

Noise Assessment

21 Honeysuckle Drive
Newcastle, NSW.



Document Information

Noise Assessment

21 Honeysuckle Drive, Newcastle, NSW

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Document ID	Status	Date	Prepared By	Signed	Reviewed By	Signed
MAC190841RP1	Final	29 March 2019	Oliver Muller		Rod Linnett	

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1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by KDC Pty Ltd to conduct a Noise Assessment (NA) to quantify noise emissions from mechanical air conditioning plant associated with the proposed multi storey development to be established at 21 Honeysuckle Drive, Newcastle, NSW (the 'project').

This assessment has quantified noise emissions associated with mechanical plant (air conditioning condensers and ventilation fans) on the proposed multi-storey development. The mechanical plant consists of 148 rooftop air conditioning condensers and several ventilation fans.

Taking into consideration the acoustic elements considered in this assessment, the following policies and guidelines have been adopted:

- Environment Protection Authority (EPA) 2017, NSW Noise Policy for Industry (NPI);
- Standards Australia AS 1055:2018, Acoustics - Description and measurement of environmental noise - General Procedures; and
- Standards Australia AS 2107:2016, Acoustics - Recommended design sound levels and reverberation times for building interiors.

Figure 1 presents the project site and nearest surrounding receivers that have been considered in this assessment. A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.





FIGURE 1

LOCALITY PLAN

REF: MAC190841



KEY	
	RECEIVER LOCATION
	PROJECT SITE



*Imagery Source : hereamap

2 Existing Noise Environment

2.1 Attended Noise Monitoring

To gain a better understanding of the existing noise environment surrounding the project, MAC conducted attended noise monitoring in the vicinity of the project site during calm clear weather conditions. The purpose of the measurements was to ascertain dominant ambient noise sources to quantify any existing commercial or industrial noise contributions. The results of attended noise measurements and observations are summarised in **Table 1**. The monitoring positions were west of the project site at 50 Honeysuckle Drive, Honeysuckle, NSW.

Table 1 Ambient Noise Monitoring Summary – Attended Monitoring

Location	Date/ Time	Primary Noise Descriptor (dB(A) re 20 µPa)			Meteorology	Description and SPL dBA
		L _{Amax}	L _{Aeq}	L _{A90}		
NM1 Harbourside	31/01/18 15:44	68	53	50	Temp 27°C WD: W WS: 1.5m/s	Local traffic 48-62 Harbour noise <42 Intermittent Construction 50-53
	31/01/18 20:27	65	51	48	Temp 20°C WD: SW WS: 1.5m/s	Local traffic 48-60 Birds 50-52 Urban hum 40-42
	01/02/18 00:15	86	50	42	Temp 17°C WD: S WS: 1.5m/s	Local traffic 42-48 Pedestrians 43-48 Urban hum/harbour <42
NM2 Roadside	31/01/18 16:02	68	60	56	Temp 27°C WD: W WS: 1.5m/s	Local traffic 55-72 Harbour noise <40
	31/01/18 20:45	77	60	47	Temp 20°C WD: SW WS: 1.5m/s	Local traffic 43-77 Birds 52-59 Urban hum/harbour <42
	01/02/18 00:38	86	50	42	Temp 17°C WD: S WS: 1.5m/s	Local traffic 40-69 Birds 39-44 Urban hum/harbour <42

Ambient sources included traffic noise from Honeysuckle Drive, pedestrian noise, birds, urban hum and minor levels of harbour noise. Notwithstanding, it was noted that during the noise survey, winds were from the south directing harbour noise emissions away from this location. Detailed analysis of noise logging data identified that harbour noise contributions were generally at or below 40dBA at the project site.

3 Noise Policy and Criteria

3.1 Noise Policy for Industry

The EPA released the Noise Policy for Industry (NPI) in October 2017 which provides a process for establishing noise criteria for consents and licenses enabling the EPA to regulate noise emissions from scheduled premises under the Protection of the Environment Operations Act 1997. The objectives of the NPI are to:

- provide noise criteria that is used to assess the change in both short term and long term noise levels;
- provide a clear and consistent framework for assessing environmental noise impacts from industrial premises and industrial development proposals;
- promote the use of best-practice noise mitigation measures that are feasible and reasonable where potential impacts have been identified; and
- support a process to guide the determination of achievable noise limits for planning approvals and/or licences, taking into account the matters that must be considered under the relevant legislation (such as the economic and social benefits and impacts of industrial development).

The policy sets out a process for industrial noise management involving the following key steps:

1. Determine the Project Noise Trigger Levels (PNTLs) (ie criteria) for a development. These are the levels (criteria), above which noise management measures are required to be considered. They are derived by considering two factors: shorter-term intrusiveness due to changes in the noise environment; and maintaining the noise amenity of an area.
2. Predict or measure the noise levels produced by the development with regard to the presence of annoying noise characteristics and meteorological effects such as temperature inversions and wind.
3. Compare the predicted or measured noise level with the PNTL, assessing impacts and the need for noise mitigation and management measures.
4. Consider residual noise impacts - that is, where noise levels exceed the PNTLs after the application of feasible and reasonable noise mitigation measures. This may involve balancing economic, social and environmental costs and benefits from the proposed development against the noise impacts, including consultation with the affected community where impacts are expected to be significant.

5. Set statutory compliance levels that reflect the best achievable and agreed noise limits for the development.
6. Monitor and report environmental noise levels from the development.

3.1.1 Project Noise Trigger Levels

The policy sets out the procedure to determine the PNTLs relevant to an industrial development. The PNTL is the lower (that is, the more stringent) value of the **Project Intrusiveness Noise Level** (PINL) and **Project Amenity Noise Level** (PANL) determined in accordance with Section 2.3 and Section 2.4 of the NPI.

3.1.2 Project Intrusiveness Noise Level

The PINL ($L_{Aeq,15min}$) is the RBL + 5dB and seeks to limit the degree of change a new noise source introduces to an existing environment. Hence, when assessing intrusiveness, background noise levels needs to be measured:

- to provide a formal process to guide the determination of feasible and reasonable noise limits for consents or licences that reconcile noise impacts with the economic, social and environmental considerations of industrial development; and
- to carry out functions relating to the prevention, minimisation and control of noise from premises scheduled under the Act.

Unattended Noise Monitoring

Unattended noise monitoring was completed west of the project site, at 50 Honeysuckle Drive, between Friday 23 March 2018 to Thursday 29 March 2018 to quantify the noise environment and the influence of road noise.

Unattended noise monitoring was conducted using a Svantek 957 Type 1 octave sound analyser, programmed to collect samples at 15-minute intervals with 'Fast' time weighting and 'A' frequency weighting. The analyser was calibrated before and after the monitoring period with no drift in calibration noted. Monitoring was conducted in general accordance with the procedures described in Australian Standard AS1055:2018 Acoustics - Description and Measurement of Environmental Noise. Data affected by adverse meteorological conditions has been excluded from the results in accordance with methodologies provided in the NPI.

The results of the unattended monitoring are provided in **Table 2**. **Appendix B** presents the results graphically for the assessment period.

Table 2 Unattended Noise Monitoring Results

Measurement Location	Measured Background Noise Level, dB LA90			Measured, dB LAeq(period)		
	Day	Evening	Night	Day	Evening	Night
L1	53	49	43	62	59	56

Note: Excludes periods of wind or rain affected data, meteorological data obtained from the Bureau of Meteorology at Nobbys Pilot Station AWS (32.9184°S 151.7985°E.).

Note: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

The unattended monitoring confirms that the ambient noise environment surrounding the project is dominated by road traffic and urban noise.

A summary of the intrusive noise criteria is provided in **Table 3**.

Table 3 Project Intrusiveness Noise Levels

Location	Assessment Period ¹	RBL dB LA90	Intrusiveness Noise Level dB LAeq(15min)
All Residential Receivers	Day	53	58
	Evening	49	54
	Night	43	48

Note 1: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

3.1.3 Project Amenity Noise Levels

PANLs are relevant to a specific land use or locality. To limit continuing increases in intrusiveness levels, the ambient noise level within an area from all combined industrial sources should remain below the recommended Amenity Noise Levels specified in Table 2.2 (of the NPI). The NPI defines two categories of amenity noise levels:

- **Amenity Noise Levels (ANL)** – are determined considering all current and future industrial noise within a receiver area.
- **Project Amenity Noise Levels (PANL)** – is the recommended levels for a receiver area, specifically focusing the project under investigation.

