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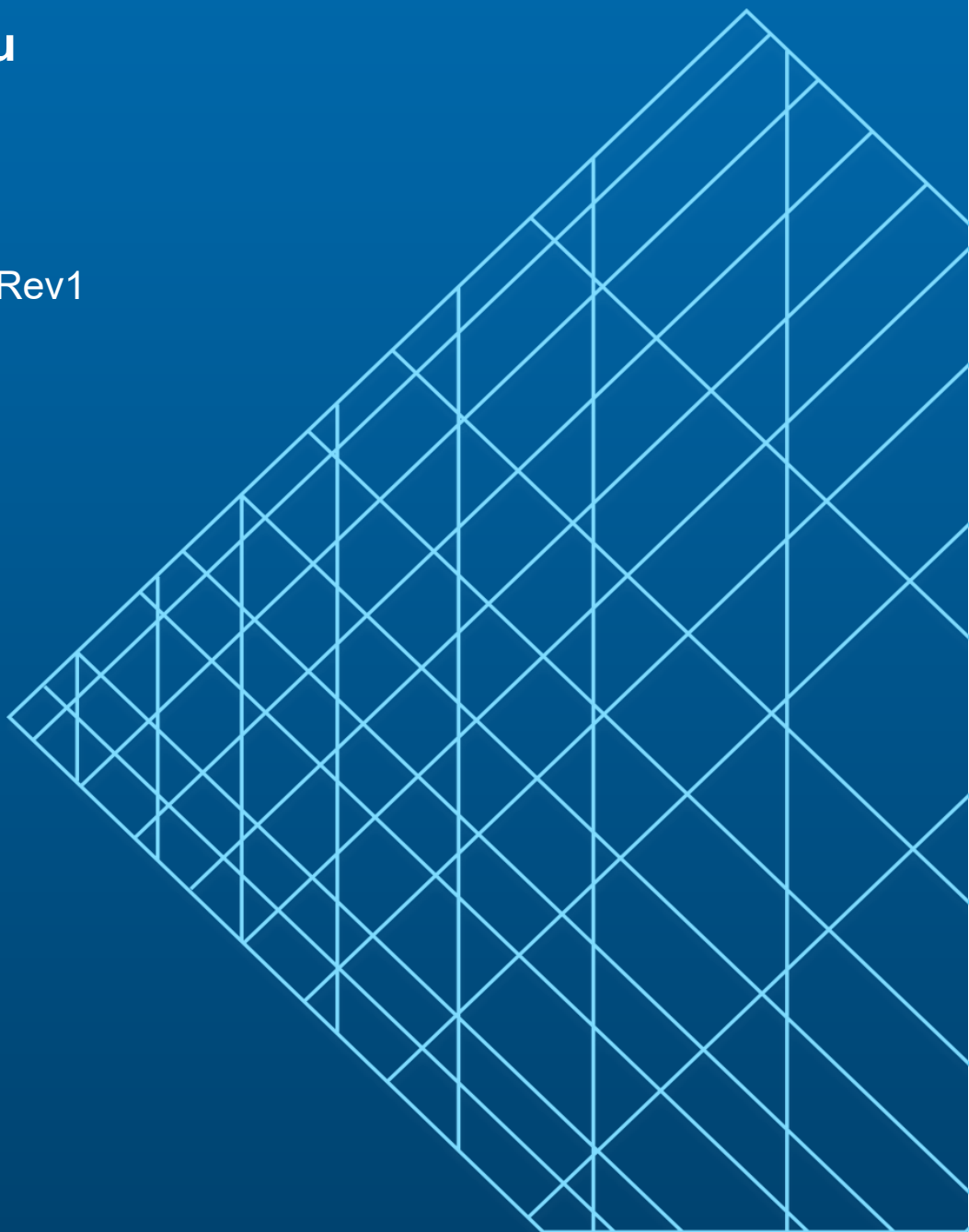
Environmental Noise Assessment

Craig Y Parcau
Bridgend

7783/ENS1_Draft_Rev1



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Environmental Noise Assessment

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Site Address:	Bridgend CF31
HA Reference:	7783/ENS1_Draft_Rev1
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1. INTRODUCTION

We understand a residential scheme is proposed at Craig Y Parcau, Bridgend, CF31.

The site is bounded by the A48 to north and New Inn Road to the south.

A noise impact assessment has been requested to accompany the planning application.

This report has therefore been commissioned to assess existing ambient and background noise levels impinging on the site from local sources.

Survey results have been used for comparison with typical Local Authority Planning conditions and current planning guidance.

2. CRITERIA

2.1 Planning Policy Wales

The Welsh Government's Planning Policy Wales (Edition 12) dated February 2024, states the following;

"6.7.20 Where sensitive developments need to be located close to existing transportation infrastructure for sustainable movement and access they should be designed, as far as practicable, to limit harmful substances and noise levels within and around those developments both now and in the future. This may include employing the principles of good acoustic design and the inclusion of active travel or travel management measures as part of development proposals. Such development, however, should preferably be located away from existing sources of significant noise, which may include aircraft noise or roads, particularly new roads or those with programmed route improvements."

The document states *"For more information on the principles of good acoustic design, readers are referred to Professional Planning Guidance (ProPG) Supplementary Document 2, produced by the Association of Noise Consultants, the Institute of Acoustics and the Chartered Institute of Environmental Health (http://www.association-of-noise-consultants.co.uk/propg/). ProPG has been written principally to assist with the planning process in England, but the design principles put forward in Supplementary Document 2 may also be adopted in Wales.*

2.2 ProPG Supplementary Document 2

Professional Practice Guidance on Planning & Noise, New Residential Development 'Supplementary Document 2 – Good Acoustic Design' produced by the ANC, IOA and CIEH discusses the general principles of Good Acoustic Design, including the following hierarchy of noise management measures in descending order of preference;

i) Maximising the spatial separation of noise source(s) and receptor(s).
ii) Investigating the necessity and feasibility of reducing existing noise levels and relocating existing noise sources.
iii) Using existing topography and existing structures (that are likely to last the expected life of the noise-sensitive scheme) to screen the proposed development site from significant sources of noise.
iv) Incorporating noise barriers as part of the scheme to screen the proposed development site from significant sources of noise.
v) Using the layout of the scheme to reduce noise propagation across the site.
vi) Using the orientation of the buildings to reduce the noise exposure of noise-sensitive rooms.
vii) Using the building envelope to mitigate noise to acceptable levels.

"It should be remembered that good acoustic design is a process that begins as soon as land is under consideration for development. The timeline for good acoustic design stretches from the conceptual design stage, through quality control during construction, and beyond to post construction performance testing.

Both internal and external spaces should be considered in the acoustic design process. Care should be taken to ensure that acoustic mitigation measures do not result in an otherwise unsatisfactory development. Good acoustic design must be regarded as an integrated part of the overall design process".

2.3 Technical Advice Note (Wales) 11

Noise bands defining categories A-D of TAN 11 are set in terms of $L_{Aeq,16hr}$ daytime and $L_{Aeq,8hr}$ night time levels for road traffic noise and mixed sources, free field 1.2-1.5m above ground level as follows;

Table 2.1 – TAN11 Noise Exposure Categories

Recommended noise exposure categories for new dwellings near existing noise sources (ref Table 2 of TAN 11 (Wales) October 1997)					
Noise Source	**Time**	**Noise Exposure Categories**			
		A	**B**	**C**	**D**
Road Traffic	07:00-23:00	<55	55-63	63-72	>72
	23:00-07:00	<45	45-57	57-66	>66
Rail Traffic	07:00-23:00	<55	55-66	66-74	>74
	23:00-07:00	<45	45-59	59-66	>66
Air Traffic	07:00-23:00	<57	57-66	66-72	>72
	23:00-07:00	<48	48-57	57-66	>66
Mixed Sources(4)	07:00-23:00	<55	55-63	63-72	>72
	23:00-07:00	<45	45-57	57-66	>66

Note: In addition, sites where individual noise events regularly exceed 82dB(A) L_{max}(slow), several times in any night time hour should be treated as being in NEC C, unless the L_{eq}(8 hour) already puts the site in NEC D.

(4) Mixed sources: this refers to any combination of road, rail, air and industrial noise sources. The "mixed source" values are based on the lowest numerical values of the single source limits in the table. The "mixed source" NECs should only be used where no individual noise source is dominant.

2.4 British Standard 8233:2014

British Standard 8233:2014 'Guidance on sound insulation and noise reduction for buildings' includes internal noise criteria of habitable rooms in residential dwellings, as shown below;

Table 2.2 – BS 8233:2014 Internal Ambient Noise Criteria for Habitable Rooms

Location	Desired		Reasonable *	
	07:00 to 23:00	23:00 to 07:00	07:00 to 23:00	23:00 to 07:00
Living room	35 dB $L_{Aeq,16hr}$	-	40 dB $L_{Aeq,16hr}$	-
Dining room/area	40 dB $L_{Aeq,16hr}$	-	45 dB $L_{Aeq,16hr}$	-
Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$	40 dB $L_{Aeq,16hr}$	35 dB $L_{Aeq,8hr}$

* *NOTE 7 states "Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved.*

In addition BS 8233:2014 states: *"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values."*

Reference is therefore made to World Health Organisation (WHO) 'Guidelines for Community Noise, 1999' which states *"For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{Amax} more than 10-15 times per night (Vallet & Vernet 1991)".*

Section 7.7.3.2 of BS 8233:2014 entitled 'Design criteria for external noise' states;

"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs to be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

The above criteria in BS 8233:2014 apply for sources without specific character, previously termed “anonymous noise”. BS 8233:2014 7.7.1 advises:

“NOTE: Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate.”

3. ENVIRONMENTAL NOISE SURVEY

3.1 Procedures

Continuous noise monitoring was carried out from 1230hrs on Tuesday, 16 September 2025 to 1430hrs on Thursday, 18 September 2025 at positions A-C.

Data including L_{Amax}, L_{Aeq} and background L_{A90} was logged at 1 minute intervals over the monitoring period, along with continuous audio and 100ms data to allow source identification and further detailed analysis of results if required.

Figure 3.1 – Site Plan Showing Monitoring Locations

Site plan in Figure 3.1 above shows the development site and continuous monitoring positions used, namely:

Table 3.1 – Continuous Monitoring Location Details

Position	Description
A	On northern boundary of development site, west of A48 roundabout, approximately 1.5m above local ground level (approx. 7m back from road)
B	On northern boundary of development site, east of A48 roundabout, approximately 3m above local ground level (approx. 17m back from road)
C	On southwestern boundary of development site, adjacent to New Inn Road, approximately 1.5m above local ground level (approx. 10m back from road)

3.2 Meteorological Conditions

Approximate weather conditions are shown in time history graphs in Figure B.1 to Figure B.3 of Appendix B.

Some periods of heavy rain occurred during the monitoring period, but these were not found to affect the overall noise levels.

