

MOOREBANK LOGISTIC PARK - PRECINCT EAST

Operational Noise Monitoring for Moorebank Logistic Park - Q1 2021

21 June 2021

Qube Property Management Services Pty Ltd c/- Tactical Group

TL116-05F12 Moorebank INP Monitoring Q1 2021 (r3)

Document details

Detail	Reference
Doc reference:	TL116-05F12 Moorebank INP Monitoring Q1 2021 (r3)
Prepared for:	Qube Property Management Services Pty Ltd c/- Tactical Group
Address:	Level 15, 124 Walker Street North Sydney NSW 2060
Attention:	Cathal McGann

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
22.04.2021	Final	0	1	J. Liang	C. Weber	C. Weber
08.06.2021	Minor update to reflect 50% occupation status of site	-	2	C. Weber	-	C. Weber
21.06.2021	Update to address DPIE comments	-	3	C. Weber	-	C. Weber

Important Disclaimers:

The work presented in this document was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian/New Zealand Standard AS/NZS ISO 9001.

This document is issued subject to review and authorisation by the suitably qualified and experienced person named in the last column above. If no name appears, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for the particular requirements of our Client referred to above in the 'Document details' which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Renzo Tonin & Associates. The information herein should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

In preparing this report, we have relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, we have not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

We have derived data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination and re-evaluation of the data, findings, observations and conclusions expressed in this report.

We have prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

External cladding disclaimer: No claims are made and no liability is accepted in respect of any external wall and/or roof systems (eg facade / cladding materials, insulation etc) that are: (a) not compliant with or do not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes; or (b) installed, applied, specified or utilised in such a manner that is not compliant with or does not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes.

Contents

1	Introduction	1
1.1	Project overview	1
1.2	Scope of assessment	2
2	Compliance Matrix	3
3	Summary of noise objectives	5
4	Measurement methodology and equipment	6
5	Measurement results	7
5.1	Measurement locations and time periods	7
5.2	Measurement results	8
6	Discussion	11
7	Conclusion	12
APPENDIX A	Description of technical terms	13
APPENDIX B	Detailed measurement location descriptions	14
B.1	M1 – Wattle Grove measurement location	14
B.2	M2 - Wattle Grove North measurement location	16
B.3	M3 – Casula measurement location	18
B.4	M4 - Glenfield measurement location	20
APPENDIX C	Operational road traffic noise assessment – 50% occupancy stage	22

List of tables

Table 1	Compliance matrix	3
Table 2	MPE Stage 1 and 2 noise limits, dB(A)	5
Table 3	Measurement equipment	6
Table 4	Sensitive receivers and approximate distance from MLP East Precinct	7
Table 5	Attended measurement periods	8
Table 6	Attended noise measurement results	9

List of figures

Figure 1	MLP East Precinct and nearest sensitive receivers	2
----------	---	---

1 Introduction

1.1 Project overview

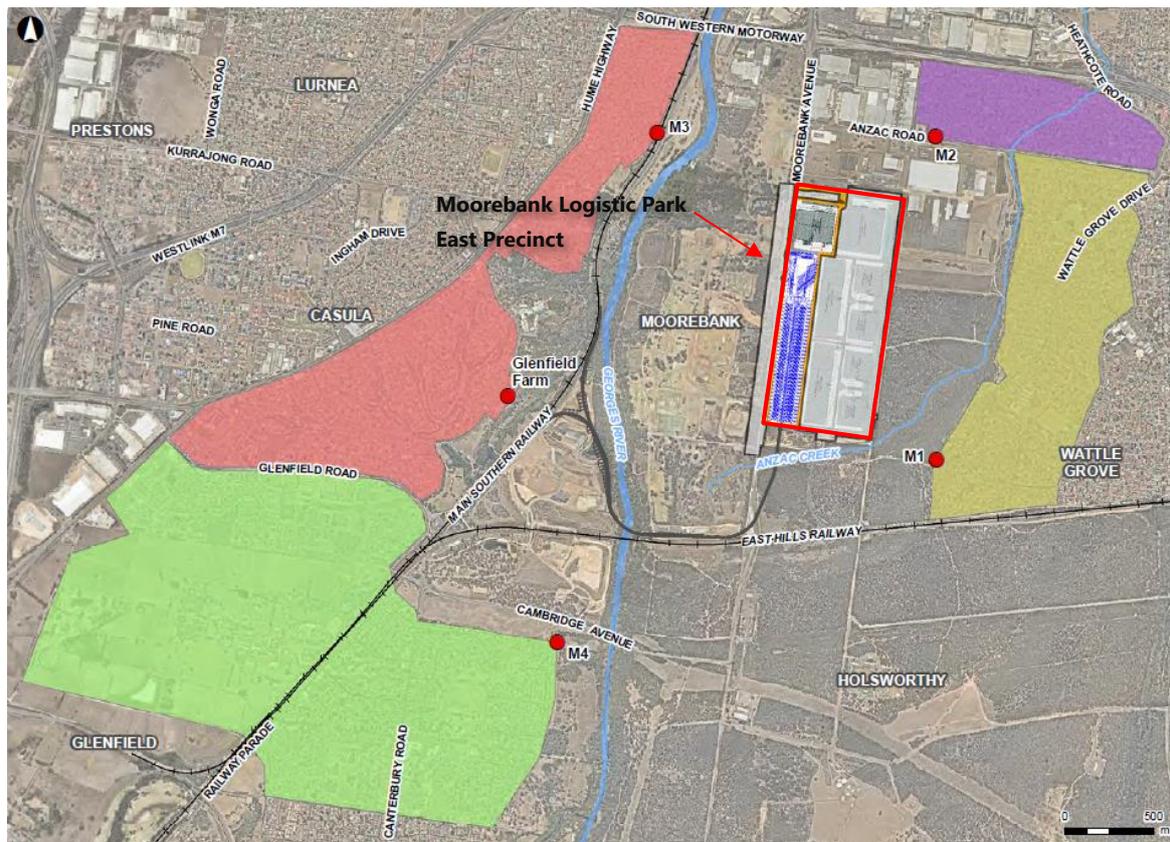
The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stages 1 and 2 of the Moorebank Precinct East (MPE) Project (SSD 6766 and SSD 7628 respectively), which together comprise the two stages of development under the MPE Concept Approval (MP10_0193).

This operational noise monitoring has been conducted to assess noise impacts during operation of the east precinct for the first quarter in 2021. This report forms part of the evidence in addressing the following Approval Conditions. Additional details are provided in the compliance matrix (Table 1):

- SSD 7628
 - Condition B80 – Monitoring of industrial noise to assess compliance with the noise criteria.
 - Condition B86 – Monitoring of industrial noise to assess compliance with the noise criteria at a point in time when the site is 50% occupied.
 - Condition B90 - Monitoring of industrial noise to identify if any additional reasonable and feasible best practice noise mitigation measures are required to minimise noise impacts, including maximum noise levels that may result in sleep disturbance.
 - Condition FCMM2E - Regular monitoring performed as part of the Operational Noise and Vibration Management Plan to assess noise levels generated by the project.

The location of the Moorebank Logistics Park (MLP) East Precinct in relation to the nearest representative receivers (M1 to M4 and Glenfield Farm) is illustrated in Figure 1.

Figure 1 MLP East Precinct and nearest sensitive receivers



1.2 Scope of assessment

Renzo Tonin & Associates (NSW) Pty Ltd has been engaged by Tactical to perform attended noise measurements for the purpose of assessing compliance with the approval conditions. These measurements have been performed, consistent with the requirements of the NSW *Industrial Noise Policy* (EPA, 2000) and the Operational Noise and Vibration Management Plan¹.

Airborne noise measurements were performed at the four potentially most affected residential receivers in the vicinity of the MLP. The representative receivers are located in the suburbs of Casula, Glenfield, Wattle Grove and Wattle Grove North (see Figure 1).

Daytime construction noise is currently occurring at the MLP site. Construction noise has been excluded from the assessment.

A description of technical terms used within this report is provided in Appendix A.

¹ OPERATIONAL NOISE AND VIBRATION MANAGEMENT PLAN - Moorebank Logistics Park – East Precinct (Revision 010 dated 24/9/2019)

2 Compliance Matrix

Table 1 provides a summary of the Approval Conditions which relate to operational noise emissions when the site is 50% occupied.

Table 1 Compliance matrix

Condition ID	Condition	Comments on compliance	Reference for further information
SSD 7628			
B86	Within 12 months of occupation of the first warehouse, 50% occupation of the site and 100% occupation of the site, or as otherwise agreed by the Secretary, the Applicant must undertake operational noise monitoring to compare actual noise performance of the project against predicted noise performance, and prepare an Operational Noise Report to document this monitoring. The Report must include, but not necessarily be limited to:	This report has been prepared at 50% site occupancy stage. Noise monitoring results at the nearest residential receivers are presented in Section 5.	Sections 5 and 6
B86 a)	noise monitoring to assess compliance with the predicted operational noise levels and the noise limits specified in Table 5;	The operational noise limits in Table 5 are summarised in Section 3 and refer to industrial noise, assessed in accordance with the requirements of the NSW Industrial Noise Policy, 2000. The measurement of noise from the operation of the site at 50% occupancy stage was performed in March 2021. The results are presented in Sections 5 and 6.	Sections 3, 5 and 6
B86 b)	a validation by predictive modelling of the operational noise levels in terms of criteria and noise goals established in the NSW RNP (EPA, 2011);	Assessment of road traffic noise at 50% occupancy stage is provided in Appendix C.	Refer Appendix C
B86 c)	sleep disturbance impacts compared to those determined in documents specified under condition A2;	Per Section 5 and 6, noise levels at residential receivers from MLP East were not audible and therefore compliant with the sleep disturbance noise criterion in Section 3.	Refer also Annual Review required for SSD 6766 Condition G7; and MPE Stage 1 Review of Operational Sleep Disturbance Impacts ²
B86 d)	impacts associated with annoying characteristics such as prominent tonal components, impulsiveness, intermittency, irregularity and dominant low-frequency content;	Per Section 5 and 6, noise levels at residential receivers from MLP East were not audible. No annoying characteristics were therefore observed.	Sections 5 and 6

² MPE Stage 1 Review of Operational Sleep Disturbance Impacts, available https://simta.com.au/wordpress/wp-content/uploads/2019/12/Operational_Sleep_Disturbance_Impacts_E25.pdf

Condition ID	Condition	Comments on compliance	Reference for further information
B86 e)	methodology, location and frequency of noise monitoring undertaken, including monitoring sites at which project noise levels are ascertained, with specific reference to locations indicative of impacts on sensitive receivers;	Refer ONVMP	Operational Noise and Vibration Management Plan ³
B86 f)	details of any complaints and enquiries received in relation to operational noise generated by the project between the date of commencement of operation and the date the report was prepared;	No complaints related to operational noise have been received to date	n/a
B86 g)	any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and heavy vehicle proportions; and	All noise monitoring undertaken to date has complied with the operational noise limits. On this basis, recalibration of the noise models has not been required. Assessment of road traffic noise at 50% occupancy stage is provided in Appendix C.	For road traffic noise, Refer Appendix C
B86 h)	an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of all feasible and reasonable mitigation measures.	All noise monitoring undertaken to date has complied with the operational noise limits. Additional reassessment of all feasible and reasonable mitigation measures has not been required.	Sections 5 and 6

³ Operational Noise and Vibration Management Plan - Moorebank Logistics Park – East Precinct, available https://simta.com.au/wordpress/wp-content/uploads/2020/04/ONVMP_V12_redacted.pdf

3 Summary of noise objectives

Stages 1 and 2 of the MPE Project was approved under State Significant Development (SSD) Approvals 6766 and 7628, respectively.

The noise assessments for Stage 1 and 2 were prepared and assessed in accordance with the requirements of the NSW *Industrial Noise Policy* (EPA, 2000). However, the Determination Report for MPE Stage 2⁴ identified that the recommended noise limits at Wattle Grove be amended to reflect the values derived in accordance with the *Noise Policy for Industry* (EPA, 2017).

A summary of the MPE Stage 1 and 2 noise limits from SSD 7628 (Condition B80) is provided in Table 2. These levels are more stringent than the operational noise limits in SSD 6766.

Table 2 MPE Stage 1 and 2 noise limits, dB(A)

Sensitive receiver	Day ¹	Evening ¹	Night ¹	Night ¹
	L _{Aeq, 15 minute}	L _{Aeq, 15 minute}	L _{Aeq, 15 minute}	L _{A1, 1 minute}
Casula	35	35	35	52
Glenfield	35	35	35	52
Wattle Grove	35	35	35	52
Casula	35	35	35	52
Wattle Grove North ²	35	35	35	52

Notes:

To determine compliance with the L_{Aeq, 15 minute} noise limits, noise from the development is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the EPA may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy must also be applied to the measured noise levels where applicable.

To determine compliance with the L_{A1, 1 minute} noise limits, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the EPA may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).

The noise emission limits identified above apply under meteorological conditions of:

- (i) wind speeds of up to 3 m/s at 10 metres above ground level; or
- (ii) 'F' atmospheric stability class.

Note 1: In accordance with the INP, day is the period from 7:00 am to 6:00 pm Monday to Saturday; or 8:00 am to 6:00 pm on Sundays and public holidays; evening is the period from 6:00 pm to 10:00 pm; and night is the remaining periods.

Note 2: Wattle Grove North receiver is not included in SSD 7628, but is listed as a sensitive receiver in the Operational Noise and Vibration Management Plan (Section 3.3).

⁴ NSW Planning Assessment Commission Determination Report – Moorebank Intermodal Terminal, Stage 2, Moorebank Precinct East (SSD 7628).

4 Measurement methodology and equipment

All noise measurements were performed with a Type 1 sound level meter and Type 1 microphone calibrator. The measurement equipment calibration certificates were current at the time of the measurements. Before and after each series of measurements, the calibration of the sound level meter was verified using a reference calibration of 94 dB at 1 kHz. The difference between pre- and post-calibration levels was within 0.5 dB for all measurements.

Airborne noise measurements were performed in accordance with the requirements of the *NSW Industrial Noise Policy (EPA 2000)*.

A summary of measurement equipment is provided in Table 3.

Table 3 Measurement equipment

Description	Make	Model	Serial No	Last Date Calibrated
Type 1 sound level meter	NTi	XL2	A2A-05320-D2	24/11/2020
Type 1 sound level meter	NTi	XL2	A2A-09356-E0	1/5/2019
Sound level meter calibrator	Bruel & Kjaer	4231	2677710	3/12/2020

5 Measurement results

5.1 Measurement locations and time periods

18-hours of on-site attended measurements were performed between 25 March and 30 March 2021. The measurements were performed during representative daytime (7am to 6pm), evening (6pm to 10pm) and night-time (10pm to 7am) periods, consistent with the approved 24-hour operations.

Prior to the measurements, it was confirmed that the MLP site was operational to ensure that the measurements were representative of current options. It is understood that the facility is not currently operating at full capacity.

A summary of the attended measurement locations and the approximate distances to the MLP East Precinct is provided in Table 4. Additional details are provided in Appendix B.

A summary of the attended measurement periods is provided in Table 5.

