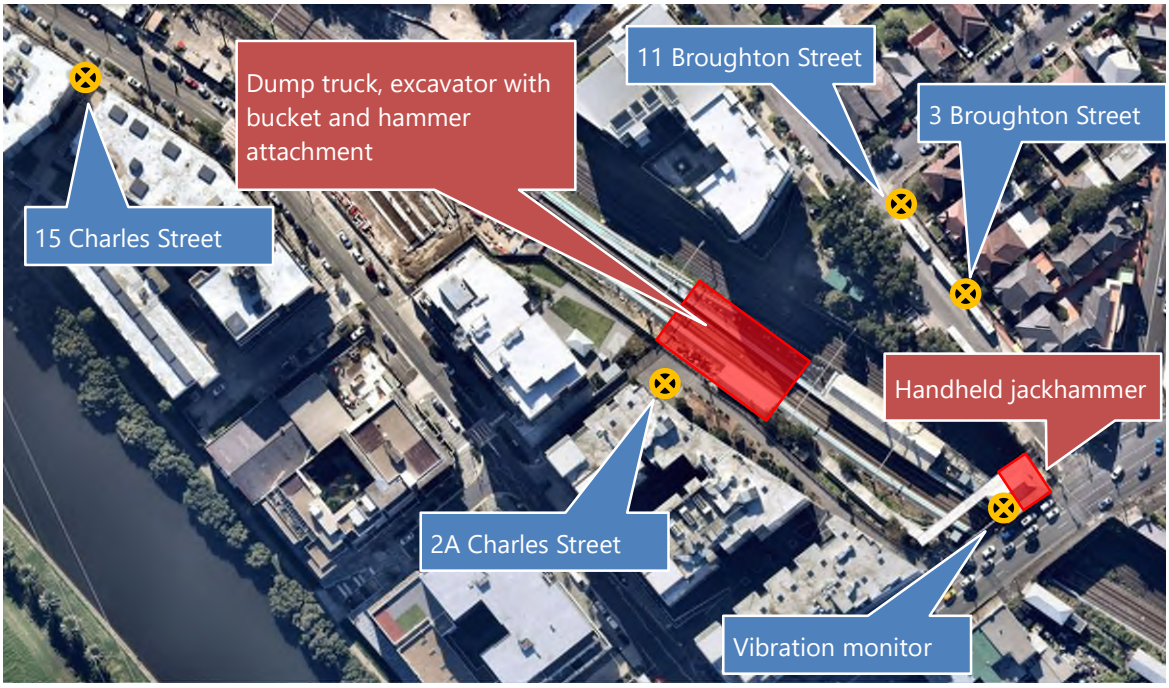
Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
18.07.2022	First Issue	0	1	R. Zhafranata	M. Tabacchi	M. Tabacchi

File Path: R:\AssocSydProjects\TM101-TM150\TM150 mt SMSW Lakemba, Marrickville and Canterbury\1 Docs\17 July Shutdown 3 Canterbury & Lakemba Noise and Vibration Monitoring\TM150-1-17F01 Shutdown 3 Noise and Vibration Monitoring report (r1).docx

APPENDIX A Measurement locations

A.1 Canterbury Station



A.2 Lakemba Station

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22 August 2022
TM150-1-18F01 WE07 Noise Monitoring report (r1)

Smart Infrastructure Consulting
Level 1, 1301 Pacific Highway
Turramurra NSW 2074

Sydney Metro Southwest Station Upgrades - WE07 Marrickville Station Noise Monitoring Report

1 Introduction

Renzo Tonin & Associates was engaged by Smart Infrastructure Consulting to conduct noise monitoring during the Station Upgrades WE07 possession works for Sydney Metro Southwest. The noise monitoring was undertaken to verify predicted noise levels in the Gatewave model prepared for the works (Gatewave scenario ID: 5015). This report provides a summary of the monitoring results.

