Noise Monitoring Assessment

Northparkes Mines

Quarter 1, 2023

Prepared for: CMOC Mining Services Pty Ltd
April 2023
MAC190810RP16

Muller Acoustic Consulting

Document Information

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by CMOC Mining Services Pty Limited (CMOC) to complete a Noise Monitoring Assessment (NMA) for Northparkes Mines (Northparkes), 27km Northwest of Parkes, NSW. The NMA has been completed to quantify operational noise emissions as per Conditions 1 to 5 of Schedule 3 of the Project Approval Conditions (PA11_110060) and the Northparkes Noise Management Plan (NMP, 2019).

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA) 2017, Noise Policy for Industry (NPI);
- NSW Environment Protection Authority (EPA's), Approved methods for the measurement and analysis of environmental noise in NSW, 2022; and
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A.**

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2 Noise Criteria

2.1 Operational Noise Criteria

This assessment has adopted criteria as per Conditions 1 to 5 of Schedule 3 of the Development Consent Conditions (PA11_110060) and the Northparkes Noise Management Plan (Northparkes, 2019) (see **Appendix B**) and is summarised below in **Table 1**.

Table 1 Noise Criteria

Location	Day	Evening	Night	
	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{Aeq(15min)}$	dB $L_{A1(1min)}$
All privately-owned land	35	35	35	45

Additionally, the conditions state:

Operational Noise generated by the project will be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy.

These limits apply under all meteorological conditions except the following:

- *during periods of rain or hail;*
- *average wind speeds at microphone height exceeds 5 m/s;*
- *wind speeds greater than 3 m/s at 10 metres above ground level; or*
- *temperature inversion conditions of up to 3 °C/100m or alternatively a stability class of G.*

Except for wind speed at the microphone height, the data to be used for determining meteorological conditions will be that recorded by the meteorological station located onsite. Operational noise generated by the project is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.

These limits do not apply if NPM have an agreement with the relevant owner/s of the residences or land to generate higher noise levels, and NPM has advised the Department in writing of the terms of the agreement.

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3 Assessment Methodology

All attended noise monitoring surveys for this assessment were conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the NMP.

The acoustic instrumentation used carries appropriate and current NATA (or manufacturer) calibration certificates with records of all calibrations maintained by MAC as per Approved methods for the measurement and analysis of environmental noise in NSW (EPA, 2022) and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed ±0.5dBA.

3.1 Operational Noise Measurement Methodology

The locality surrounding the mine is primarily rural/residential. In accordance with the NMP, five representative receivers were selected for this assessment and are presented in **Table 2.**

Table 2 Noise Monitoring Locations

ID	Location	Coordinate Locations, MGA55	
		Easting (m)	Northing (m)
NM1	Hubberstone	600687	6360754
NM2	Lone Pine	593669	6358933
NM3	Milpose	594827	6352971
NM4	Hillview	602993	6353469
NM5	Adavale	593568	6356920

Note: NM5 is an additional monitoring initiative by NPM.

Monitoring locations with respect to the mine site are shown visually in **Figure 1**.

Measurements were carried out using a Svantek Type 1, 971 noise analyser from Tuesday 21 February 2023 to Wednesday 22 February 2023. The monitoring regime consisted of three 15-minute measurements during the daytime, evening and night-time periods at each monitoring location. Throughout each survey, the operator quantified the contribution of significant noise sources where possible.

FIGURE 1

Locality Plan

MAC190810

Northparkes Mine

KEY

Monitoring Locations

0 400 800 1200 1600 2000 m

N

MAC
Muller Acoustic Consulting

4 Results

4.1 Operational Noise Results

The monitoring assessment results for each location are presented in **Table 3** to **Table 7**. Each table contains results for each of the three 15-minute measurements for daytime, evening and night-time periods for each location including wind direction, wind speed and atmospheric stability class.

Table 3 Operator-Attended Noise Survey Results – Location NM1, Hubberstone

Date/Time (hrs) Duration 15min	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
13:41 22/02/2023	61	42	35	WD: SE WS: 2.0m/s Stab Class: C	Wind 31-61 Birds 30-51 NPM Inaudible
13:56 22/02/2023	61	41	35		
14:11 22/02/2023	57	40	34		
Site $L_{Aeq(15min)}$ Contribution					<35
Evening					
20:13 22/02/2023	54	42	40	WD: E WS: 1.0m/s Stab Class: E	Insects 36-57 Birds 33-42 Aircraft 35-55 NPM Inaudible
20:28 22/02/2023	55	41	38		
20:43 22/02/2023	57	47	43		
Site $L_{Aeq(15min)}$ Contribution					<35
Night					
01:54 22/02/2023	55	44	42	WD: NE WS: 0.5m/s Stab Class: E	Insects 39-48 MAC Operator 55 NPM Inaudible
02:09 22/02/2023	48	44	42		
02:24 22/02/2023	47	43	41		
Site $L_{Aeq(15min)}$ Contribution					<35
Site $L_{A1(1min)}$ Contribution					<45

Note: NPM denotes Northparkes Mines.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 4 Operator-Attended Noise Survey Results – Location NM2, Lone Pine					
Date/Time (hrs)	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
Duration 15min	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
14:41 22/02/2023	59	45	38	WD: E WS: 2.5m/s Stab Class: D	Wind 32-59 Traffic 32-56 NPM Inaudible
14:56 22/02/2023	58	42	37		
15:11 22/02/2023	56	41	35		
Site $L_{Aeq(15min)}$ Contribution					<35
Evening					
19:18 22/02/2023	54	48	42	WD: NE WS: 1.5m/s Stab Class: D	Wind 30-45 Insects 32-56 Traffic 30-48 Livestock 30-35 NPM Inaudible
19:33 22/02/2023	55	48	44		
19:48 22/02/2023	56	49	45		
Site $L_{Aeq(15min)}$ Contribution					<35
Night					
00:58 22/02/2023	56	43	39	WD: NE WS: 0.5m/s Stab Class: E	Insects 37-60 Dogs Barking 35-48 NPM Inaudible
01:13 22/02/2023	60	46	40		
01:28 22/02/2023	60	48	38		
Site $L_{Aeq(15min)}$ Contribution					<35
Site $L_{A1(1min)}$ Contribution					<45

Note: NPM denotes Northparkes Mines.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 5 Operator-Attended Noise Survey Results – Location NM3, Milpose					
Date/Time (hrs) Duration 15min	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
16:36 22/02/2023	58	38	29	WD: E WS: 2.0m/s Stab Class: C	Wind 25-53 Birds 25-58 Residential Noise 30-63 NPM Inaudible
16:51 22/02/2023	55	35	29		
17:06 22/02/2023	63	42	30		
Site $L_{Aeq(15min)}$ Contribution					<30
Evening					
20:01 21/02/2023	53	37	31	WD: NE WS: 1.0m/s Stab Class: D	Insects 28-60 Distant Thunder 25-53 MAC Operator 69 NPM Site Hum 25-30[1] (just audible 50% measurement)
20:16 21/02/2023	69	42	32		
20:31 21/02/2023	60	46	36		
Site $L_{Aeq(15min)}$ Contribution					<30 (27[1])
Night					
22:55 21/02/2023	52	44	42	WD: NE WS: 1.0m/s Stab Class: E	Insects 40-54 Aircraft 40-61 NPM Site Hum 25-38[1] (just audible throughout measurement)
23:10 21/02/2023	61	45	42		
23:25 21/02/2023	50	42	39		
Site $L_{Aeq(15min)}$ Contribution					<35 (30)[1]
Site $L_{A1(1min)}$ Contribution					<45

Note: NPM denotes Northparkes Mines.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 1 :NPM Contribution derived from further analysis

Table 6 Operator-Attended Noise Survey Results – Location NM4, Hillview					
Date/Time (hrs) Duration 15min	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
12:30 22/02/2023	65	43	38	WD: SE WS: 2.0m/s Stab Class: C	Wind 35-54 Birds 32-65 Traffic 32-55 NPM Inaudible
12:45 22/02/2023	56	43	37		
13:00 22/02/2023	62	43	38		
Site $L_{Aeq(15min)}$ Contribution					<35
Evening					
18:00 22/02/2023	75	47	32	WD: E WS: 1.5m/s Stab Class: D	Wind 29-48 Birds 26-48 Traffic 30-51 Residential Noise 30-75 NPM Inaudible
18:15 22/02/2023	72	46	33		
18:30 22/02/2023	50	39	34		
Site $L_{Aeq(15min)}$ Contribution					<35
Night					
23:55 21/02/2023	50	28	26	WD: N WS: 0.5m/s Stab Class: E	Insects 25-43 MAC Operator 52 NPM Inaudible
12:10 22/02/2023	52	28	26		
12:25 22/02/2023	43	28	27		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40

Note: NPM denotes Northparkes Mines.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Table 7 Operator-Attended Noise Survey Results – Location NM5, Adavale					
Date/Time (hrs) Duration 15min	Noise Descriptor (dBA re 20 µPa)			Meteorology	Description and SPL, dBA
	L_{Amax}	L_{Aeq}	L_{A90}		
Day					
15:39 22/02/2023	53	39	32	WD: E WS: 2.0m/s Stab Class: D	Wind 28-54 Birds 25-40 Aircraft 35-48 MAC Operator 72 NPM Inaudible
15:54 22/02/2023	53	37	31		
16:09 22/02/2023	72	40	29		
Site $L_{Aeq(15min)}$ Contribution					<30
Evening					
21:05 21/02/2023	61	37	27	WD: NE WS: 1.5m/s Stab Class: D	Wind 25-46 Insects 25-51 Aircraft 30-52 MAC Operator 61 NPM Site Hum 20-28 (just audible throughout measurement)
21:20 21/02/2023	61	39	27		
21:35 21/02/2023	46	33	27		
Site $L_{Aeq(15min)}$ Contribution					<30
Night					
22:00 21/02/2023	55	37	30	WD: NE WS: 1.5m/s Stab Class: E	Wind 25-55 Insects 28-40 Birds 25-36 Dogs Barking 25-36 Aircraft 30-59 NPM Site Hum 20-28 (just audible throughout measurement)
22:15 21/02/2023	59	31	28		
22:30 21/02/2023	56	35	28		
Site $L_{Aeq(15min)}$ Contribution					<30
Site $L_{A1(1min)}$ Contribution					<40

Note: NPM denotes Northparkes Mines.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

4.2 Road Noise Results

As an additional initiative to operational attended noise monitoring, Northparkes include two 1-hour attended noise monitoring measurements at the Hillview monitoring location (NM4) to quantify Northparkes road noise levels associated concentrate trucks movements (where present) and shift change traffic flows. **Table 8** presents the results of the road traffic noise measurements with a comparison against the road noise criteria outlined in the NMP which is consistent with the NSW Road Noise Policy (DECCW, 2011).

Table 8 Operator-Attended Road Noise Survey Results – Location NM4, Hillview

Date/Time (hrs) Duration 1 hour	Measured Noise Level dB $LA_{eq(1hr)}$	Meteorology	Criteria dB $LA_{eq(1hr)}$	Description and SPL dBA
12:30 22/02/2023 (Day)	44	WD: SE WS: 2.0m/s Stab Class: C	55	Wind 35-54 Birds 32-65 Traffic 32-55 NPM Concentrate Truck (offsite) 35-55 (2 passes) (Approx. 13 vehicles Enter/Exit NPM Site)
18:00 22/02/2023 (Evening)	44	WD: E WS: 1.5m/s Stab Class: D	55	Wind 29-48 Birds 26-48 Traffic 30-51 Residential Noise 30-75 (Approx. 85 vehicles Enter/Exit NPM Site)

Note: NPM denotes Northparkes Mines.

Note: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Results of the road noise survey identify that the $LA_{eq(1hr)}$ noise contribution at NM4 is <50dBA for both measurements and hence, satisfy the relevant road noise criteria as outlined in the NMP and the RNP. Observations from MAC operator identified concentrate truck movements during the day measurement period only, at a maximum of two movements per hour, which is in line with previous NPM quarterly measurements.

4.3 Unattended Noise Results

Unattended noise monitors are installed at four attended monitoring locations. Data from the unattended monitors provide a real time method for monitoring noise events, although it is noted that the results include all noise sources (ie project noise and extraneous noise sources). The results are used as a management tool for the project site.

Averaged results of the $LA_{eq(15min)}$ and $LA_{1(1min)}$ metrics from the seven-day monitoring period from Sunday 19 February 2023 to Saturday 25 February 2023 for NM1, NM2, NM3 and NM4 are summarised in **Table 9**. **Appendix C** presents the unattended results in chart format.

Table 9 Unattended Noise Survey Results

Period[1]	Noise Descriptor (dBA re 20 µPa)	
	Weekly Average $LA_{eq(15min)}$	Weekly Average $LA_{1(1min)}$[2]
Location NM1, Hubberstone		
Day	52	-
Evening	55	-
Night	55	73
Location NM2, Lone Pine		
Day	50	-
Evening	54	-
Night	49	68
Location NM3, Milpose		
Day	51	-
Evening	54	-
Night	53	59
Location NM4, Hillview		
Day	49	-
Evening	49	-
Night	47	64

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Arithmetic average.

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5 Discussion

5.1 Operational Noise Discussion

5.1.1 Discussion of Results – Location NM1, Hubberstone.

Attended measurement results for monitoring conducted at NM1, Hubberstone, for the quarter ending March 2023 noise survey, identified that NPM was inaudible during day, evening, and night-time measurements

External noise sources including wind in trees, birds, insects and aircraft, were audible during the monitoring period.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM1.

5.1.2 Discussion of Results – Location NM2, Lone Pine.

Attended measurement results for monitoring conducted at NM2, Lone Pine, for the quarter ending March 2023 noise survey, identified that NPM was inaudible during day, evening, and night-time measurements.

External noise sources including, traffic, dogs barking, insects, livestock, and wind in trees were all audible during the monitoring periods.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM2.

5.1.3 Discussion of Results – Location NM3, Milpose.

Attended measurement results for monitoring conducted at NM3, Milpose, for the quarter ending March 2023 noise survey, identified that NPM was inaudible during the day measurements and generally just audible during evening, and night-time measurements.

Contributions from NPM were characterised as general site hum. External noise sources including wind in tress, birds, insects, aircraft, residential noise, and distant thunder were all audible during the monitoring periods.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM3.

5.1.4 Discussion of Results – Location NM4, Hillview.

Attended measurement results for monitoring conducted at NM4, Hillview, for the quarter ending March 2023 noise survey, identified that NPM inaudible during day, evening, and night-time measurements.

External noise sources including wind in tress, traffic, birds, insects, and residential noise were all audible during the monitoring period.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM4.

5.1.5 Discussion of Results – Location NM5, Adavale.

Attended measurement results for additional monitoring conducted at NM5, Adavale, for the quarter ending March 2023 noise survey, indicated that NPM was inaudible during the day measurements and generally just audible during evening, and night-time measurements.

Contributions from NPM were characterised as general site hum. External noise sources including insects, birds, aircraft, dogs barking and wind in trees were all audible during the monitoring period.

In summary, the noise contribution from NPM satisfied the relevant noise criteria for all monitored assessment periods at Location NM5.

6 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment (NMA) on behalf of CMOC Mining Services Pty Limited (CMOC). The assessment was completed to quantify site noise emissions against relevant noise criteria pertaining to NPM operations in accordance with Conditions 1 to 5 of Schedule 3 of the Development Consent Conditions (PA11_110060) and the Northparkes, Noise Management Plan (NMP, 2019) for Quarter 1, ending March 2023.

Road noise monitoring identified that vehicle movements associated with shift change generated noise levels below the relevant road noise criteria specified in the RNP and NMP.

Attended monitoring has identified that operational emissions generated by NPM comply with relevant noise criteria at all monitoring locations for all assessment periods. Furthermore, project related noise emissions were generally just audible at two monitoring locations during evening and night periods. NPM noise sources such as general site hum were audible and extraneous non-mining sources such as wind in trees, traffic, birds, dogs barking, aircraft, insects, and residential noise were audible during the monitoring period.