Table 4 Sensitive receivers and approximate distance from MLP East Precinct

Measurement locations	Approximate distance (m) from MLP East Precinct
M1 - Wattle Grove	770
M2 - Wattle Grove North	1,050
M3 - Casula	960
M4 - Glenfield	1,250

Table 5 Attended measurement periods

Location	Measurement period 1	Measurement period 2
Measurements during 7am to 6pm daytime period – 25 March 2021		
M1 - Wattle Grove	9:45am to 10:50am (Note 1)	12:48pm to 1:35pm (Note 1)
M2 - Wattle Grove North	9:58am to 10:46am (Note 2)	1:12pm to 1:58pm (Note 2)
M3 - Casula	11:26am to 12:15pm (Note 3)	-
M4 - Glenfield	11:12am to 12:18pm (Note 4)	-
Measurements during 6pm to 10pm evening period – 29 and 30 March 2021		
M1 - Wattle Grove	30 March 6:49pm to 7:19pm (Note 1)	30 March 9:37pm to 9:52pm (Note 1)
M2 - Wattle Grove North	29 March 9:20pm to 9:50pm (Note 2)	30 March 7:27pm to 7:57pm (Note 2)
M3 - Casula	29 March 7:49pm to 8:19pm (Note 3)	30 March 8:10pm to 8:40pm (Note 3)
M4 - Glenfield	29 March 8:36pm to 9:06pm (Note 4)	30 March 8:53pm to 9:23pm (Note 4)
Measurements during 10pm to 7am night-time period – 29 and 30 March 2021		
M1 - Wattle Grove	29 March 10:00pm to 10:30pm (Note 1)	30 March 12:52am to 1:07am (Note 1)
M2 - Wattle Grove North	29 March 10:38pm to 11:08pm (Note 2)	30 March 1:32am to 2:02am (Note 2)
M3 - Casula	29 March 11:18pm to 11:48pm (Note 3)	30 March 10:43pm to 11:13pm (Note 3)
M4 - Glenfield	30 March 12:06am to 12:36am (Note 4)	30 March 11:27pm to 11:57pm (Note 4)

Note 1: Measurements performed at 25 Yallum Ct

Note 2: Measurements performed at 39 Anzac Rd

Note 3: Measurements performed at St Andrews Park

Note 4: Measurements performed at 26 Goodenough St

5.2 Measurement results

Results from the attended noise measurements at all measurement locations is provided in Table 6. All noise measurements were performed over 15-minute measurement durations in accordance with the requirements of the approval conditions and the INP.

Table 6 Attended noise measurement results

ID	Address	Assessment period	L _{Aeq, 15minute} noise limit, dB(A)	L _{A1, 1 minute} noise limit, dB(A)	Measurement period	Measured noise levels, dB(A)		Estimated MLP noise contribution, dB(A)		Comments and measured L _{AFmax} noise levels from typical events	MLP Noise Levels Comply?
						L _{Aeq, 15minute}	L _{AF, 90%}	L _{Aeq, 15minute}	L _{AFmax}		
M1 - Wattle Grove											
1	25 Yallum Ct.	Day	35	-	25/03/21 09:45 10:00	49	39	Note 1	Note 1	Background noise dominated by Moorebank Ave traffic: Moorebank traffic 48-50dBA, Lawn mower 56-57 dBA, Birds 70-71 dBA, Rail Traffic 49-50 dBA, Construction 50-53 dBA, Air traffic 58-60 dBA	Yes
2	25 Yallum Ct.	Day	35	-	25/03/21 10:05 10:20	49	39	Note 1	Note 1	Background noise dominated by Moorebank Ave traffic: Moorebank traffic 48-50dBA, Rail Traffic 49-51 dBA, Construction 52-54 dBA, Air Traffic 58-60 dBA	Yes
3	25 Yallum Ct.	Day	35	-	25/03/21 10:20 10:35	47	40	Note 1	Note 1	Background noise dominated by Moorebank Ave traffic: Moorebank traffic 48-50dBA, Rail Traffic 49-51 dBA, Air traffic 58-60 dBA	Yes
4	25 Yallum Ct.	Day	35	-	25/03/21 10:35 10:50	52	38	Note 1	Note 1	Background noise dominated by Moorebank Ave traffic: Moorebank traffic 49-53dBA, Rail Traffic 50-52 dBA, Air traffic 58-62 dBA, Bird 62-65 dBA	Yes
5	25 Yallum Ct.	Day	35	-	25/03/21 12:48 13:03	48	40	Note 1	Note 1	Background noise dominated by Moorebank Ave traffic: Moorebank traffic 46-49dBA, Rail Traffic 50-52 dBA, Air traffic 59-60 dBA, Bird 65-67 dBA	Yes
6	25 Yallum Ct.	Day	35	-	25/03/21 13:05 13:20	44	38	Note 1	Note 1	Background noise dominated by noise from MLP East precinct construction activities: Construction 41-45dBA, Rail traffic 47-49 dBA	Yes
7	25 Yallum Ct.	Day	35	-	25/03/21 13:20 13:35	44	38	Note 1	Note 1	Background noise dominated by noise from MLP East precinct construction activities: Construction 44-47dBA, Rail traffic 46-48 dBA	Yes
8	25 Yallum Ct.	Evening	35	-	30/03/21 18:49 19:04	44	35	Note 1	Note 1	Background noise dominated by Moorebank Ave Traffic: Moorebank Traffic 41-45dBA, Rail Traffic 49-51 dBA, Bird 65-67 dBA, Air Traffic 60-62 dBA	Yes
9	25 Yallum Ct.	Evening	35	-	30/03/21 19:04 19:19	46	37	Note 1	Note 1	Background noise dominated by Moorebank Ave Traffic: Moorebank Traffic 46-47dBA, Rail Traffic 48-50 dBA	Yes
10	25 Yallum Ct.	Evening	35	-	30/03/21 21:37 21:52	46	43	Note 1	Note 1	Background noise dominated by noise from Air Traffic: Rail Traffic 49-51 dBA, Air Traffic 60-63 dBA	Yes
11	25 Yallum Ct.	Night	35	52	29/03/21 21:59 22:14	47	41	Note 1	Note 1	Background noise dominated by noise from Air Traffic: Rail Traffic 50-52 dBA, Bird 51-52 dBA, Air Traffic 60-66 dBA	Yes
12	25 Yallum Ct.	Night	35	52	29/03/21 22:14 22:29	50	41	Note 1	Note 1	Background noise dominated by noise from Rail Traffic: Moorebank Traffic 41-43dBA, Rail Traffic 50-52 dBA, Air Traffic 60-65 dBA	Yes
13	25 Yallum Ct.	Night	35	52	30/03/21 00:52 01:07	41	39	Note 1	Note 1	Background noise dominated by noise from Nature: Rail Traffic 50-51 dBA, Birds 50-51 dBA	Yes
14	25 Yallum Ct.	Night	35	52	30/03/21 01:07 01:22	40	39	Note 1	Note 1	Background noise dominated by noise from Nature: Birds 50-56 dBA, Rail Traffic 49-50 dBA	Yes
M2 - Wattle Grove North											
15	39 Anzac Rd	Day	35	-	25/03/21 09:58 10:13	67	51	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 85-94 dBA, Moorebank Ave Traffic 50-53 dBA	Yes
16	39 Anzac Rd	Day	35	-	25/03/21 10:14 10:29	68	54	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 70-75 dBA, Moorebank Ave Traffic 52-55 dBA	Yes
17	39 Anzac Rd	Day	35	-	25/03/21 10:31 10:46	68	53	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 86-87 dBA, Moorebank Ave Traffic 52-55 dBA	Yes
18	39 Anzac Rd	Day	35	-	25/03/21 13:12 13:27	68	53	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 88-89 dBA, Moorebank Ave Traffic 50-51 dBA	Yes
19	39 Anzac Rd	Day	35	-	25/03/21 13:27 13:42	67	52	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 87-88 dBA, Moorebank Ave Traffic 47-50 dBA	Yes
20	39 Anzac Rd	Day	35	-	25/03/21 13:43 13:58	68	50	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 88-89 dBA, Moorebank Ave Traffic 48-50 dBA	Yes
21	39 Anzac Rd	Evening	35	-	30/03/21 19:27 19:42	68	51	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 88-89 dBA, Moorebank Ave Traffic 46-47 dBA, Air Traffic 50-55 dBA	Yes
22	39 Anzac Rd	Evening	35	-	30/03/21 19:42 19:57	68	52	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 88-89 dBA, Moorebank Ave Traffic 46-47 dBA, Air Traffic 50-55 dBA	Yes
23	39 Anzac Rd	Evening	35	-	29/03/21 21:20 21:35	59	48	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 80-83 dBA, Moorebank Ave Traffic 50-51 dBA	Yes
24	39 Anzac Rd	Evening	35	-	29/03/21 21:35 21:50	66	45	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 81-82 dBA, Moorebank Ave Traffic 50-52 dBA	Yes
25	39 Anzac Rd	Night	35	52	29/03/21 22:38 22:53	62	38	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 80-81 dBA, Moorebank Ave Traffic 47-48 dBA	Yes
26	39 Anzac Rd	Night	35	52	29/03/21 22:53 23:08	64	37	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 81-82 dBA, Moorebank Ave Traffic 47-50 dBA	Yes
27	39 Anzac Rd	Night	35	52	30/03/21 01:32 01:47	54	34	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 80-83 dBA, Moorebank Ave Traffic 45-47 dBA	Yes
28	39 Anzac Rd	Night	35	52	30/03/21 01:47 02:02	53	34	Note 1	Note 1	Background noise dominated by Anzac Rd: Road Traffic 80-83 dBA, Moorebank Ave Traffic 38-41 dBA	Yes
M3 - Casula											
29	St Andrews Park	Day	35	-	25/03/21 11:26 11:41	55	42	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 50-51 dBA, Rail Traffic 71-72 dBA, Construction 50-52 dBA	Yes
30	St Andrews Park	Day	35	-	25/03/21 11:43 11:58	62	41	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 54-55 dBA, Construction 50-52 dBA, Birds 60-62 dBA, Rail Traffic 79-80 dBA, Children Playing 55-56 dBA	Yes
31	St Andrews Park	Day	35	-	25/03/21 12:00 12:15	55	42	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 53-54 dBA, Construction 51-52 dBA, Rail Traffic 73-74 dBA	Yes
33	St Andrews Park	Evening	35	-	29/03/21 19:49 20:04	57	48	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 52-53 dBA, Construction 47-50 dBA, Rail Traffic 72-74 dBA	Yes
34	St Andrews Park	Evening	35	-	29/03/21 20:04 20:19	59	49	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 55-56 dBA, Construction 50-52 dBA, Rail Traffic 70-75 dBA	Yes
34	St Andrews Park	Evening	35	-	30/03/21 20:10 20:25	59	42	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 51-54 dBA, Rail Traffic 70-72 dBA	Yes

35	St Andrews Park	Evening	35	-	30/03/21 20:25 20:40	56	42	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 53-55 dBA, Rail Traffic 72-73 dBA	Yes
36	St Andrews Park	Night	35	52	29/03/21 23:18 23:33	57	39	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 42-45 dBA, Rail Traffic 71-72 dBA	Yes
37	St Andrews Park	Night	35	52	29/03/21 23:33 23:48	52	38	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 41-43 dBA, Rail Traffic 75-76 dBA	Yes
38	St Andrews Park	Night	35	52	30/03/21 22:43 22:58	56	41	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 40-43 dBA, Rail Traffic 70-72 dBA	Yes
39	St Andrews Park	Night	35	52	30/03/21 22:58 23:13	54	41	Note 1	Note 1	Background noise dominated by the M5 Motorway: M5 Traffic 41-45 dBA, Rail Traffic 70-73 dBA, Near By Road Traffic 64-65 dBA	Yes
M4 - Glenfield											
40	26 Goodenough St	Day	35	-	25/03/21 11:12 11:27	62	49	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 55-58 dBA, Rail traffic 45-46dBA, Lawn mower 69-72 dBA	Yes
41	26 Goodenough St	Day	35	-	25/03/21 11:28 11:43	49	44	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 49-56 dBA, Rail traffic 45-46dBA, Bird 54-55dBA	Yes
42	26 Goodenough St	Day	35	-	25/03/21 11:44 11:59	49	43	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 47-55 dBA, Rail traffic 45-46dBA, Dog Barking 66-67 dBA	Yes
43	26 Goodenough St	Day	35	-	25/03/21 12:03 12:18	51	43	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 51-53 dBA, Rail Traffic 45-46dBA, Car Passby 65-67 dBA	Yes
44	26 Goodenough St	Evening	35	-	29/03/21 20:36 20:51	52	50	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 54-55 dBA, Air Traffic 62-65 dBA, Cricket 55-56 dBA	Yes
45	26 Goodenough St	Evening	35	-	29/03/21 20:51 21:06	51	50	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 55-56 dBA	Yes
46	26 Goodenough St	Evening	35	-	30/03/21 20:53 21:08	52	49	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 55-56 dBA, Animal 55-60 dBA	Yes
47	26 Goodenough St	Evening	35	-	30/03/21 21:08 21:23	53	53	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 55-57 dBA, Cricket 55-56 dBA	Yes
48	26 Goodenough St	Night	35	52	30/03/21 00:06 00:21	47	41	Note 1	Note 1	Background noise dominated by Cambridge Ave: Road Traffic 54-56 dBA, Cricket 55-56 dBA	Yes
49	26 Goodenough St	Night	35	52	30/03/21 00:21 00:36	48	44	Note 1	Note 1	Background noise dominated by noise from Nature: Road Traffic 54-56 dBA, Cricket 54-55 dBA	Yes
50	26 Goodenough St	Night	35	52	30/03/21 23:27 23:42	48	45	Note 1	Note 1	Background noise dominated by noise from Nature: Cricket 54-55 dBA	Yes
51	26 Goodenough St	Night	35	52	30/03/21 23:42 23:57	49	45	Note 1	Note 1	Background noise dominated by noise from Nature: Cricket 54-55 dBA	Yes

Note 1: Since noise levels from the MLP were not audible during the measurement period, it was not possible to estimate the MLP noise contribution

6 Discussion

Based on the attended measurement results in Section 5, it can be seen that the measured $L_{Aeq(15minute)}$ noise levels at all locations and during all measurement periods were above the 35 dB(A) noise limit.

At Location M1 (Wattle Grove), the closest measurement location to the MLP, the measured $L_{Aeq(15minute)}$ noise level was 40 dB(A) between 01:07am and 01:22am on 30 March. During this period with the quietest ambient noise levels, MLP noise emissions were not audible.

In all cases, the measured $L_{Aeq(15minute)}$ noise levels were dominated by extraneous noise sources apart from the MLP operations. Noise sources from MLP operations were not audible during any of the measurement periods at all four representative measurement locations. Since MLP noise emissions were not audible, it was not possible to estimate the industrial noise contribution from the MLP facility.

Based on the results of the attended noise measurements performed during the day, evening and night-time periods between 25 March and 30 March 2021, it is concluded that the current noise levels comply with the operational noise limits in SSD 7628, at a point in time when the site is 50% occupied.

7 Conclusion

This report presents the results of airborne noise measurements at four representative receivers in proximity to the Moorebank Logistics Park (MLP). The measurements were performed in accordance with the requirements of the NSW *Industrial Noise Policy* (INP) the Operational noise and vibration management plan to verify compliance with the noise limits in SSD approval 7628. The measurements were performed during the daytime, evening and night-time periods between 25 March and 30 March 2021.

At all measurement locations, the measured $L_{Aeq(15\text{minute})}$ noise levels were dominated by extraneous noise sources apart from the MLP operations. Noise sources from MLP operations were not audible during any of the measurement periods. Since MLP noise emissions were not audible, it was not possible to estimate the industrial noise contribution from the MLP facility.