As per Section 2.4 of the NPI, ANLs and PANLs consider:

- areas with high traffic noise levels;
- proposed developments in major industrial clusters;
- existing industrial noise; and
- greenfield sites.

The NPI states with respect to high traffic noise areas:

The level of transport noise, road traffic noise in particular, may be high enough to make noise from an industrial source effectively inaudible, even though the LAeq noise level from that industrial noise source may exceed the project amenity noise level. In such cases the project amenity noise level may be derived from the LAeq, period(traffic) minus 15 dB(A).

Where relevant this assessment has considered influences of traffic with respect to amenity noise levels (ie areas where existing traffic noise levels are 10dB greater than the recommended amenity noise level).

The recommended amenity noise levels as per Table 2.2 of the NPI reproduced in **Table 4**.

Table 4 Amenity Criteria

Receiver Type	Noise Amenity Area	Time of day	Recommended amenity noise level LAeq, dBA
Residential	Rural	Day	50
		Evening	45
		Night	40
	Suburban	Day	55
		Evening	45
		Night	40
	Urban	Day	60
		Evening	50
		Night	45
Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks	See column 4	See column 4	5dBA above the recommended amenity noise level for a residence for the relevant noise amenity area and time of day
School classroom – internal	All	Noisiest 1 hour period when in use	35
Hospital ward			
- internal	All	Noisiest 1 hour	35
- external		Noisiest 1 hour	50
Place of worship – internal	All	When in use	40
Area specifically reserved for passive recreation (e.g. national park)	All	When in use	50
Active recreation area (e.g. school playground, golf course)	All	When in use	55
Commercial premises	All	When in use	65
Industrial premises	All	When in use	70
Industrial interface (applicable only to residential noise amenity areas)	All	All	Add 5dBA to recommended noise amenity area

Notes: The recommended amenity noise levels refer only to noise from industrial noise sources. However, they refer to noise from all such sources at the receiver location, and not only noise due to a specific project under consideration. The levels represent outdoor levels except where otherwise stated.

Types of receivers are defined as rural residential; suburban residential; urban residential; industrial interface; commercial; industrial – see Table 2.3 and Section 2.7.

Time of day is defined as follows: (These periods may be varied where appropriate, for example, see A3 in Fact Sheet A.)

- day – the period from 7 am to 6 pm Monday to Saturday or 8 am to 6 pm on Sundays and public holidays;
- evening – the period from 6 pm to 10 pm;
- night – the remaining periods.

In the case where existing schools are affected by noise from existing industrial noise sources, the acceptable LAeq noise level may be increased to 40dB LAeq(1hr).

The PANLs for residential receivers and other sensitive receivers potentially affected by the project are presented in **Table 5**.

Table 5 Amenity Noise Levels and Project Amenity Noise Levels

Receiver Type	Noise Amenity Area	Assessment Period ¹	Recommended ANL dB LAeq(period) ²	PANL dB LAeq(period) ³	PANL dB LAeq(15min) ⁴
Residential	Urban	Day	60	55	58
		Evening	50	50	53
		Night	45	40	43
Commercial	All	When in use	65	60	63

Note 1: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

Note 2: Recommended amenity noise levels as per Table 2.2 of the NPI.

Note 3: Project Amenity Noise Level -5dB due to other adjoining industry.

Note 4: Includes a +3dB adjustment to the amenity period level to convert to a fifteen-minute assessment period as per Section 2.2 of the NPI.

3.1.4 Project Noise Trigger Levels

The PNTLs is the lower of either the PINL or the PANL. **Table 6** presents the derivation of the PNTL's in accordance with the methodologies outlined in the NPI.

Table 6 Project Noise Trigger Levels				
Receiver	Period ¹	PINL dB LAeq(15min)	PANL dB LAeq(15min)	PNTL dB LAeq(15min)
Residential	Day	58	58	58
	Evening	54	53	53
	Night	48	43	43
Commercial	All	N/A	63	63

Note 1: Monday to Saturday: Day 7am to 6pm; Evening 6pm to 10pm; Night the remaining periods. On Sundays and Public Holidays, Day 8am to 6pm; Evening 6pm to 10pm; Night the remaining periods.

3.2 Maximum Noise Level Assessment Criteria

The potential for sleep disturbance from maximum noise level events from a project during the night-time period needs to be considered. The NPI considers sleep disturbance to be both awakenings and disturbance to sleep stages.

Where night-time noise levels from a development/premises at a residential location exceed:

- LAeq,15min 40dBA or the prevailing RBL plus 5dB, whichever is the greater, and/or
- LAmax 52dBA or the prevailing RBL plus 15dB, whichever is the greater,

a detailed maximum noise level event assessment should be undertaken.

A detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

Other factors that may be important in assessing the impacts on sleep disturbance include:

- how often the events would occur;
- the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the development;

- whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods); and
- current understanding of effects of maximum noise level events at night.

The maximum noise level screening criteria shown in **Table 7** is based on night time RBLs.

Table 7 Maximum Noise Level Assessment Screening Criteria

Residential Receivers R1-R6			
LAeq(15min)		LAmax	
40dB LAeq(15min) or RBL + 5dB		52dB LAmax or RBL + 15dB	
Trigger	40	Trigger	52
RBL 43+5dB	48	RBL 43+15dB	58
Highest	48	Highest	58

Note 1: As per Section 2.5 of the NPI, the highest of each metric are adopted as the screening criteria.

4 Noise Assessment Methodology

4.1 Operational Noise Modelling Methodology

An assessment of potential operational noise emissions from the project has been completed. Mechanical plant including air conditioning condensers and ventilation exhaust has been assessed against relevant NPI criteria. **Table 8** presents the sound power levels for the source assessed in this report.

Table 8 Sound Power Levels¹

Item	Octave Band Sound Power Level, dBA									Total dBA
	31.5	63	125	250	500	1000	2000	4000	8000	
Operational Assessment (LAeq)										
Air Conditioning Condensers (x148)	40	48	51	57	66	62	64	64	49	71
Ventilation Exhaust (x4)	30	35	44	70	73	68	61	51	31	76
Maximum Level (LAmax)										
Air Conditioning Condensers (x148)	43	51	54	60	69	65	67	67	52	74
Ventilation Exhaust (x4)	33	38	47	73	76	71	64	54	34	79

Note 1: Source - MAC database.

DGMR (iNoise, Version 2019) noise modelling software was used to assess potential noise impacts associated with the project. A three-dimensional digital terrain map providing all relevant topographic information of the surrounding built environment was used in the modelling process.

Additionally, the model uses relevant noise source data, ground type, attenuation from barrier or buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers. Mechanical plant noise was modelled on the rooftop of the development (see Site Plans in **Appendix C**) (SJB Architects, 2019).

The calculation method used to predict noise levels was in accordance with ISO 9613-1 'Acoustics - Attenuation of sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere' and ISO 9613-2 'Acoustics - Attenuation of sound during propagation outdoors. Part 2: General method of calculation'.

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5 Noise Modelling Assumptions and Recommendations

Noise emissions from the project have been quantified to surrounding receivers and include the following assumptions and noise controls:

- the acoustic screens surrounding the mechanical plant consist of impervious material (ie colourbond or equivalent) and will not be louvred; and
- the acoustic screens will be at the height as shown in the architectural drawings (see Site Plans in **Appendix C**) (SJB Architects, 2019).

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6 Results

6.1 Operational Noise Prediction Results (NPI Assessment)

Operational noise levels from the rooftop terrace (mechanical plant) for the project have been predicted to the nearest proposed residential receivers adjacent to the project at 21 Honeysuckle Drive, Newcastle, NSW and adjacent commercial receivers (see **Figure 1**).

Table 9 presents the single point calculation results and demonstrate that operational noise emissions from the project remain below the relevant PNTLs for all assessed receivers.