3.3 Measurement Equipment

The following measurement equipment was used during the surveys:

Table 3.2 – Noise Monitoring Equipment List

Make	Description	Model	Serial Number	Last Calibrated	Certificate No.
NTi	Type 1 - Sound Level Meter	XL2-TA	A2A-08723-E0	11 June 2025	UK-25-074
	Preamplifier	MA220	1820	11 June 2025	UK-25-074
	Filters	XL2-TA	A2A-08723-E0	11 June 2025	UK-25-074
	Microphone Capsule	MC230	9381	11 June 2025	UK-25-074
NTi	Type 1 - Sound Level Meter	XL2-TA	A2A-10021-E0	28 August 2025	UK-25-112
	Preamplifier	MA220	5435	28 August 2025	UK-25-112
	Microphone Capsule	MC230	8547	28 August 2025	UK-25-112
NTi	Type 1 - Sound Level Meter	XL2-TA	A2A-14577-E0	21 June 2024	UK-24-065
	Preamplifier	MA220	7485	21 June 2024	UK-24-065
	Microphone Capsule	MC230	A15594	21 June 2024	UK-24-065
Larson Davis	Calibrator (94.00dB / 114.03dB @ 1kHz)	CAL200	19047	29 August 2025	45898-19047-CAL200

Measurement systems were calibrated before and after the surveys and no variation occurred.

Note: Copies of traceable calibration certificates for all equipment are available upon request.

3.4 Results

Time history graphs in Figure B.4, Figure B.5 and Figure B.6 of Appendix B show L_{Amax}, L_{Aeq} and L_{A90} sound pressure levels measured at positions A, B and C respectively.

The following $L_{Aeq,16hr}$ daytime (0700-2300hrs) and $L_{Aeq,8hr}$ night-time (2300-0700hrs) noise levels were measured;

Table 3.3 – Summary of Daytime $L_{Aeq,16hr}$ and Night-time $L_{Aeq,8hr}$ Results

Period	Date	Position		
		A	B	C
Daytime $L_{Aeq,16hr}$ (dB)	16/09/2025	67	59	55
Night-time $L_{Aeq,8hr}$ (dB)	16-17/09/2025	60	54	52
Daytime $L_{Aeq,16hr}$ (dB)	17/09/2025	68	60	56
Night-time $L_{Aeq,8hr}$ (dB)	17-18/09/2025	61	54	49
Daytime $L_{Aeq,16hr}$ (dB)	18/09/2025	68	60	52

Only 2no $L_{Amax,F}$ events over 82dB were measured during the night-time period (2300-0700hrs) at position A.

Daytime period is therefore assessed as critical (>5dB difference between daytime and night-time).

Graphs in Figure B.7, Figure B.8 and Figure B.9 of Appendix B show statistical analysis of background sound levels measured at positions A, B and C respectively.

The following minimum consistent daytime and night-time background L_{A90} sound levels have been determined:

Table 3.4 – Minimum Consistent Daytime and Night-time Background L_{A90} Results

Period	Position		
	A	B	C
Daytime (0700-2300hrs) L_{A90} (dB)	57	57	51
Night-time (2300-0700hrs) L_{A90} (dB)	40	41	39

Road traffic controlled the ambient and background noise climate across the site.

4. NOISE MAP MODELLING

Three dimensional noise map modelling has been undertaken using Predictor LimA (v2024.1) environmental noise mapping software package, which in turn uses calculation methods of Calculation of Road Traffic Noise (CRTN).

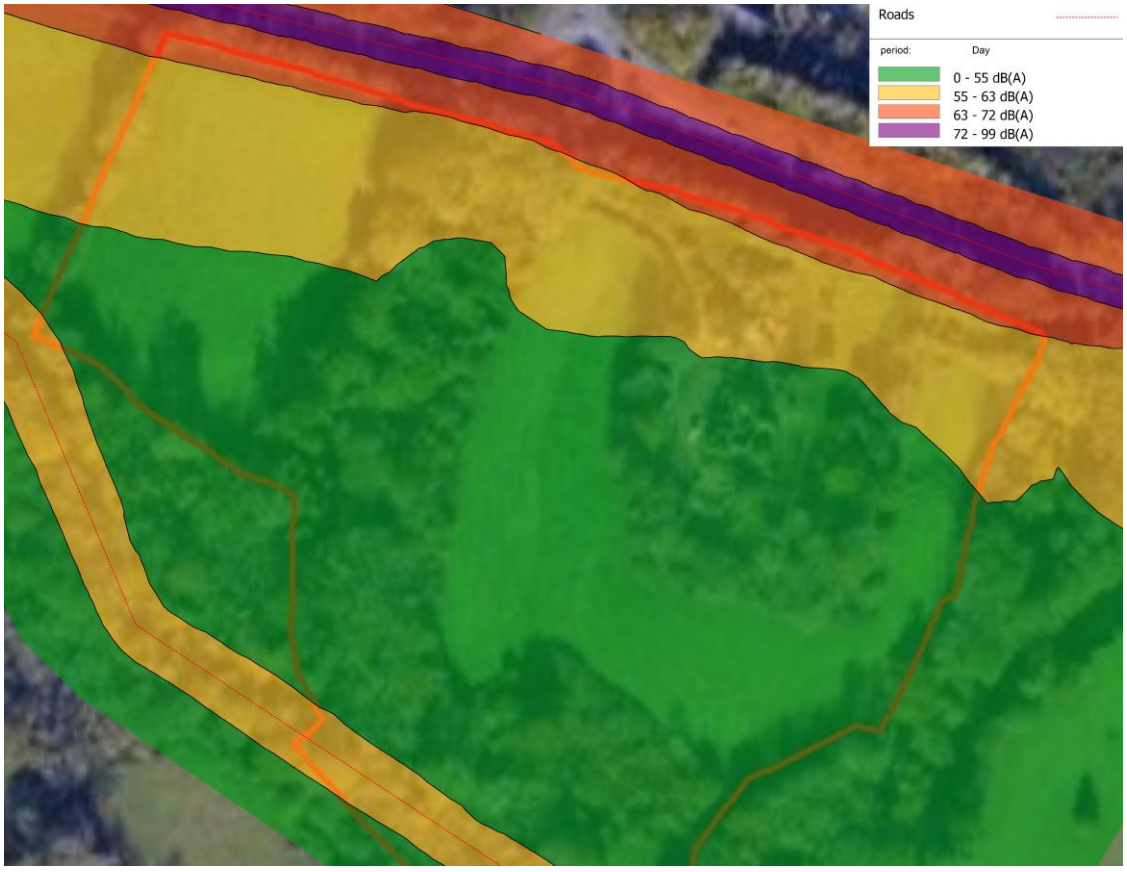
Models have been set up to predict daytime noise levels across the site from surrounding sources based on measured noise levels discussed in section 3.4 of this report.

The model takes into account distance and screening losses from existing and new structures, allowing garden noise levels to be assessed, as well as predicting noise levels at proposed residential facades.

4.1 Undeveloped Site

The noise map model in Figure 4.1 below shows predicted road traffic noise levels during the critical daytime period (0700-2300hrs) at 1.5m above local ground level across the undeveloped site. Undeveloped night-time model is included in Figure C.2 of Appendix C.

Figure 4.1 - Daytime Model (Undeveloped Site) $L_{Aeq,16hr}$ Contours at 1.5m Height



The majority of the site is therefore indicated to fall under NEC A/B of TAN11 with exception of the northern boundary which falls under NEC C of TAN 11.

4.2 Developed Site

The proposed housing layout plan referenced in Appendix D has been used for the developed model.

Noise map models in Figure 4.2 and Figure 4.3 below show predicted road traffic noise levels during the critical daytime period (0700-2300hrs) at 1.5m and 4.5m above local ground level on the developed site respectively.

A combination of 2.5m and 2.2m high closed boarded fences have been modelled at critical locations (shown in Figure 6.1), with 1.8m high closed boarded fences around the remaining gardens.

Figure 4.2 - Daytime Model (Developed Site) $L_{Aeq,16hr}$ Contours at 1.5m Height

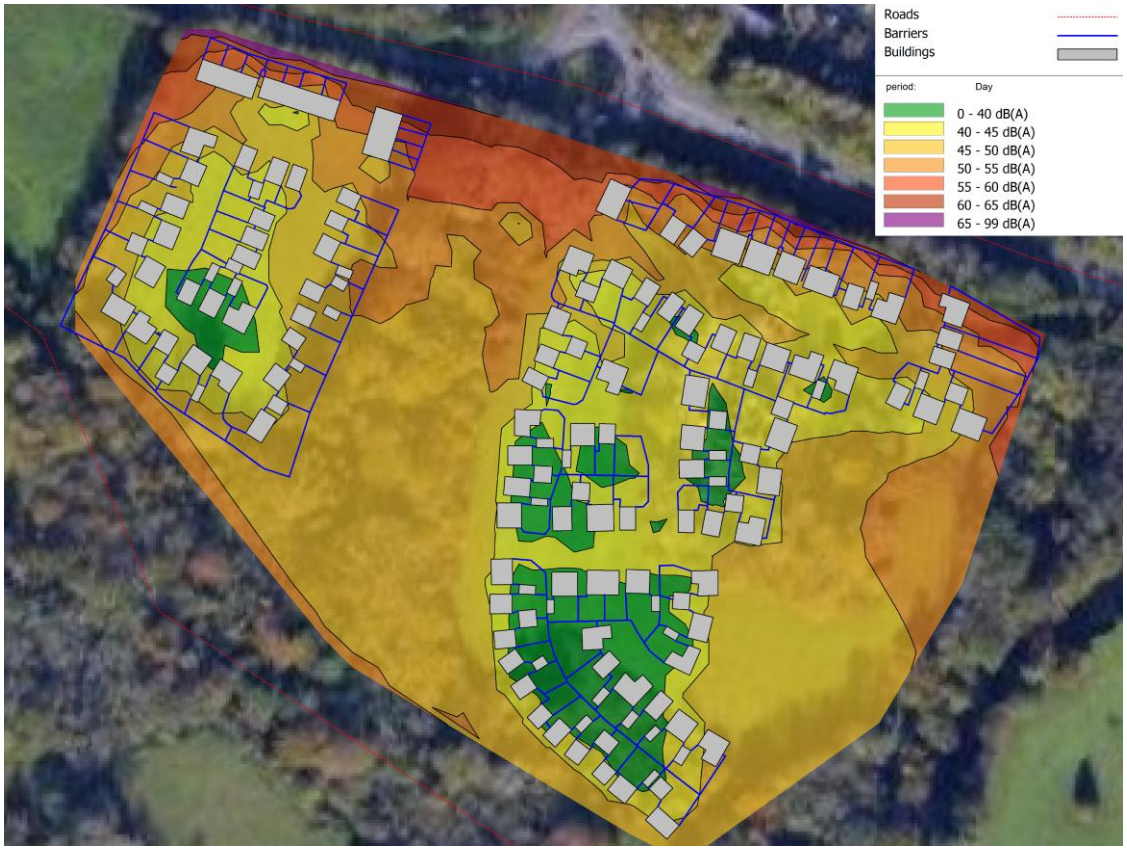
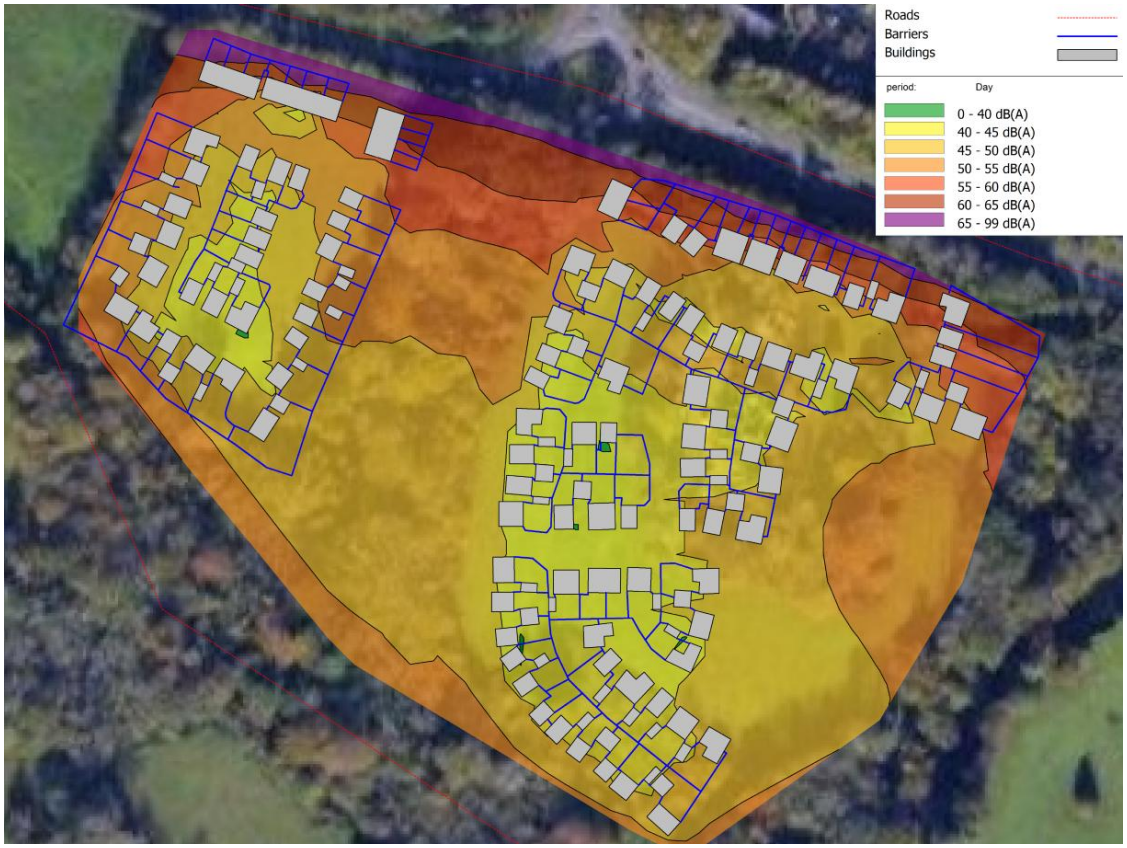