Based on the results of the attended noise measurements, and given that MLP noise levels were not audible at any of the measurement locations, it is concluded that the current noise levels comply with the operational noise limits in SSD 7628, at a point in time when the site is 50% occupied.

APPENDIX A Description of technical terms

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

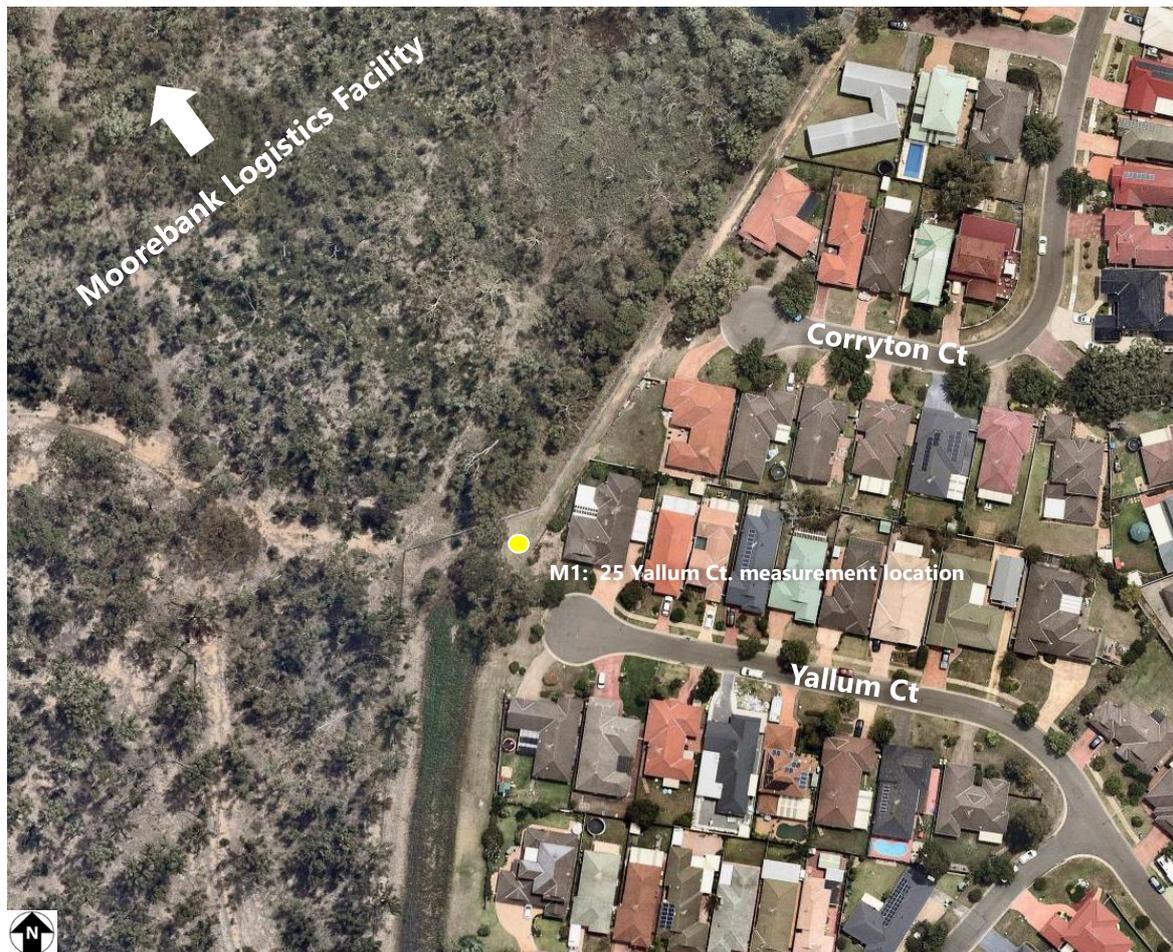
Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dB The sound of a rock band 115dB Limit of sound permitted in industry 120dB Deafening
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
LMax	The maximum sound pressure level measured over a given period.
LMin	The minimum sound pressure level measured over a given period.

APPENDIX B Detailed measurement location descriptions

B.1 M1 – Wattle Grove measurement location

An aerial photo of Wattle Grove measurement location is provided in Figure B1.

Figure B1 Wattle Grove measurement location



At the Wattle Grove location, noise measurements were performed at a free field measurement positions near the fence facing the facility. Two measurement positions were selected near Corryton Ct and Yallum Ct. At both positions, the microphone was positioned at a height of 1.5 m above ground level. The measurement locations are approximately 770 metres from the MLP. A picture of the measurement setup near Yallum Ct is provided in Figure B2.

Figure B2 **25 Yallum Ct measurement location**



B.2 M2 - Wattle Grove North measurement location

An aerial photo of the Wattle Grove North measurement location is provided in Figure B3.

Figure B3 Wattle Grove North measurement location



At Wattle Grove North, noise measurements were performed at a free field measurement locations on both sides of Anzac Road. At both positions, the microphone was positioned at a height of 1.5 m above ground level. The measurement location is approximately 1050 meters from MLP. Pictures of the measurements setup near Anzac Rd are provided in Figure B4.

Figure B4 Anzac Road measurement locations



B.3 M3 – Casula measurement location

An aerial photo of the Casula measurement locations is provided in B5.

Figure B5 Casula measurement location



At Casula, noise measurements were performed at a free field measurement location within St Andrews Park. The microphone was positioned at a height of 1.5 m above ground level. Measurements were performed at two locations due to safety considerations during the night-time measurements. The measurement location is approximately 960 meters from MLP. A picture of the measurement setup is provided in Figure B6.

Figure B6 St Andrews Park measurement locations



B.4 M4 - Glenfield measurement location

An aerial photo of the Glenfield measurement locations is provided in Figure B7.

Figure B7 Glenfield measurement location



At Glenfield, noise measurements were performed at a free field measurement location at the eastern end of Goodenough St. At this position, the microphone was positioned at a height of 1.5 m above ground level. The measurement location is approximately 1250 meters from MLP. Pictures of the measurement setup are provided in Figure B8.

Figure B8 26 Goodenough Road measurement location



APPENDIX C **Operational road traffic noise assessment – 50% occupancy stage**

MOOREBANK LOGISTIC PARK - PRECINCT EAST

Operational Road Traffic Noise Assessment - June 2021

18 June 2021

Qube Property Management Services Pty Ltd c/- Tactical Group

TL116-05F14 Moorebank IMT Road Traffic (r1)

Document details

Detail	Reference
Doc reference:	TL116-05F14 Moorebank IMT Road Traffic (r1)
Prepared for:	Qube Property Management Services Pty Ltd c/- Tactical Group
Address:	Level 15, 124 Walker Street North Sydney NSW 2060
Attention:	Fei Chen

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
17.06.2021	First Issue	0	1	C. Weber		M. Chung

Important Disclaimers:

The work presented in this document was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian/New Zealand Standard AS/NZS ISO 9001.

This document is issued subject to review and authorisation by the suitably qualified and experienced person named in the last column above. If no name appears, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for the particular requirements of our Client referred to above in the 'Document details' which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Renzo Tonin & Associates. The information herein should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

In preparing this report, we have relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, we have not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

We have derived data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination and re-evaluation of the data, findings, observations and conclusions expressed in this report.

We have prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

External cladding disclaimer: No claims are made and no liability is accepted in respect of any external wall and/or roof systems (eg facade / cladding materials, insulation etc) that are: (a) not compliant with or do not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes; or (b) installed, applied, specified or utilised in such a manner that is not compliant with or does not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes.

Contents

1	Introduction	4
1.1	Project overview	4
1.2	Scope of assessment	6
2	Compliance Matrix	7
3	Summary of noise objectives	8
3.1	Applicable operation noise criteria	8
3.2	Summary of EIS noise assessment	9
4	Validation of road traffic noise model	11
5	MPE road traffic noise predictions	13
6	Attended noise measurements	15
7	Conclusion	16
APPENDIX A	Description of technical terms	17
APPENDIX B	Unattended noise monitoring results	18

List of tables

Table 1	Compliance matrix	7
Table 2	Road Traffic Noise Assessment Criteria for Residential Land Uses	8
Table 3	Road traffic volumes and mix (from EIS)	9
Table 4	Summary of road traffic volumes (28 May to 10 June 2021) – Moorebank Avenue north of M5 interchange	11
Table 5	Summary of road traffic noise model validation – 62 Moorebank Avenue	12
Table 6	Origin destination road traffic volumes and mix	13
Table 7	Predicted MPE road traffic noise levels at representative residential receivers	14

List of figures

Figure 1	MPE Precinct, major roads and nearest sensitive receivers	5
----------	---	---

1 Introduction

1.1 Project overview

The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stages 1 and 2 of the Moorebank Precinct East (MPE) Project (SSD 6766 and SSD 7628, respectively), which together comprise the two stages of development under the MPE Concept Approval (MP10_0193).

This assessment has been conducted to assess the operational road traffic noise levels associated with MPE at the point in time when the site is 50% occupied.

Operational noise levels of road traffic on the public roads in proximity to the site are compared with the criteria and noise goals established in the NSW Road Noise Policy (RNP, EPA 2011). These are consistent with the road traffic noise goals established in the EIS.

This report addresses the following Approval Conditions. Additional details are provided in the compliance matrix (Table 1):

- SSD 6766

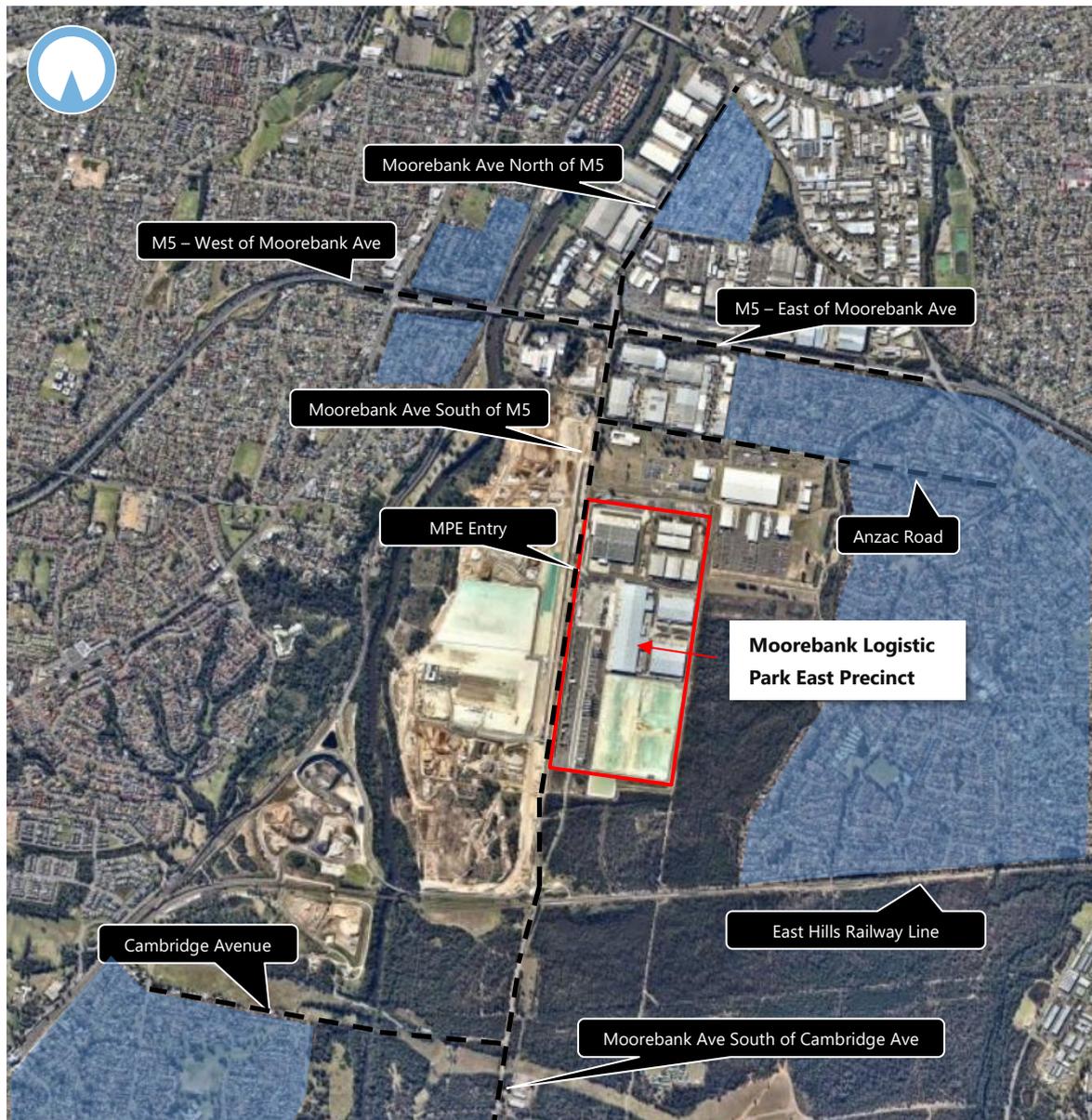
"Condition G15 – A review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy (EPA, 2011). Identification of additional feasible and reasonable measures that would be implemented with the objective of meeting the criteria outlined in the NSW Road Noise Policy (EPA, 2011)."

- SSD 7628

"Condition B86 – A validation by predictive modelling of the operational noise levels in terms of criteria and noise goals established in the NSW RNP (EPA, 2011). Any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and heavy vehicle proportions. Operational noise monitoring is required to assess compliance with the noise criteria at a point in time when the site is 50% occupied."

The location of Moorebank Precinct East (MPE) in relation to the nearest representative receivers and public roads is illustrated in Figure 1.

Figure 1 MPE Precinct, major roads and nearest sensitive receivers



Note: Blue shading represents residential land use areas adjacent to public roads in proximity to MPE.

1.2 Scope of assessment

Renzo Tonin & Associates (NSW) Pty Ltd has been engaged by Tactical to assess the potential noise impact associated with project-related road traffic travelling to and from MPE, in accordance with the approval conditions. This assessment includes attended noise measurements on Moorebank Avenue (north and south of the M5 Motorway), unattended noise monitoring at a representative residential receiver location on Moorebank Avenue (north of the M5 Motorway) and a review of traffic counting results.

The purpose of the assessment is to determine if the project-related road traffic noise for traffic travelling to and from MPE is within the RNP noise criteria.

A description of technical terms used within this report is provided in Appendix A.

2 Compliance Matrix

Table 1 provides a summary of the Approval Conditions which relate to operational road traffic noise on public roads.