Table 9 Predicted Operational Noise Levels

Location	Period ¹	Predicted Noise Level	PNTL
		dB LAeq(15min)	dB LAeq(15min)
R1	Day	40	58
	Evening	40	53
	Night	40	43
R2	Day	40	58
	Evening	40	53
	Night	40	43
R3	Day	40	58
	Evening	40	53
	Night	40	43
R4	Day	36	58
	Evening	36	53
	Night	36	43
R5	Day	38	58
	Evening	38	53
	Night	38	43
R6	Day	38	58
	Evening	38	53
	Night	38	43
C1	Day	41	63
C2	Day	43	63
C3	Day	41	63
C4	Day	37	63

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.

6.2 Maximum Noise Level Assessment

Predicted noise levels from constant operation of mechanical plant (LAeq(15min)), and maximum events of mechanical plant (LAmax) for assessed receivers are presented in **Table 10**. Results identify that the maximum noise events screening criterion will be satisfied for all assessed receivers.

Table 10 Maximum Noise Levels Assessment (Night)¹

Receiver	Predicted Noise Level		Screening Criteria		Compliant
	dB LAeq(15min)	dB LAmax	dB LAeq(15min)	dB LAmax	
R1	40	42	48	58	✓
R2	40	42	48	58	✓
R3	40	42	48	58	✓
R4	36	38	48	58	✓
R5	38	41	48	58	✓
R6	38	39	48	58	✓

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.

7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed an assessment of potential noise impacts from mechanical air conditioning plant associated with the proposed multi storey development to be established at 21 Honeysuckle Drive, Newcastle, NSW.

Noise emission from the project are demonstrated to remain below relevant operational and sleep disturbance criteria for all assessed receivers with the implementation of the noise controls described in **Section 5**.

Following the findings of the Noise Assessment, it is recommended that the development is approved based on noise control assumptions/recommendations and referenced architectural plans provided in this report.

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Appendix A – Glossary of Terms

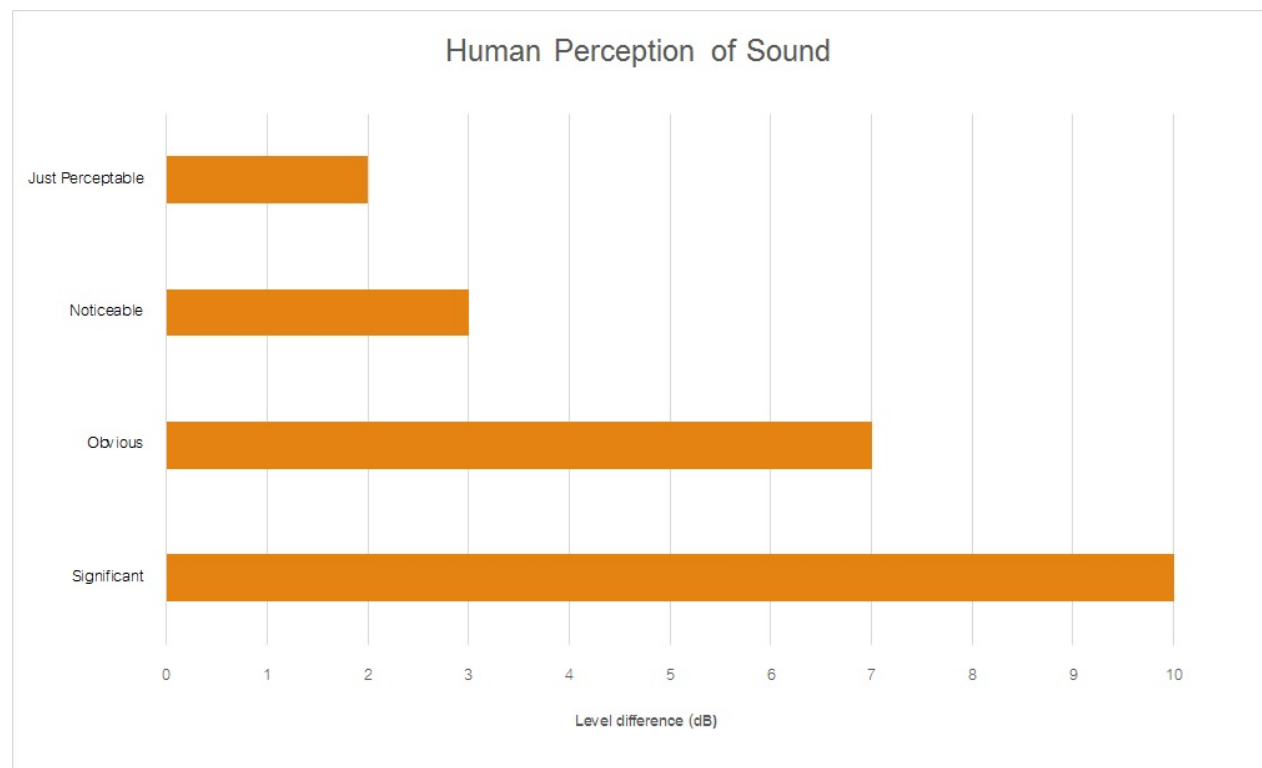
Table A1 provides a number of technical terms have been used in this report.

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. In some cases the overall change in noise level is described in dB rather than dBA, or dBZ which relates to the weighted scale.
dB(Z)	Linear Z-weighted decibels.
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.
LAmx	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)	<p>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 :</p> $= 10 \cdot \log_{10} (W/W_0)$ <p>Where : W is the sound power in watts and W₀ is the sound reference power at 10-12 watts.</p>

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

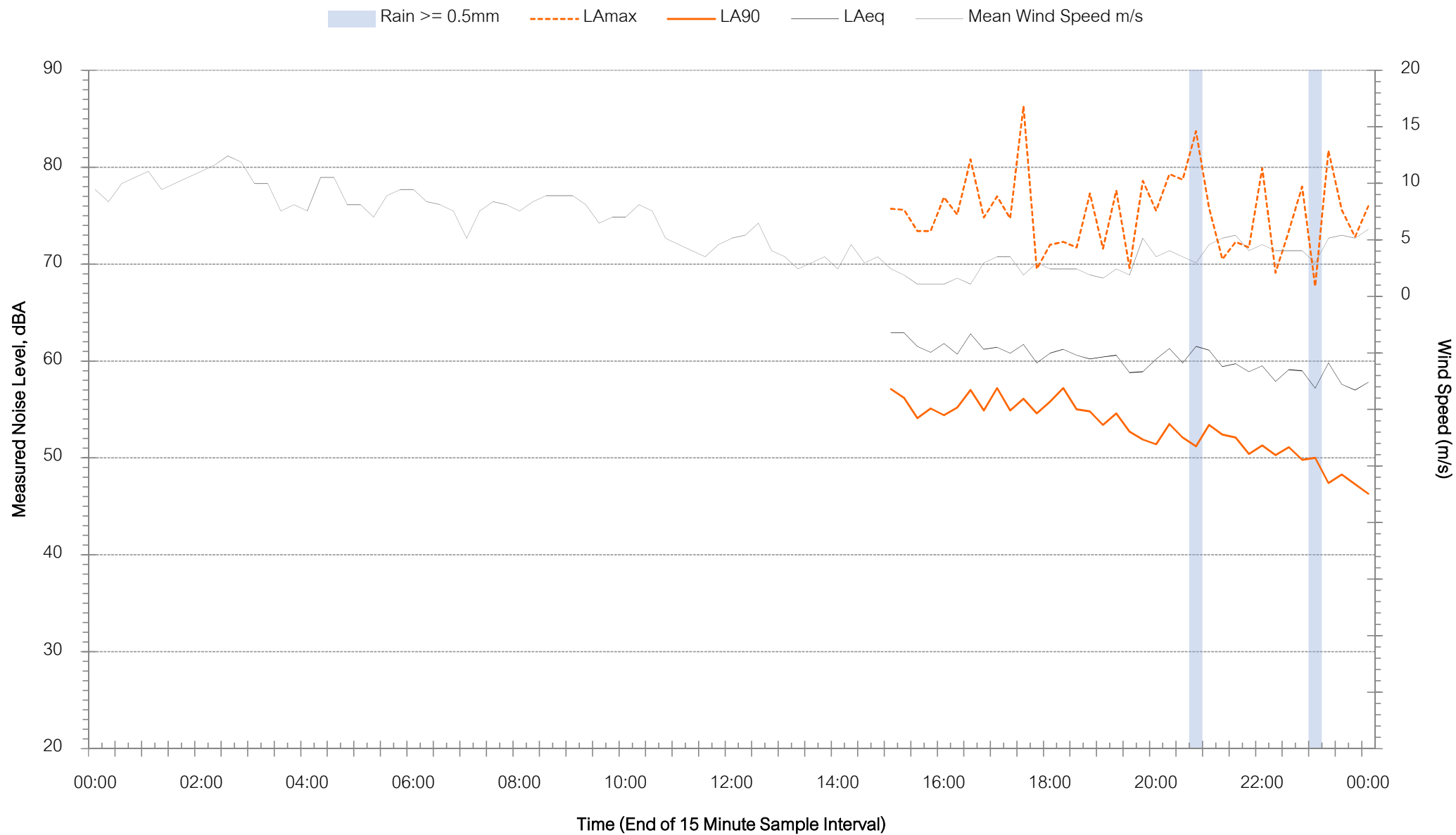


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Appendix B – Noise Logging Data