Figure 4.3 - Daytime Model (Developed Site) $L_{Aeq,16hr}$ Contours at 4.5m Height



5. PRELIMINARY EXTERNAL BUILDING FABRIC ASSESSMENT

Based on survey results and noise map models, we have carried out a preliminary external building fabric assessment with the aim of controlling noise intrusion to habitable rooms to meet 35dB $L_{Aeq,16hr}$ daytime and 30dB $L_{Aeq,8hr}$ night-time, in line with the desirable internal ambient noise values quoted in BS 8233:2014 (see section 2.4 of this report) under whole dwelling ventilation conditions.

The assessment also aims to control noise intrusion from regular events to <45dB $L_{Amax,F}$ in bedrooms during the night.

Critical façades are shown on site plan in Figure 5.1 below, marked up with **MAGENTA**, **BLUE** and **GREEN** lines.

Figure 5.1 – Façades Requiring Additional Sound Insulation Measures

Note: Habitable rooms include bedrooms, lounges, dining rooms and kitchen/diners but not kitchens or bathrooms.

All habitable rooms at first floor level on façades highlighted **MAGENTA** and at all floor levels on façades highlighted **BLUE** and **GREEN** above require up-rated building elements as specified below. Standard thermal double glazing and trickle ventilation should be sufficient on remaining façades (not highlighted).

This preliminary assessment is intended to provide an initial indication of the sound insulation measures required to control noise intrusion. Final design proposals should be confirmed acceptable with a suitably qualified acoustician at the detailed design stage.

This preliminary assessment has been carried out based on the following assumptions;

- Noise intrusion is calculated to a bedroom with dimensions of 4m (l) x 2.5m (w) x 2.4m (h)
- Façade area, exposed to road traffic of 10m^2 (l x h)
- Glazing area of 2m^2

The analysis is based on the noise spectra quoted in Figure B.10.

5.1 External Walls

The following external wall construction has been used in our analysis;

- Brick / cavity / Block *or* Brick / cavity / Timber Frame

The following SRI performance figures are taken from BS 8233:2014 for 'Brick and block external wall'. The proposed constructions should be capable of achieving these figures as a minimum;

Table 5.1 – External Wall Sound Reduction Index Figures

Element	Description	Sound Reduction Index dB *R* (BS EN ISO 10140-2:2010) @ Octave Band Centre Frequency (Hz)				
		125	250	500	1k	2k
External Wall	Brick / Cavity / Block *or* Brick / Cavity / Timer frame	40	44	45	51	56

5.2 Roof

The following roof constructions have been used in our analysis;

• Pitched tiles on felt roof, 9mm plasterboard ceiling + 100mm insulation

The following minimum SRI performance figures are taken from BS 8233:2014: “tiles on felt roof with 100mm mineral wool on plasterboard ceiling”;

Table 5.2 – Roof Sound Reduction Index Figures

Element	Description	Sound Reduction Index dB *R* (BS EN ISO 10140-2:2010) @ Octave Band Centre Frequency (Hz)				
		125	250	500	1k	2k
Pitched Roof	Tiles on felt, 9mm plasterboard ceiling, 100mm mineral wool insulation	28	34	40	45	49

5.3 Glazing

Up-rated glazing is required at all floor levels on façades highlighted **BLUE** and **GREEN** in Figure 5.1, and at first floor level on façades highlighted **MAGENTA** in Figure 5.1. The following sound reduction index figures shall be met for glazing on these critical façades:

Table 5.3 - Glazing Sound Reduction Index Figures

Element	Description	Sound Reduction Index dB *R* (BS EN ISO 10140-2:2010) @ Octave Band Centre Frequency (Hz)				
		125	250	500	1k	2k
Windows	For budgetary guidance: based on Pilkington 8mm / 6 - 16mm / 6mm	20	21	33	40	36

A typical glazing system that should be capable of achieving the quoted SRI figures (based on Pilkington test data) is included in the table for initial budgetary guidance, however;

The successful glazing suppliers shall provide independent laboratory test data to BS EN ISO 10140-5 – 2010, confirming their proposed systems (including frames/seals) meet the quoted octave band sound reduction performance figures above.

For all other façades standard thermal double-glazing is indicated to be sufficient.

5.4 Ventilation

All habitable rooms at first floor level on critical façades highlighted **MAGENTA** and all floor levels on critical facades highlighted **BLUE** and **GREEN** require a ventilation strategy that does not rely on opening windows to achieve 'extract ventilation' and 'whole building ventilation' rates as required by Building Regulations Part F, Regulation F1(1) 2010 *2022 Edition.*

> ***Continuous mechanical extract.*** *Guidance on minimum provisions for extract and whole building ventilation is set out in Para 1.61 & 1.62 of Building Regulations Part F.*
>
> ***Continuous mechanical supply and extract with heat recovery.*** *Guidance on minimum provisions for extract and whole building ventilation is set out Para 1.69 of Building Regulations Part F.*

These strategies rely on windows being closed; however, occupiers may still open windows for purge ventilation, or under normal ventilation conditions if they so choose to, and so glazing would not be 'fixed pane'.

The final proposed ventilation strategy should be confirmed acceptable with planners/ EHO and Building Control.

5.4.1 Continuous Mechanical Extract with Background Ventilators

Building Regs Part F advises: "***1.64*** *Where continuous mechanical extract ventilation is used, background ventilators should satisfy all of the following conditions:*

a. not be in wet rooms

b. provide minimum equivalent area of 4,000 mm^2 for each habitable room in the dwelling

c. Provide a minimum total number of ventilators that is the same as the number of bedrooms plus two ventilators (i.e. a one-bedroom dwelling should have three background ventilators, a two- bedroom dwelling should have four background ventilators, etc.)."

The background ventilators shall be acoustically treated to achieve the following ($D_{n,e}$) performance;

Table 5.4 – Acoustic Trickle Ventilator Specifications

Element	Description	Element-Normalised Level Difference dB $D_{n,e}$ (BS EN ISO 10140-2:2010)				
		125	250	500	1k	2k
MAGENTA & **GREEN** First floor Façade Ventilator	For budgetary guidance: based on Greenwood 5000EA + 1 acoustic set	39	38	31	44	43
BLUE All floors Façade Ventilator	For budgetary guidance: based on Greenwood 5000EA + 1 acoustic set	39	38	31	44	43
GREEN Ground Floor Façade Ventilator	For budgetary guidance: based on RW Simon FrameVent (open)	36	33	33	31	29

The calculation has allowed for a maximum of 1no acoustic trickle ventilators per room, meeting the minimum 4000mm^2 equivalent area requirement of Part F.

For budgetary guidance the above ventilator figures are based on Greenwood *5000EA + 1 acoustic set* ventilators and a Simon *FrameVent* for ground floor on **GREEN** facades.

The successful trickle ventilator suppliers shall provide independent laboratory test data to BS EN ISO 10140-5 – 2010, confirming their proposed ventilator meet the quoted octave band performance figures above.

5.4.2 Mechanical Ventilation with Heat Recovery

Alternatively, a Mechanical Ventilation with Heat Recovery (MVHR) strategy could be utilised which does not require any background ventilators in the external façade.

5.4.3 Mechanical Ventilation System Noise

All mechanical ventilation systems should be designed to meet the noise criteria set out in Building Regulations Approved Document Part F, 2022 Edition – For use in Wales which states the following:

"Although there is no requirement to undertake noise testing, achieving the levels in the following guidance should ensure good acoustic conditions. The average A-weighted sound pressure level for a ventilator operating under normal conditions and not at boost rates should not exceed both of the following.

a) 30dB LAeq,T for noise-sensitive rooms (e.g. bedrooms and living rooms) when a continuous mechanical ventilation system is running on its minimum low rate.

b) 45dB LAeq,T in less noise-sensitive rooms (e.g. kitchens and bathrooms) when a continuous operation system is running at the minimum high rate or an intermittent operation system is running."

5.4.4 General

Do not include standard background (trickle) ventilators within window frames on critical facades.

Final proposals should be confirmed with Building Control and Environmental Health prior to orders being placed.

6. EXTERNAL NOISE ASSESSMENT (GARDENS)

6.1 Garden Noise Levels

Closed board fences are indicated to be required to be increased in height to 2.5m along all garden boundaries highlighted in **MAGENTA** and to 2.2m along all garden boundaries highlighted in **BLUE** in Figure 6.1.