Table 1 Compliance matrix

Condition ID	Condition	Comments on compliance	Reference for further information
SSD 6766			
G15	Within 12 months of the commencement of operation of the project, or as otherwise agreed by the Secretary, the Applicant shall undertake operational noise monitoring to compare actual noise performance of the project against noise performance predicted in the review of noise mitigation measures predicted in documents specified under condition A1 of this approval, and prepare an Operational Noise Report to document this monitoring. The Report shall include, but not necessarily be limited to:	This report includes operational road traffic noise modelling and prediction results. These are compared with the levels presented in the EIS and the criteria in the Planning Approval conditions.	n/a
G15 a)	noise monitoring to assess compliance with the operational noise levels predicted in documents specified under condition A1 of this approval;	Noise monitoring results are presented in Sections 4 and 6.	Sections 4 and 6
G15 b)	a review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy (EPA, 2011);	The applicable noise criteria are presented in Section 3.	Section 3.
G15 f)	any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and proportions;	All noise monitoring undertaken to date has complied with the operational noise limits. On this basis, recalibration of the noise models has not been required.	n/a
B86	Within 12 months of occupation of the first warehouse, 50% occupation of the site and 100% occupation of the site, or as otherwise agreed by the Secretary, the Applicant must undertake operational noise monitoring to compare actual noise performance of the project against predicted noise performance, and prepare an Operational Noise Report to document this monitoring. The Report must include, but not necessarily be limited to:	This report has been prepared at 50% site occupancy stage. Noise monitoring results are presented in Sections 4 and 6.	Sections 4 and 6
B86 b)	a validation by predictive modelling of the operational noise levels in terms of criteria and noise goals established in the NSW RNP (EPA, 2011);	A validation of the noise prediction model is provided in Section 4.	Section 4
B86 g)	any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and heavy vehicle proportions; and	All noise monitoring undertaken to date has complied with the operational noise limits. On this basis, recalibration of the noise models has not been required.	Sections 4, 5, 6 and 7

3 Summary of noise objectives

3.1 Applicable operation noise criteria

Noise impact from the potential increase in traffic on the roads surrounding the development is assessed against the NSW 'Road Noise Policy' (RNP). The RNP sets out noise criteria to be applied to particular types of road and land uses. These noise criteria are to be applied when assessing noise impact and determining mitigation measures for sensitive receivers that are potentially affected by road traffic noise associated with the subject development, with the aim of preserving the amenity appropriate to the land use.

The assessment considers the use of different types of vehicles entering and exiting the subject site through Moorebank Avenue and potential impacts upon nearby residences, in accordance with the relevant noise criteria. Vehicles associated with the subject site will travel along the following roads on the surrounding road network, consistent with the EIS. All roads are classified as motorways, arterial roads or sub-arterial roads, with the potential noise increase being assessed over the 15-hour day (7am to 10pm) and 9-hour night (10pm to 7am) periods, accordingly.

- Moorebank Avenue, north of the M5 Motorway
- Moorebank Avenue, south of the M5 Motorway (between M5 and MPE)
- Cambridge Avenue
- Moorebank Avenue, south of Cambridge Avenue
- Anzac Road
- M5 Motorway, east of Moorebank Avenue
- M5 Motorway, west of Moorebank Avenue

These roads are identified in Figure 1.

The RNP is used to assess the potential traffic noise impact from additional traffic generated by developments. The RNP provides criteria for residential type receivers impacted by the additional traffic generated by the project. All roads around the development are categorised as motorways, arterial roads or sub-arterial roads¹ and the appropriate assessment criteria are presented in Table 2.

Table 2 Road Traffic Noise Assessment Criteria for Residential Land Uses

Road category	Type of development	Assessment criteria, dB(A)	
		Day (7am - 10pm)	Night (10pm - 7am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on existing freeways/ arterial/ sub-arterial roads generated by land use developments	L _{Aeq} , (15 hour) 60 (external)	L _{Aeq} , (9 hour) 55 (external)

¹ Page 10 RNP, a "collector road" is classified in the same category as a sub-arterial road

Furthermore, the RNP states the following regarding increase in traffic noise on surrounding roads due to the subject development:

"For existing residences and other noise sensitive land uses affected by additional traffic on existing roads generated by land use development, any increase in the total traffic noise level should be limited to 2dB above that of the corresponding 'no build option'."

3.2 Summary of EIS noise assessment

Consistent with the operational noise criteria summarised in Section 3.1, the EIS noise and vibration assessment² identified that *"any increase in road traffic noise levels, at residential receivers, due to the SIMTA proposal should not exceed 2 dBA"*.

Assessment of the increase in road traffic noise levels along the M5 Motorway and Moorebank Avenue were calculated, using the Calculation of Road Traffic Noise (CoRTN) algorithm, and the following assumptions:

- Road traffic volume and mix
- Vehicle speeds (posted) of 100 km/h on the M5 Motorway and 60 km/h on Moorebank Avenue
- Typical receiver setback of 50 m along the M5 Motorway and 20 m along Moorebank Avenue.

Table 3 Road traffic volumes and mix (from EIS)

Location	Time	Current (no Development)		Current (with Development)	
		Volume	Mix	Volume	Mix
M5 Motorway East of Moorebank Avenue	Day (7.00am to 10.00pm)	91,500	10%	92,400	10%
	Night (10.00pm to 7.00am)	17,900	11%	18,200	10%
M5 Motorway West of Moorebank Avenue	Day (7.00am to 10.00pm)	107,200	10%	110,300	12%
	Night (10.00pm to 7.00am)	21,100	11%	21,700	12%
Moorebank Avenue North of M5 Motorway	Day (7.00am to 10.00pm)	26,700	10%	27,800	12%
	Night (10.00pm to 7.00am)	6,250	10%	6,410	10%
Moorebank Avenue South of M5 Motorway	Day (7.00am to 10.00pm)	14,400	6%	19,300	16%
	Night (10.00pm to 7.00am)	3,000	4%	4,100	10%

The study concluded that the project-related increase in road traffic noise levels along the M5 Motorway and along Moorebank Avenue, north of the M5 interchange are less than 2 dB(A) and therefore, comply with the relevant RNP criteria.

² Wilkinson Murray Report 12186-C – Sydney Intermodal Terminal Alliance Noise Assessment – Concept Plan, Section 6.3 Road Traffic Noise Assessment

In the area along Moorebank Avenue, south of the M5 interchange, road traffic noise levels were predicted to increase by approximately 3 dB(A). However, since there are no residential receivers in this area, no noise impact was expected.

4 Validation of road traffic noise model

Approval Condition B86 of SSD 7628 requires a validation of the operational road traffic prediction model. This has been performed in the current study via concurrent road traffic noise monitoring and road traffic counting at a representative residential receiver on Moorebank Avenue, north of the M5 interchange. The noise monitoring and road traffic counting were performed over a 14-day period between Thursday 27 May and Friday 11 June 2021.

An unattended noise logger was set up at a free-field location in the front yard of 62 Moorebank Avenue, 7.5 m from the edge of the nearside southbound lane. Moorebank Avenue comprises two southbound and two northbound lanes at this location.

The unattended noise monitoring was performed with a Type 1 sound level meter. A Type 1 microphone calibrator was utilised before and after the measurements to verify that the pre- and post-calibration levels were within 0.5 dB of the reference value. The noise measurements were performed in accordance with the requirements of the RNP.

Daily plots of the measured road traffic noise levels are provided in Appendix B. The noise logging results were processed to determine the $L_{Aeq(15hour)}$ daytime and $L_{Aeq(9hour)}$ night-time noise levels at the measurement position, averaged over the two-week survey period. Extraneous noise events during rain periods were excluded from the summary results. The noise monitoring results were also reviewed to identify 15-minute periods that contained siren noise from emergency services. These periods were also excluded from the summary results.

Road traffic counting was performed by Matrix Traffic and Transport Data at a position between Church Road and King Lane, along Moorebank Avenue. The traffic survey included full classification of heavy and light vehicles in both directions, summarised on an hourly basis over the 14-day survey period. The average vehicle speeds in each hour were also recorded.

A summary of the average road traffic volumes, speeds and percentage heavy vehicles is provided in Table 4.

Table 4 Summary of road traffic volumes (28 May to 10 June 2021) – Moorebank Avenue north of M5 interchange

Location	Daytime period (7am to 10pm)			Night-time period (10pm to 7am)		
	Northbound	Southbound	Total	Northbound	Southbound	Total
Number of vehicles per day	13,006	9,033	22,039	2,952	1,659	4,612
Percentage heavy vehicles	14%	16%	14%	16%	12%	15%
Average speed	59 km/h (daytime)			63 km/h (night-time)		

The average road traffic volumes, heavy vehicle mix and speeds were utilised in a CoRTN model to predict the daytime and night-time noise levels at the unattended noise logger position.

A comparison of the predicted and measured noise levels at the noise monitoring position is provided in Table 5.

Table 5 Summary of road traffic noise model validation – 62 Moorebank Avenue

Period	Measured $L_{Aeq(Period)}$ noise level, dB(A)	Predicted $L_{Aeq(Period)}$ noise level, dB(A)	Noise Level Difference, Predicted minus Measured, dB(A)
7.00am to 10.00pm daytime	71.3	71.6	0.3
10.00pm to 7.00am night-time	68.0	67.3	-0.7

The results in the above table identify that the difference between the measured noise levels and predicted noise levels at the noise monitoring location are within an acceptable tolerance of ± 1.0 dB(A).

This indicates that the CoRTN noise model is acceptable for predicting the overall noise levels and project-related noise increase at other representative locations near MPE.

5 MPE road traffic noise predictions

A Biannual Trip Origin and Destination Report (BTODR)³ was prepared by Ason Group for MPE, in accordance with the requirements of Approval Condition B28 of SSD 7628.

The report provides a summary of origin destination (OD) road traffic survey results to understand the distribution of MPE traffic on the surrounding road network. The measurement data is applicable for the reporting period between 1 November 2020 and 30 April 2021.

A summary of the average day / night traffic volumes (weekdays), derived from the BTODR data is provided in Table 6.

Table 6 Origin destination road traffic volumes and mix

Location	Time	Current (excluding MPE)		Current (including MPE)	
		Volume	Mix	Volume	Mix
M5 Motorway On/Off ramps to East ¹	Day (7.00am to 10.00pm)	15,237	9%	15,543	9%
	Night (10.00pm to 7.00am)	2,510	7%	2,551	7%
M5 Motorway On/Off ramps to West ¹	Day (7.00am to 10.00pm)	34,933	10%	35,378	10%
	Night (10.00pm to 7.00am)	5,240	9%	5,331	9%
Moorebank Avenue North of M5 Motorway	Day (7.00am to 10.00pm)	33,196	10%	33,405	10%
	Night (10.00pm to 7.00am)	5,074	9%	5,113	9%
Moorebank Avenue South of M5 Motorway	Day (7.00am to 10.00pm)	33,786	8%	34,827	9%
	Night (10.00pm to 7.00am)	5,193	6%	5,376	6%
Anzac Road	Day (7.00am to 10.00pm)	16,595	6%	16,684	6%
	Night (10.00pm to 7.00am)	1,983	5%	1,987	5%
Cambridge Avenue	Day (7.00am to 10.00pm)	22,661	6%	22,722	6%
	Night (10.00pm to 7.00am)	3,978	4%	3,983	4%
Moorebank Avenue South of Cambridge Avenue	Day (7.00am to 10.00pm)	1,976	4%	1,976	4%
	Night (10.00pm to 7.00am)	290	2%	290	2%

1. The BTODR did not include road traffic volumes for the M5 Motorway. For noise modelling purposes, road traffic volumes without MPE are based on the volumes in Table 3. The road traffic volumes with MPE are based on the including and excluding MPE traffic volumes in this table.

Based on the above traffic volumes with and without the MPE traffic, calculations of road traffic noise using CoRTN have been performed at representative residential receivers along each section of road. The results are provided in Table 7.

³ Ason Group, Biannual Trip Origin Destination Report - November 2020 - April 2021- Report P1065r03v1

Table 7 Predicted MPE road traffic noise levels at representative residential receivers

Location	Time	Typical setback distance to residential receivers, m	Predicted L _{Aeq(Period)} noise level, dB(A) ¹		Predicted noise increase from MPE
			Without MPE	With MPE	
M5 Motorway East of Moorebank Ave	Day (7.00am to 10.00pm)	25	64.5	64.5	0.0
	Night (10.00pm to 7.00am)	25	59.8	59.8	0.0
M5 Motorway On/Off ramps to West	Day (7.00am to 10.00pm)	25	65.2	65.2	0.0
	Night (10.00pm to 7.00am)	25	60.5	60.5	0.0
Moorebank Avenue North of M5 Motorway	Day (7.00am to 10.00pm)	10	71.7	71.8	0.1
	Night (10.00pm to 7.00am)	10	65.9	66.0	0.1
Moorebank Avenue South of M5 Motorway	Day (7.00am to 10.00pm)	n/a	No nearby residential receivers		0.3
	Night (10.00pm to 7.00am)	n/a	No nearby residential receivers		0.2
Anzac Road	Day (7.00am to 10.00pm)	6	71.9	71.9	0.0
	Night (10.00pm to 7.00am)	6	64.5	64.5	0.0
Cambridge Avenue	Day (7.00am to 10.00pm)	145	55.3	55.4	0.1
	Night (10.00pm to 7.00am)	145	49.7	49.7	0.0
Moorebank Avenue South of Cambridge Avenue	Day (7.00am to 10.00pm)	n/a	No nearby residential receivers		0.0
	Night (10.00pm to 7.00am)	n/a	No nearby residential receivers		0.0

Note: Overall noise levels are shown to 1 decimal place for the purpose of indicating the change in noise levels from MPE traffic. The accuracy of the overall noise level predictions is approximately ± 1 dB(A).

The results in the above table identify that the project-related increase in road traffic noise levels from MPE is 0.1 dB(A) or less at the nearest residential receivers.

The highest predicted increase of 0.3 dB(A) occurs in the area between the MPE site entry and the M5 interchange. It is noted that there are no residential receivers in this area.

6 Attended noise measurements

Attended noise measurements were performed at two locations on 27 May 2021 for the purpose of quantifying the noise levels of heavy vehicles entering / exiting MPE. The measurements were performed between 8:30 am and 10:30 am at the following locations.

- Near the MPE entry / exit on Moorebank Avenue (south of the M5 interchange) – opposite Target Warehouse
- Moorebank Avenue (north of the M5 interchange) – near King Lane

At each location, continuous noise measurements of road traffic noise were made. Video cameras were set up to provide a visual record of road traffic movements. These were time-synchronised with the noise recordings. The video recordings were reviewed to positively identify MPE heavy vehicles that entered / exited MPE and also passed by the Moorebank Avenue residential area, north of the M5 interchange.

The noise measurement results were post-processed to determine the noise contribution of MPE heavy vehicles in relation to non-MPE road traffic noise.

During the two-hour noise survey, 48 heavy vehicles were observed to enter / exit the MPE facility. Nine (9) MPE heavy vehicles were observed to pass the Moorebank Avenue residential area, north of the M5 interchange. The noise levels of these passbys were analysed and compared with the prevailing road traffic noise levels during the two-hour survey period and the noise increase from MPE heavy vehicles was determined to be 0.1 dB(A).

The measured traffic noise level increase of 0.1 dB(A) from MPE trucks in the residential area adjacent to Moorebank Avenue, north of the M5 interchange is consistent with the calculated 0.1 dB(A) increase presented in Table 7 and less than the 2 dB(A) allowance stipulated in Section 3.1.

7 Conclusion

The assessment presented in this report has been conducted to address the requirements of Approval Condition B86 of SSD 7628 and Approval Condition G15 of SSD 6766, and assesses the operational road traffic noise levels associated with MPE at the point in time when the subject site is 50% occupied.

This report presents the results of road traffic noise measurements and calculations at representative residential receiver locations along public roads in proximity to MPE. The measured and calculated increase in project-related road traffic noise have been compared with the 2 dB(A) allowance, derived from the NSW RNP.