Appendix A – Glossary of Terms

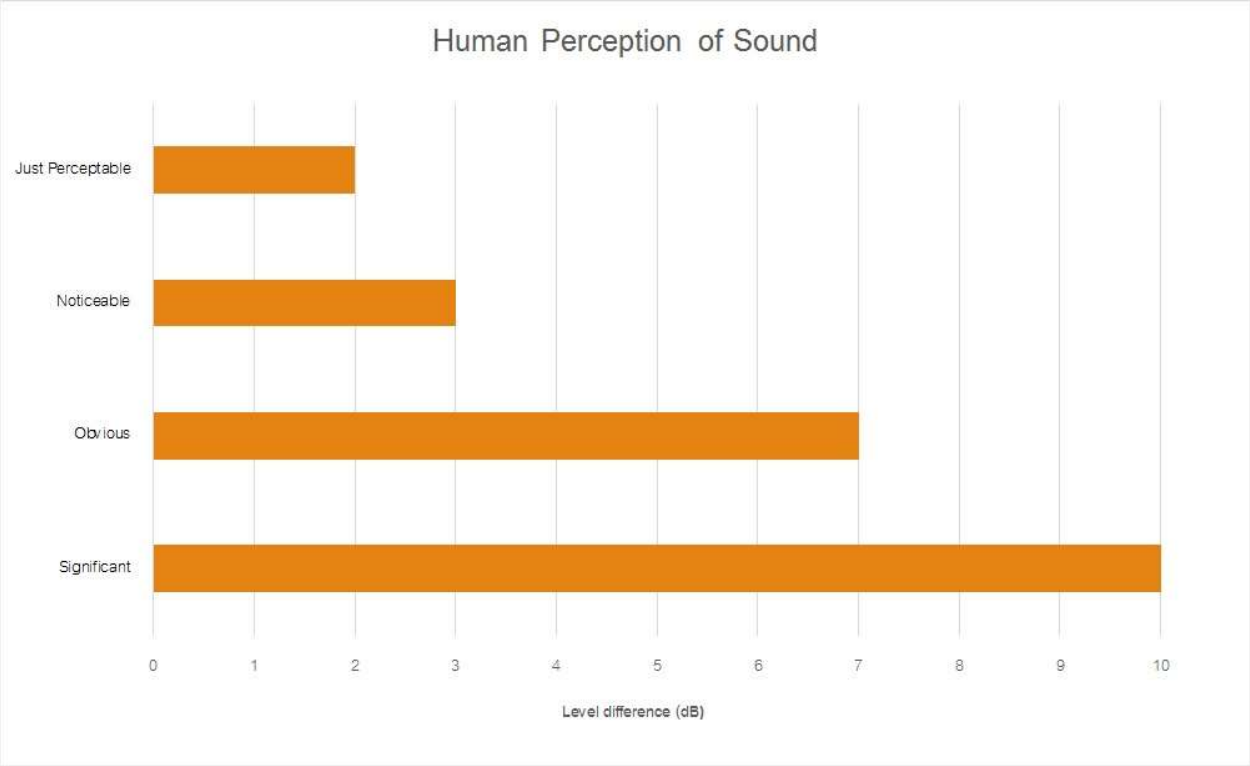
Table A1 provides a number of technical terms have been used in this report.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
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 noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAmax	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : = 10.log10 (W/Wo) Where : W is the sound power in watts and Wo is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



Appendix B – Regulatory Noise Limits

Table 1 NSW Development Consent Conditions – Schedule 3

<table>
<tr><th>Condition</th><th>Related Section in NMP</th></tr>
<tr><td colspan="2">Noise Criteria</td></tr>
<tr><td>1. The Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 1 at any residence on privately-owned land.

Table 2 Noise impact assessment criteria dB(A)
<table>
<tr><th rowspan="2">Property</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr>
<tr><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{A1(1min)}$</th></tr>
<tr><td>All privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr>
</table>
Note: To interpret the land referred to in Table 1, see the applicable figures in Appendix 4.

Operational noise generated by the project is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.</td><td>Section 5.4.1</td></tr>
<tr><td>2. The Proponent shall only carry out the construction works associated with the upgrade of McClintocks Lane, the construction of the McClintocks Lane access road and the upgrade of the intersection of McClintocks Lane and Bogan Road during the day.</td><td>Section 5.4.1</td></tr>
<tr><td>3. During construction of the works referred to in condition 2 of schedule 3, the noise criteria in Table 1 do not apply to the residences located in the vicinity of the works. The Proponent shall implement all reasonable and feasible measures to minimise construction noise impacts on the residences in the vicinity of these works.</td><td>Section 6</td></tr>
<tr><td>4. The Proponent shall:
a) implement best management practice to minimise the construction, operational and road noise of the project;
b) operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this approval;
c) minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply (see Appendix 5); and
d) carry out regular monitoring to determine whether the project is complying with the relevant conditions of this approval,
To the satisfaction of the Secretary.</td><td>Section 6 & Section 7</td></tr>
<tr><td>5. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:
a) be prepared in consultation with the EPA, and submitted to the Secretary prior to the commencement of construction;
b) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this approval;
c) describe the proposed noise management system in detail; and
d) include a monitoring program that:
• evaluates and reports on:
– the effectiveness of the noise management system;
– compliance against the noise criteria in this approval; and
– compliance against the noise operating conditions;
• includes a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria in this approval and trigger for further attended monitoring); and
• defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents</td><td>Section 6 & Section 7