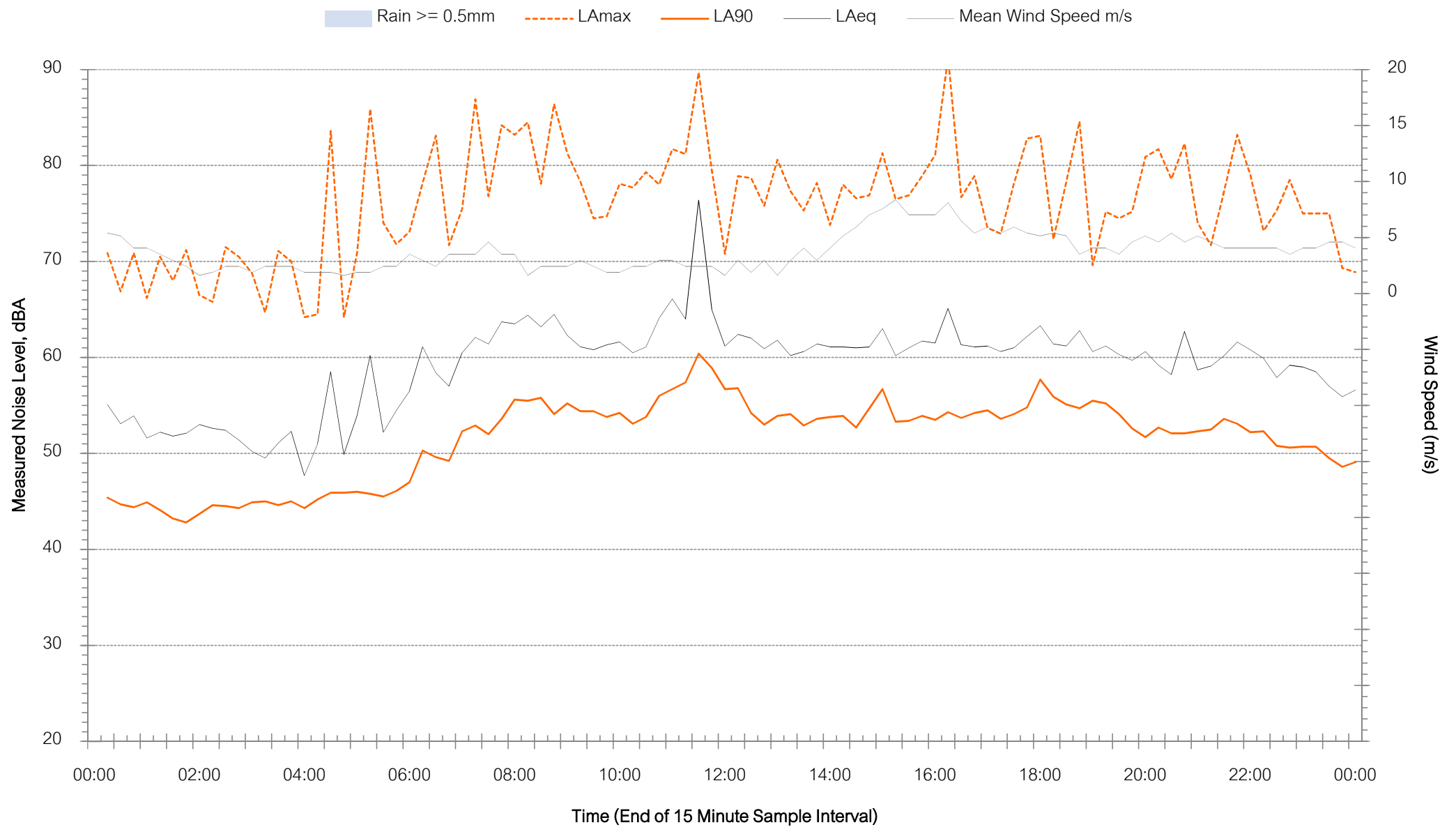
Background Noise Levels

Honeysuckle Drive, Newcastle - Friday 23 March 2018



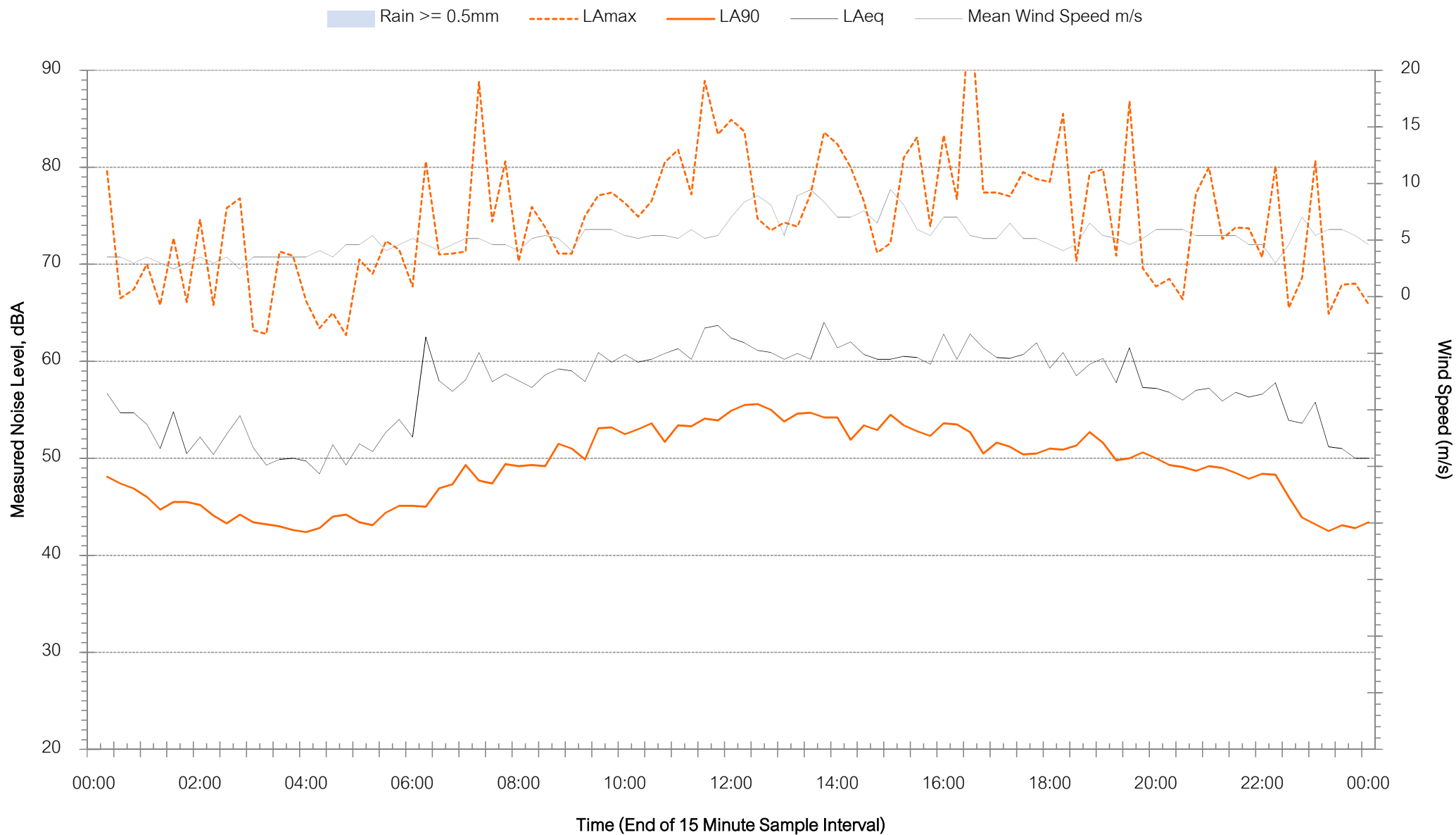
Background Noise Levels

Honeysuckle Drive, Newcastle - Saturday 24 March 2018



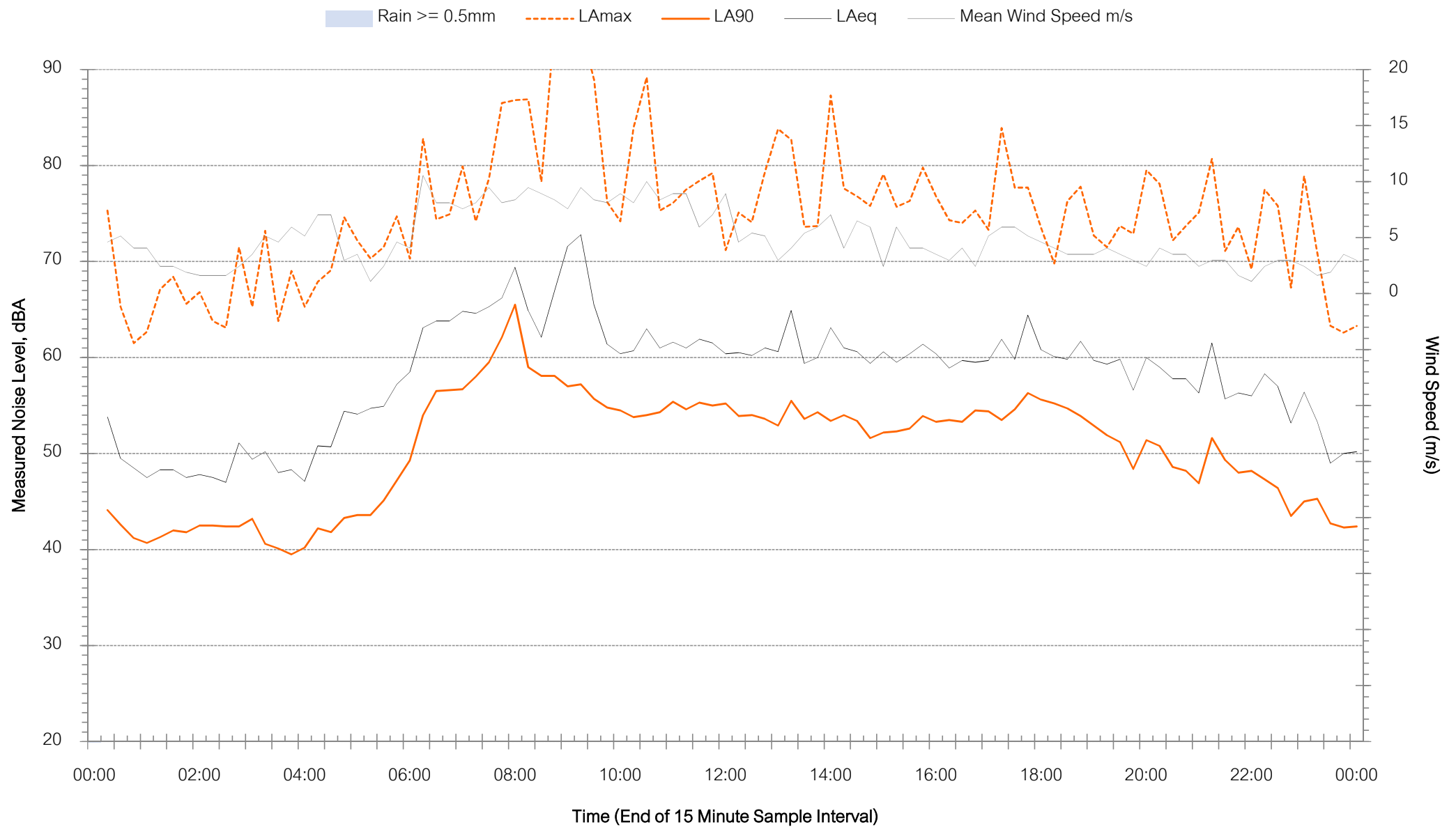
Background Noise Levels

Honeysuckle Drive, Newcastle - Sunday 25 March 2018



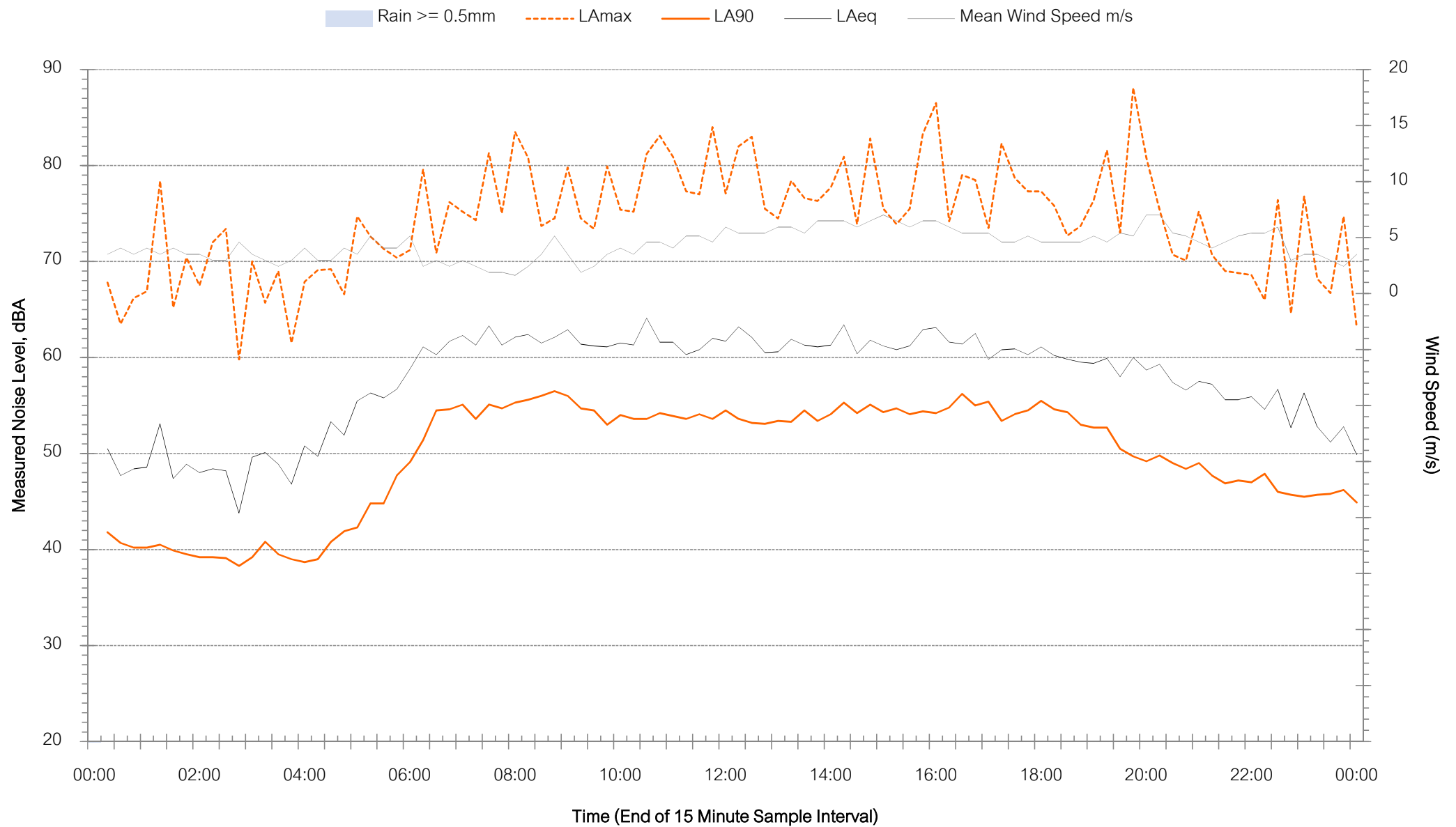
Background Noise Levels

Honeysuckle Drive, Newcastle - Monday 26 March 2018



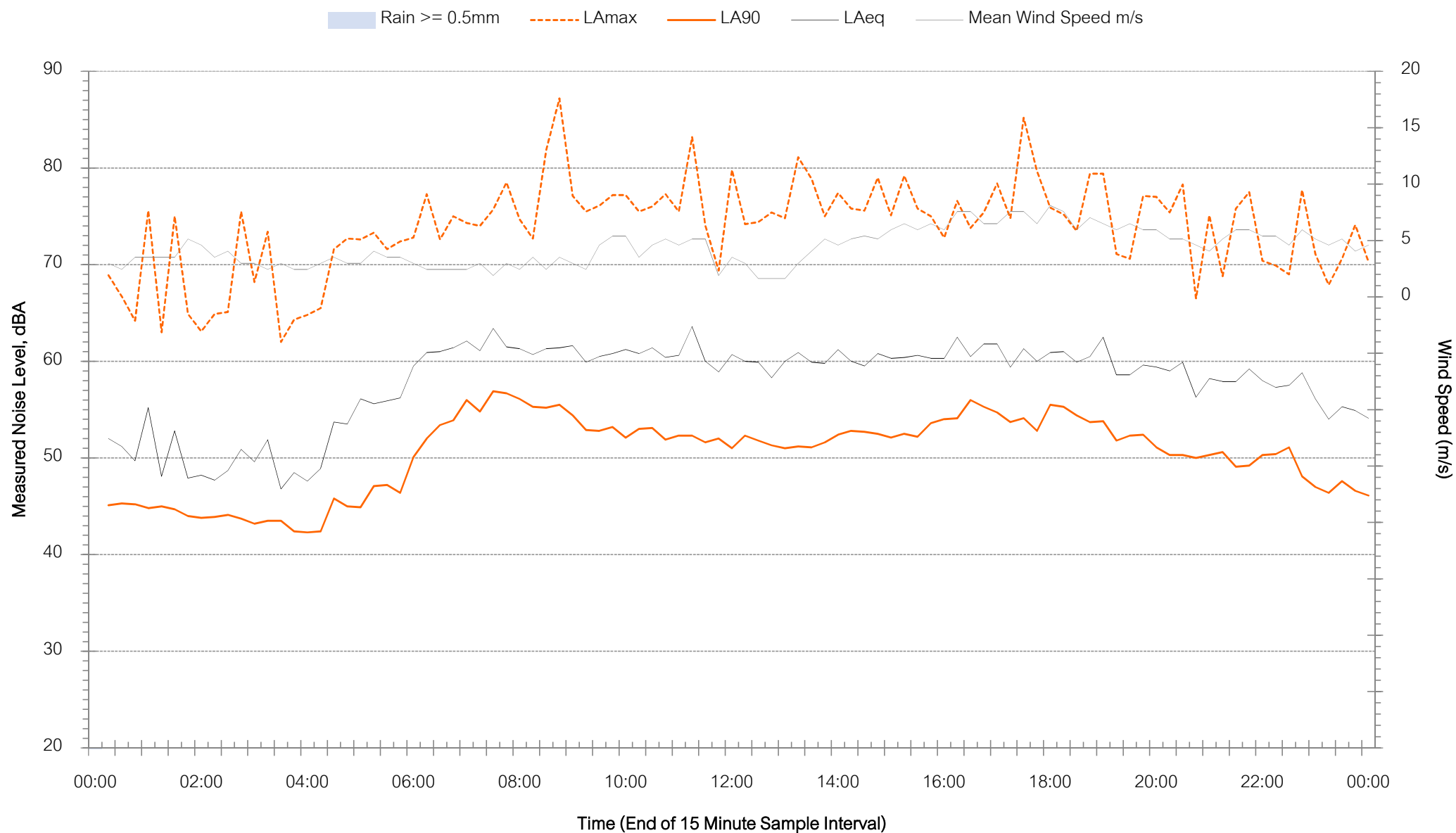
Background Noise Levels

Honeysuckle Drive, Newcastle - Tuesday 27 March 2018



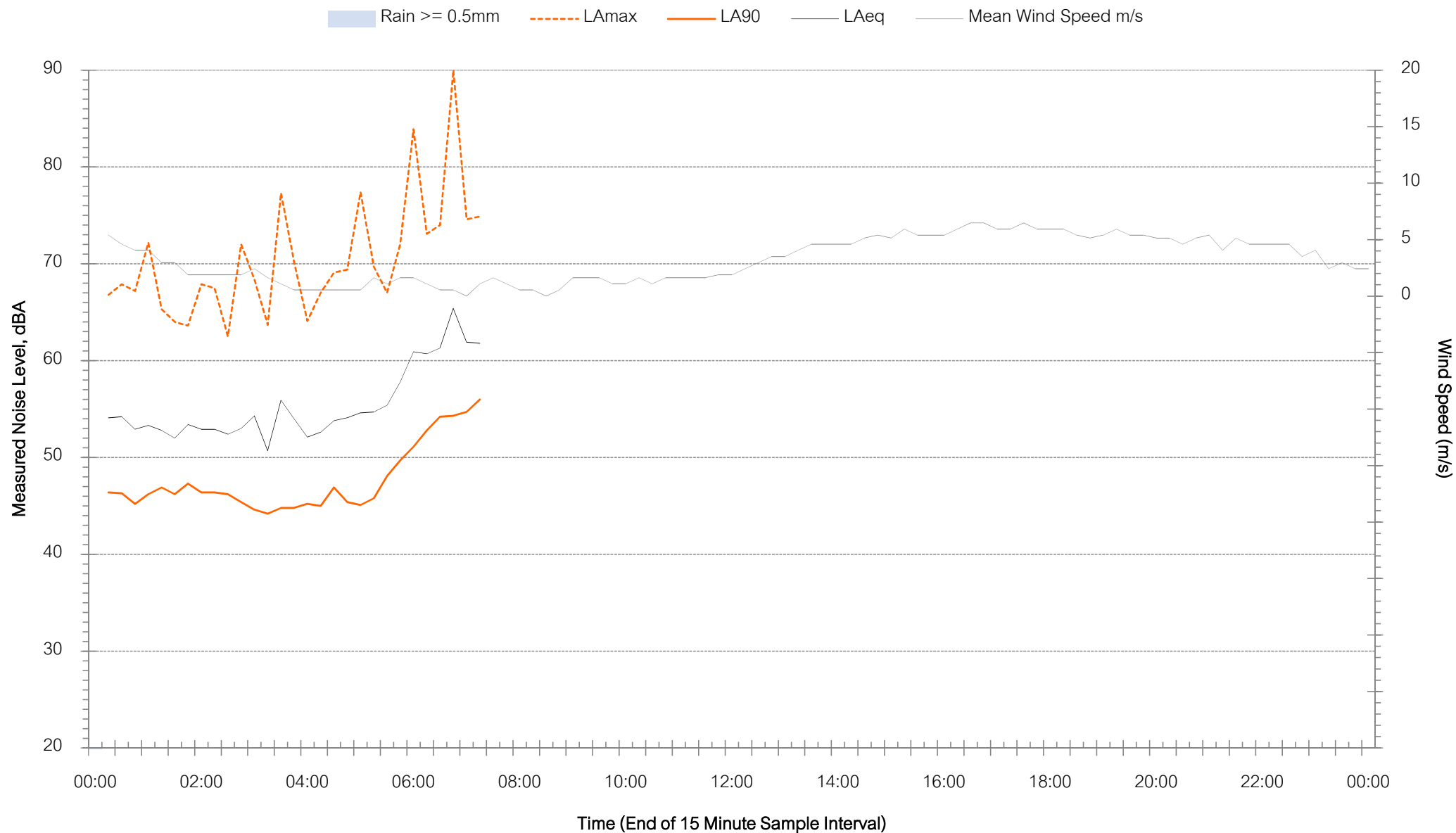
Background Noise Levels

Honeysuckle Drive, Newcastle - Wednesday 28 March 2018



Background Noise Levels

Honeysuckle Drive, Newcastle - Thursday 29 March 2018