2 Details of monitoring

Noise monitoring was undertaken at Marrickville Station on 13th August 2022.

2.1 Measurement location

The noise measurement was conducted at the nominated verification monitoring locations specified in the corresponding Noise and Vibration Assessment Reports[1]. The measurement locations are listed in Table 2-1. Figures depicting the monitoring locations are included in APPENDIX A.

[1] MAR WE07 Noise and Vibration Assessment Report; Table 10 (Gatewave ID: 5015).

Table 2-1: Measurement locations

Measurement ID	Assessment Point	Date and time	Measured plant	Monitoring type	Approx. distance to measured plant	Temporary noise barrier between measured plant/receiver
M1	5 Leofrene Avenue, Marrickville (Appendix A.1)	13.08.2022 10:32pm – 10:47pm	Excavators with bucket attachment, hydremas and daymakers	Noise	100m	No
M2	21 Riverdale Avenue, Marrickville (Appendix A.1)	13.08.2022 10:56pm – 11:11pm	Excavators with bucket attachment, hydremas and daymakers	Noise	10m	No
M3	13 Warburton Street, Marrickville (Appendix A.1)	13.08.2022 11:19pm – 11:34pm	EWPs, daymakers and handheld power tools	Noise	25m	No
M4	41 O'Hara Street, Marrickville (Appendix A.1)	13.08.2022 11:41pm – 11:56pm	Excavators with bucket attachment, hydremas and daymakers	Noise	50m	No

2.2 Measurement equipment

Noise measurement equipment consisted of one NTi Audio XL2 Type 1 sound level meter and microphone calibrator. The microphone was checked prior and after measurements using a Bruel & Kjaer Type 4231 calibrator. No significant drift in calibration was observed. All instrumentation complies with AS IEC 61672.1 2004 '*Electroacoustics - Sound Level Meters*' and carries current NATA certification (or if less than 2 years old, manufacturers certification).

Table 2-2 summarises the details of noise measurement equipment.

Table 2-2: Summary of noise measurement equipment

Instrument	Make	Model	Serial Number	Last Calibrated
Type 1 Sound Level Meter	NTi	XL2	A2A-02386-D2	07 July 2021
Type 1 Sound Level Meter Calibrator	B&K	Type 4231	2677710	10 January 2022

2.3 Environmental conditions

Environmental conditions recorded during the measurements are provided in Table 2-3. Environmental conditions did not have an adverse effect on the measured noise levels.

Table 2-3: Environmental conditions

Measurement ID	Assessment Point	Date and Time	Environmental Conditions
M1	5 Leofrene Avenue, Marrickville	13.08.2022 10:32pm – 10:47pm	Clear sky; air temperature 7°C, wind speed <5 m/s; relative humidity 68%.
M2	21 Riverdale Avenue, Marrickville	13.08.2022 10:56pm – 11:11pm	Clear sky; air temperature 7°C, wind speed <5 m/s; relative humidity 69%.
M3	13 Warburton Street, Marrickville	13.08.2022 11:19pm – 11:34pm	Clear sky; air temperature 7°C, wind speed <5 m/s; relative humidity 70%.
M4	41 O'Hara Street, Marrickville	13.08.2022 11:41pm – 11:56pm	Clear sky; air temperature 7°C, wind speed <5 m/s; relative humidity 68%.

3 Noise monitoring results

The results of the noise monitoring are presented in Table 3-1 below.