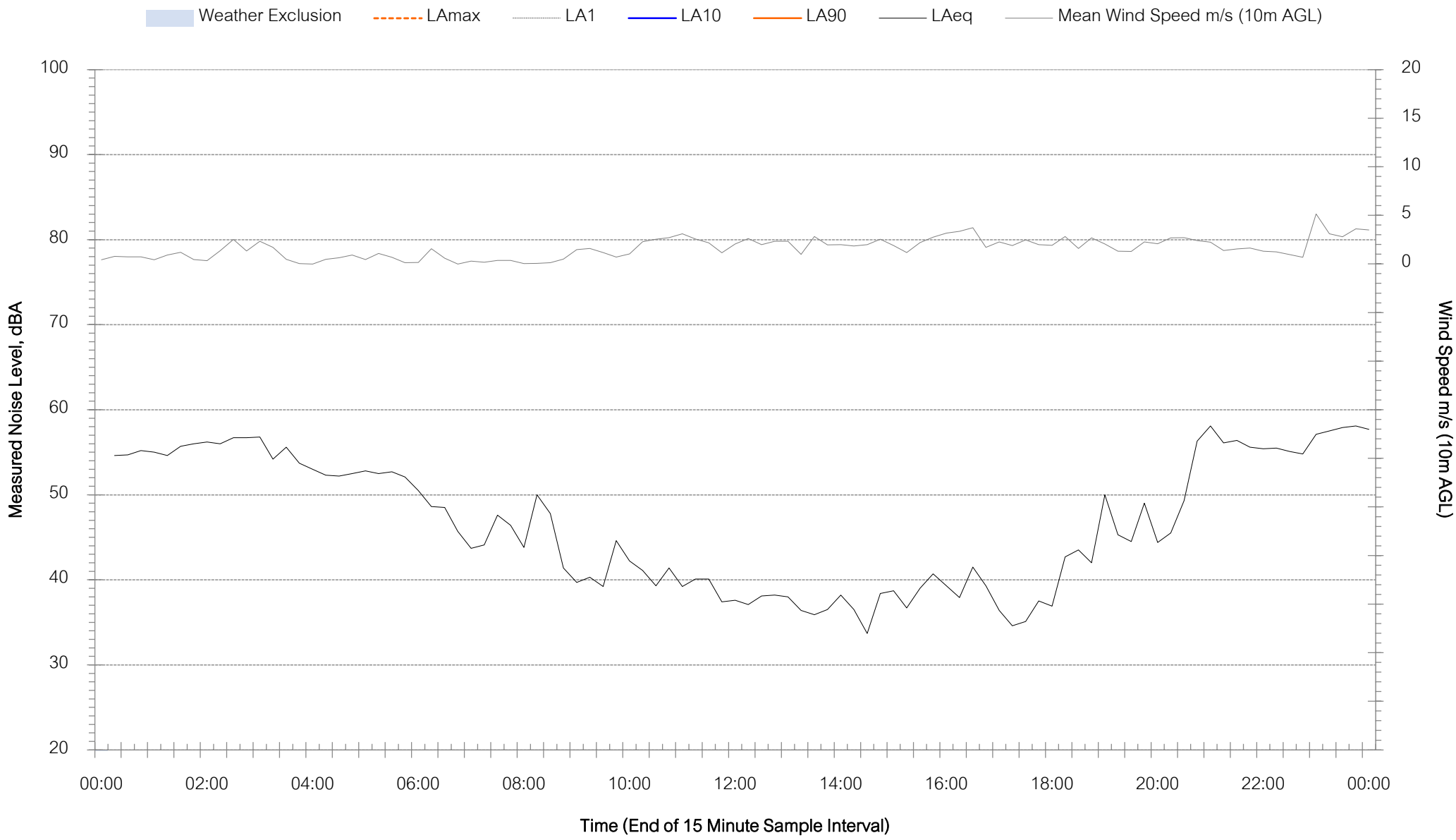
Section 7

Section 7.1</td></tr>
</table>

Appendix C – Unattended Monitoring Charts

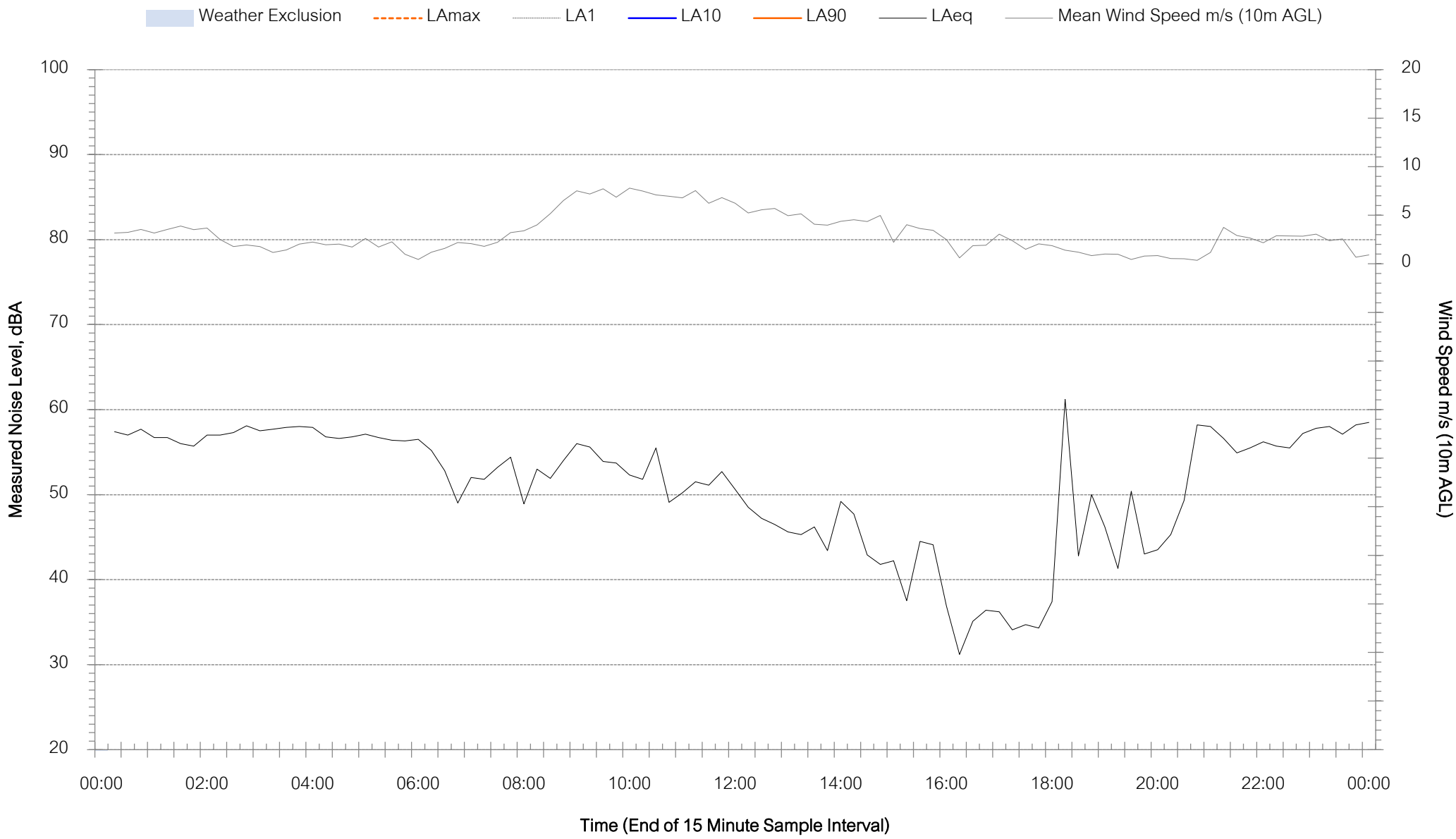
Background Noise Levels

NM1 Hubberstone - Sunday 19 February 2023



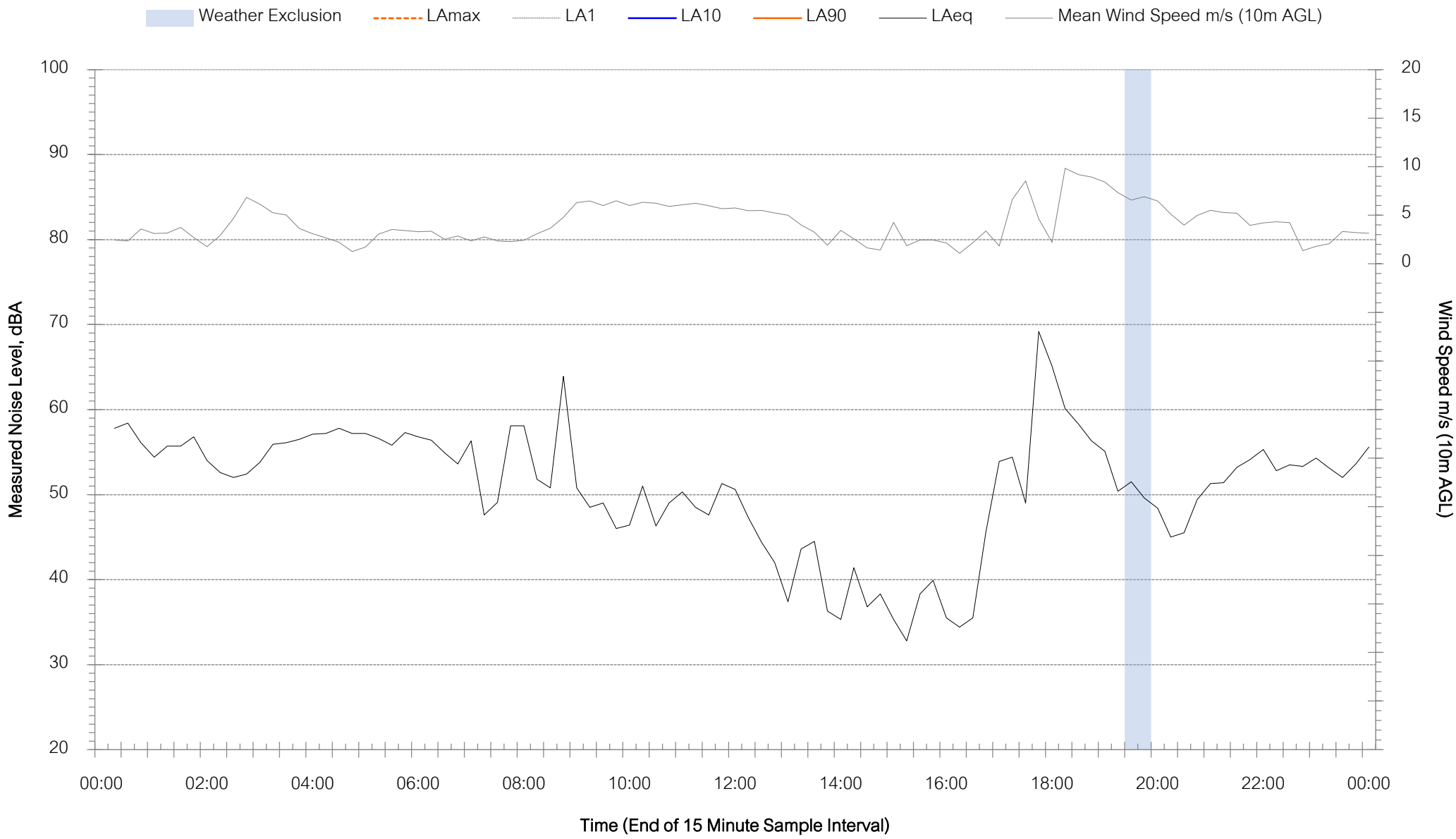
Background Noise Levels

NM1 Hubberstone - Monday 20 February 2023



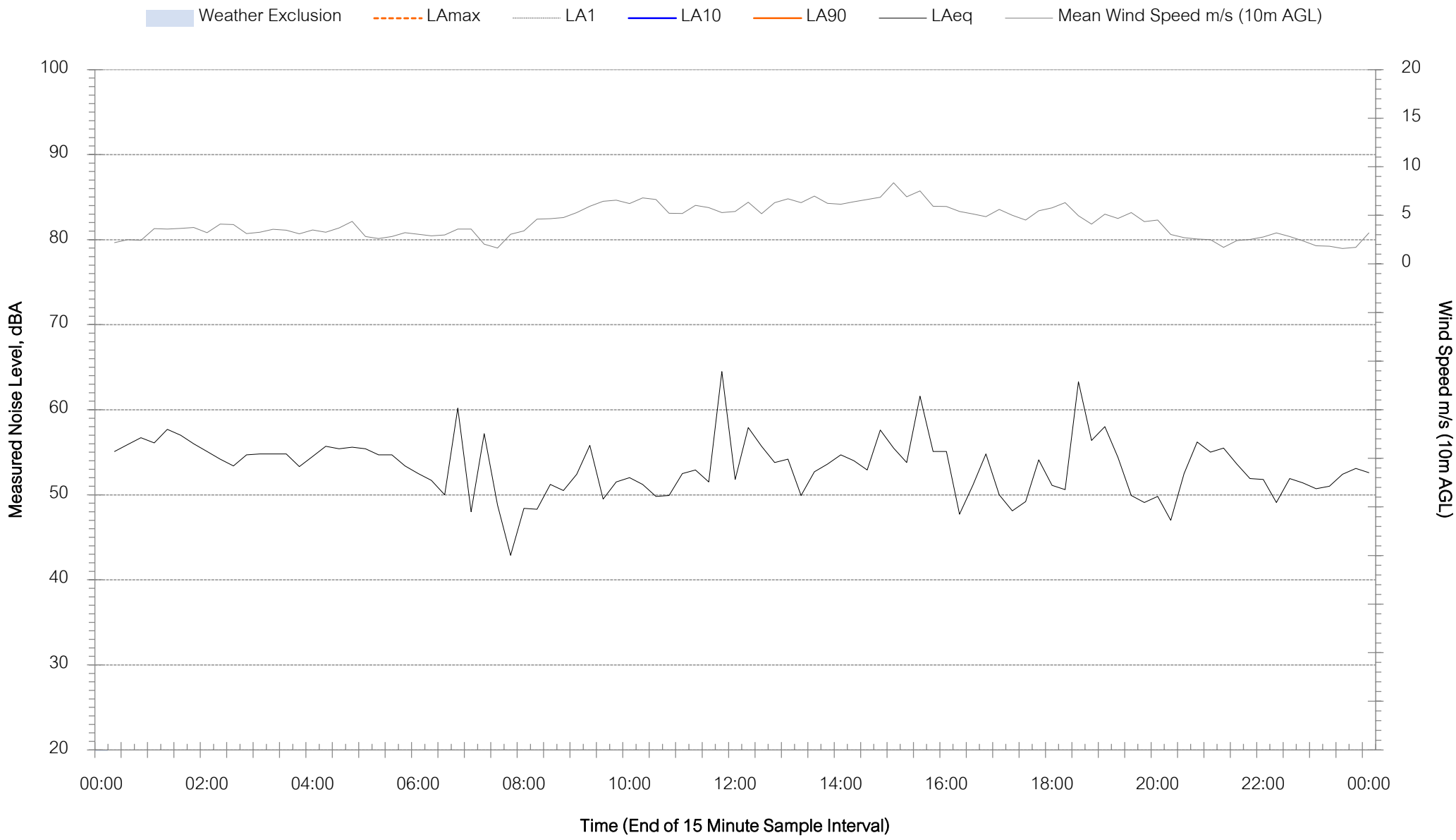
Background Noise Levels

NM1 Hubberstone - Tuesday 21 February 2023



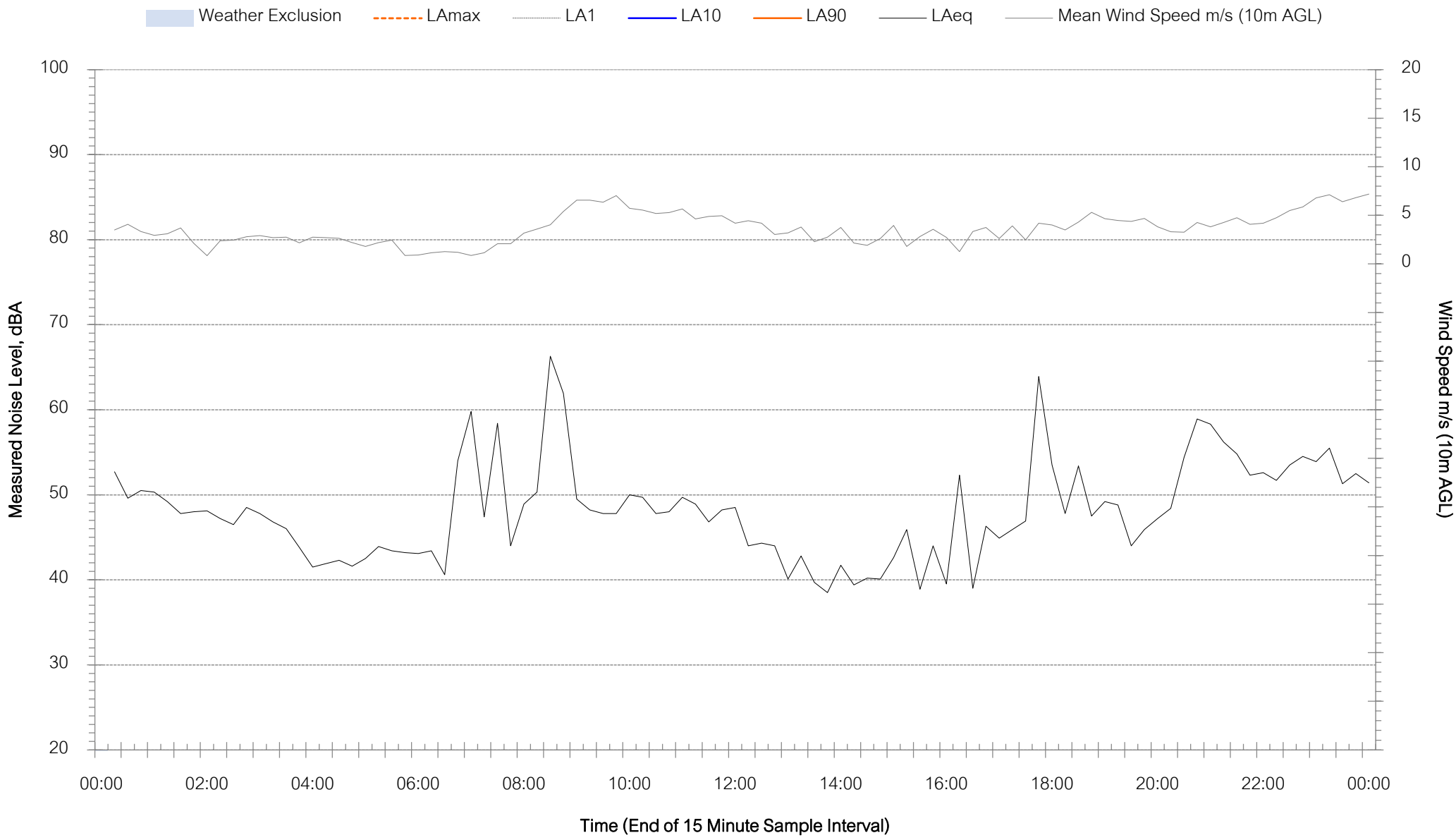
Background Noise Levels