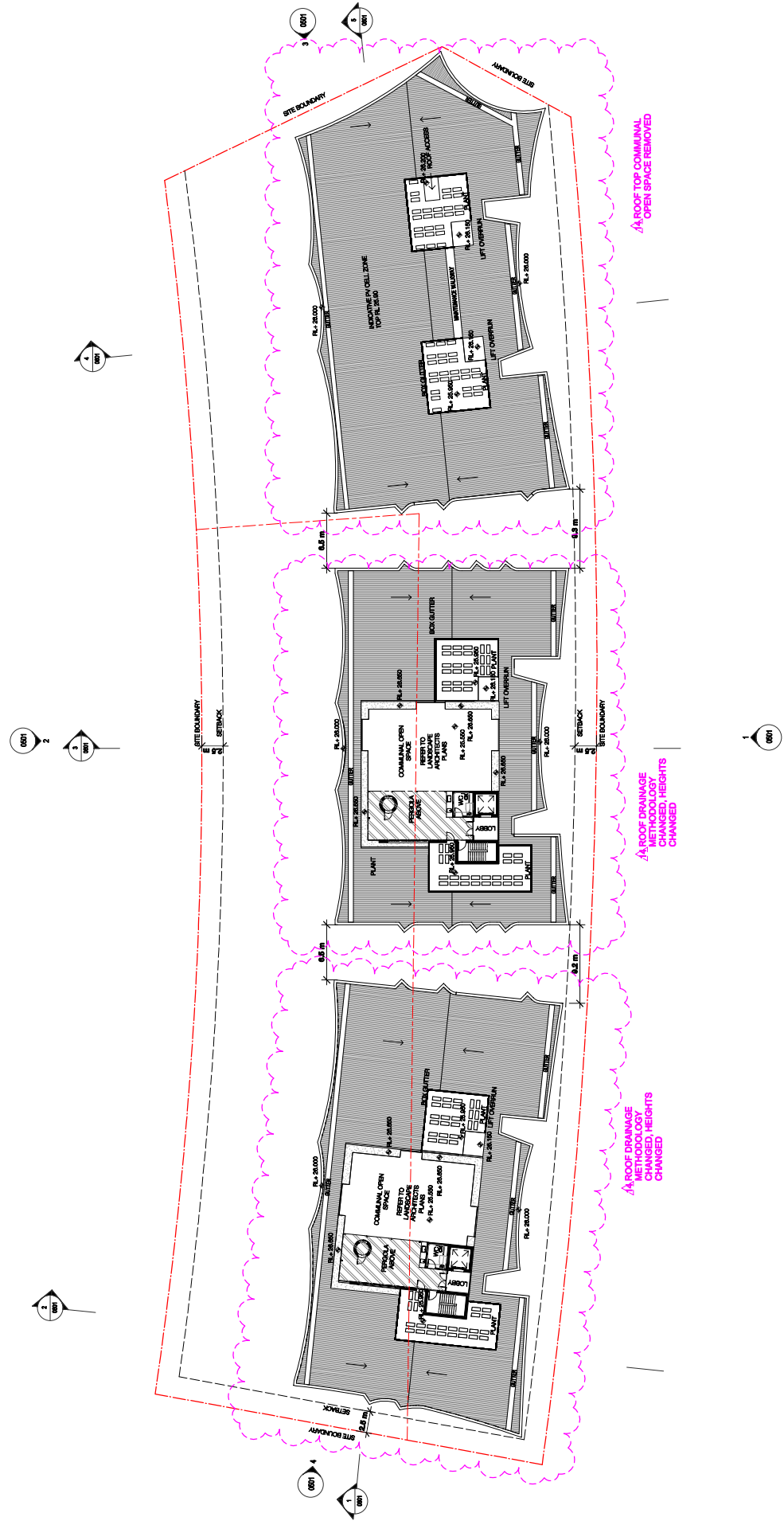
Appendix C – Site Plans

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FOR INFORMATION

Rev	Date	Revision	By	Chk
1	17.02.17	DEVELOPMENT APPLICATION ISSUE		
4	20.05.17	SUBMITTED FOR DA	JO	ML
9	20.05.17	FOR COORDINATION	JO	ML
11	04.07.17	REVISED DA ISSUE		
12	08.11.17	REVISED DA ISSUE		
13	27.11.17	FOR REVIEW	BC	ML
14	28.06.18		BC	ML
15	11.12.18	SECTION 4.06		

Nominated Architects: Adam Haddock-7188 | John Pinedel-7004



**14. ROOF TOP COMMUNAL
OPEN SPACE REMOVED**

4 ROOF DRAINAGE

4 ROOF DRAINAGE METHODOLOGY CHANGED. HEIGHTS

DOMAGROUP

Project
Honeysuckle
550 Honeysuckle Drive,
Newcastle NSW 2300

Drawing Name

ROOF PLAN

Date	11.12.18	Scale	1 : 250	Sheet Size	A1
Drawn		CHK			
Proj. Job No.	JO	M/L			
Drawing No.	5485	DA-0208	/ 15	Revision	

1" = 100'
 1" = 200'
 1" = 300'
 1" = 400'