Table 3-1: Measured noise levels $L_{Aeq(15min)}$

Meas. ID	Assessment Point	Measured plant	Predicted noise level dB(A)	Measured noise level dB(A)		Above predicted noise level?	Comments
				$L_{Aeq,(15min)}$	L_{Amax}		
M1	5 Leofrene Avenue, Marrickville	Excavators with bucket attachment, hydremas and daymakers	72	57	77	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured works. Furthermore, the predicted noise level included rockhammering activity. No rockhammering activity was occurring during this measurement.
M2	21 Riverdale Avenue, Marrickville	Excavators with bucket attachment, hydremas and daymakers	86	59	79	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured works. Furthermore, the predicted noise level included rockhammering activity. No rockhammering activity was occurring during this measurement.
M3	13 Warburton Street, Marrickville	EWPs, daymakers and handheld power tools	75	58	79	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured works. Furthermore, the predicted noise level included rockhammering activity. No rockhammering activity was occurring during this measurement.
M4	41 O'Hara Street, Marrickville	Excavators with bucket attachment, hydremas and daymakers	73	50	68	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the measured works. Furthermore, the predicted noise level included rockhammering activity. No rockhammering activity was occurring during this measurement.

It can be seen from Table 3-1 above, the measured $L_{Aeq, 15min}$ noise levels were below the predicted noise levels for all monitoring locations. The mitigation and management measures implemented were therefore considered suitable for the measured activities.

4 Conclusion

Renzo Tonin & Associates has completed noise monitoring for the Station Upgrades WE07 possession works for Sydney Metro Southwest.

The results of the noise measurements were below the predicted $L_{Aeq\ 15minute}$ levels presented in the Gatewave model prepared for the works. The mitigation and management measures implemented were therefore considered suitable for the measured activities.

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
22.08.2022	First Issue	0	1	D. Auld	R. Zhafranata	T. Gowen

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APPENDIX A Measurement locations

A.1 Marrickville Station

10 May 2022

TM150-1-16F01 WE45 Noise and Vibration Monitoring Report (r1)

Smart Infrastructure Consulting
Level 1, 1301 Pacific Highway
Turramurra NSW 2074

Sydney Metro Southwest Station Upgrades - WE45 Canterbury and Marrickville Station Noise and Vibration Monitoring Report

1 Introduction

Renzo Tonin & Associates was engaged by Smart Infrastructure Consulting to conduct noise and vibration monitoring during the Station Upgrades WE45 possession works for Sydney Metro Southwest. The noise monitoring was undertaken to verify predicted noise levels in the Gatewave model prepared for the works (Gatewave scenario ID: 4259 for Canterbury Station works). The vibration monitoring was undertaken to monitor potentially affected structures. This report provides a summary of the monitoring results.

2 Details of monitoring

Noise monitoring was undertaken at 3 Broughton Street, Canterbury on 7th May 2022. One unattended vibration monitor was installed at Marrickville Station between 10:30am 7th May 2022 and 12:30pm 8th May 2022.

2.1 Measurement location

The noise measurement was conducted at one of the nominated verification monitoring locations specified in the corresponding Noise and Vibration Assessment Report[1]. The measurement locations are listed in Table 2-1. Figures depicting the monitoring locations are included in APPENDIX A.

[1] WE45 Canterbury Station (Crane mob and de-mob) Noise and Vibration Assessment Report, Table 10 (Gatewave ID: 4259), received 6 May 2022

Table 2-1: Measurement locations

Measurement ID	Assessment Point	Date and time	Measured plant	Monitoring type	Approx. distance to measured plant	Temporary noise barrier between measured plant/receiver
M1	3 Broughton Street, Canterbury (Appendix A.1)	07.05.2022 01:02am – 01:17am	25T franna crane and 400T franna crane	Noise	17m	No
M2	Overhead bridge on Illawarra Road (Appendix A.2)	07.05.2022 – 08.05.2022 10:30am – 12:30pm	Excavator with bucket attachment and plate compactor	Vibration	2m-10m	N/A

2.2 Measurement equipment

Noise measurement equipment consisted of one NTi Audio XL2 Type 1 sound level meter and microphone calibrator. The microphone was checked prior and after measurements using a Bruel & Kjaer Type 4231 calibrator. No significant drift in calibration was observed. All instrumentation complies with AS IEC 61672.1 2004 '*Electroacoustics - Sound Level Meters*' and carries current NATA certification (or if less than 2 years old, manufacturers certification).