Figure 6.1 – Increased Height Closed Board Fences

All fences to be solid and imperforate, achieving a minimum mass per unit area of 10kg/m^2 for the lifetime of the fence.

With increased height fences modelled around critical gardens, the noise map model in Figure 4.2 indicates the majority of garden areas meet the upper guideline value of 55dB(A) quoted in BS 8233, with the exception of plots 1, 16, & 82-93. Noise levels in these plots are indicated to be in the range of $L_{Aeq,16hr}$ 55-57dB.

6.2 Good Acoustic Design

The following design factors have been considered in line with Good Acoustic Design principles set out in ProPG Supplement 2:

- *Building location, design, orientation and room layout; and Buildings as noise shields*

  It had been recommended to consider reversing the orientation of dwellings along the northern boundary of the development site, so that gardens are placed behind the buildings in relation to the road, in order to achieve lowest practical garden noise levels, in line with good acoustic design. However, following engagement with the wider design team, it is understood that the current orientation of dwellings is to be retained:

  "*Consideration towards the orientation of dwellings and gardens, adjacent to the A48, has been an important element of the current evolved site layout proposal. That said, there are also many other considerations to be included within the design of a residential scheme such as this.*

  The task at hand and expected by the Local Authority, is to provide an attractive, deliverable and efficient proposal, that acknowledges and fits, all appropriate current Government and Local Policy Guidance. In doing so, the current proposal respects the site's existing mature landscaping by offsetting structures from these natural assets throughout the scheme but also, particularly at the northern site boundary, adjacent to the A48.

  Further, a significant element of designed dwellings situated here, are in the form of 'walk up apartments', with their associated shared communal recreational spaces offered as a buffer.

  Also, in order to design a scheme that isn't wasteful in urban design delivery unit terms, facing dwellings inwards, generally allows for a much more efficient scheme, reducing the quantum of adoptable highways at the edges of the site and increasing the quantum of soft landscaping and the more attractive associated spaces in general.

  As an overview, the current proposal represents a wholistic urban design and policy appropriate scheme, with all matters fully considered as would be expected."

- *Noise Barriers, mounds, bunds, screens and fences*

  As the above cannot be achieved, with increased height fences surrounding gardens adjacent to the road, 55-57dB $L_{Aeq,16hr}$ is indicated to be achieved in critical gardens.

6.3 Additional Guidance

6.3.1 ProPG Planning Guidance

"3(v) Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space (e.g. garden or balcony) then that impact may be partially off-set if the residents are provided, through the design of the development or the planning process, with access to

- *A relatively quiet façade (containing openable windows to habitable rooms) or a relatively quiet externally ventilated space (i.e. an enclosed balcony) as part of their dwelling; and/or*
- *A relatively quiet alternative or additional external amenity space for sole use by a household (e.g. a garden, roof garden or large open balcony in a different location); and/or*
- *A relatively quiet, protected, nearby, external amenity space for sole use by a limited group of residents as part of their amenity of their dwellings; and/or*
- *A relatively quiet, protected, publicly accessible, external amenity space (e.g. a public park or local green space designated because of its tranquillity) that is nearby (e.g. with a 5 minutes walking distance). The local planning authority could link such provision to the definition and management of Quiet Areas under the Environmental Noise Regulations."*

The overall development site benefits from the provision of green public space in the eastern part of the site set back from the road. Noise levels at this eastern part of the site are indicated at <50dB $L_{Aeq,16hr}$ and can therefore be considered 'relatively quiet'. The noise impact to these gardens can therefore be considered 'partially off-set'.

6.3.2 BS8233:2014

We refer to the guidance in Section 7.7.3.2 of BS8233:2014:

"However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs to be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

6.4 Overall Garden Noise Assessment

6.4.1 Contextual facts

The context of the development site is that it adjoins the strategic transport network.

6.4.2 Assessment

Following the good acoustic design principles of ProPG and taking all contextual factors into consideration, we would therefore advise that the 'lowest practicable levels' are indicated to be achieved and therefore referring to BS 8233:2014 guidance development "*should not be prohibited*".

7. CONCLUSION

An environmental noise assessment has been carried out for the proposed residential development at Craig Y Parcau, Bridgend, CF31.

Noise surveys have been carried out across the site. Road traffic is indicated to control the ambient noise climate day and night.

The noise survey indicates that daytime is the critical period (day/night difference > 5dB).

Noise map models have been generated to show noise propagation across both the undeveloped and developed sites.

A preliminary external building fabric assessment has been carried out. Critical facades requiring additional sound insulation measures have been highlighted and specifications for external wall, roof, ventilation and glazing are included.

An assessment of external noise in gardens has been undertaken and shows the majority of gardens meet the $L_{Aeq,16hr}$ 55dB garden criterion. A marginal excess at 55-57dB $L_{Aeq,16hr}$ is indicated in critical gardens, providing increased height closed-board fences are installed along critical boundaries (refer to Section 6).

APPENDIX A - ACOUSTIC TERMINOLOGY

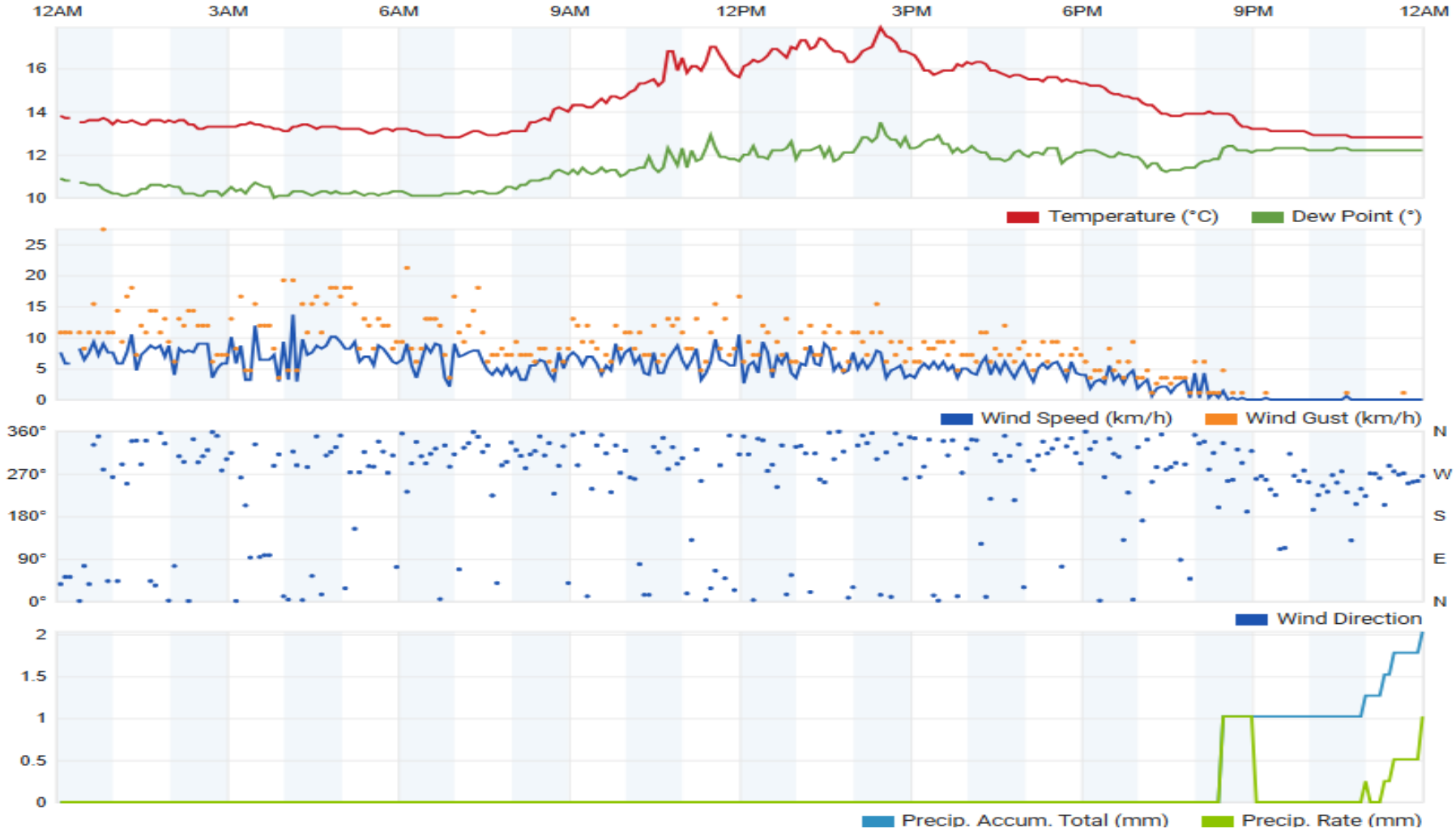
Human response to noise depends on a number of factors including loudness, frequency content and variations in level with time. Various frequency weightings and statistical indices have been developed in order to objectively quantify 'annoyance'.

The following units have been used in this report:

dB(A)	The sound pressure level A-weighted to correspond with the frequency response of the human ear and therefore a persons' subjective response to frequency content.
L_{eq}	The equivalent continuous sound level is a notional steady state level which over a quoted time period would have the same acoustic energy content as the actual fluctuating noise measured over that period.
L_{max}	The highest instantaneous sound level recorded during the measurement period.
L_{10}	The sound level which is exceeded for 10% of the measurement period. i.e. The level exceeded for 6 minutes of a 1 hour measurement - used as a measure of background noise.
L_{90}	The sound level which is exceeded for 90% of the measurement period. i.e. The level exceeded for 54 minutes of a 1 hour measurement.
$L_{Ar,Tr}$	The 'rating' level, as described in BS 4142:2014 – the specific noise plus any adjustment for the characteristic features of the noise.
SSR	Sound sensitive receiver