NM1 Hubberstone - Wednesday 22 February 2023



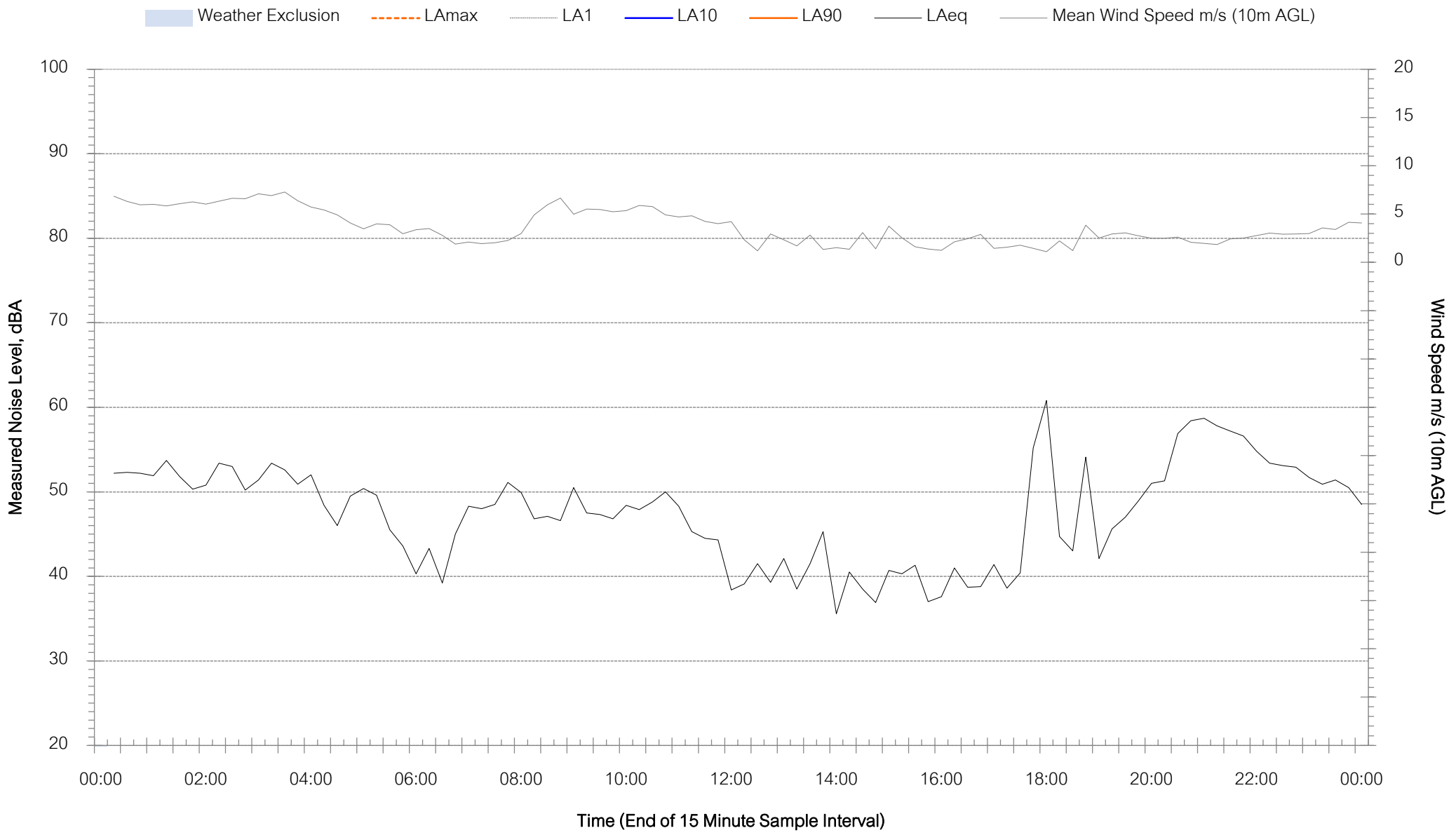
Background Noise Levels

NM1 Hubberstone - Thursday 23 February 2023



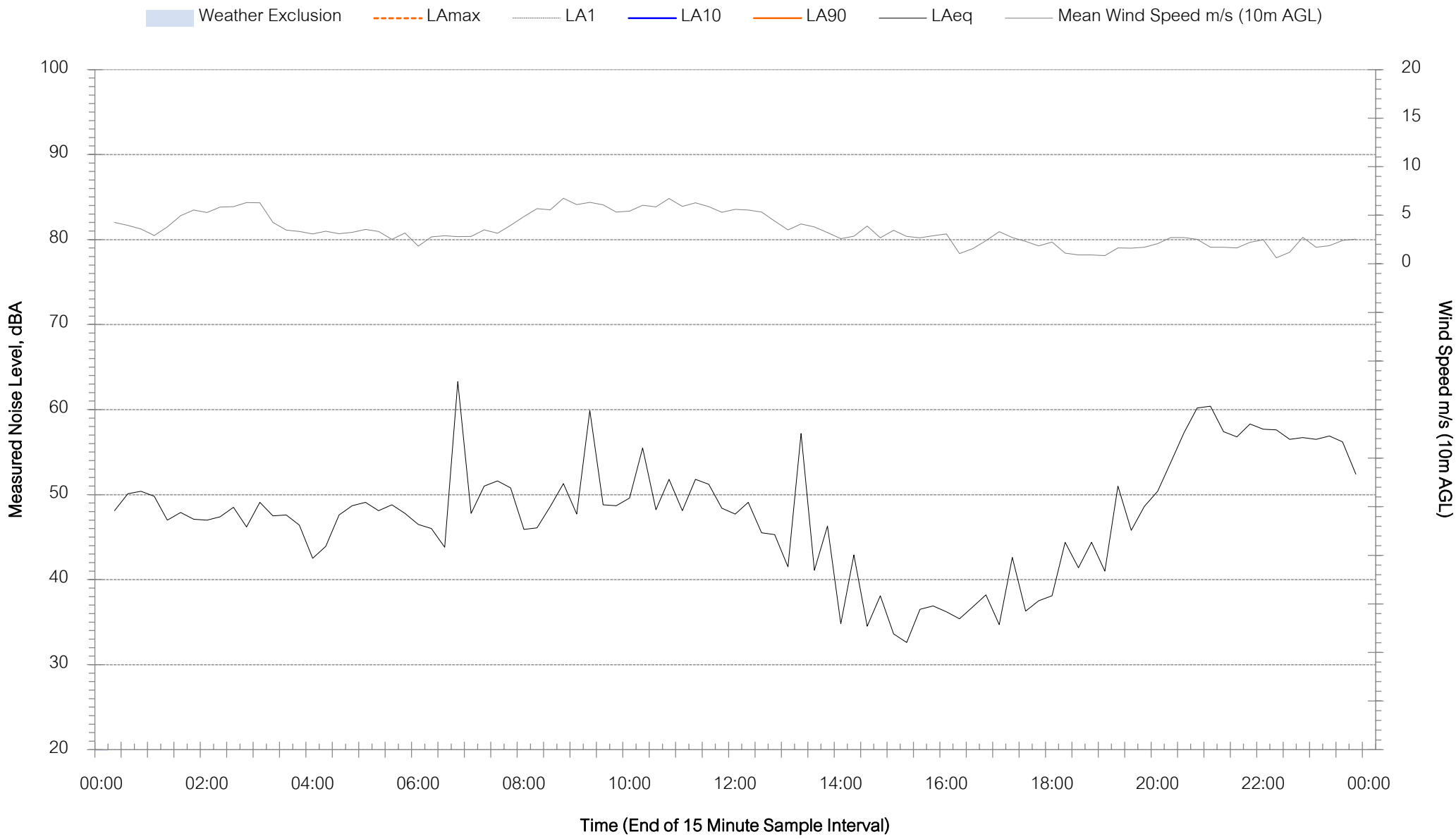
Background Noise Levels

NM1 Hubberstone - Friday 24 February 2023



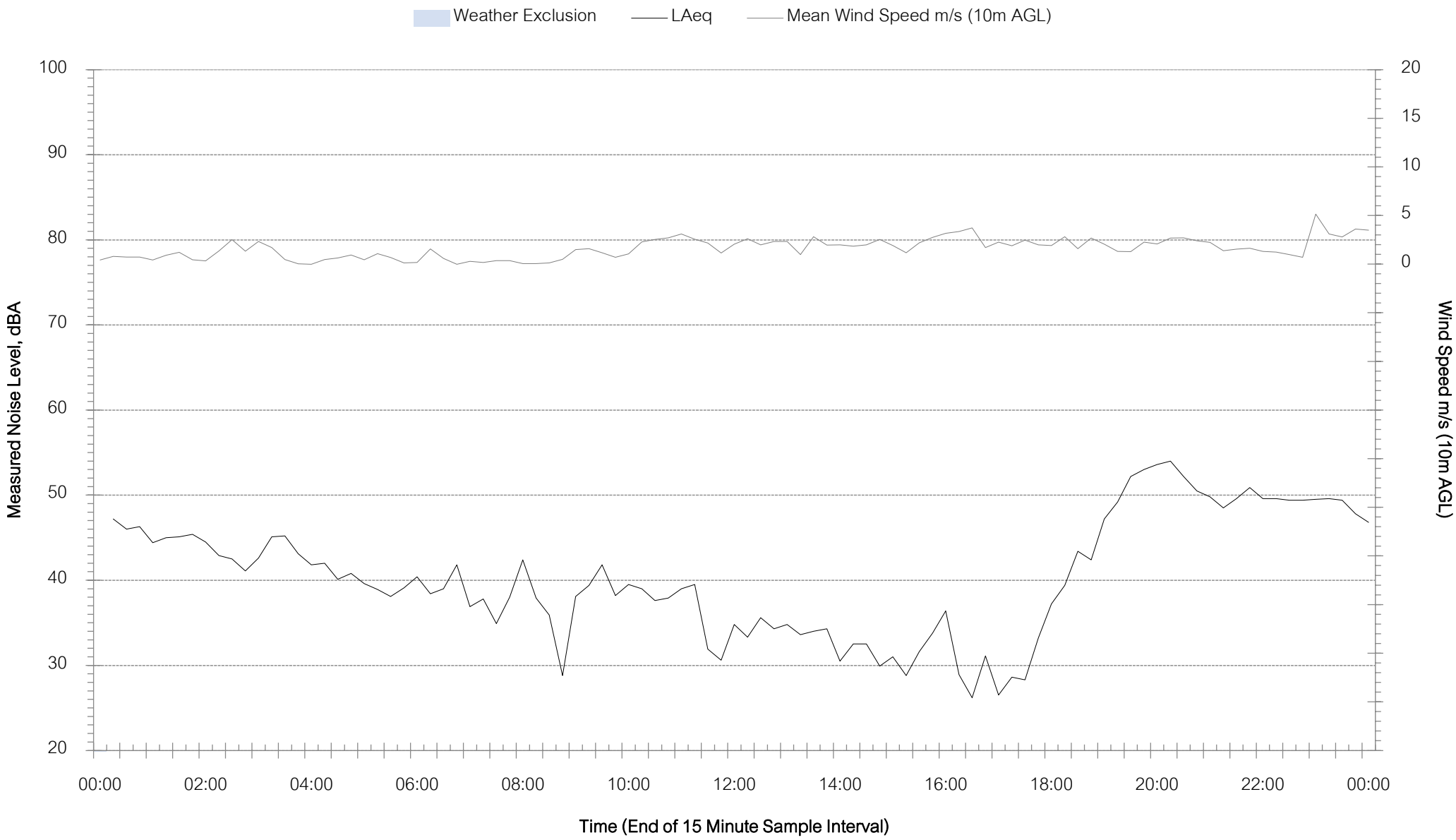
Background Noise Levels

NM1 Hubberstone - Saturday 25 February 2023



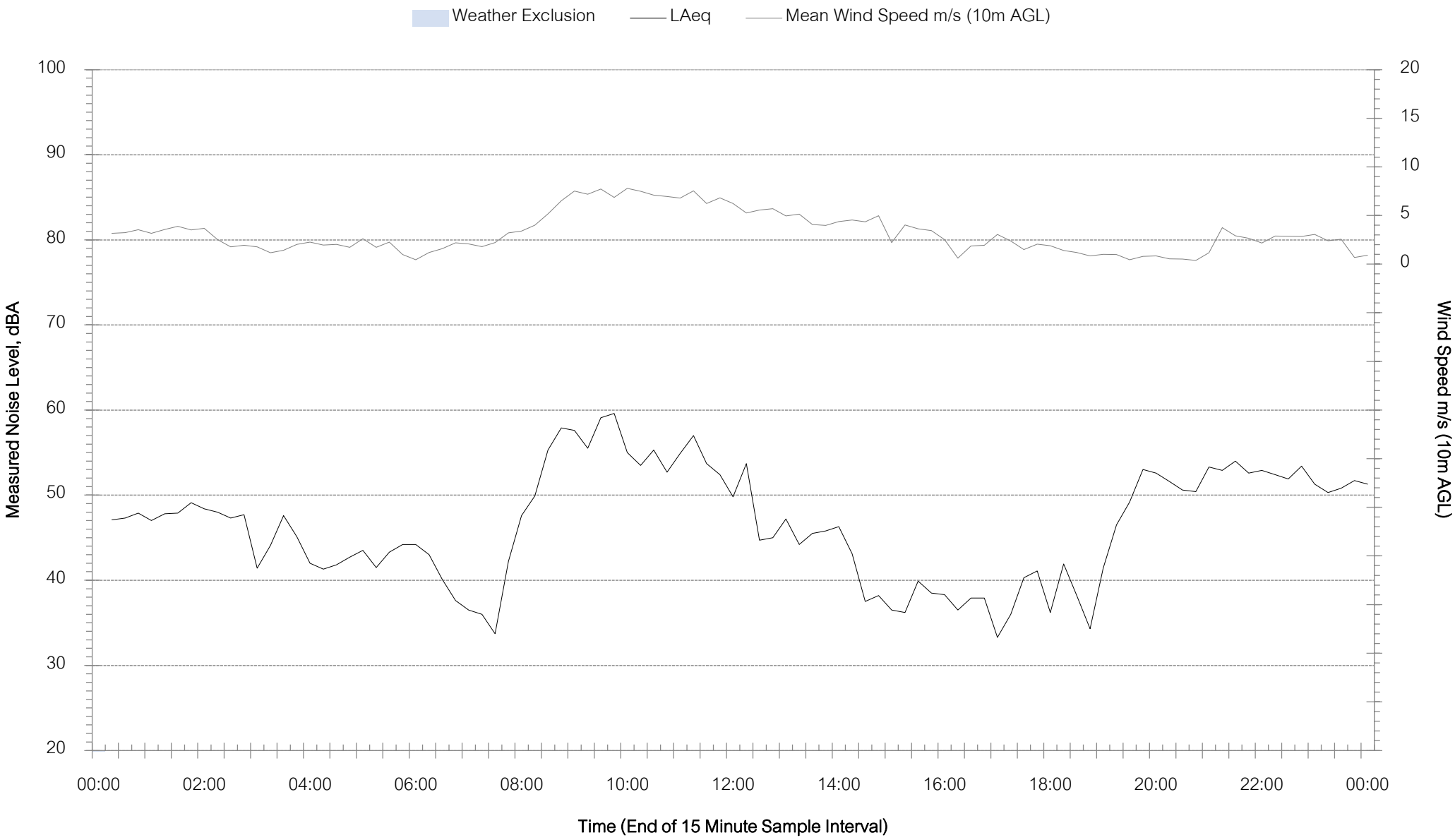
Background Noise Levels

NM2 Lone Pine - Sunday 19 February 2023



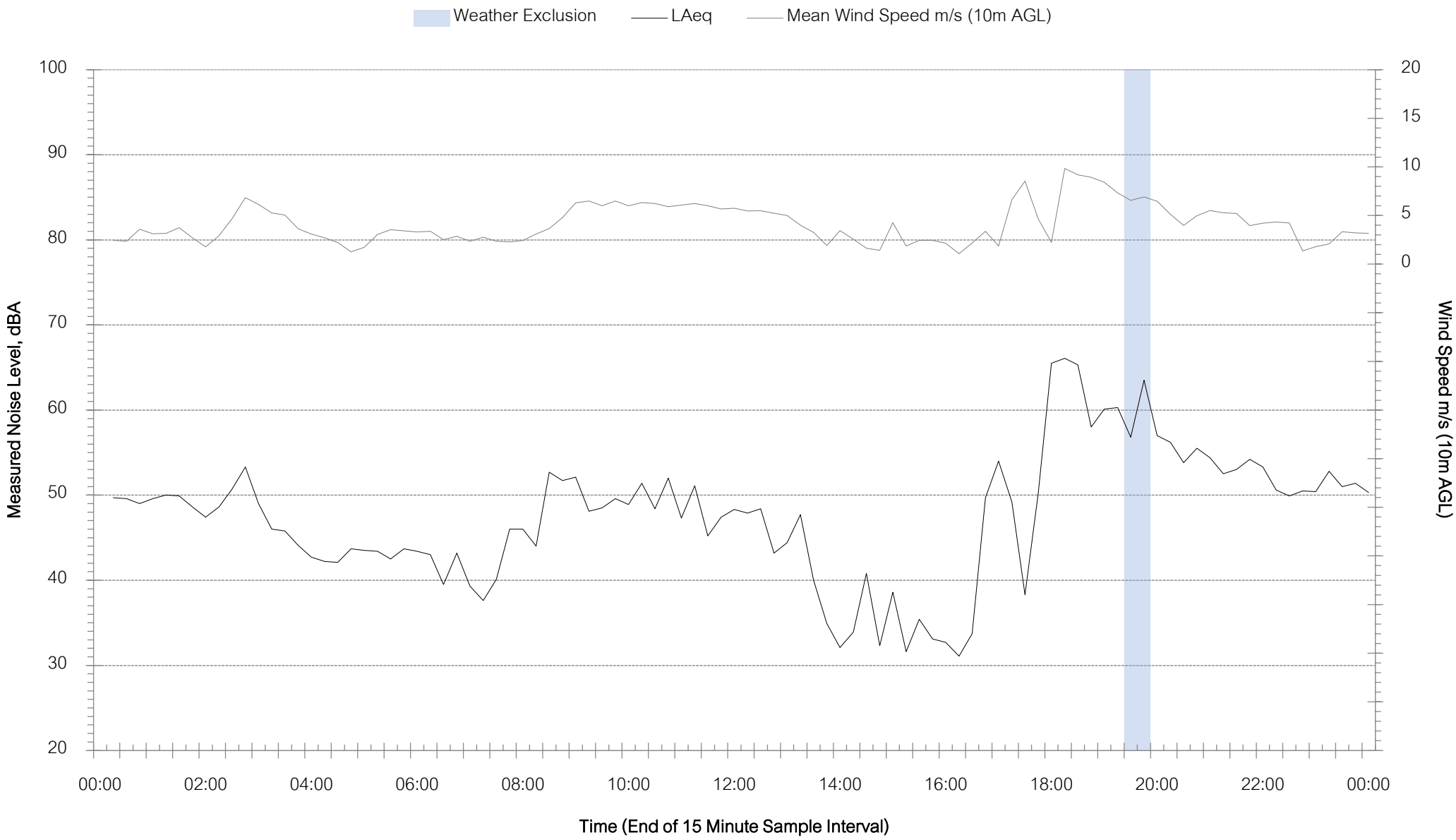