Table 2-2 summarises the details of noise measurement equipment.

Table 2-2: Summary of noise measurement equipment

Instrument	Make	Model	Serial Number	Last Calibrated
Type 1 Sound Level Meter (RTA07-006)	NTi	XL2	A2A-08004-E0	21 December 2020
Type 1 Sound Level Meter Calibrator	B&K	Type 4231	2162834	08 February 2022

2.3 Environmental conditions

Environmental conditions recorded during the measurements are provided in Table 2-3. Environmental conditions did not have an adverse effect on the measured noise levels.

Table 2-3: Environmental conditions

Measurement ID	Assessment Point	Date and Start Time	Environmental Conditions
M1	3 Broughton Street, Canterbury	07.05.2022 01:02am – 01:17am	Clear sky; air temperature 18°C, wind speed <5 m/s; relative humidity 77%.

3 Noise monitoring results

The results of the noise monitoring are presented in Table 3-1 below.

Table 3-1: Measured noise levels $L_{Aeq(15min)}$

Measurement ID	Assessment Point	Measured plant	Predicted noise level dB(A)	Measured noise level dB(A)		Above predicted noise level?	Comments
				$L_{Aeq(15min)}$	L_{Amax}		
M1	3 Broughton Street, Canterbury	25T franna crane and 400T franna crane	73	62	74	No ($L_{Aeq, 15min}$)	The measured $L_{Aeq, 15min}$ is lower than the predicted noise level. This can be attributed to the intermittent nature of the crane operation as the most noise intensive crane activity (lifting materials) was not constant.

It can be seen from that, the measured $L_{Aeq, 15min}$ noise level was below the predicted noise level. The mitigation and management measures implemented were therefore considered suitable for the measured activities.

4 Vibration monitoring results

4.1 Measurement equipment

The instrumentation used for the vibration measurement is summarised in Table 4-1. The accelerometers used in the measurements have current calibration certificates.

Table 4-1 – Summary of vibration measurement equipment

Type	Make / Model
Triaxial Transducers	Sigicom C12 (SN: 66890)

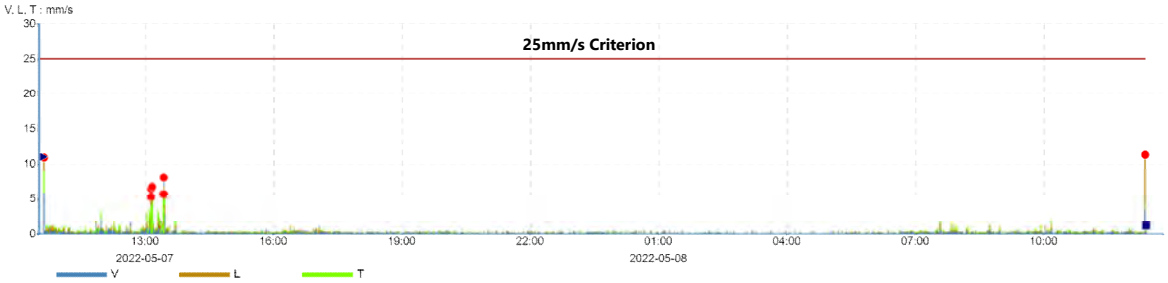
4.2 Unattended vibration monitoring

In accordance with the NVMP, the applicable vibration screening criterion for the overhead bridge on Illawarra Road is shown below:

- Reinforced or framed structures: 25 mm/s

The results of the unattended vibration measurements for the affected structure are presented in Figure 4-1 below.

Figure 4-1: Unattended Marrickville Station vibration monitoring results (refer to Appendix A.2)



It can be seen in Figure 4-1 that the vibration levels produced from the nearby construction works are below 25 mm/s.

5 Conclusion

Renzo Tonin & Associates has completed noise and vibration monitoring for the Station Upgrades WE45 possession works for Sydney Metro Southwest.