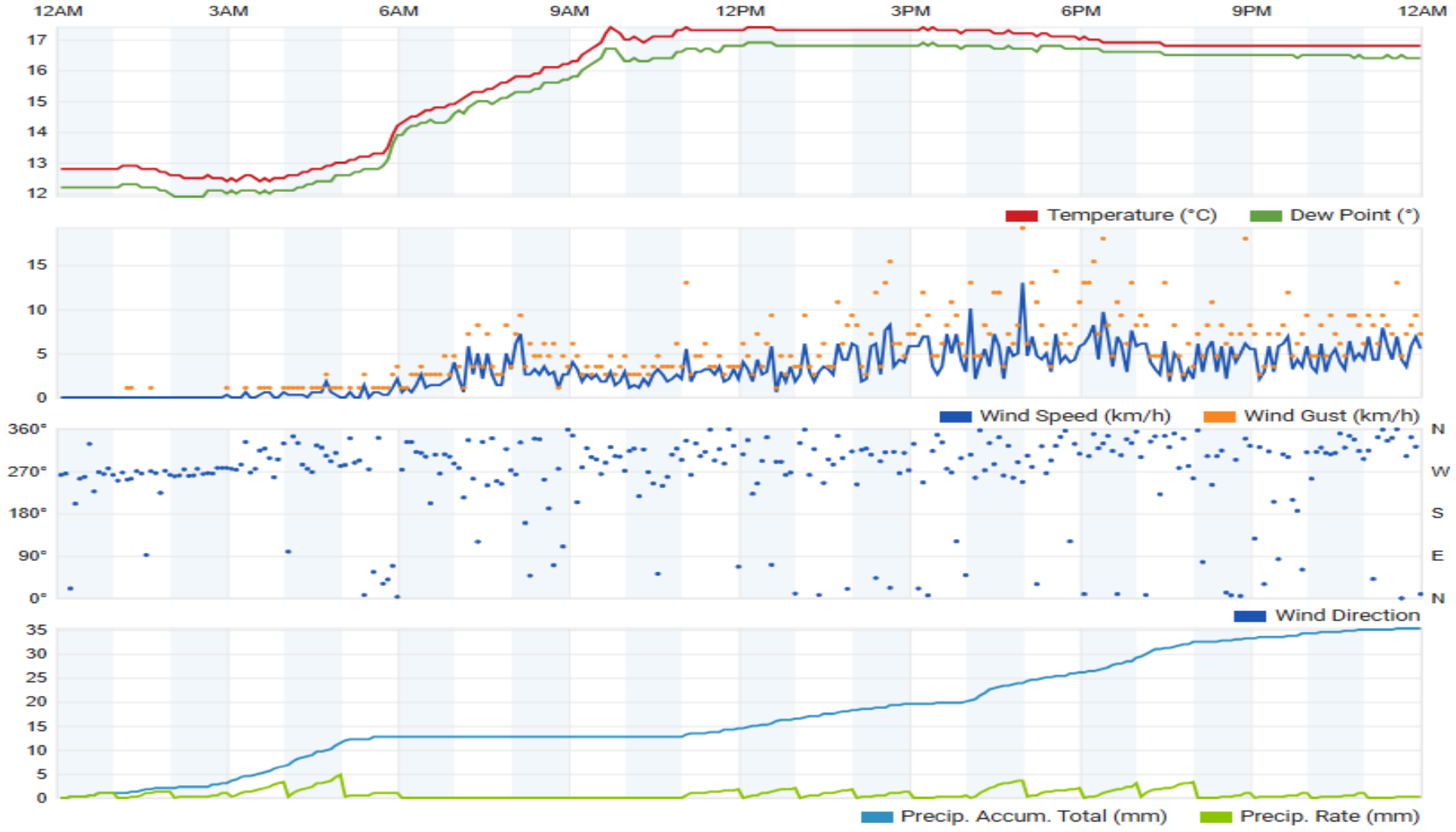
APPENDIX B - DIAGRAMS, GRAPHS AND TABLES

Figure B.1 – Approximate Weather History for Tuesday, 16 September 2025



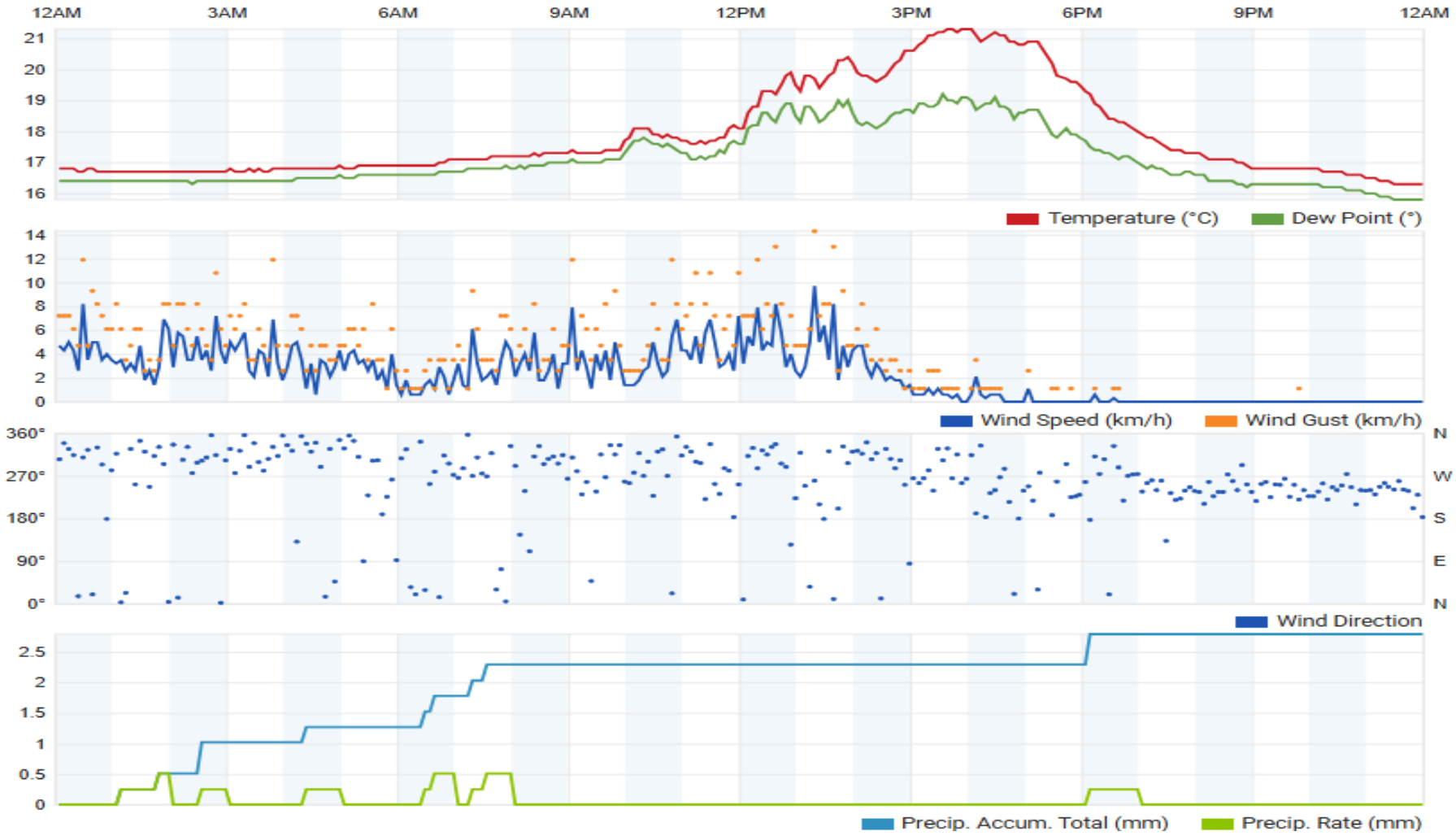
Note: Taken from www.wunderground.com - weather station IBRIDG381 located in Bridgend [Elev 21 m, 51.48 °N, 3.56 °W]

Figure B.2 – Approximate Weather History for Wednesday, 17 September 2025



Note: Taken from www.wunderground.com - weather station IBRIDG381 located in Bridgend [Elev 21 m, 51.48 °N, 3.56 °W]

Figure B.3 – Approximate Weather History for Thursday, 18 September 2025



Note: Taken from www.wunderground.com - weather station IBRIDG381 located in Bridgend [Elev 21 m, 51.48 °N, 3.56 °W]

Figure B.4 – Time History at Position A (Tuesday, 16 September 2025 to Thursday, 18 September 2025)

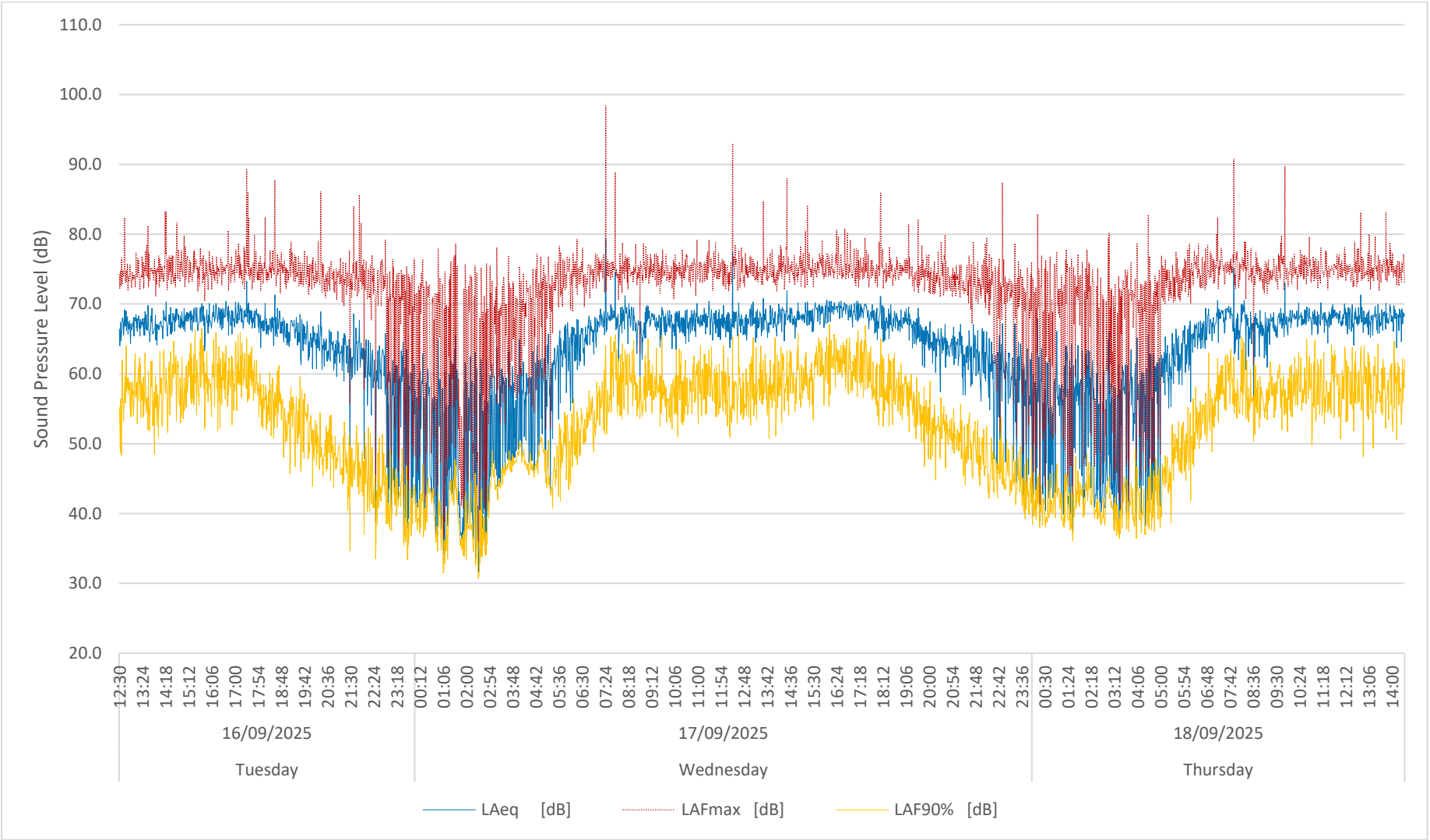


Figure B.5 – Time History at Position B (Tuesday, 16 September 2025 to Thursday, 18 September 2025)