Background Noise Levels

NM2 Lone Pine - Monday 20 February 2023



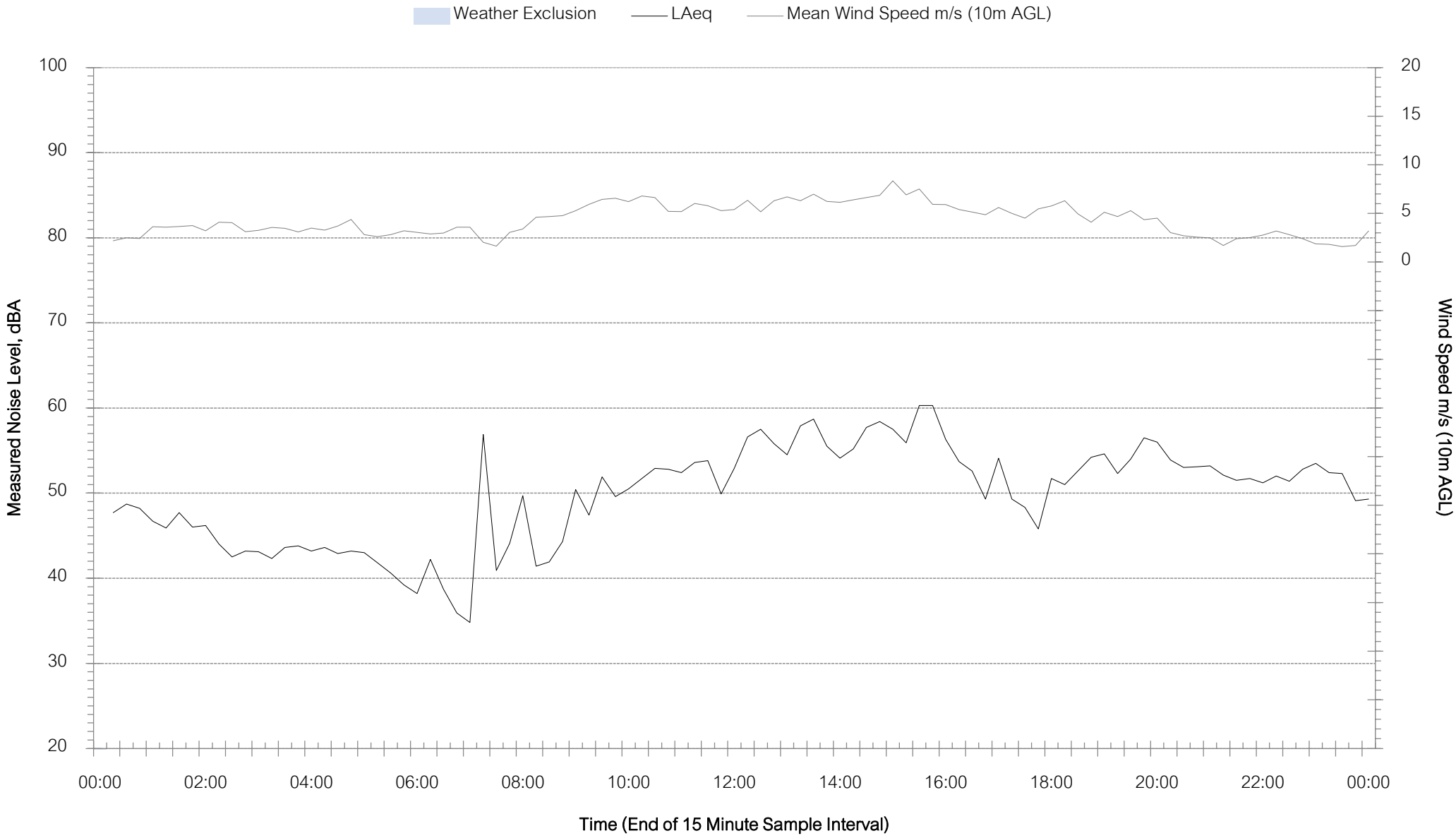
Background Noise Levels

NM2 Lone Pine - Tuesday 21 February 2023



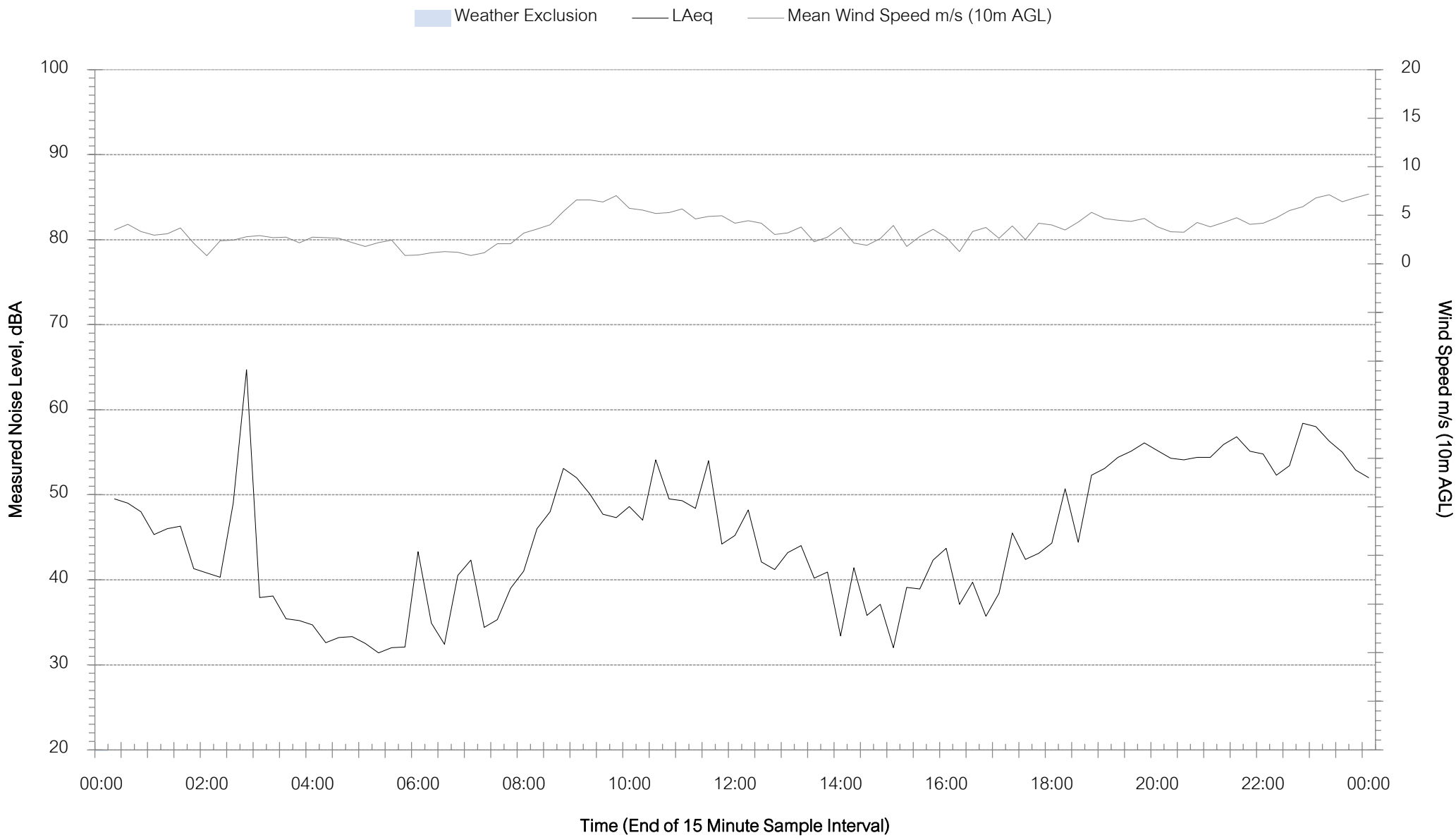
Background Noise Levels

NM2 Lone Pine - Wednesday 22 February 2023



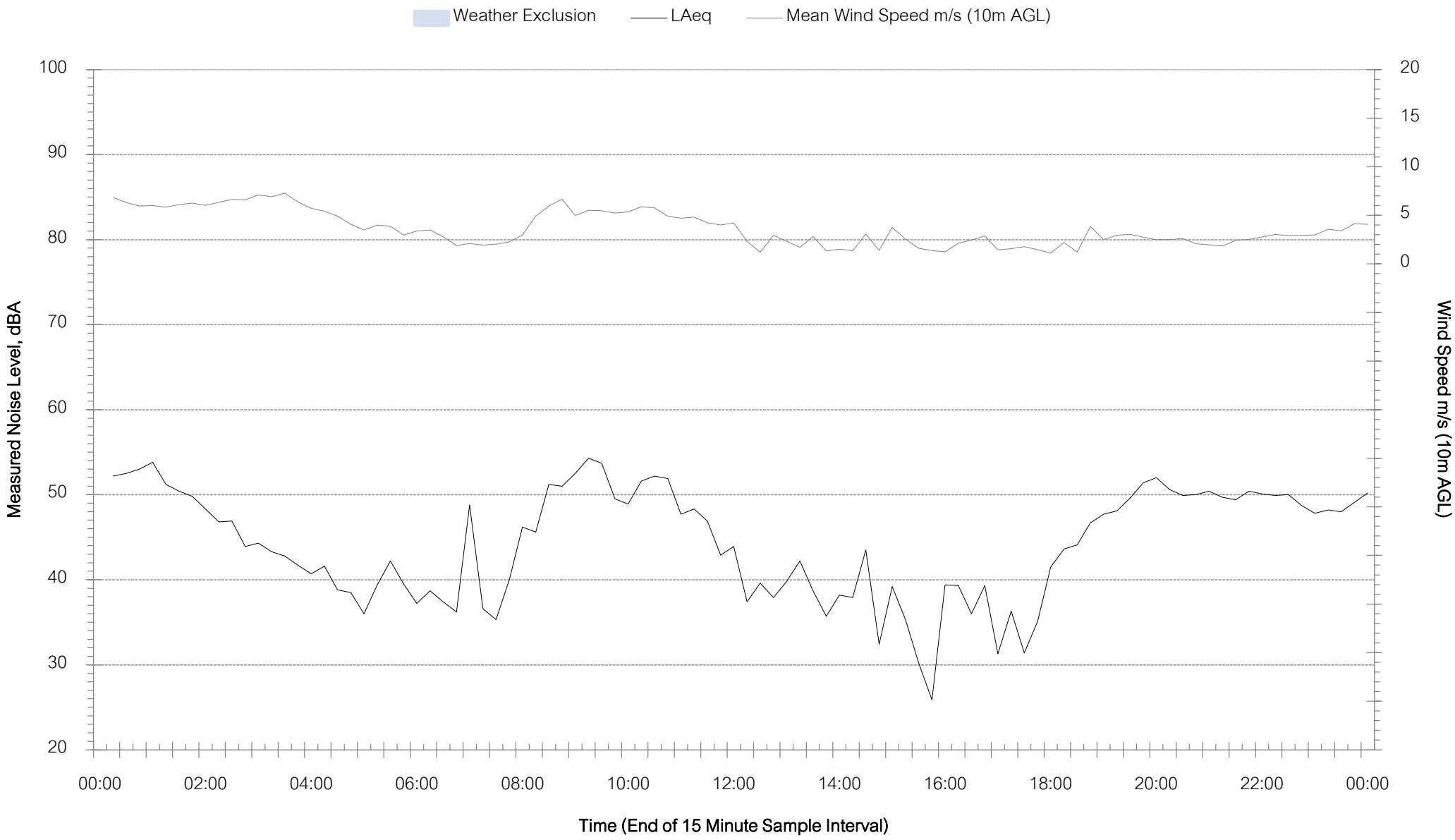
Background Noise Levels

NM2 Lone Pine - Thursday 23 February 2023



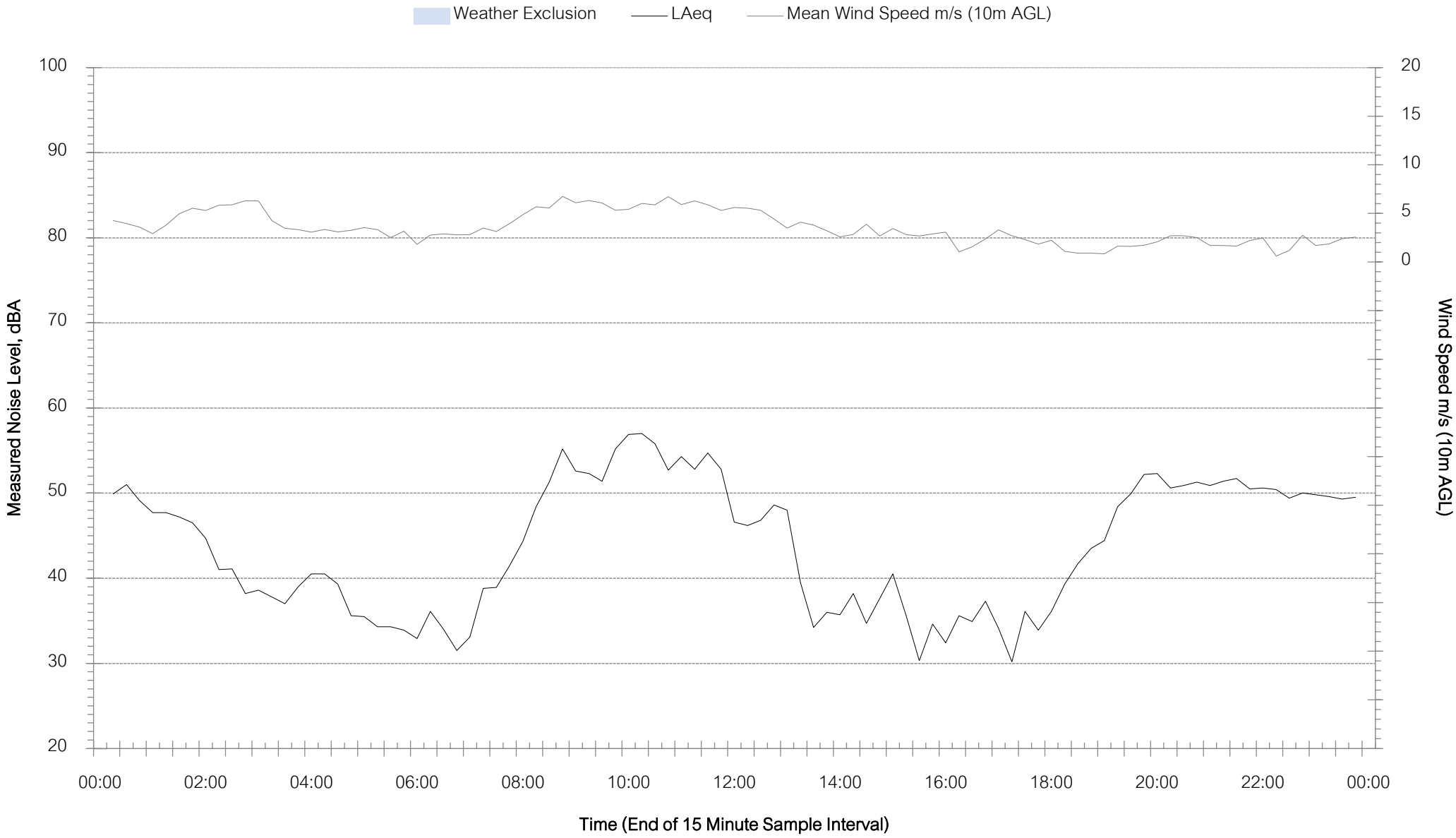
Background Noise Levels

NM2 Lone Pine - Friday 24 February 2023



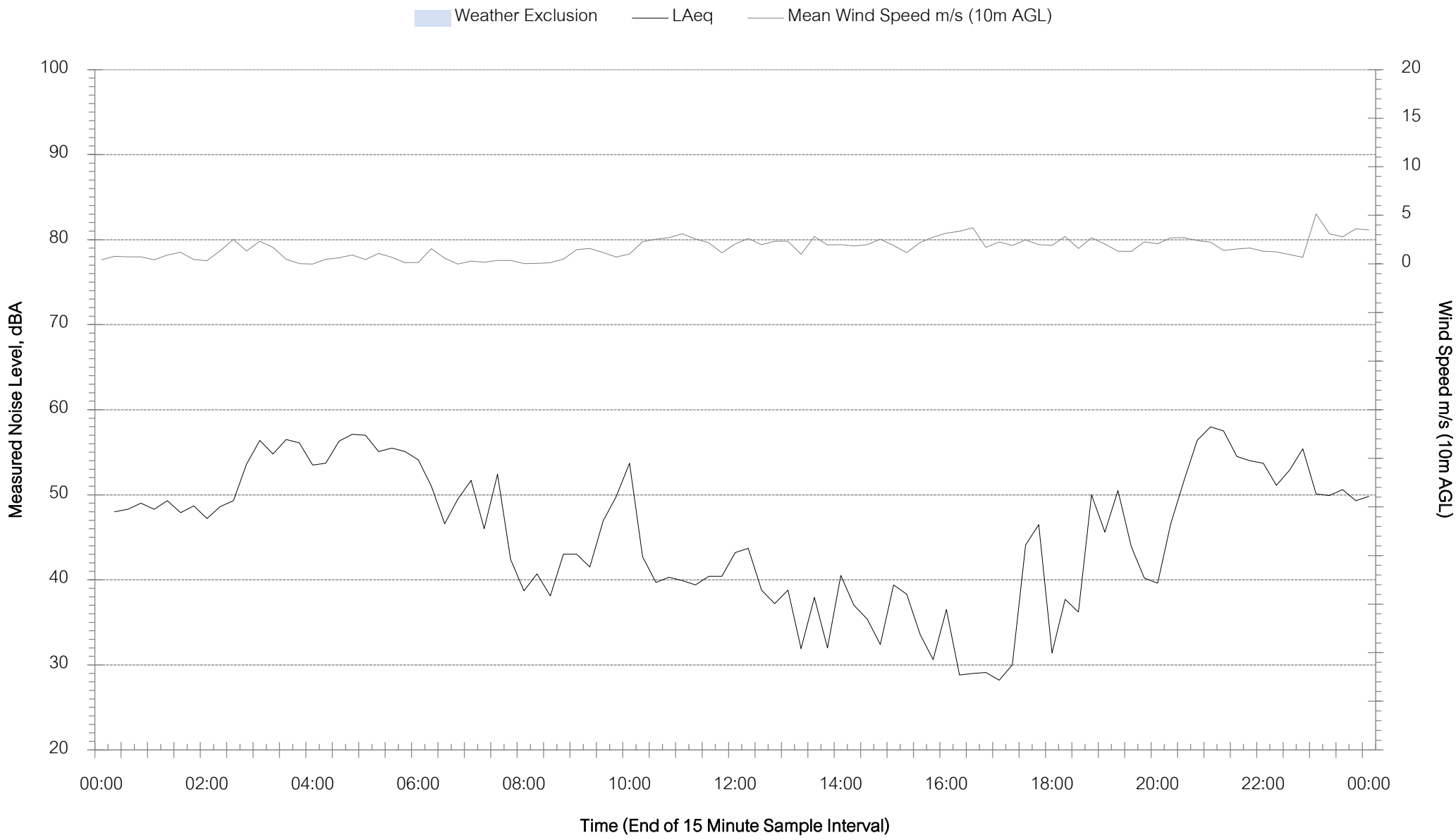