The results of the noise measurement was below the predicted $L_{Aeq\ 15minute}$ level presented in the Gatewave model prepared for the works. The mitigation and management measures implemented were therefore considered suitable for the measured activities.

The results of the unattended vibration monitoring at Marrickville Station were below the established vibration criterion.

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
10.05.2022	First Issue	0	1	D. Auld / R. Zhafranata	M. Tabacchi	M. Tabacchi

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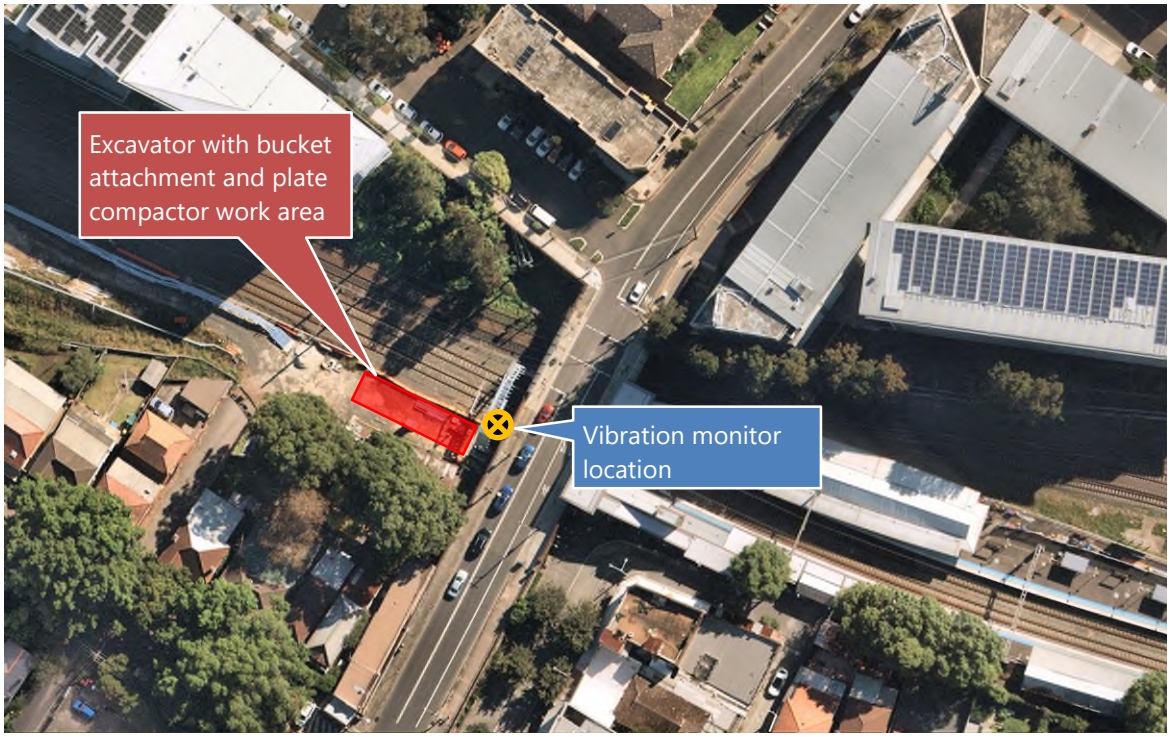
APPENDIX A Measurement locations

A.1 3 Broughton Street, Canterbury

A.2 Marrickville Station



RENZO TONIN & ASSOCIATES
inspired to achieve

Acoustics
Vibration
Structural Dynamics

21 March 2022
TM150-1-14F01 Marrickville Station Human Annoyance Vibration Monitoring (r1)

Smart Infrastructure Consulting
Level 1, 1301 Pacific Highway
Turramurra NSW 2074

Sydney Metro Southwest Station Upgrades - Marrickville Station Human Annoyance Vibration Monitoring Report

1 Introduction

Renzo Tonin & Associates was engaged by Smart Infrastructure Consulting to conduct vibration monitoring during the vibratory piling works at Marrickville Station. The vibration monitoring was undertaken to determine the site specific minimum working distances for the 40T vibratory piling rig in relation to human annoyance. This report provides a summary of the monitoring results.