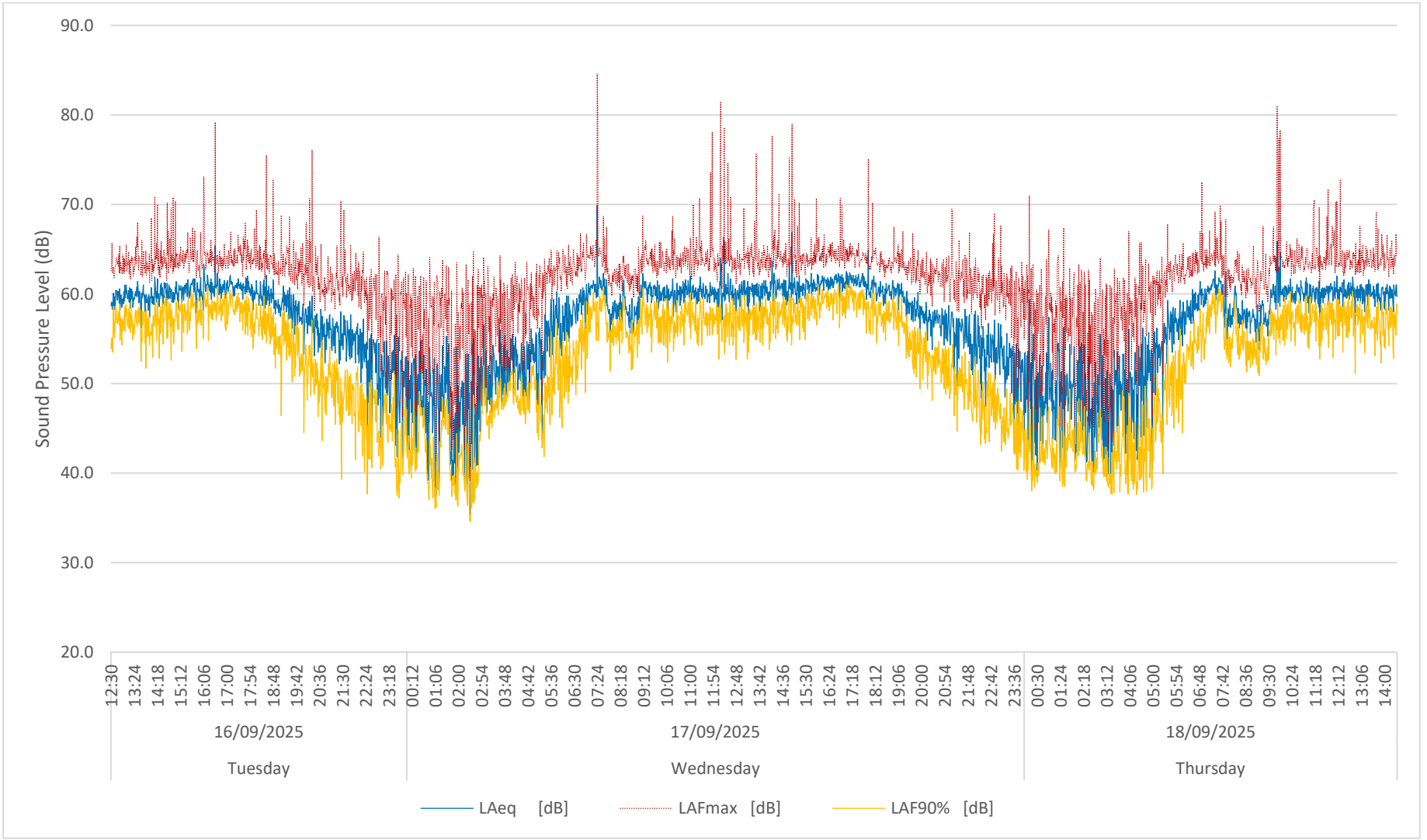


Figure B.6 – Time History at Position C (Tuesday, 16 September 2025 to Thursday, 18 September 2025)

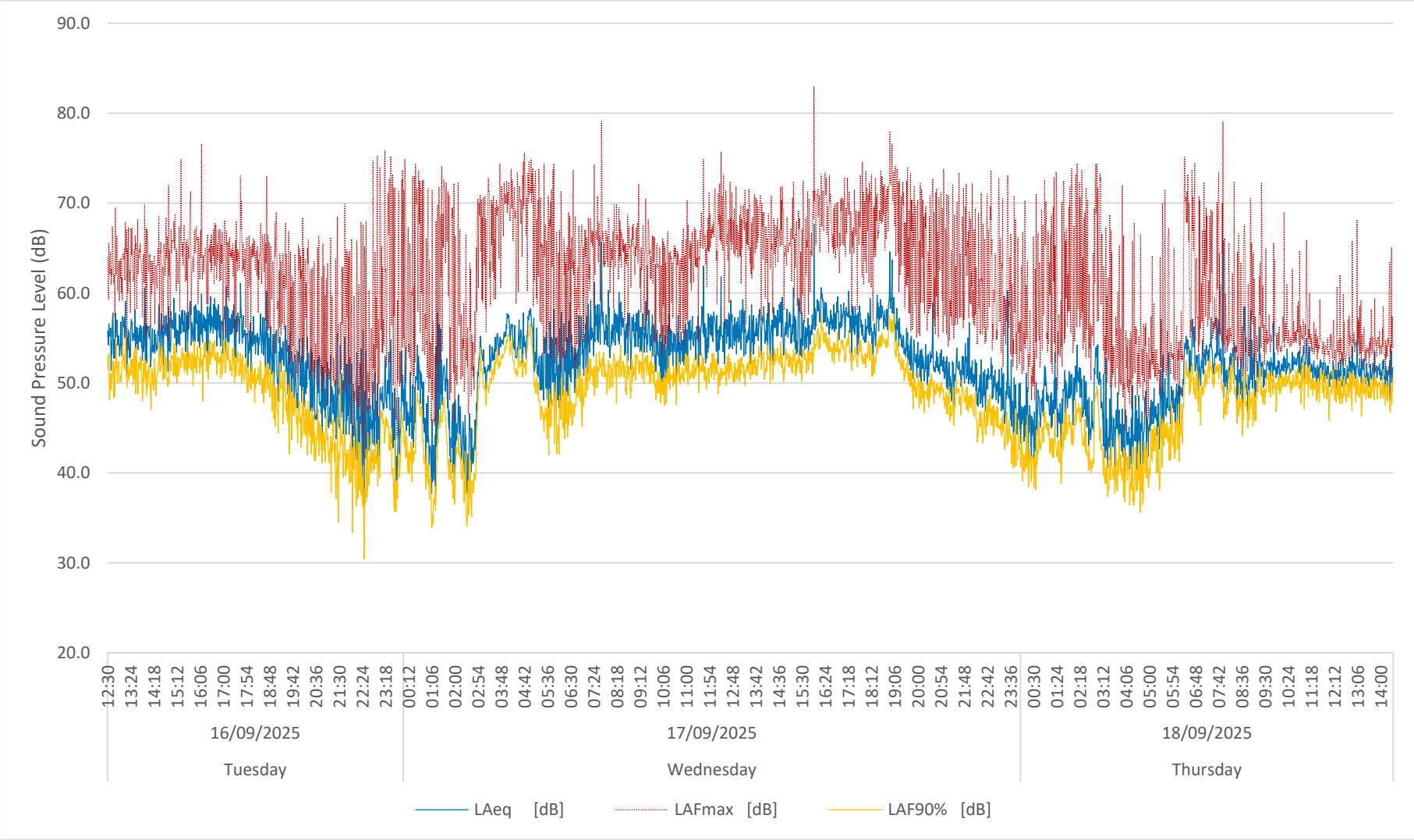


Figure B.7 – Statistical Analysis of Background Sound Levels Measured at Position A

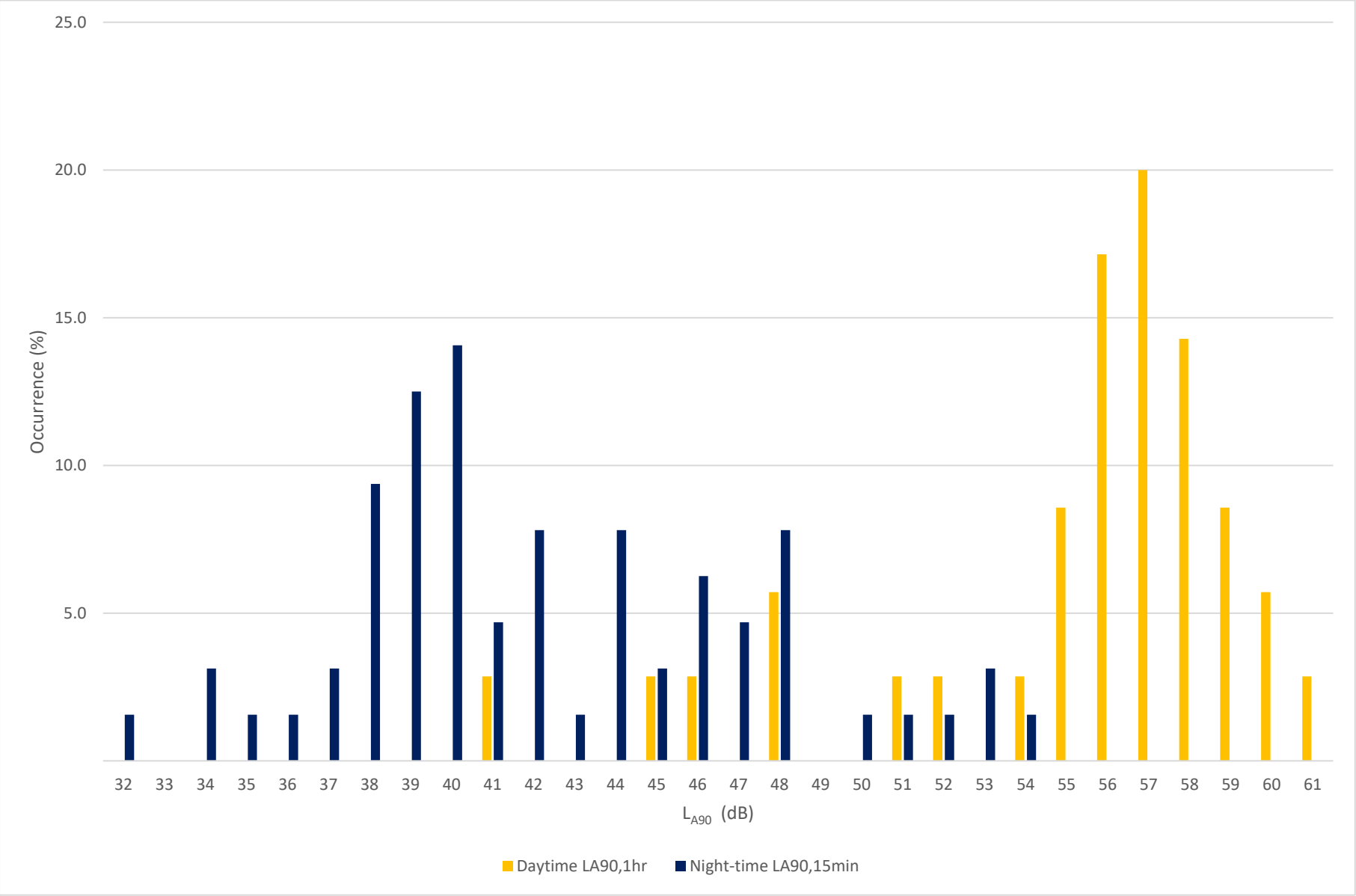


Figure B.8 – Statistical Analysis of Background Sound Levels Measured at Position B