Background Noise Levels

NM2 Lone Pine - Saturday 25 February 2023



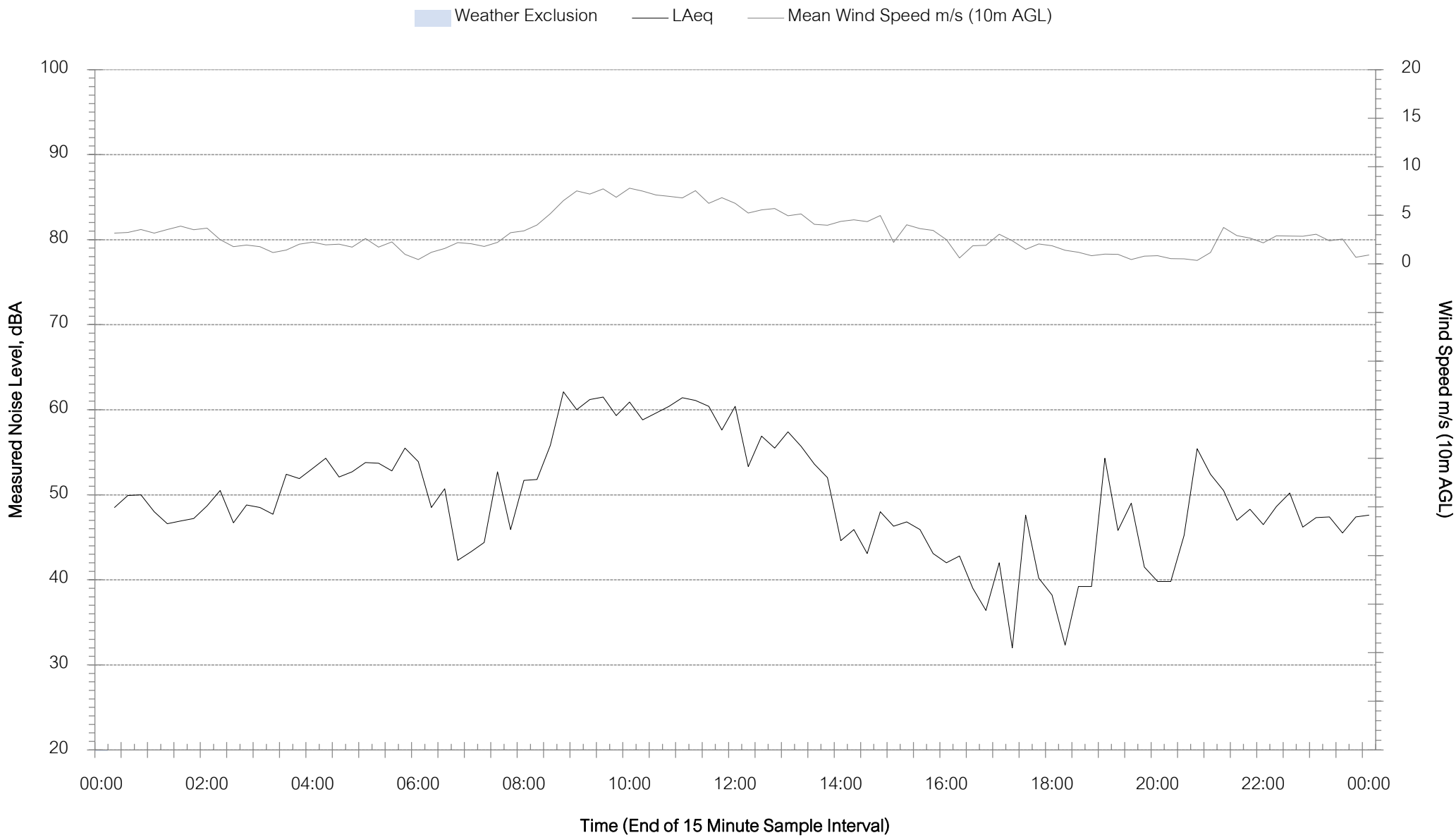
Background Noise Levels

NM3 Milpose - Sunday 19 February 2023



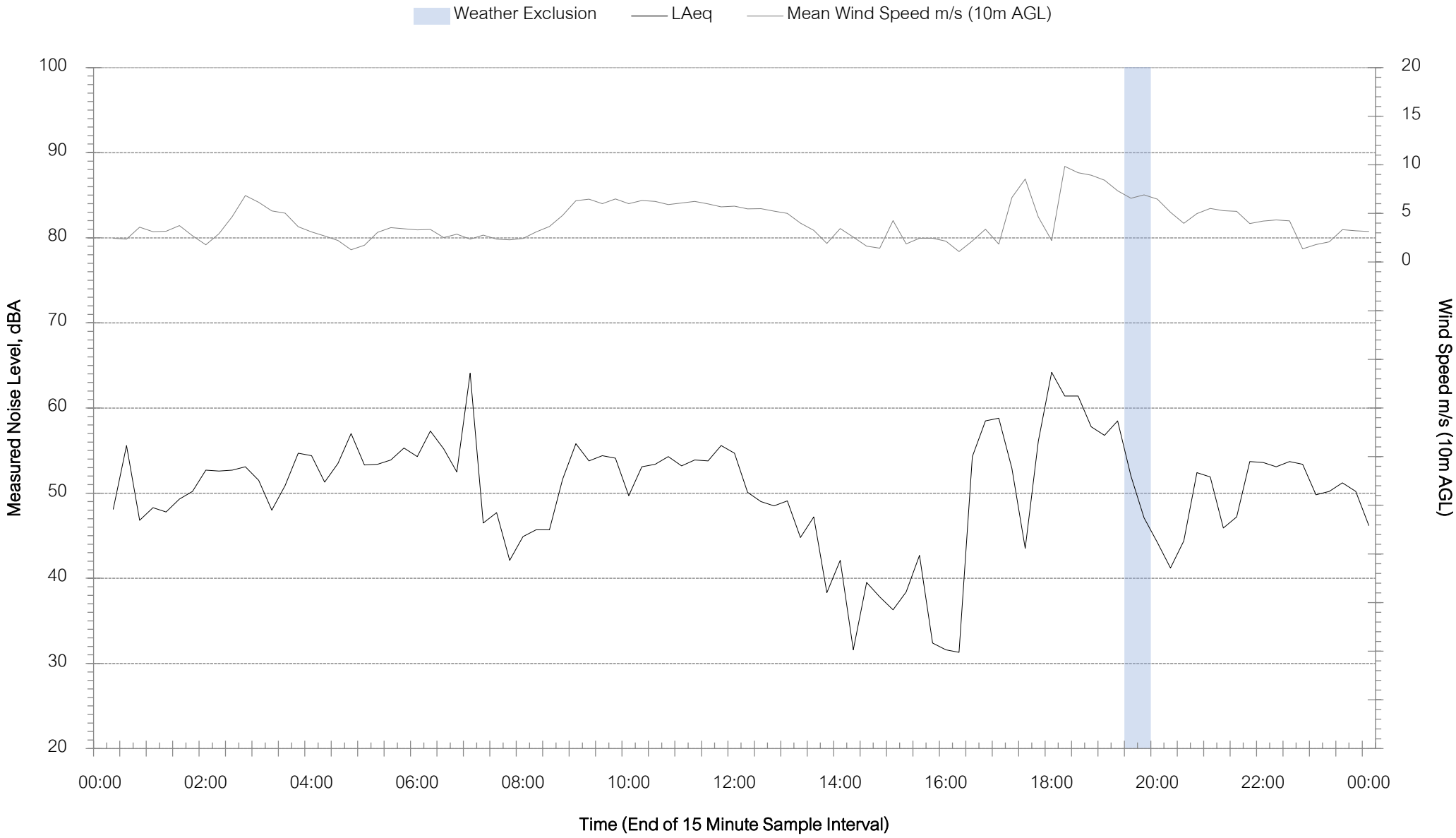
Background Noise Levels

NM3 Milpose - Monday 20 February 2023



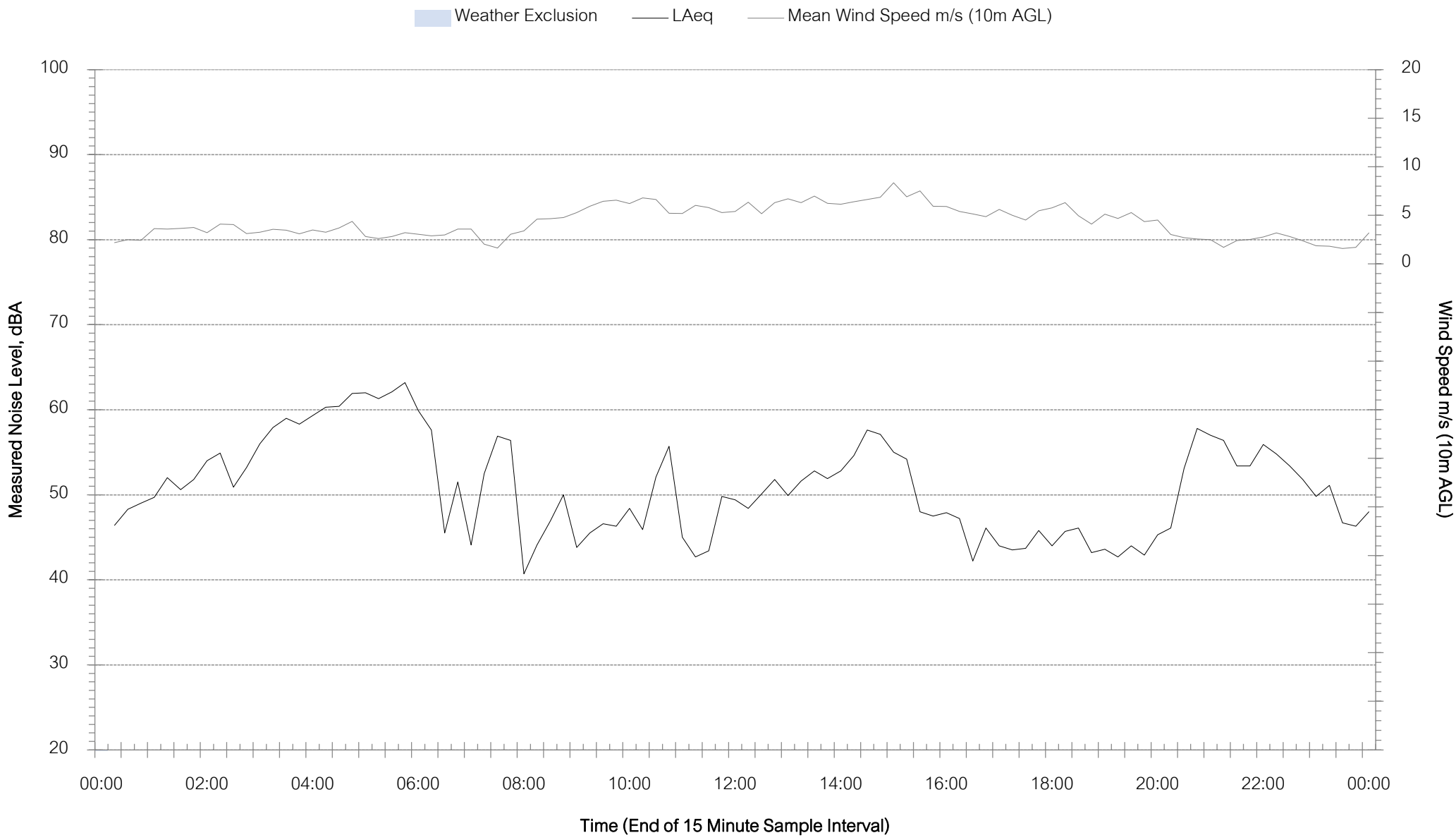
Background Noise Levels

NM3 Milpose - Tuesday 21 February 2023



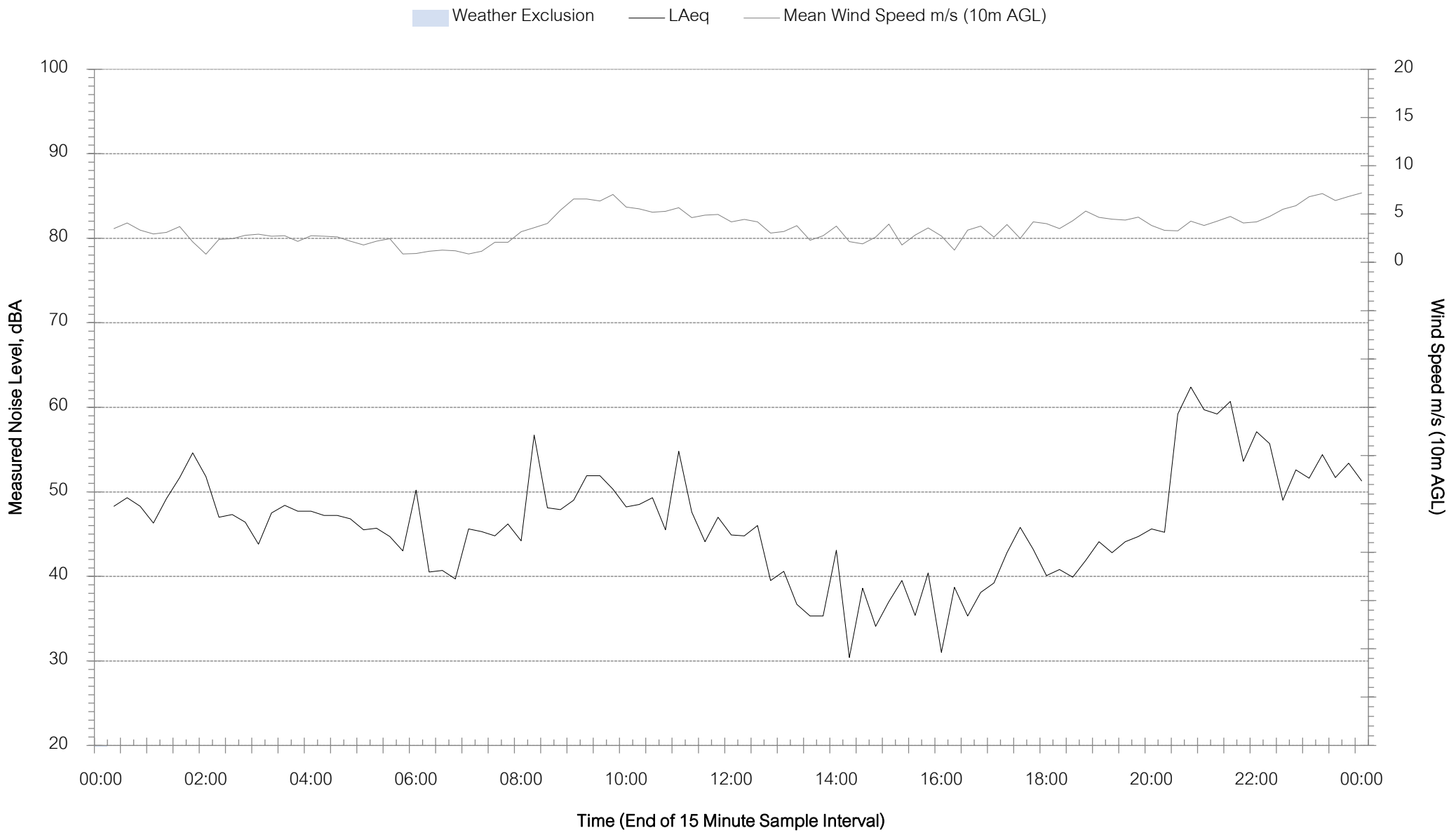
Background Noise Levels

NM3 Milpose - Wednesday 22 February 2023



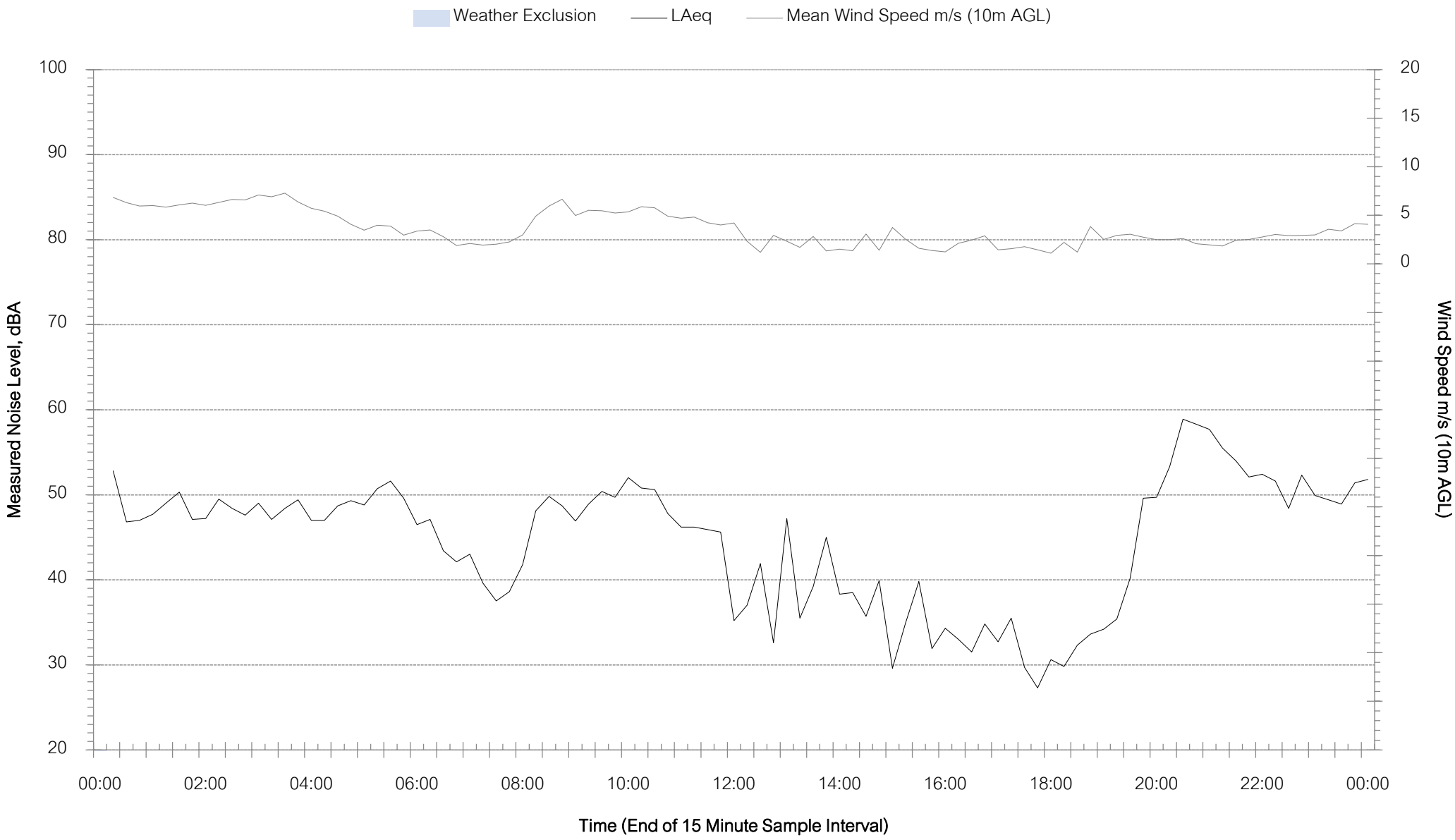