 1" = 500'
 1" = 600'
 1" = 700'
 1" = 800'
 1" = 900'
 1" = 1000'
 1" = 1100'
 1" = 1200'
 1" = 1300'
 1" = 1400'
 1" = 1500'
 1" = 1600'
 1" = 1700'
 1" = 1800'
 1" = 1900'
 1" = 2000'
 1" = 2100'
 1" = 2200'
 1" = 2300'
 1" = 2400'
 1" = 2500'
 1" = 2600'
 1" = 2700'
 1" = 2800'
 1" = 2900'
 1" = 3000'
 1" = 3100'
 1" = 3200'
 1" = 3300'
 1" = 3400'
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 1" = 3600'
 1" = 3700'
 1" = 3800'
 1" = 3900'
 1" = 4000'
 1" = 4100'
 1" = 4200'
 1" = 4300'
 1" = 4400'
 1" = 4500'
 1" = 4600'
 1" = 4700'
 1" = 4800'
 1" = 4900'
 1" = 5000'
 1" = 5100'
 1" = 5200'
 1" = 5300'
 1" = 5400'
 1" = 5500'
 1" = 5600'
 1" = 5700'
 1" = 5800'
 1" = 5900'
 1" = 6000'
 1" = 6100'
 1" = 6200'
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 1" = 6400'
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 1" = 7000'
 1" = 7100'
 1" = 7200'
 1" = 7300'
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 1" = 7500'
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 1" = 7900'
 1" = 8000'
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 1" = 8200'
 1" = 8300'
 1" = 8400'
 1" = 8500'
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 1" = 8700'
 1" = 8800'
 1" = 8900'
 1" = 9000'
 1" = 9100'
 1" = 9200'
 1" = 9300'
 1" = 9400'
 1" = 9500'
 1" = 9600'
 1" = 9700'
 1" = 9800'
 1" = 9900'
 1" = 10000'

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FOR INFORMATION

Rev	Date	Description	By	CHK
1	10/08/17	DATE/REVISION/ APPLICATION ISSUE		
4	10/08/17	DA SUBMISSION	JO	ML
10	08/11/17	REVISED DA SUB		
13	08/11/17	REVISED DA SUB		
14	21/11/17	REVISED DA SUB		
15	11/12/18	REVISION 4.05	JO	ML