Approval Condition B86 of SSD 7628 requires a validation of the operational road traffic prediction model. This has been performed in this current study via concurrent road traffic noise monitoring and road traffic counting at a representative residential receiver on Moorebank Avenue, north of the M5 interchange. The difference between the measured and predicted noise levels was less than the acceptable tolerance of ± 1.0 dB(A).

This validated noise model was subsequently utilised in conjunction with the Biannual Trip Origin and Destination Report, to understand the distribution of MPE traffic on the surrounding road network, and to predict the project-related increase in road traffic noise levels.

The project-related increase in road traffic noise levels from MPE was calculated to be 0.1 dB(A) or less at the nearest residential receivers. The highest calculated increase of 0.3 dB(A) occurs in the area between the MPE site entry and M5 interchange where there are no residential receivers in this area.

Attended noise measurements were performed in conjunction with visual observations of trucks entering / exiting MPE to directly measure the noise increase of MPE trucks over a two-hour period in the residential area on Moorebank Avenue, north of the M5 interchange. The measured noise level increase from MPE trucks was 0.1 dB(A), consistent with the noise model calculations.

It is concluded that the project-related increase in road traffic noise levels related to MPE is less than the 2 dB(A) allowance in the NSW RNP. Therefore, no re-calibration of the road traffic noise model and/or consideration of additional mitigation measures are required at this stage.

APPENDIX A Description of technical terms

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

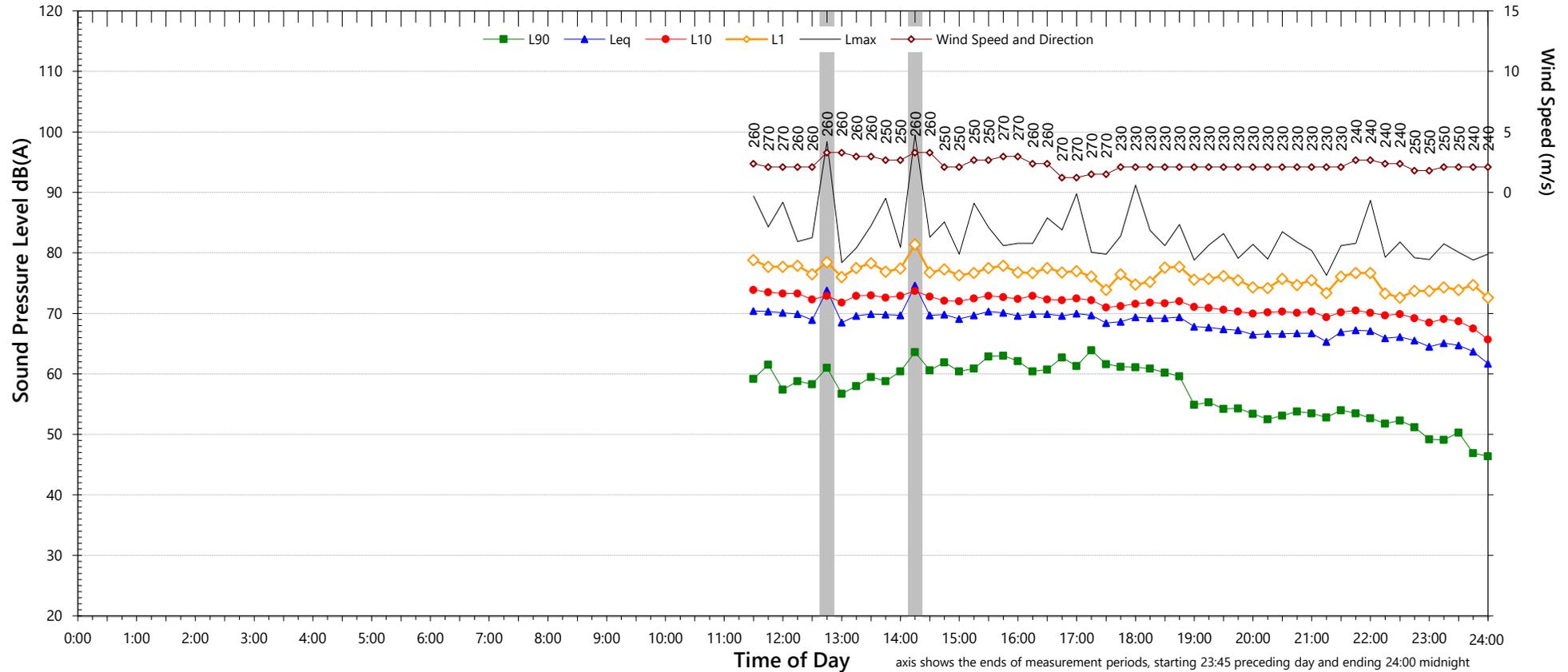
Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dB The sound of a rock band 115dB Limit of sound permitted in industry 120dB Deafening
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
LMax	The maximum sound pressure level measured over a given period.
LMin	The minimum sound pressure level measured over a given period.

APPENDIX B Unattended noise monitoring results

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Thursday, 27 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	-	53	45
L _{Aeq}	-	67	66

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	79	to	93
L _{AFMax} - L _{Aeq} (Range)	15	to	23

Notes:

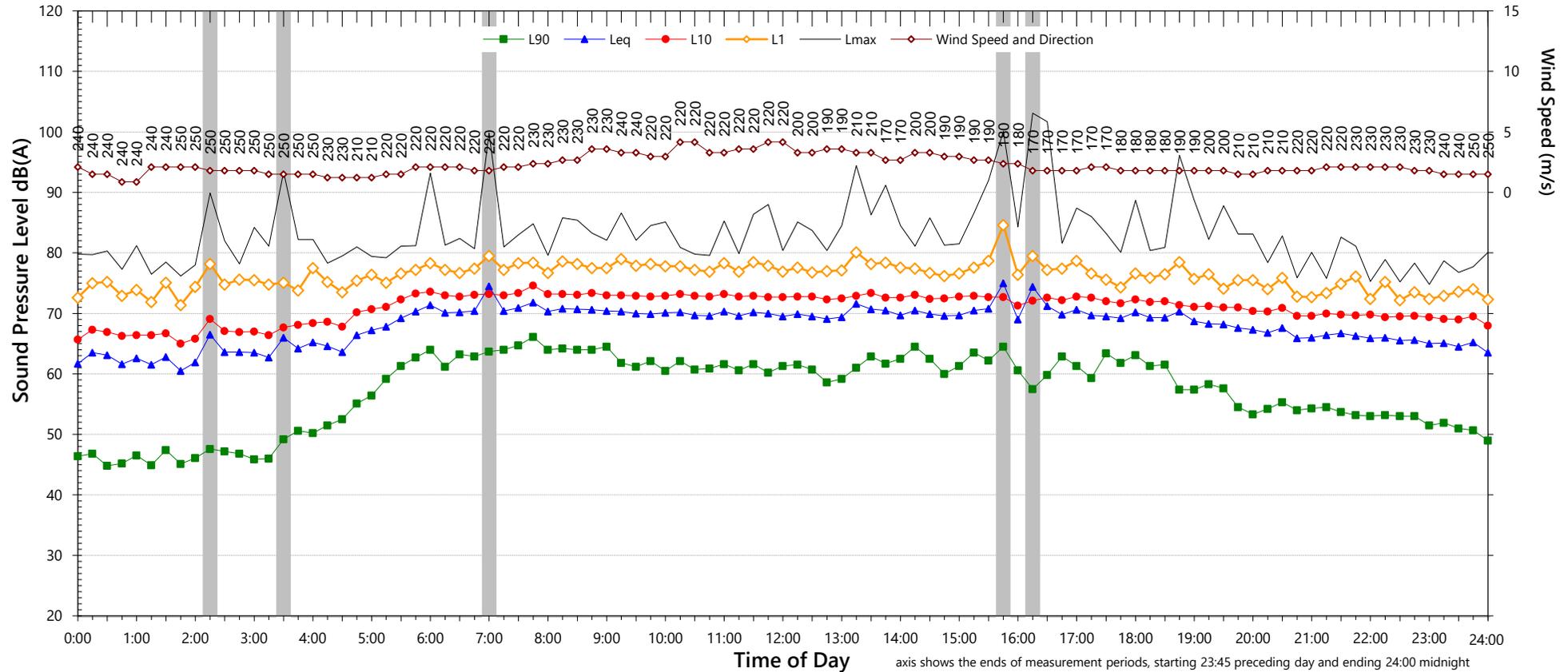
- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	-	-
L _{Aeq} 1hr upper 10 percentile	-	-
L _{Aeq} 1hr lower 10 percentile	-	-

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Friday, 28 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	60	53	45
L _{Aeq}	70	68	64

Night Time Maximum Noise Levels (see note 7)			
L _{AFMax} (Range)	80	to	86
L _{AFMax} - L _{Aeq} (Range)	15	to	23

Notes:

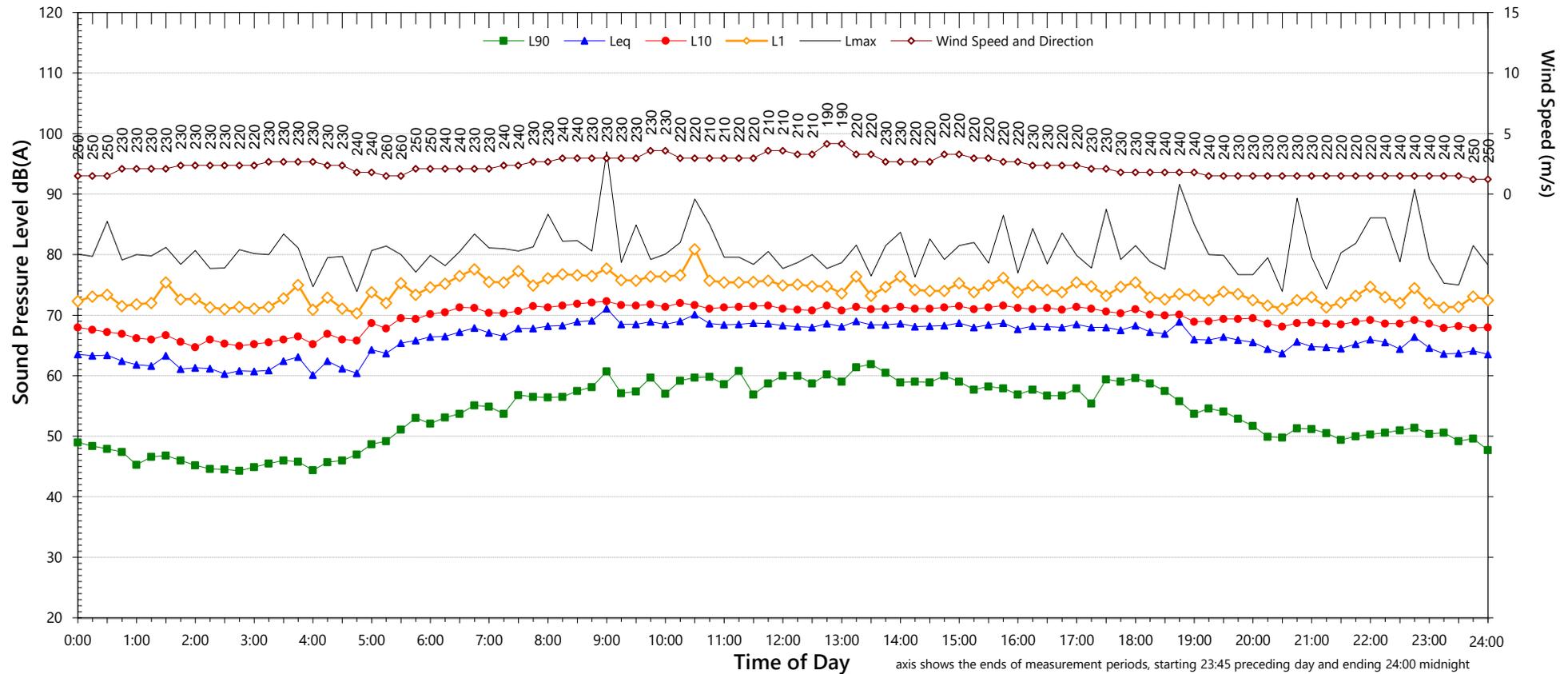
- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	72	67
L _{Aeq} 1hr upper 10 percentile	73	68
L _{Aeq} 1hr lower 10 percentile	70	64

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Saturday, 29 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	57	50	43
L _{Aeq}	68	66	63

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	78	to	91
L _{AFMax} - L _{Aeq} (Range)	16	to	26

Notes:

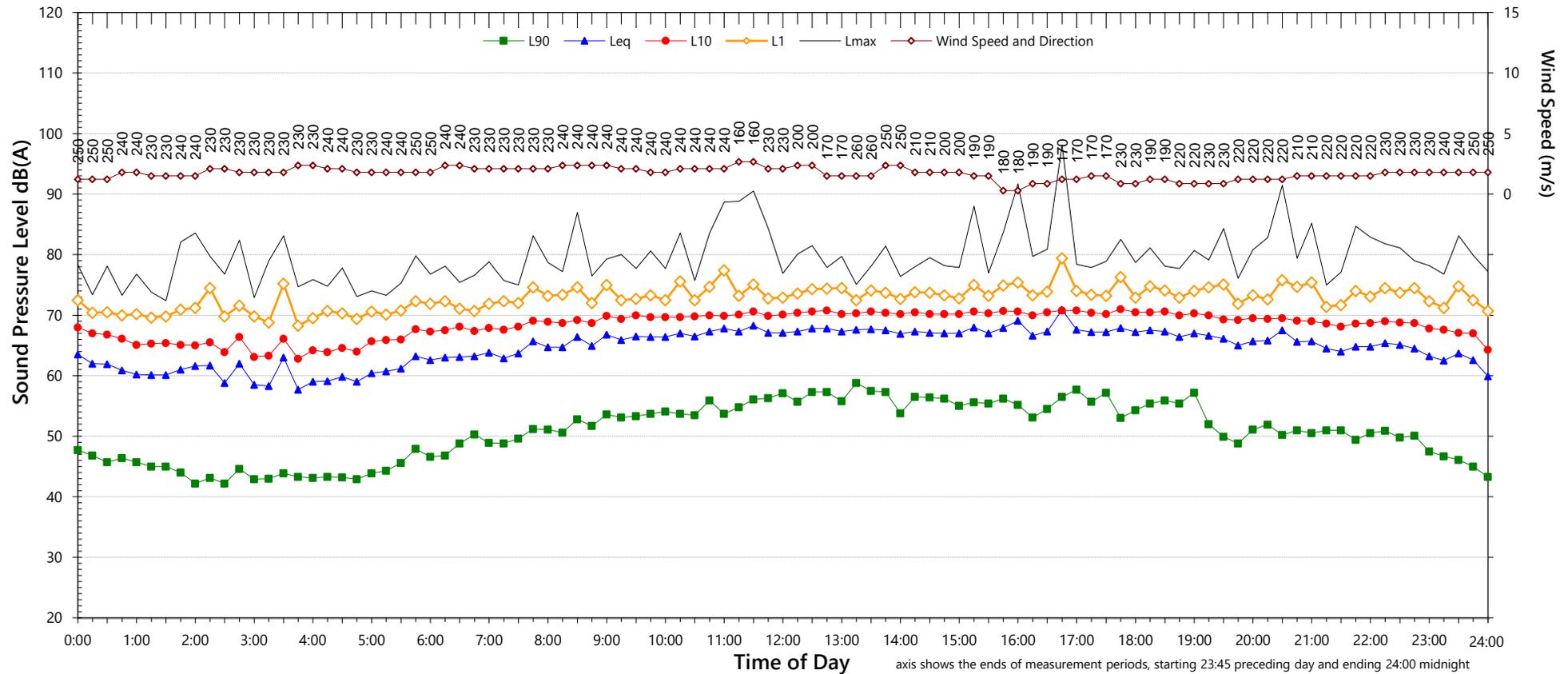
- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	70	65
L _{Aeq} 1hr upper 10 percentile	71	67
L _{Aeq} 1hr lower 10 percentile	68	62