Background Noise Levels

NM3 Milpose - Thursday 23 February 2023



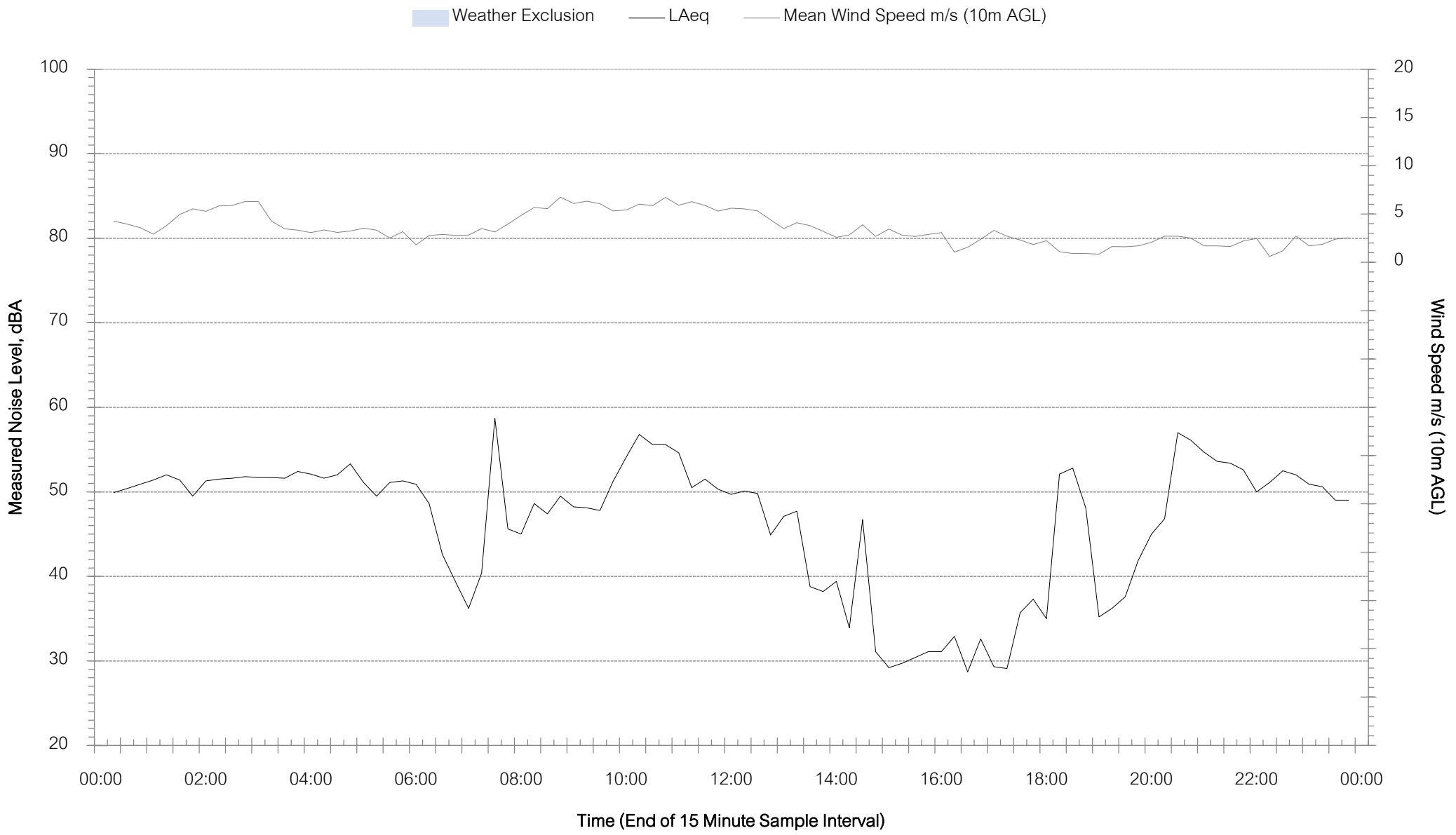
Background Noise Levels

NM3 Milpose - Friday 24 February 2023



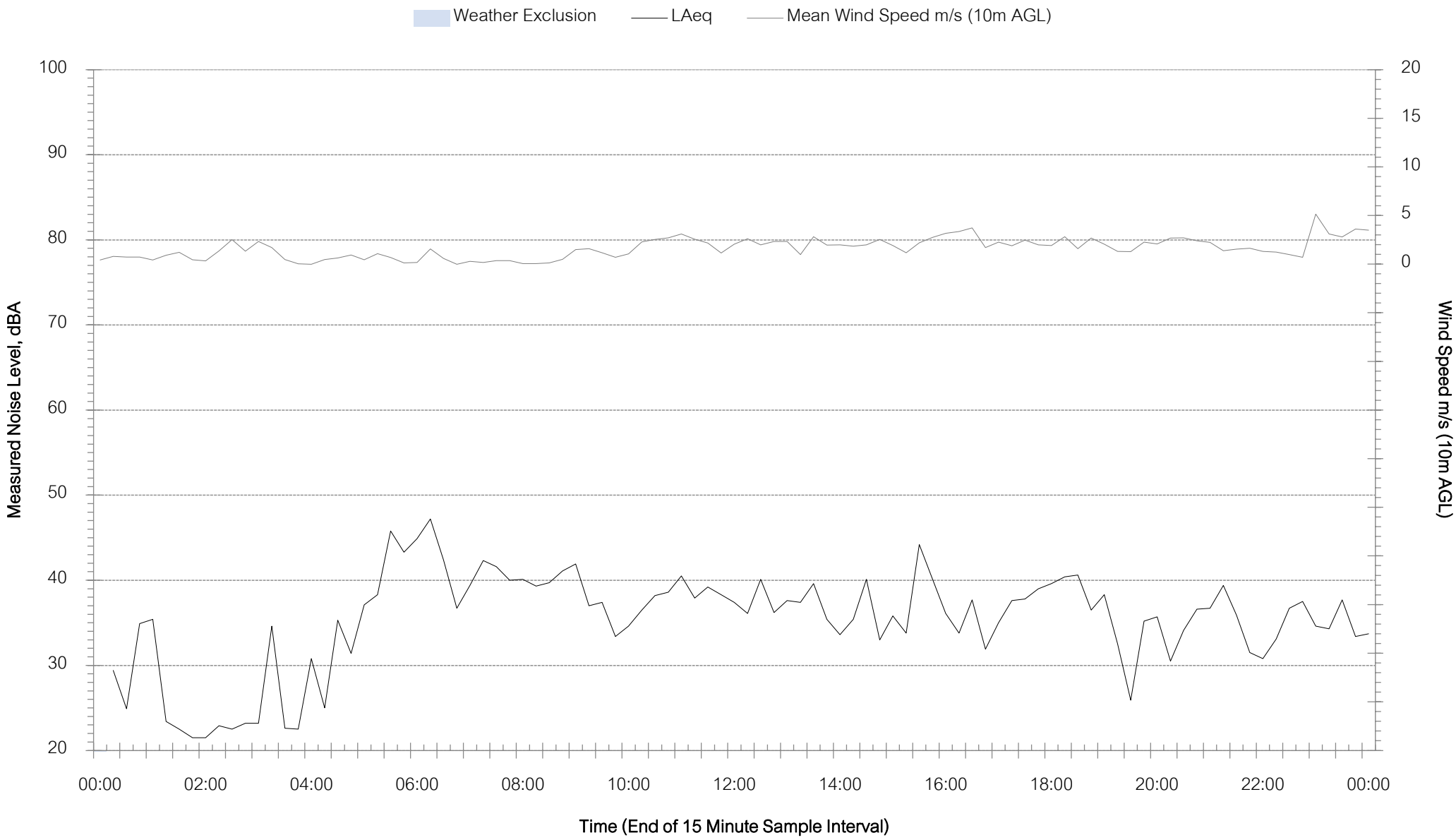
Background Noise Levels

NM3 Milpose - Saturday 25 February 2023



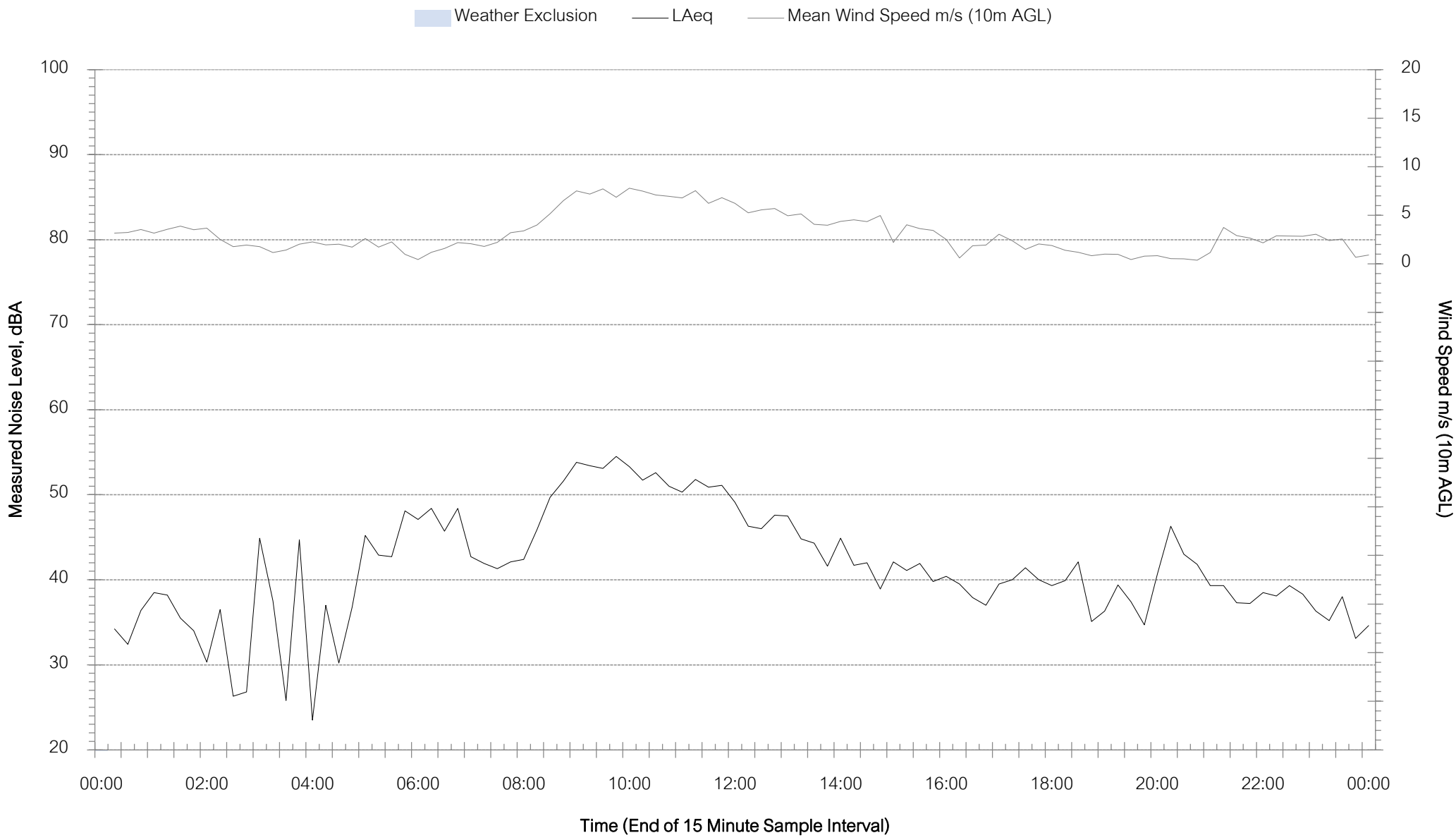
Background Noise Levels

NM4 Hillview - Sunday 19 February 2023



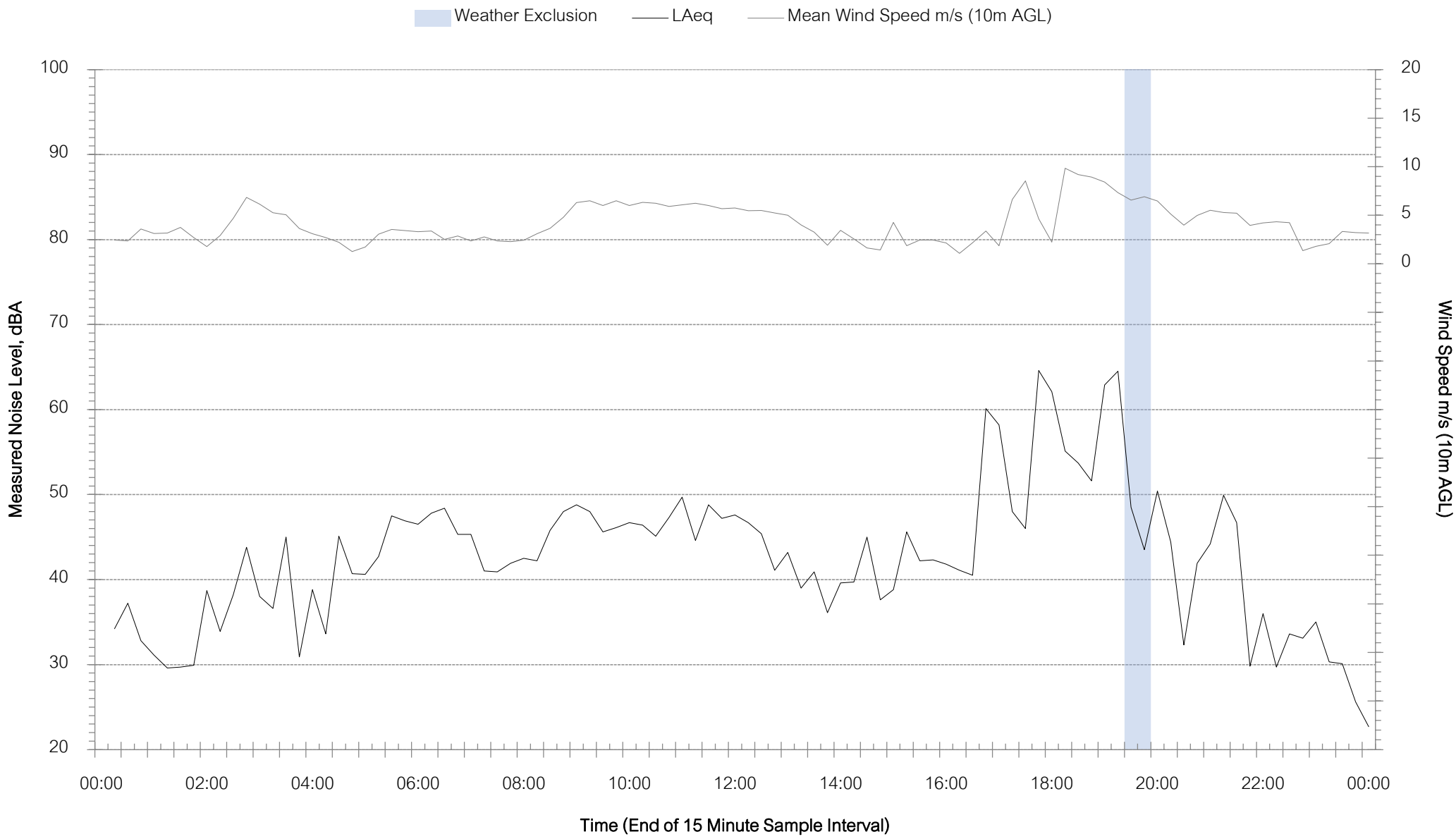
Background Noise Levels

NM4 Hillview - Monday 20 February 2023



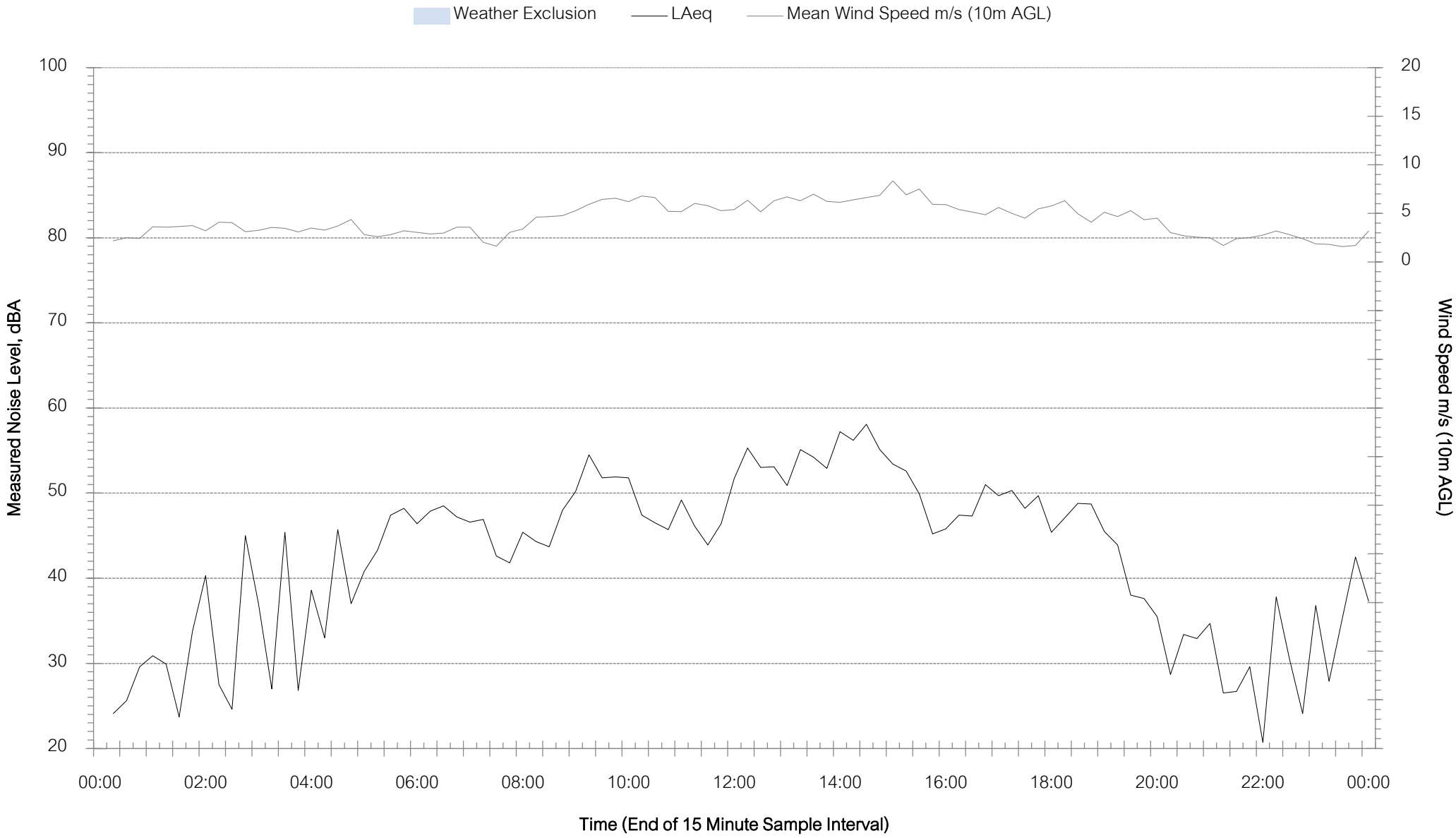