2 Details of monitoring

Attended vibration monitoring was undertaken at Marrickville Station on 9th March 2022 to 11th March 2022 during the vibratory sheet piling works.

2.1 Measurement location

The measurement locations are listed in Table 2-1. Figures depicting the monitoring locations are included in APPENDIX A.

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Table 2-1: Measurement locations

Measurement ID	Assessment Point	Date and time	Measured plant	Monitoring type	Approx. distance to measured plant
M1	Marrickville Station Embankment (APPENDIX A)	10.03.2022 03:38pm – 03:40pm	40T vibratory piling rig	Vibration	4m
M2	Marrickville Station Embankment (APPENDIX A)	10.03.2022 04:35pm – 04:53pm	40T vibratory piling rig	Vibration	5m
M3	Marrickville Station Embankment (APPENDIX A)	09.03.2022 03:04pm – 03:15pm	40T vibratory piling rig	Vibration	7m
M4	Marrickville Station Embankment (APPENDIX A)	10.03.2022 04:18pm – 04:26pm	40T vibratory piling rig	Vibration	8m
M5	Marrickville Station Embankment (APPENDIX A)	10.03.2022 04:35pm – 04:53pm	40T vibratory piling rig	Vibration	10m
M6	Marrickville Station Embankment (APPENDIX A)	11.03.2022 10:20am – 10:29am	40T vibratory piling rig	Vibration	17m
M7	Marrickville Station Embankment (APPENDIX A)	11.03.2022 10:29am – 10:40am	40T vibratory piling rig	Vibration	20m
M8	Marrickville Station Embankment (APPENDIX A)	11.03.2022 11:33am – 11:36am	40T vibratory piling rig	Vibration	30m

2.2 Measurement equipment

The instrumentation used for the vibration measurement is summarised in Table 2-2. The accelerometers used in the measurements have current calibration certificates.

Table 2-2 – Instrumentation

Type	Make / Model
Type 1 Signal Analyser	Soundbook-2
Accelerometer	Endevco 61C3

3 Vibration monitoring results

3.1 Attended vibration monitoring

The established vibration screening criteria for human annoyance in the Southwest Metro – Marrickville Station Upgrades Noise and Vibration Management Plan (NVMP)[1] for the residential receivers are given below:

- Residential buildings 16-hour day: 0.56 mm/s PPV
- Residential buildings 8-hour night: 0.40 mm/s PPV

The results of the attended vibration monitoring are presented in Table 3-1 below. In order to determine the site-specific human annoyance minimum working distances, the measured PPV data is plotted against distance from the vibration source. The plotted results are presented in Figure 3-1.