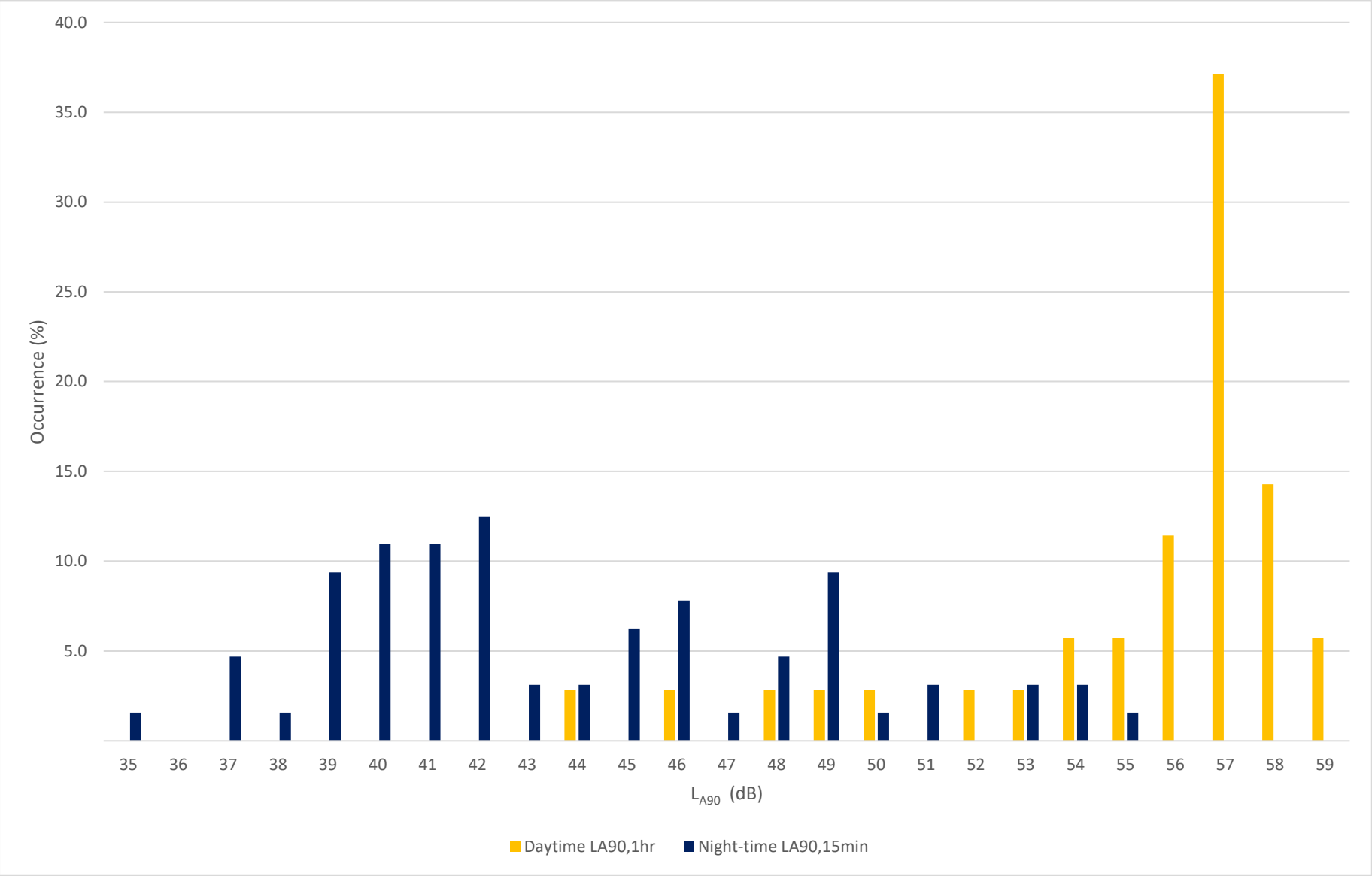


Figure B.9 – Statistical Analysis of Background Sound Levels Measured at Position C

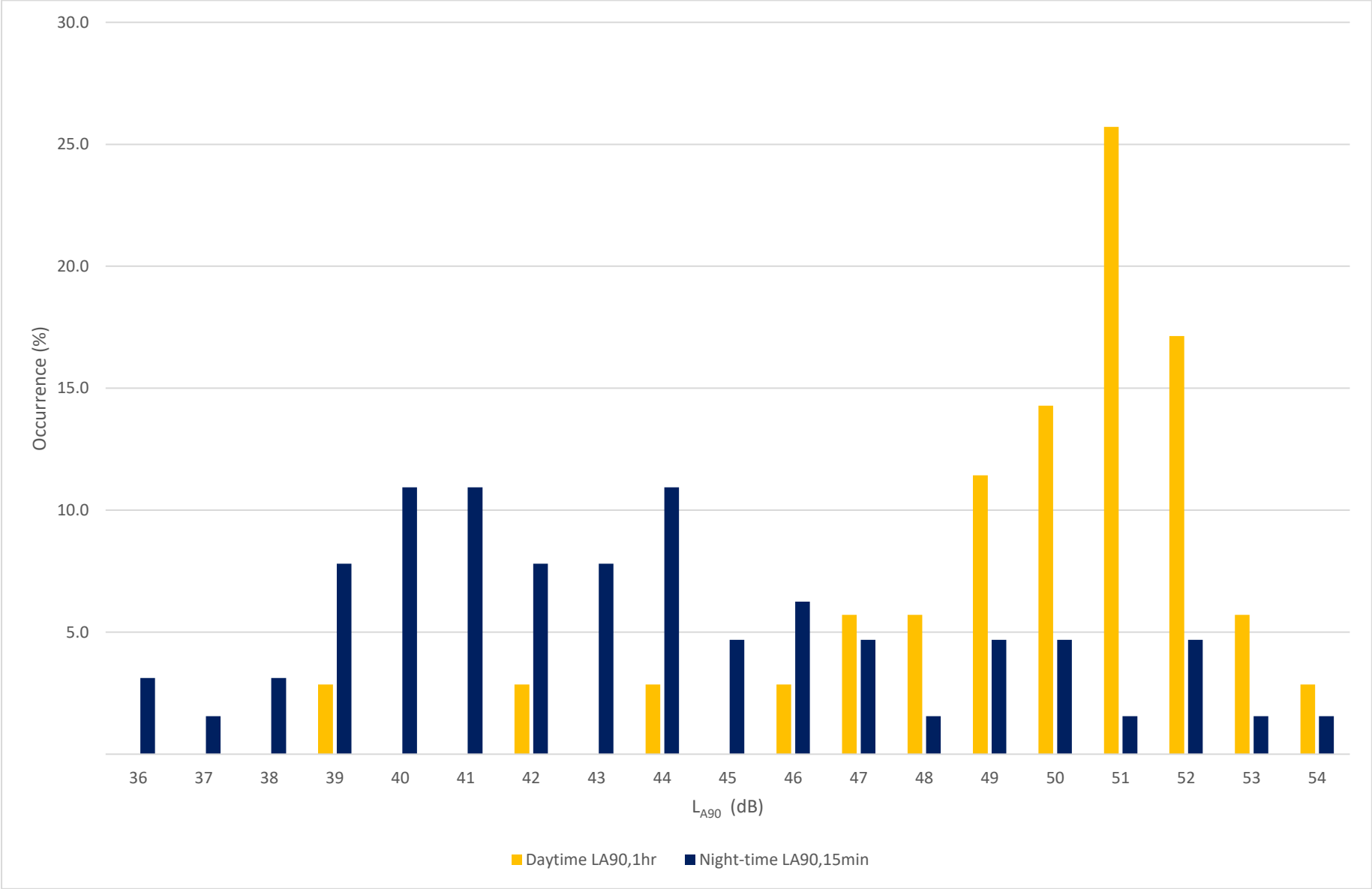
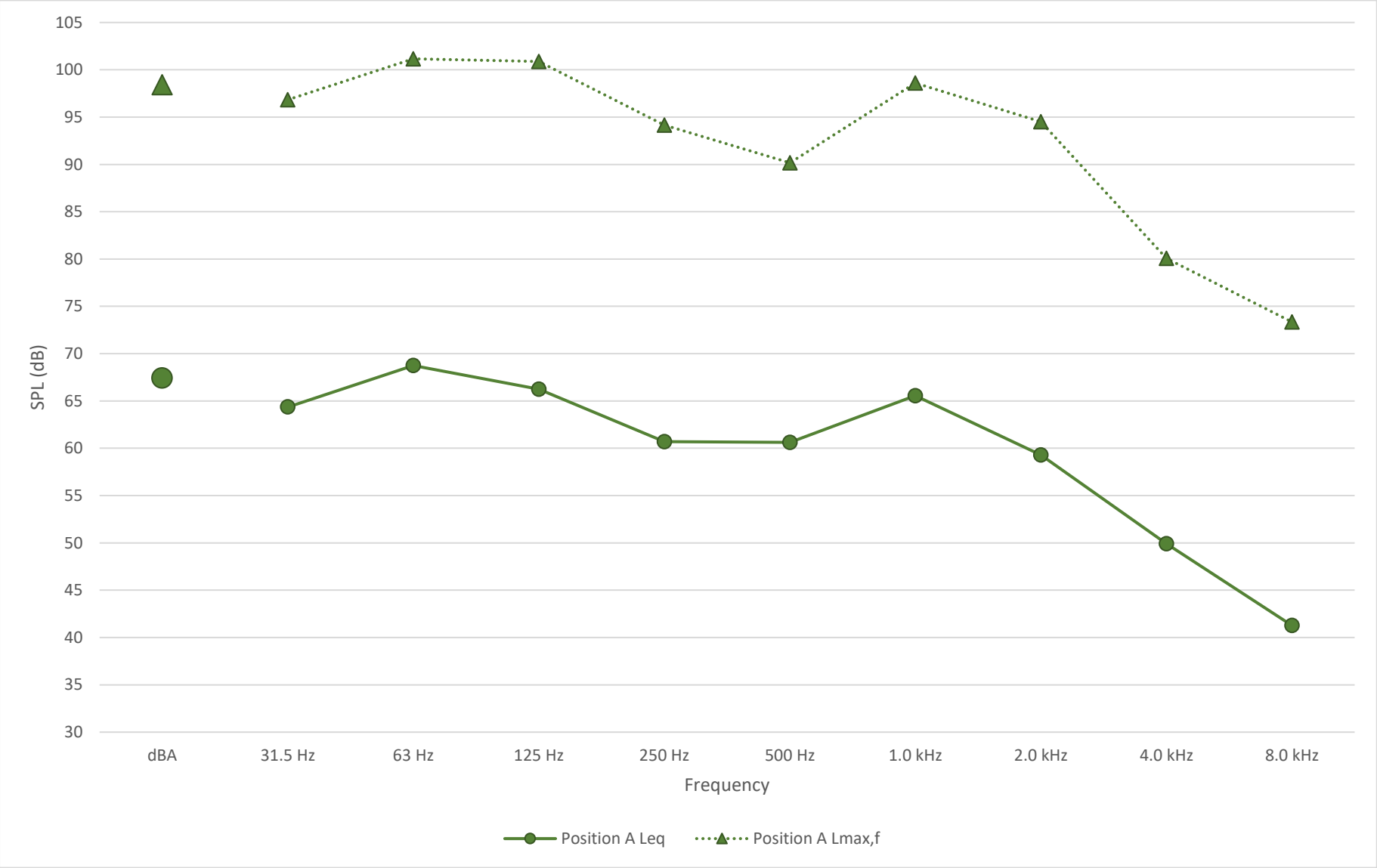