Background Noise Levels

NM4 Hillview - Tuesday 21 February 2023



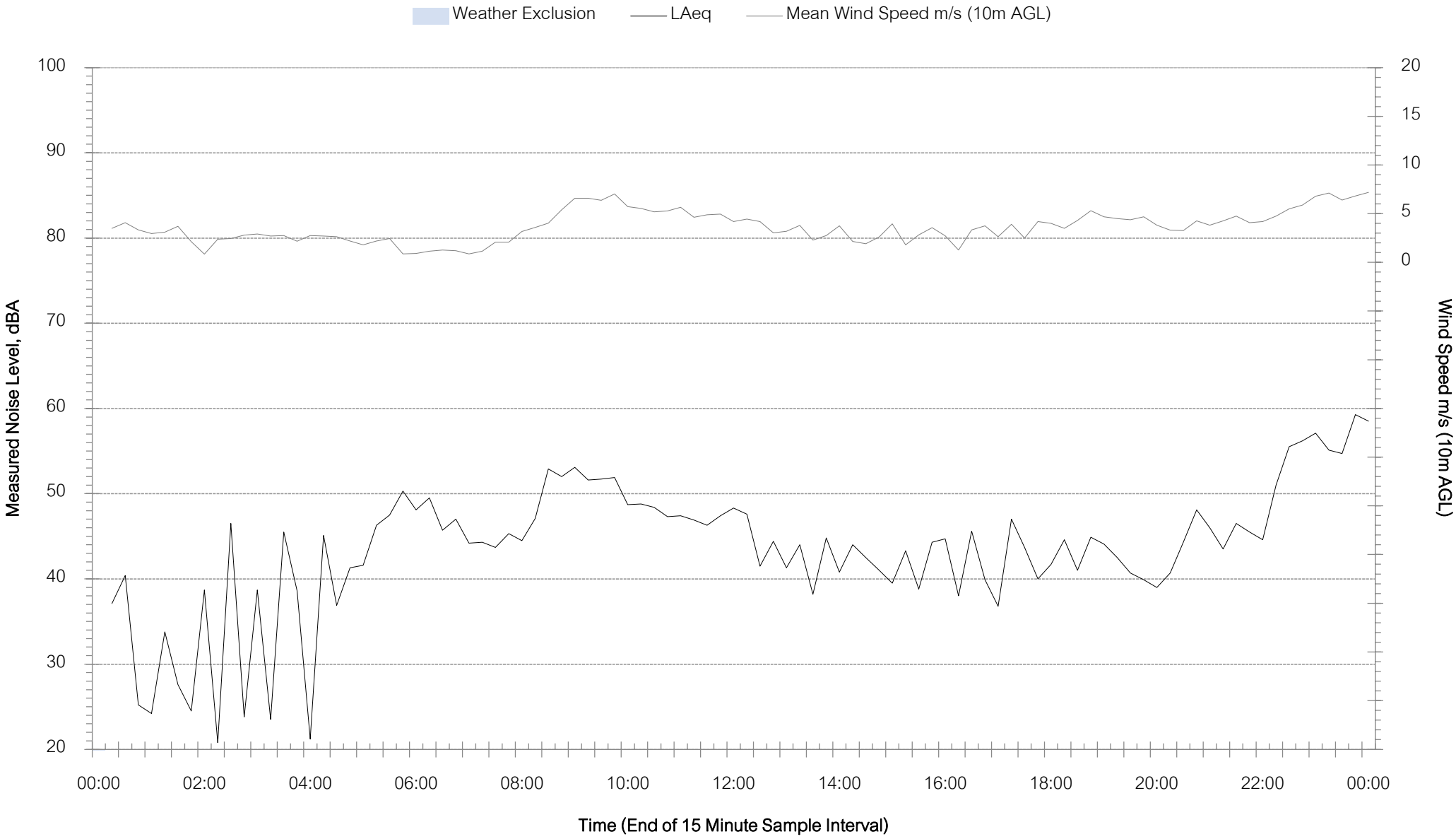
Background Noise Levels

NM4 Hillview - Wednesday 22 February 2023



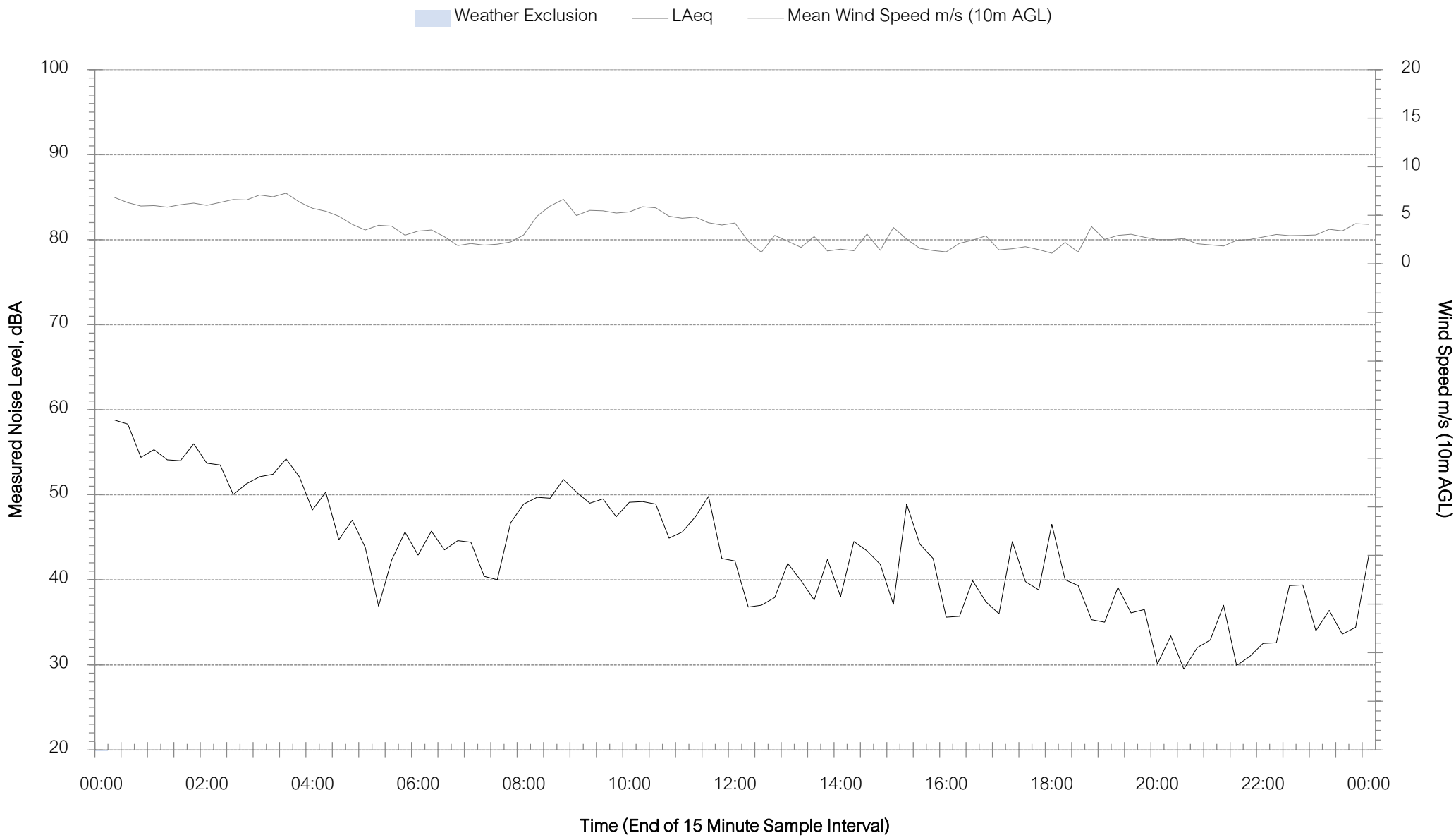
Background Noise Levels

NM4 Hillview - Thursday 23 February 2023



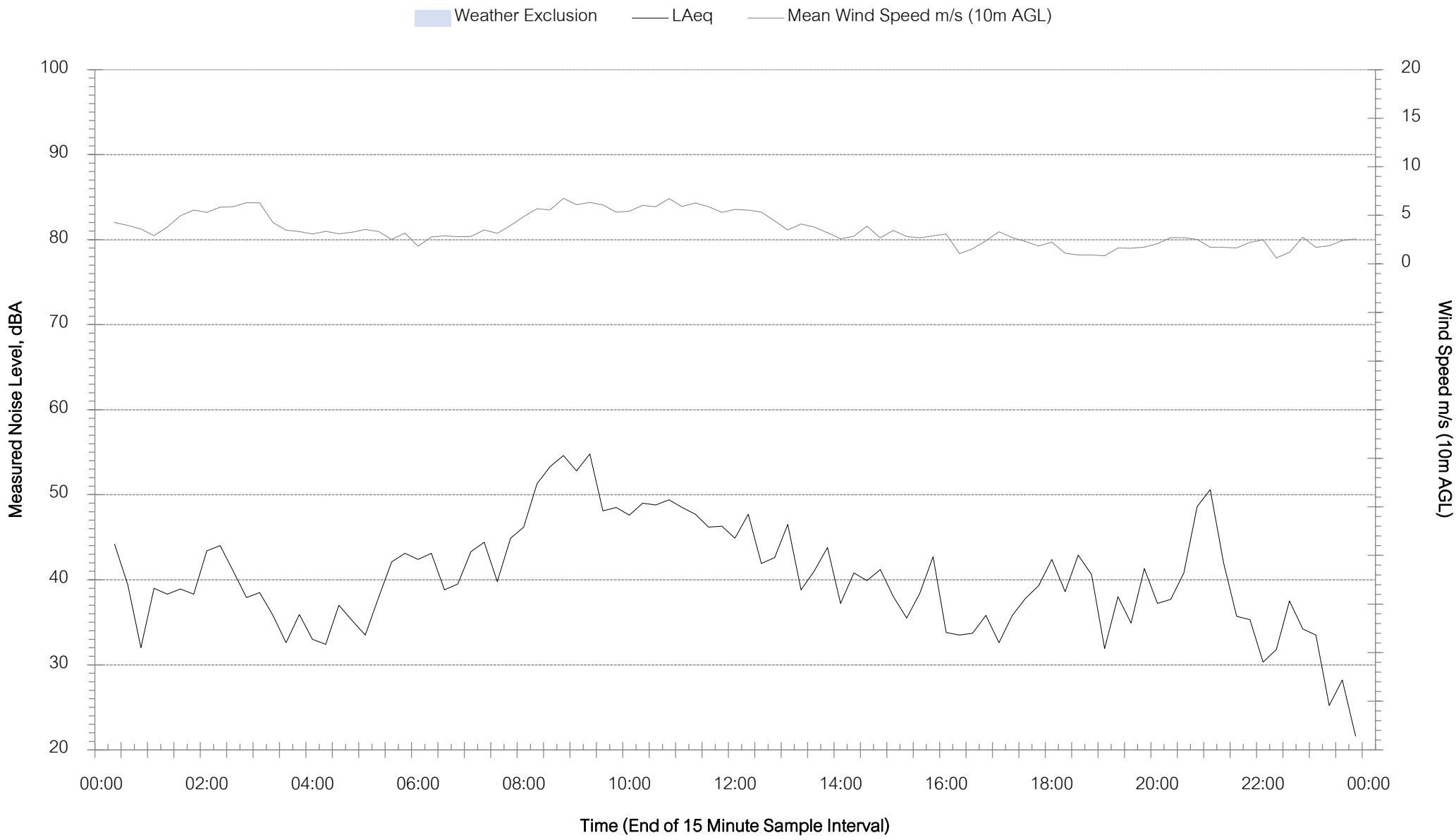
Background Noise Levels

NM4 Hillview - Friday 24 February 2023



Background Noise Levels

NM4 Hillview - Saturday 25 February 2023



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