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Sunday, 30 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	53	50	40
L _{Aeq}	67	66	65

Night Time Maximum Noise Levels (see note 7)			
L _{AFMax} (Range)	81	to	88
L _{AFMax} - L _{Aeq} (Range)	17	to	23

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	69	68
L _{Aeq} 1hr upper 10 percentile	70	72
L _{Aeq} 1hr lower 10 percentile	68	63

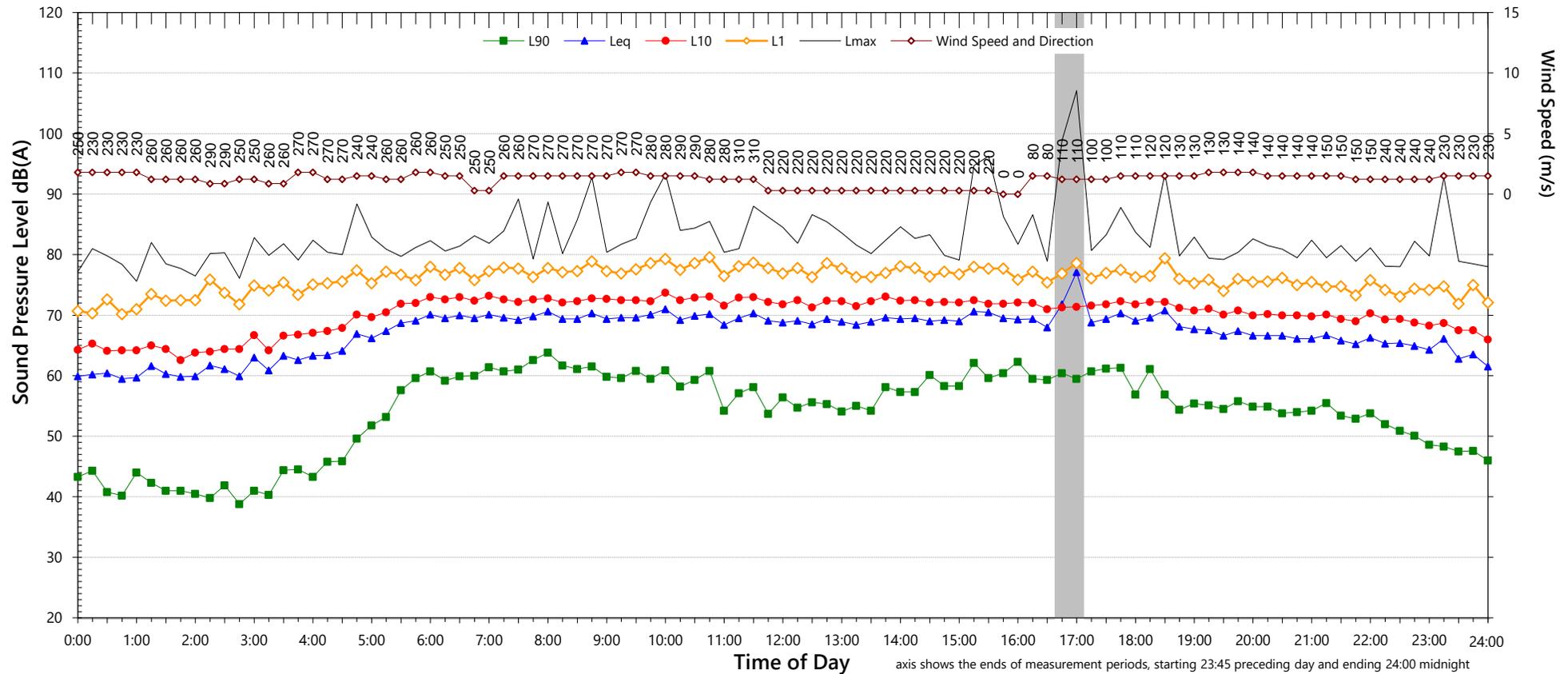
Notes:

- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Monday, 31 May 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	55	54	41
L _{Aeq}	70	67	66

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	81	to	93
L _{AFMax} - L _{Aeq} (Range)	17	to	29

Notes:

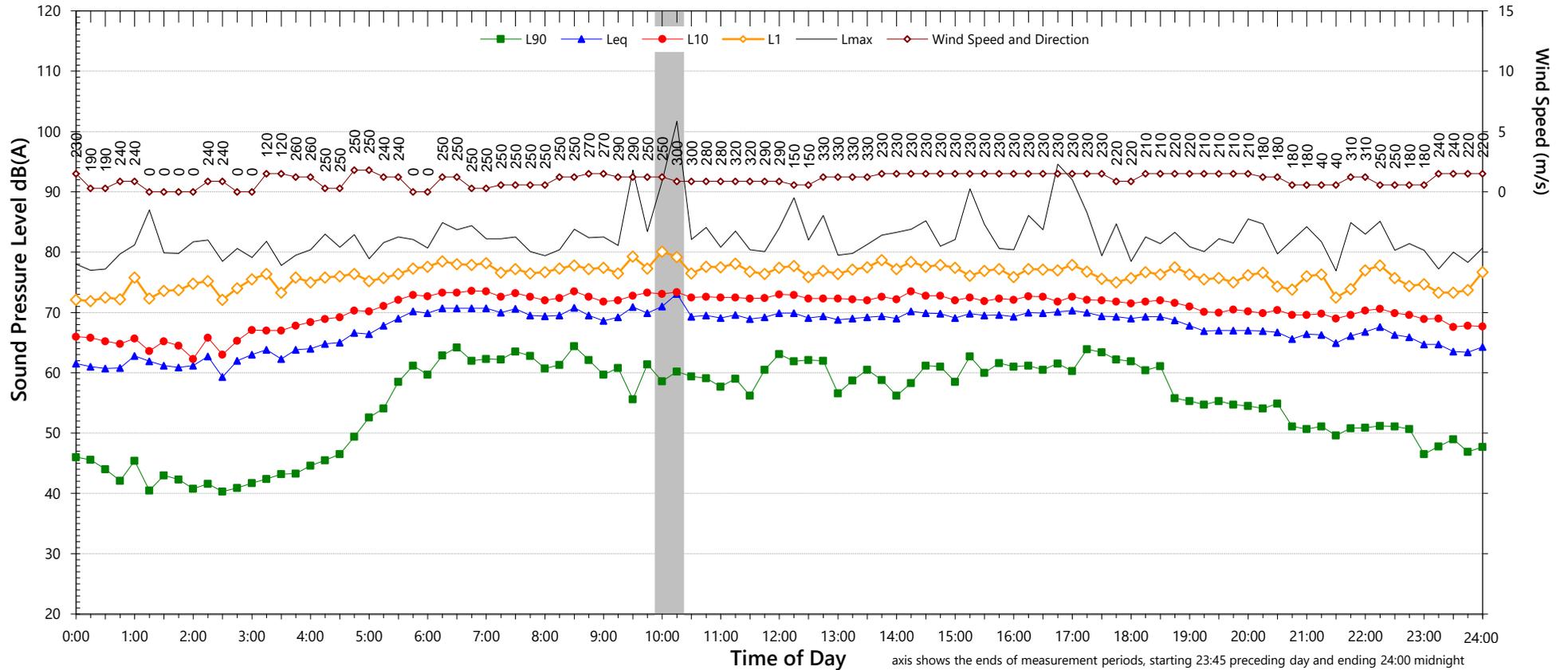
- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	72	69
L _{Aeq} 1hr upper 10 percentile	72	72
L _{Aeq} 1hr lower 10 percentile	69	64

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Tuesday, 1 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	58	51	41
L _{Aeq}	70	67	66

Night Time Maximum Noise Levels (see note 7)			
L _{AFMax} (Range)	81	to	88
L _{AFMax} - L _{Aeq} (Range)	17	to	22

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	72	69
L _{Aeq} 1hr upper 10 percentile	72	72
L _{Aeq} 1hr lower 10 percentile	69	64

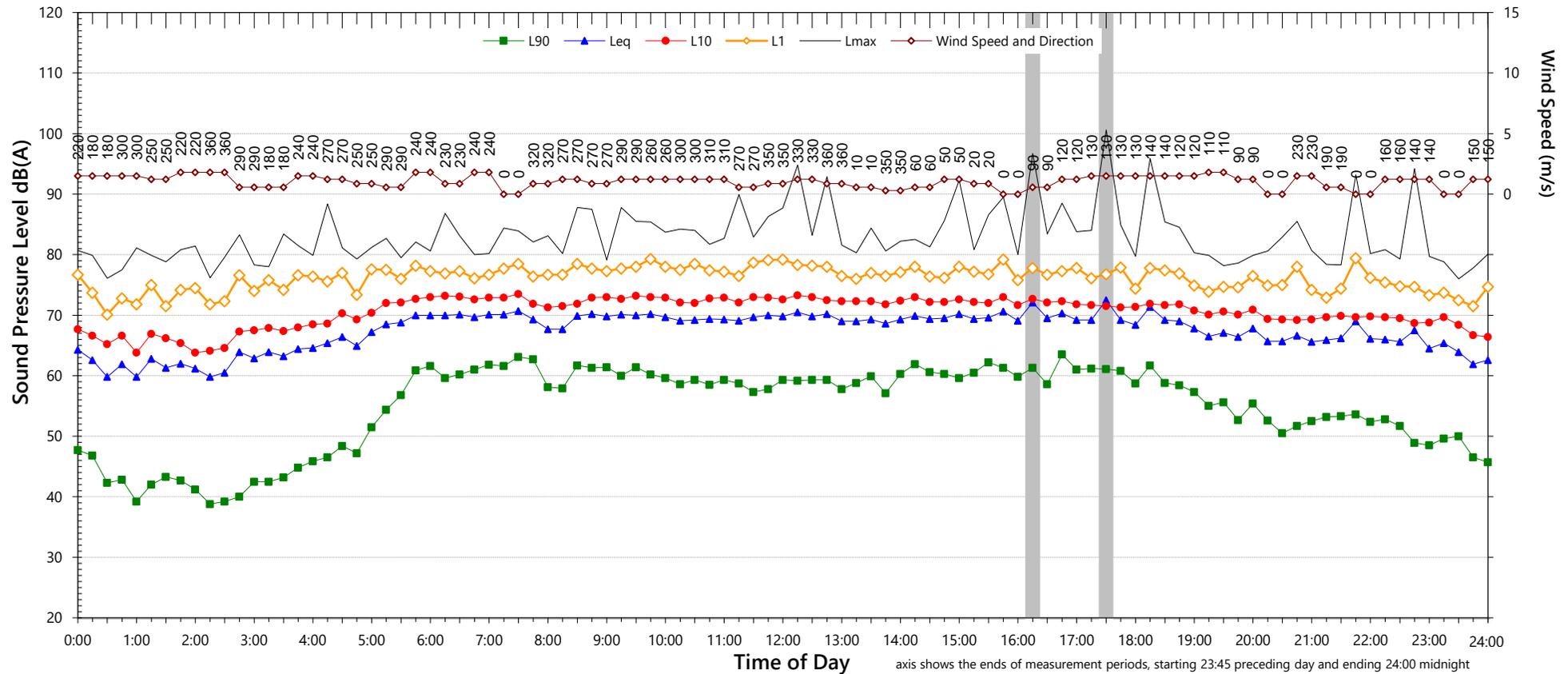
Notes:

- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Wednesday, 2 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	58	52	43
L _{Aeq}	70	68	66

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	80	to	94
L _{AFMax} - L _{Aeq} (Range)	16	to	28

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	72	68
L _{Aeq} 1hr upper 10 percentile	72	72
L _{Aeq} 1hr lower 10 percentile	69	64

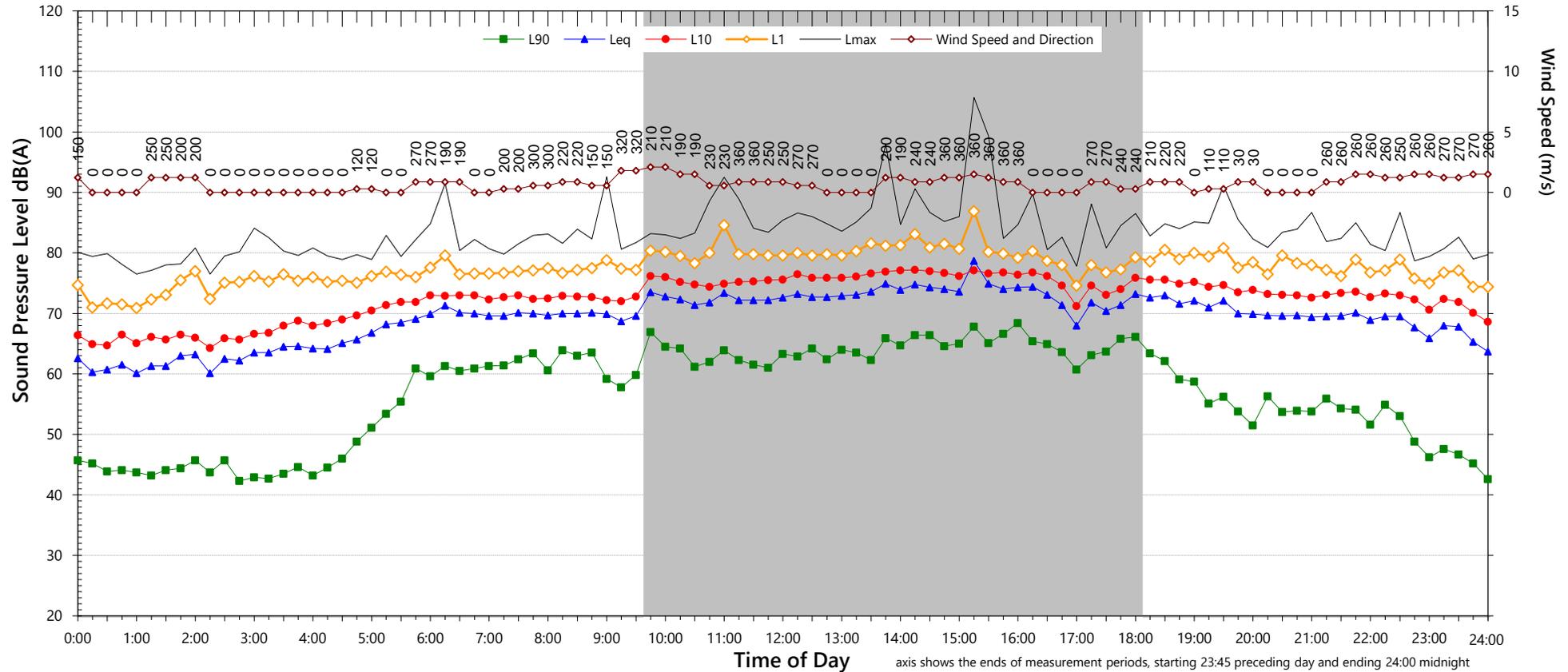
Notes:

- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Thursday, 3 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	-	53	44
L _{Aeq}	-	71	69

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	81	to	91
L _{AFMax} - L _{Aeq} (Range)	16	to	23

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	73	71
L _{Aeq} 1hr upper 10 percentile	74	75
L _{Aeq} 1hr lower 10 percentile	72	67

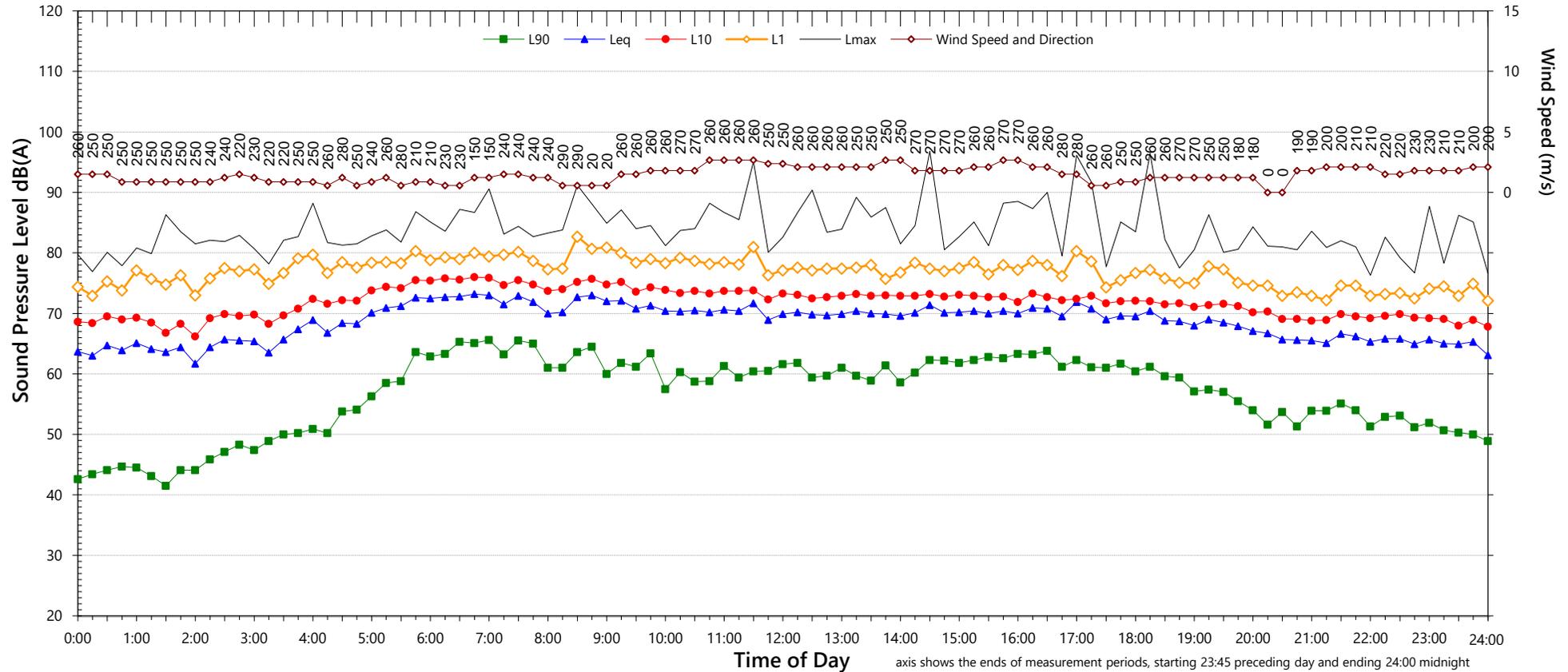
Notes:

- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Friday, 4 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	59	51	46
L _{Aeq}	71	67	64

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	78	to	93
L _{AFMax} - L _{Aeq} (Range)	15	to	30

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	73	67
L _{Aeq} 1hr upper 10 percentile	74	68
L _{Aeq} 1hr lower 10 percentile	69	64

4. "Night" relates to the remaining periods

7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

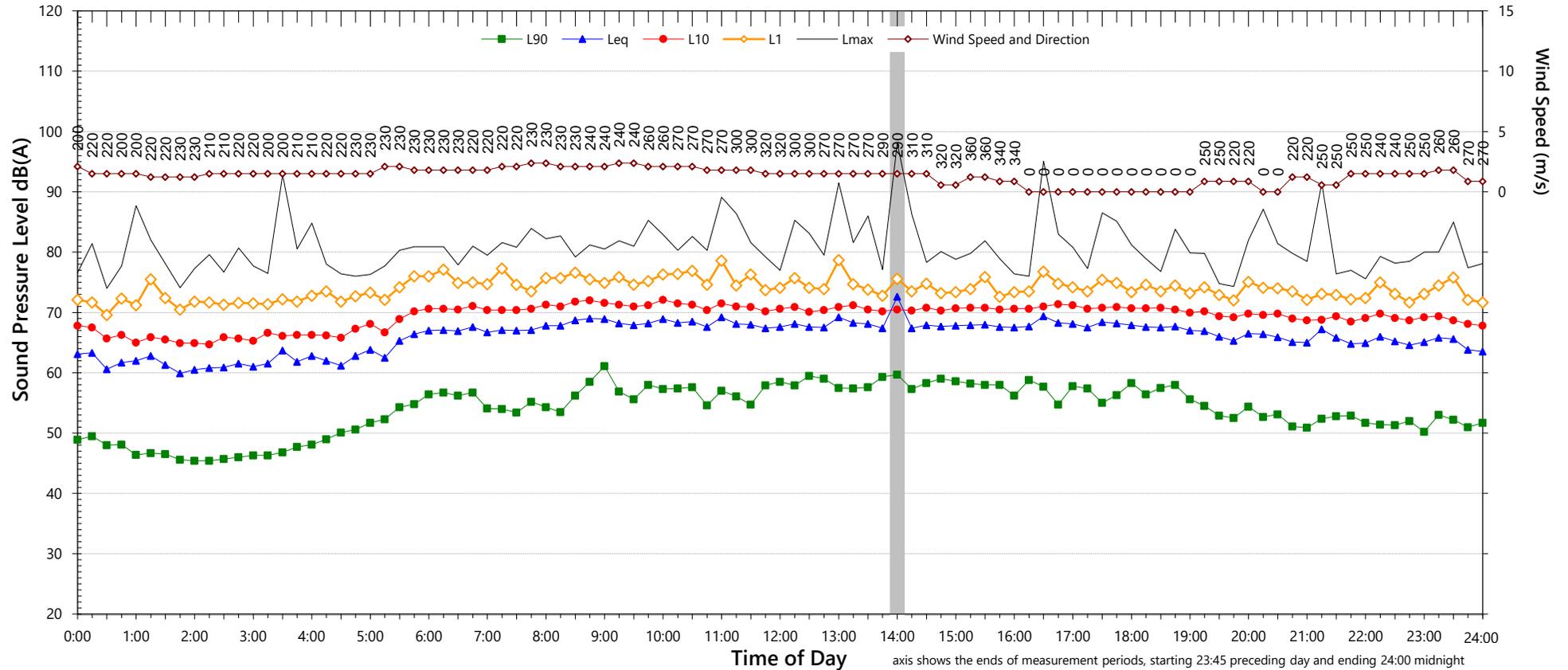
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Saturday, 5 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	55	51	44
L _{Aeq}	68	66	63

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	78	to	90
L _{AFMax} - L _{Aeq} (Range)	15	to	29

Notes:

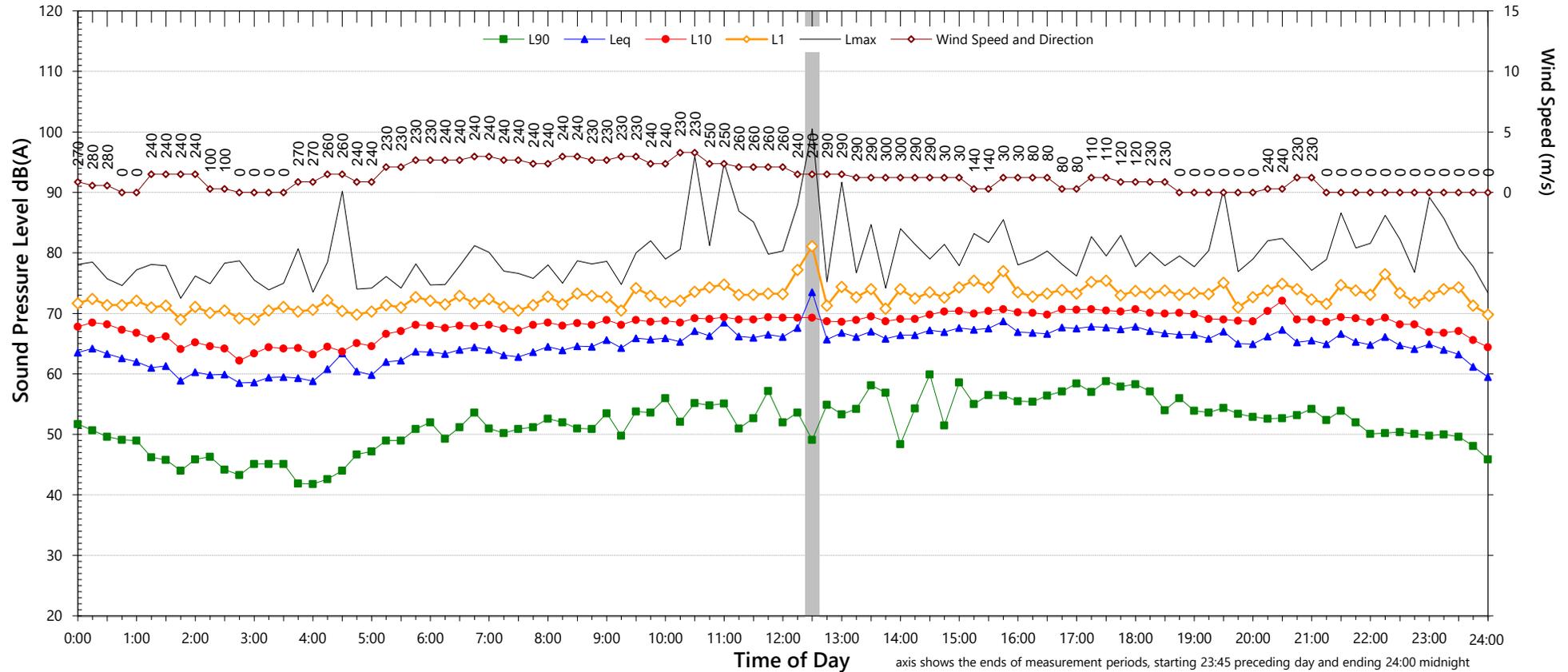
- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	70	65
L _{Aeq} 1hr upper 10 percentile	71	67
L _{Aeq} 1hr lower 10 percentile	68	62

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Sunday, 6 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	51	52	44
L _{Aeq}	67	66	65

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	79	to	91
L _{AFMax} - L _{Aeq} (Range)	18	to	24

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	69	68
L _{Aeq} 1hr upper 10 percentile	70	71
L _{Aeq} 1hr lower 10 percentile	68	64

4. "Night" relates to the remaining periods

7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

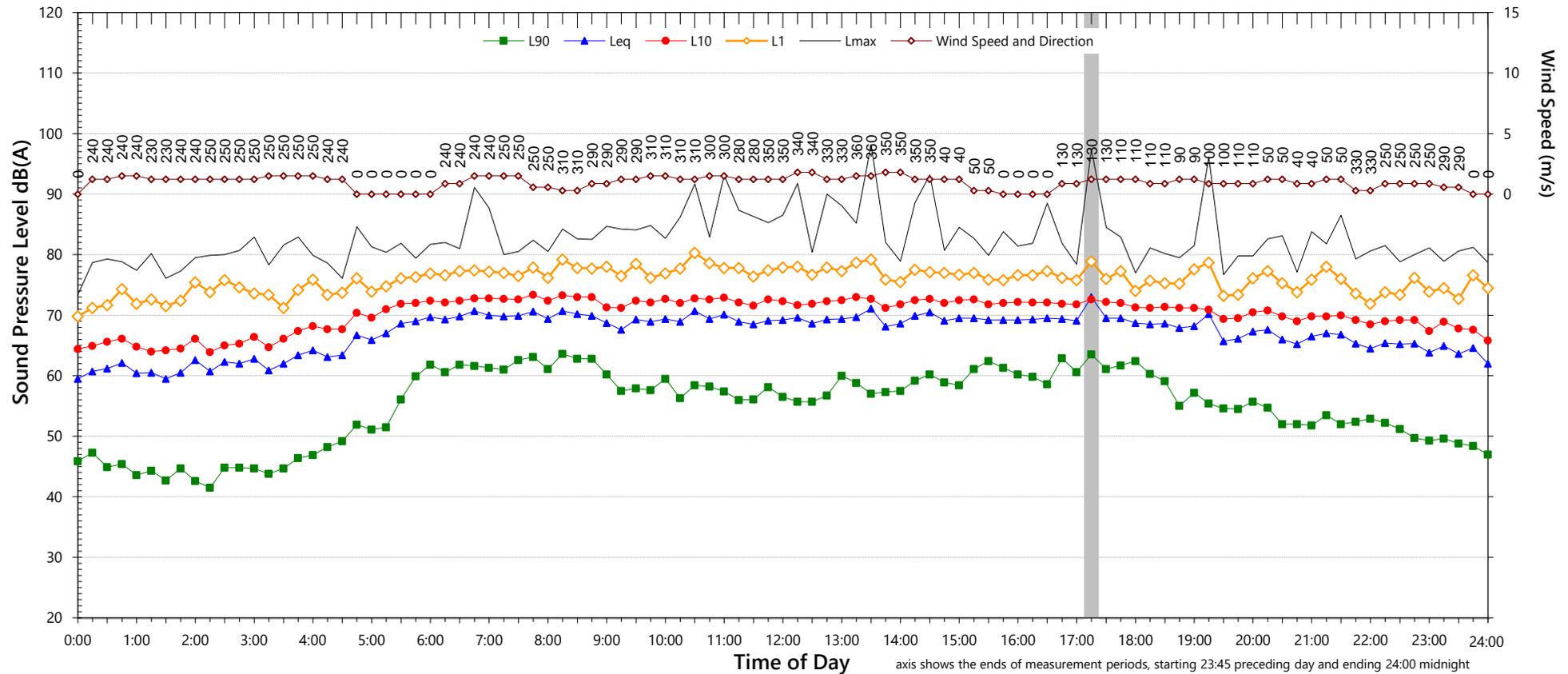
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Monday, 7 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	56	52	47
L _{Aeq}	69	67	66

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	79	to	90
L _{AFMax} - L _{Aeq} (Range)	17	to	20

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	71	68
L _{Aeq} 1hr upper 10 percentile	72	72
L _{Aeq} 1hr lower 10 percentile	69	64