Notified Architect: Adam Hadden-PH | John Pridmore-DA

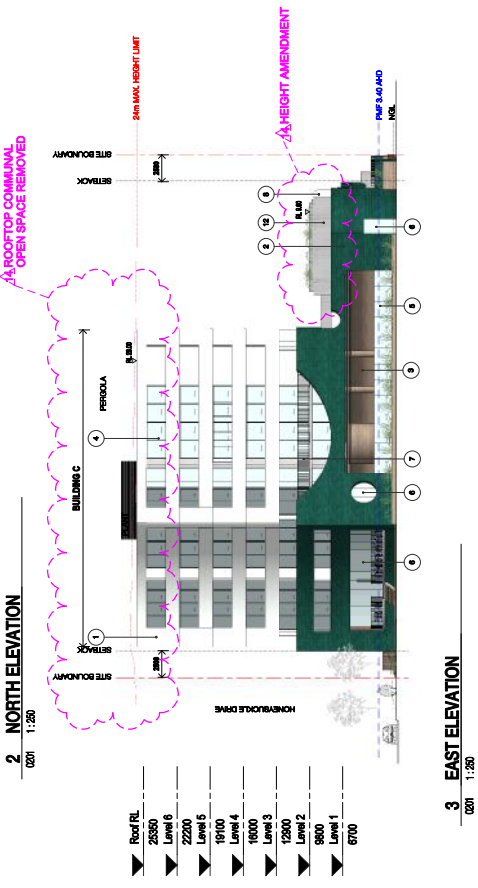


2 NORTH ELEVATION

0201 1:20

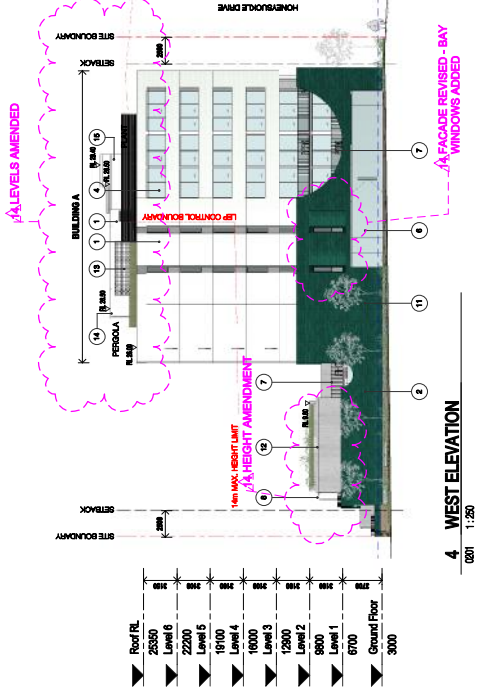
1 SOUTH ELEVATION

0201 1:20



3 EAST ELEVATION

0201 1:20



4 WEST ELEVATION

0201 1:20

DOMAGROUP

Project
Honeysuckle
50 Honeysuckle Drive,
Newcastle NSW 2300

Drawing Name
SITE ELEVATIONS

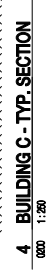
Date	Scale	Sheet Size
11.12.18	1:250	A1
Drawn	Chk.	ML
Job No.	Drawn By	Revisions
5485	DA-0501	/ 15

- 1 White Painted Brick
- 2 Turquoise Glazed Brick
- 3 Terracotta Brick
- 4 Residential Glazing
- 5 Swimming Pool Glazed Balustrade
- 6 Commercial Glazing
- 7 Metalwork - Gates Railings Balustrades
- 8 Marble Privacy Screen
- 9 White Metal Panels
- 10 Aluminium Louvre Wall
- 11 Off-form concrete
- 12 Brick Screen - Hit and Miss
- 13 Brick Screen - Hit and Miss
- 14 Lime Washed Timber
- 15 Skin Coat - White Paint

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Rev	Date	Revision	By	Chk
1	17.05.17	DEVELOPMENT APPLICATION ISSUE		
4	10.04.17	DA SUBMISSION		
10	28.05.17	SOLICIT FOR DA	JO	ML
12	06.11.17	REVISED DA ISSUE		
13	27.11.17	REVISED DA ISSUE		
14	28.06.18	FOR REVIEW	BC	ML
16	11.12.18	SECTION 4.06	BC	ML



DOMAGROUP

Drawing Name

SITE SECTIONS

Date	11.12.18	Scale	1 : 250	Sheet Size	A1
Drawn		CHK			
Job No.	JO	M/L			
Drawing No.	5485 DA-0601	Revision	/ 15		

1 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000 10100 10200 10300 10400 10500 10600 10700 10800 10900 11000 11100 11200 11300 11400 11500 11600 11700 11800 11900 12000 12100 12200 12300 12400 12500 12600 12700 12800 12900 13000 13100 13200 13300 13400 13500 13600 13700 13800 13900 14000 14100 14200 14300 14400 14500 14600 14700 14800 14900 15000 15100 15200 15300 15400 15500 15600 15700 15800 15900 16000 16100 16200 16300 16400 16500 16600 16700 16800 16900 17000 17100 17200 17300 17400 17500 17600 17700 17800 17900 18000 18100 18200 18300 18400 18500 18600 18700 18800 18900 19000 19100 19200 19300 19400 19500 19600 19700 19800 19900 20000 20100 20200 20300 20400 20500 20600 20700 20800 20900 21000 21100 21200 21300 21400 21500 21600 21700 21800 21900 22000 22100 22200 22300 22400 22500 22600 22700 22800 22900 23000 23100 23200 23300 23400 23500 23600 23700 23800 23900 24000 24100 24200 24300 24400 24500 24600 24700 24800 24900 25000 25100 25200 25300 25400 25500 25600 25700 25800 25900 26000 26100 26200 26300 26400 26500 26600 26700 26800 26900 27000 27100 27200 27300 27400 27500 27600 27700 27800 27900 28000 28100 28200 28300 28400 28500 28600 28700 28800 28900 29000 29100 29200 29300 29400 29500 29600 29700 29800 29900 30000 30100 30200 30300 30400 30500 30600 30700 30800 30900 31000 31100 31200 31300 31400 31500 31600 31700 31800 31900 32000 32100 32200 32300 32400 32500 32600 32700 32800 32900 33000 33100 33200 33300 33400 33500 33600 33700 33800 33900 34000 34100 34200 34300 34400 34500 34600 34700 34800 34900 35000 35100 35200 35300 35400 35500 35600 35700 35800 35900 36000 36100 36200 36300 36400 36500 36600 36700 36800 36900 37000 37100 37200 37300 37400 37500 37600 37700 37800 37900 38000 38100 38200 38300 38400 38500 38600 38700 38800 38900 39000 39100 39200 39300 39400 39500 39600 39700 39800 39900 40000 40100 40200 40300 40400 40500 40600 40700 40800 40900 41000 41100 41200 41300 41400 41500 41600 41700 41800 41900 42000 42100 42200 42300 42400 42500 42600 42700 42800 42900 43000 43100 43200 43300 43400 43500 43600 43700 43800 43900 44000 44100 44200 44300 44400 44500 44600 44700 44800 44900 45000 45100 45200 45300 45400 45500 45600 45700 45800 45900 46000 46100 46200 46300 46400 46500 46600 46700 46800 46900 47000 47100 47200 47300 47400 47500 47600 47700 47800 47900 48000 48100 48200 48300 48400 48500 48600 48700 48800 48900 49000 49100 49200 49300 49400 49500 49600 49700 49800 49900 50000 50100 50200 50300 50400 50500 50600 50700 50800 50900 51000 51100 51200 51300 51400 51500 51600 51700 51800 51900 52000 52100 52200 52300 52400 52500 52600 52700 52800 52900 53000 53100 53200 53300 53400 53500 53600 53700 53800 53900 54000 54100 54200 54300 54400 54500 54600 54700 54800 54900 55000 55100 55200 55300 55400 55500 55600 55700 55800 55900 56000 56100 56200 56300 56400 56500 56600 56700 56800 56900 57000 57100 57200 57300 57400 57500 57600 57700 57800 57900 58000 58100 58200 58300 58400 58500 58600 58700 58800 58900 59000 59100 59200 59300 59400 59500 59600 59700 59800 59900 60000 60100 60200 60300 60400 60500 60600 60700 60800 60900 61000 61100 61200 61300 61400 61500 61600 61700 61800 61900 62000 62100 62200 62300 62400 62500 62600 62700 62800 62900 63000 63100 63200 63300 63400 63500 63600 63700 63800 63900 64000 64100 64200 64300 64400 64500 64600 64700 64800 64900 65000 65100 65200 65300 65400 65500 65600 65700 65800 65900 66000 66100 66200 66300 66400 66500

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