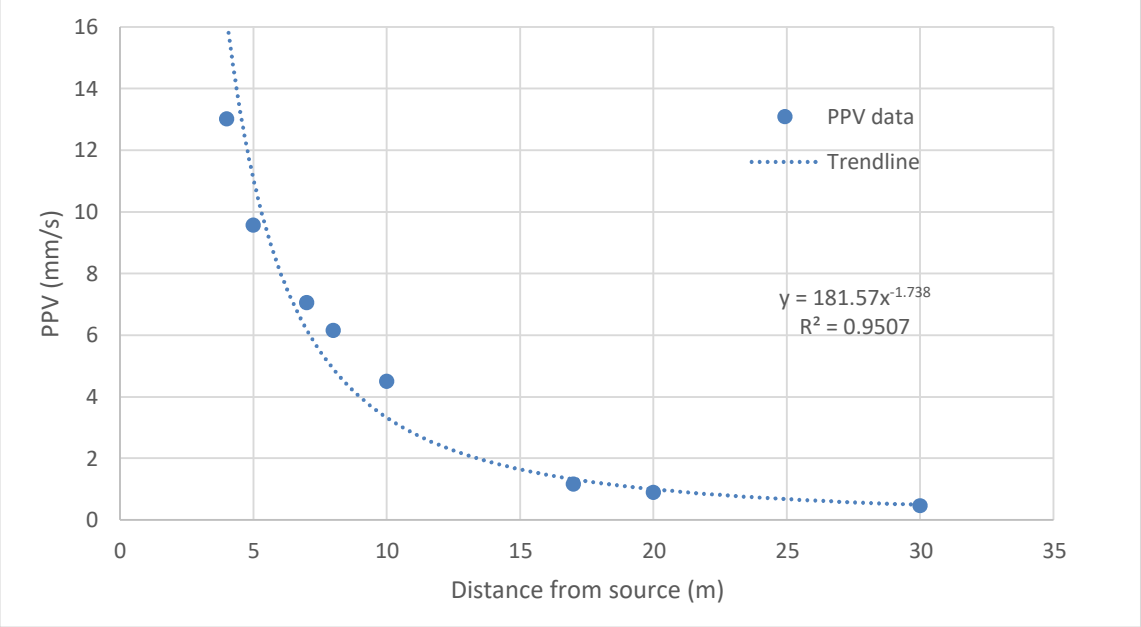
Table 3-1: Measured vibration levels

Measurement ID	Plant	Distance from source	Baseline 95th percentile PPV	95th percentile PPV (mm/s)	Maximum PPV (mm/s)	Comments
M1	40T vibratory piling rig	4m	0.09	8.50	13.02	At 4 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.
M2	40T vibratory piling rig	5m	0.09	7.50	9.57	At 5 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.

[1] Southwest Metro – Marrickville, Canterbury and Lakemba Station Upgrades NVMP, revision 3, dated 25 January 2021

Measurement ID	Plant	Distance from source	Baseline 95th percentile PPV	95th percentile PPV (mm/s)	Maximum PPV (mm/s)	Comments
M3	40T vibratory piling rig	7m	0.09	6.45	7.06	At 7 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.
M4	40T vibratory piling rig	8m	0.09	5.24	6.15	At 8 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.
M5	40T vibratory piling rig	10m	0.09	3.99	4.50	At 10 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.
M6	40T vibratory piling rig	17m	0.09	0.85	1.17	At 17 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.
M7	40T vibratory piling rig	20m	0.09	0.75	0.90	At 20 metres away, the 40T vibratory piling rig produced vibration levels that are above the screening level for human annoyance for day and night hours.
M8	40T vibratory piling rig	30m	0.09	0.41	0.46	At 30 metres away, the 40T vibratory piling rig produced vibration levels that are below the screening level for human annoyance for day hours and above the screening level for human annoyance for night hours.

Figure 3-1: Measured PPV plotted against distance from vibration source



The site-specific human annoyance minimum working distances are extrapolated from the fitted trendline in Figure 3-1. The results of the extrapolated minimum working distances are shown in Table 3-2 below.

Table 3-2 Site specific human annoyance minimum working distances

Place and Time	Minimum working distance (m)
Residential buildings 16 hr day	28
Residential buildings 8 hr night	34

4 Conclusion

Renzo Tonin & Associates has completed vibration monitoring for the vibratory sheet piling works for Marrickville station. The result of the attended vibration measurements established the site-specific human annoyance minimum working distance for the 40T vibratory piling rig at 28 metres during the day period and at 34 metres during the night period. Given that the closest residential receiver is approximately 40 metres away, the risk of human annoyance due to vibration is low.

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
21.03.2022	First Issue	0	1	D. Auld / R. Zhafranata	M. Tabacchi	M. Tabacchi

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APPENDIX A Measurement locations

A.1 Marrickville Station Compound