4. "Night" relates to the remaining periods

7. 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

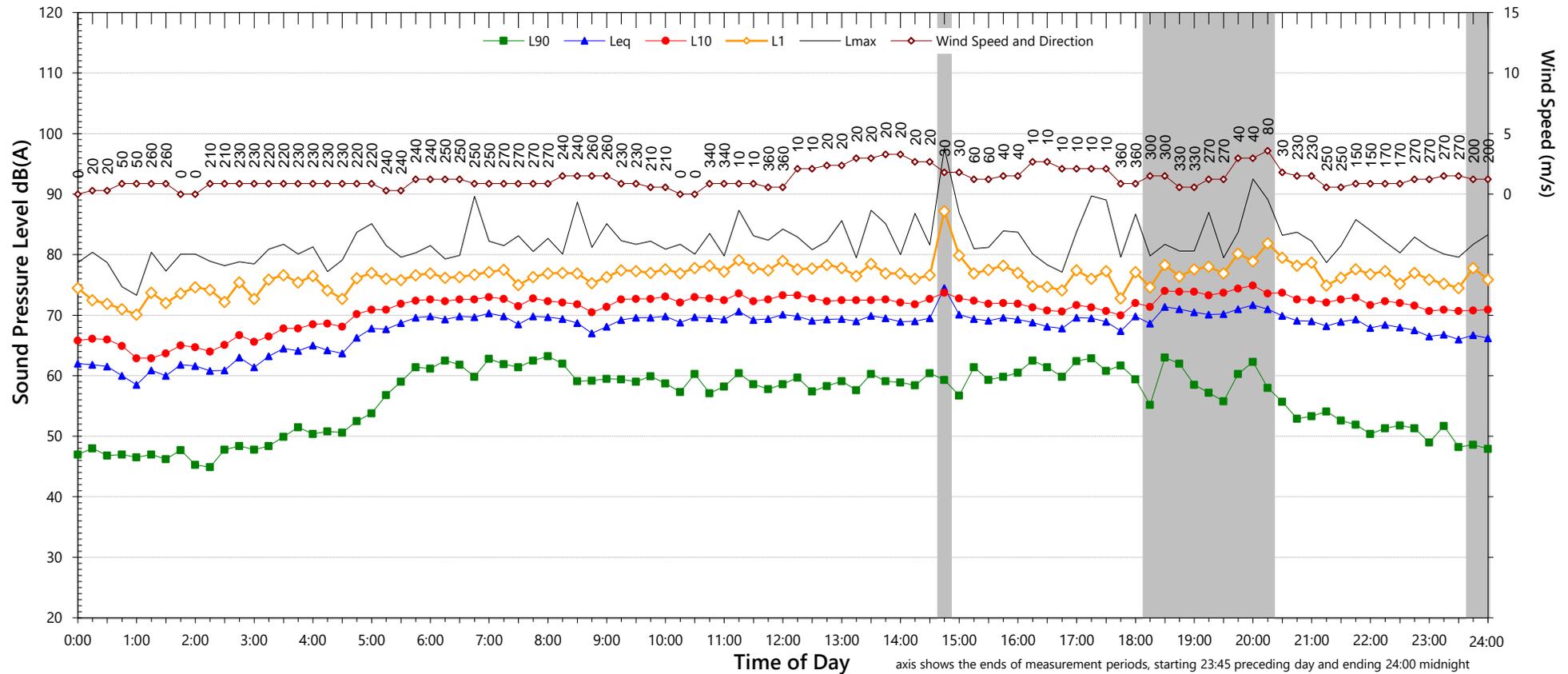
2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Tuesday, 8 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	58	-	41
L _{Aeq}	69	-	69

Night Time Maximum Noise Levels (see note 7)			
L _{AFMax} (Range)	81	to	94
L _{AFMax} - L _{Aeq} (Range)	15	to	28

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	72	71
L _{Aeq} 1hr upper 10 percentile	72	74
L _{Aeq} 1hr lower 10 percentile	71	67

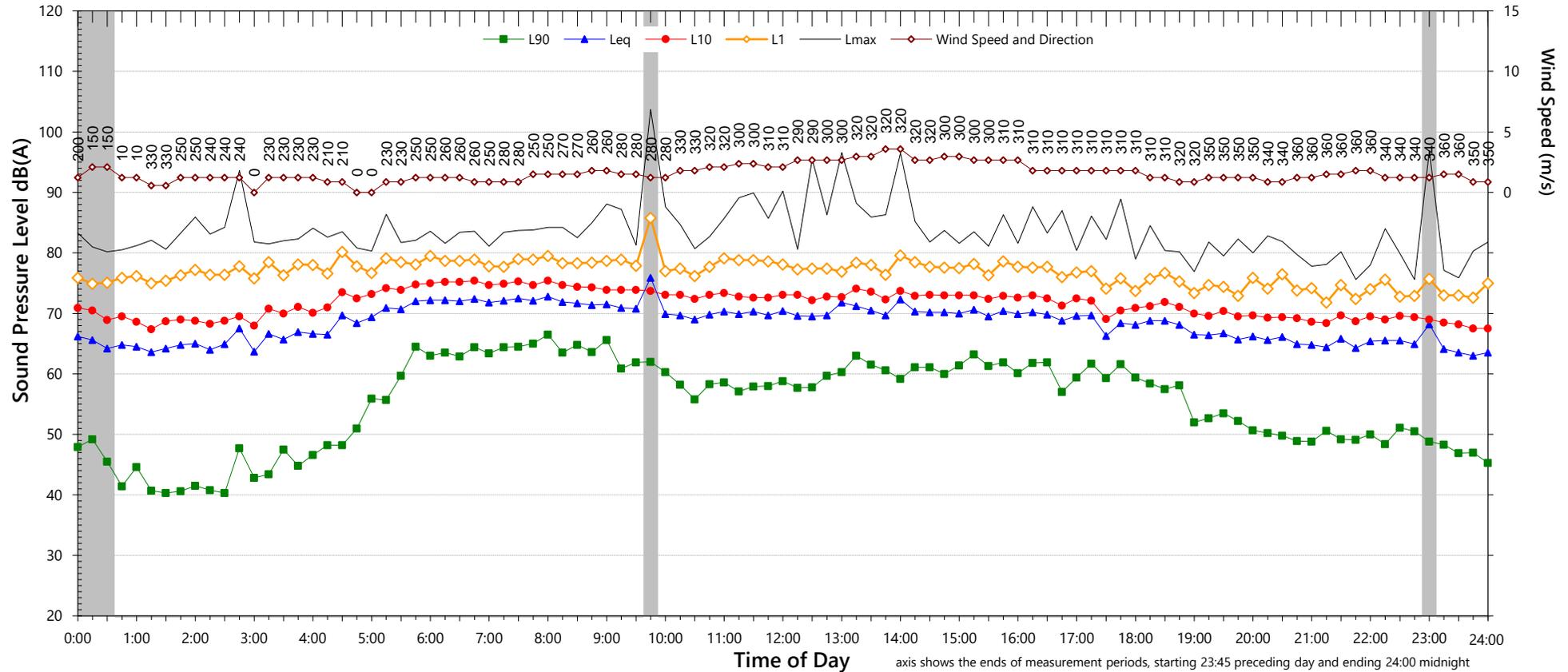
Notes:

- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Wednesday, 9 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	58	49	42
L _{Aeq}	70	66	66

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	80	to	92
L _{AFMax} - L _{Aeq} (Range)	17	to	23

Notes:

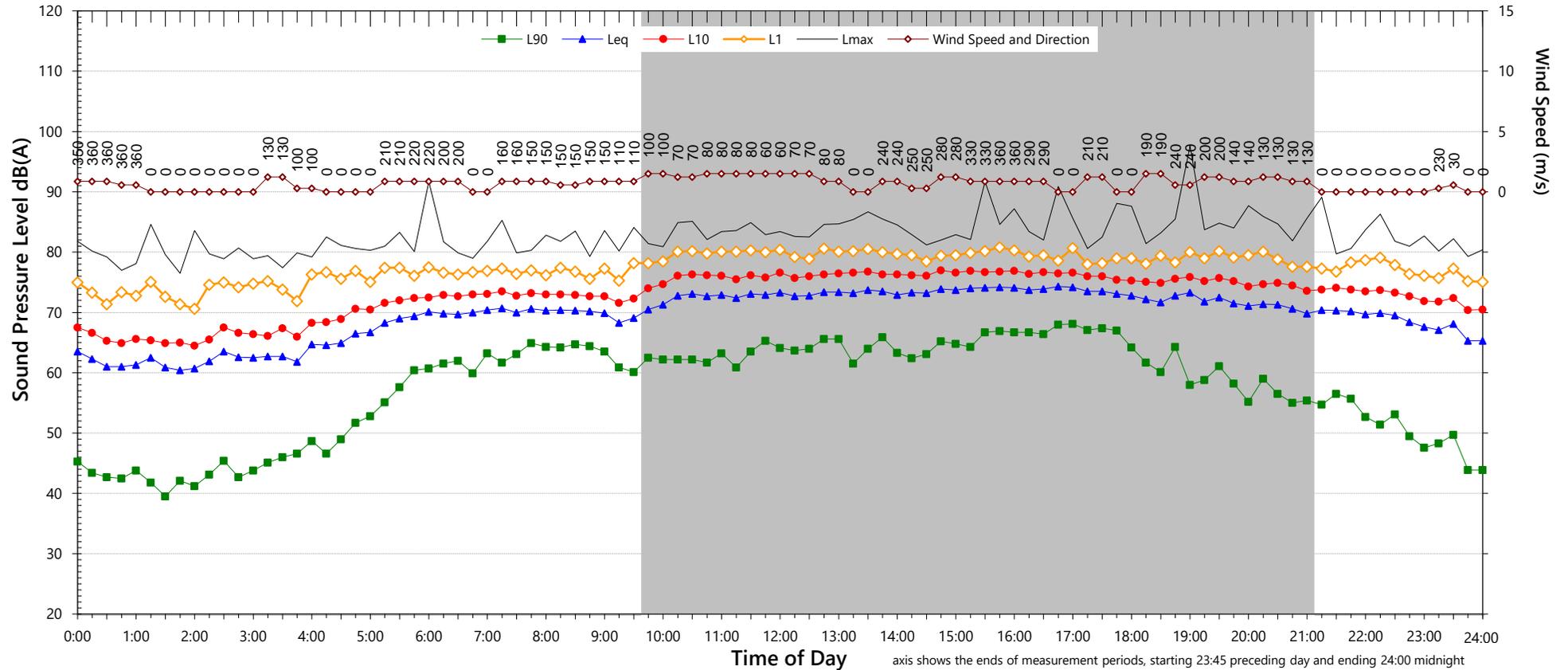
- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	72	68
L _{Aeq} 1hr upper 10 percentile	74	72
L _{Aeq} 1hr lower 10 percentile	68	64

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Thursday, 10 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	-	-	42
L _{Aeq}	-	-	69

Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	82	to	97
L _{AFMax} - L _{Aeq} (Range)	16	to	28

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	73	71
L _{Aeq} 1hr upper 10 percentile	73	74
L _{Aeq} 1hr lower 10 percentile	72	67

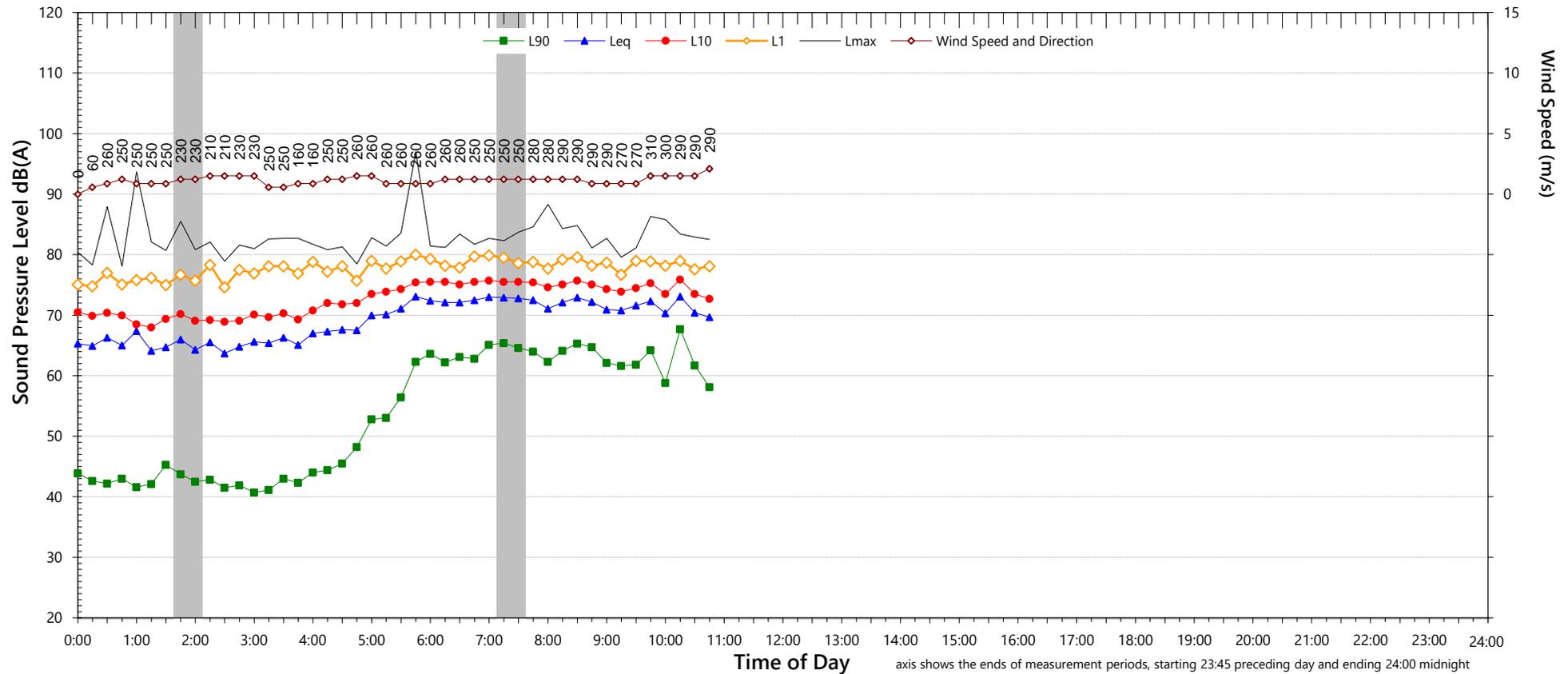
Notes:

- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)

Unattended Noise Monitoring Results

62 Moorebank Avenue - Front Yard

Friday, 11 June 2021



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day ²	Evening ³	Night ^{4,5}
L _{A90} ABL	-	-	-
L _{Aeq}	-	-	-
Night Time Maximum Noise Levels			(see note 7)
L _{AFMax} (Range)	-	to	-
L _{AFMax} - L _{Aeq} (Range)	-	to	-

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night ⁵
	7am-10pm	10pm-7am
L _{Aeq} 15 hr and L _{Aeq} 9 hr	-	-
L _{Aeq} 1hr upper 10 percentile	-	-
L _{Aeq} 1hr lower 10 percentile	-	-

Notes:

- Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.
- "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days
- "Evening" is the period from 6pm till 10pm
- "Night" relates to the remaining periods
- "Night" relates to period from 10pm on this graph to morning on the following graph.
- Graphed data measured in free-field; tabulated results facade corrected
- 1-hour values for L_{AFMax} are shown only where L_{AFMax} > 65dB(A) and where L_{AFMax} - L_{Aeq} ≥ 15dB(A)