Figure B.10 – L_{eq} and $L_{max,F}$ Octave Band Spectra Measured at Position A



APPENDIX C - NOISE MAP MODELS

Figure C.1 – Daytime Noise Map (Undeveloped Site) $L_{Aeq,16hr}$ Contours at 1.5m Height

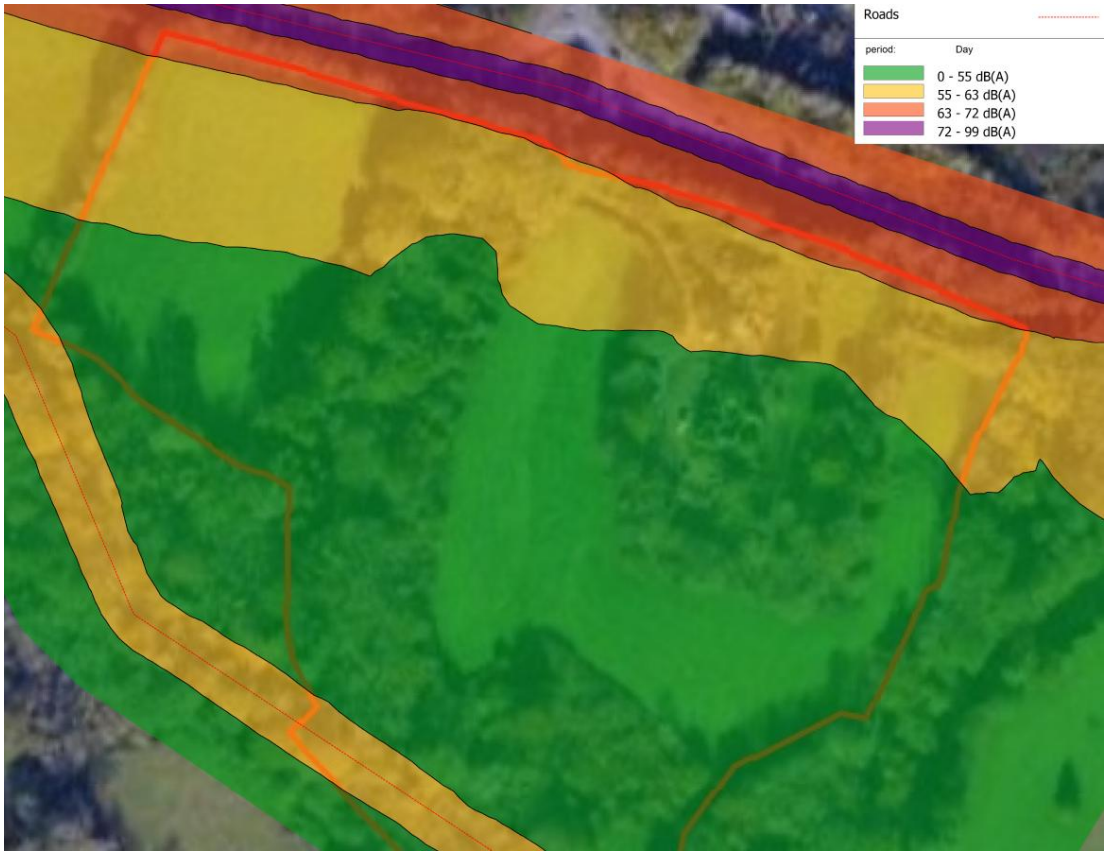


Figure C.2 – Night-time Noise Map (Undeveloped Site) $L_{Aeq,8hr}$ Contours at 1.5m Height

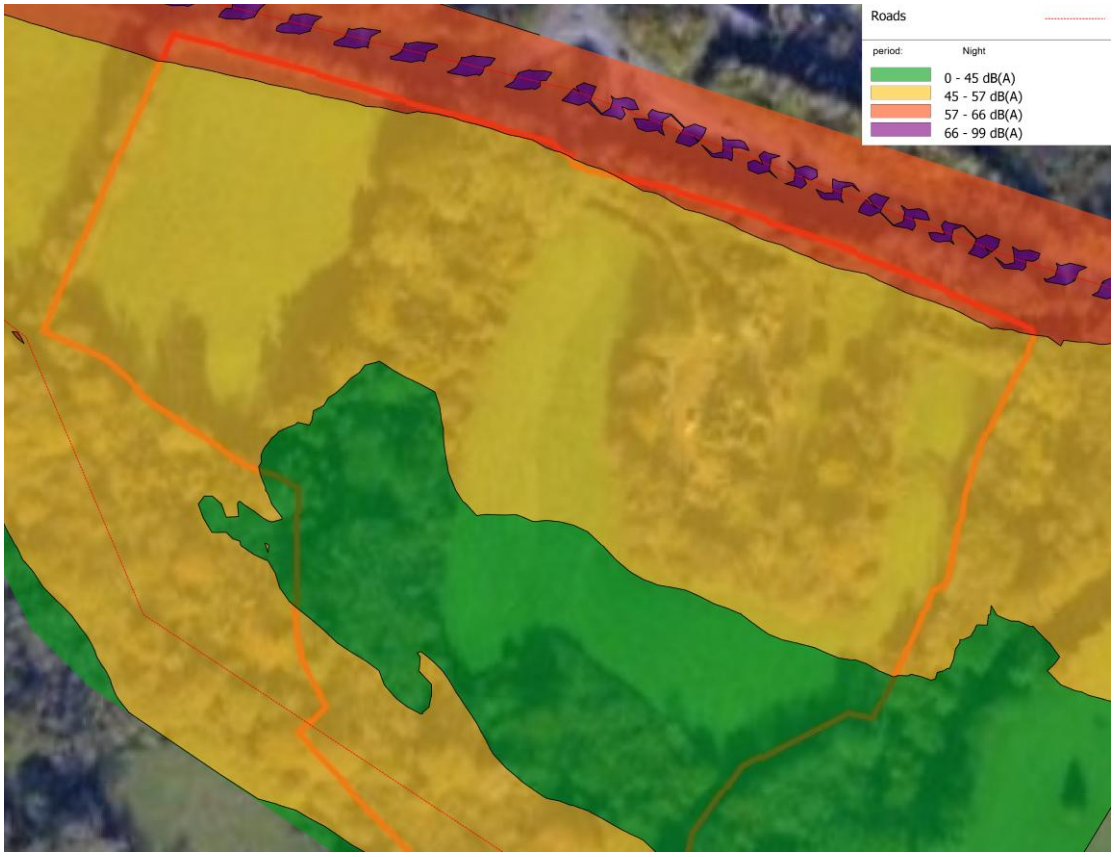


Figure C.3 – Daytime Noise Map (Developed Site) $L_{Aeq,16hr}$ Contours at 1.5m Height

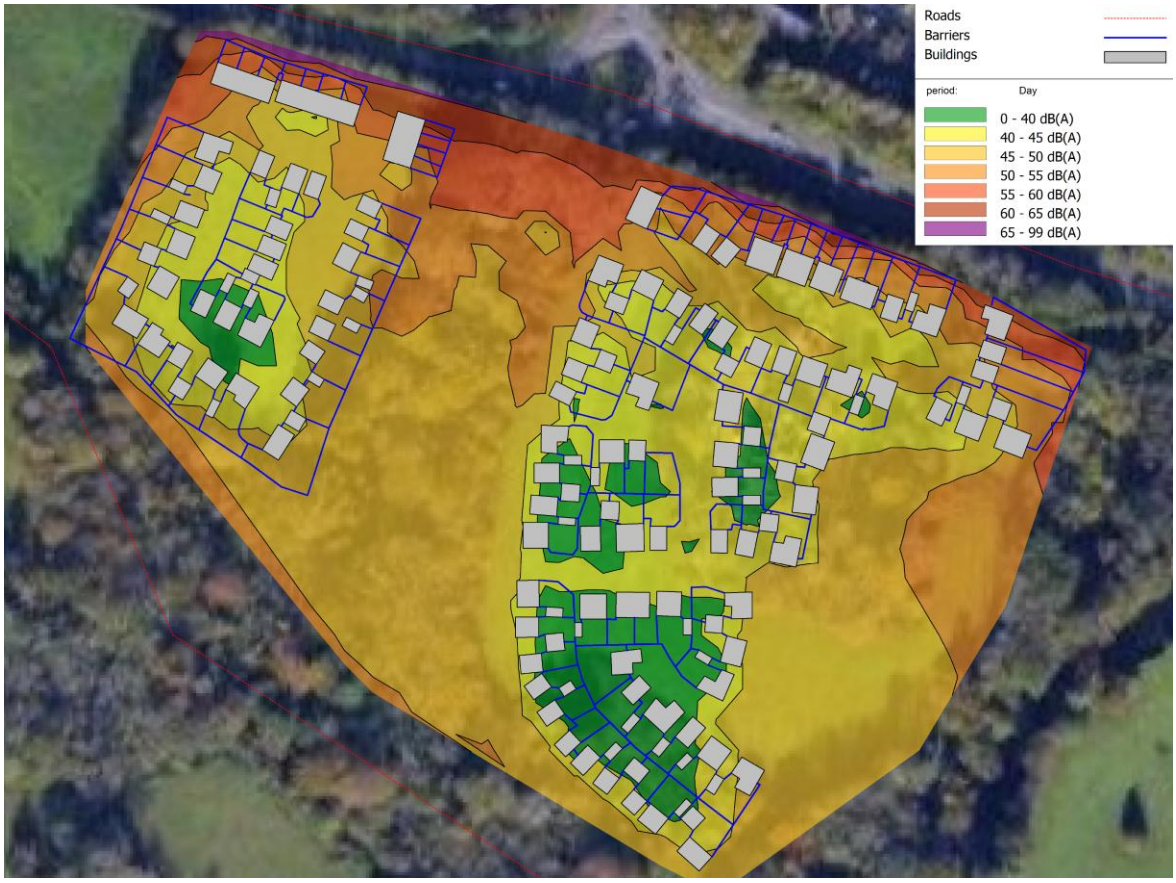


Figure C.4 – Daytime Noise Map (Developed Site) $L_{Aeq,16hr}$ Contours at 4.5m Height

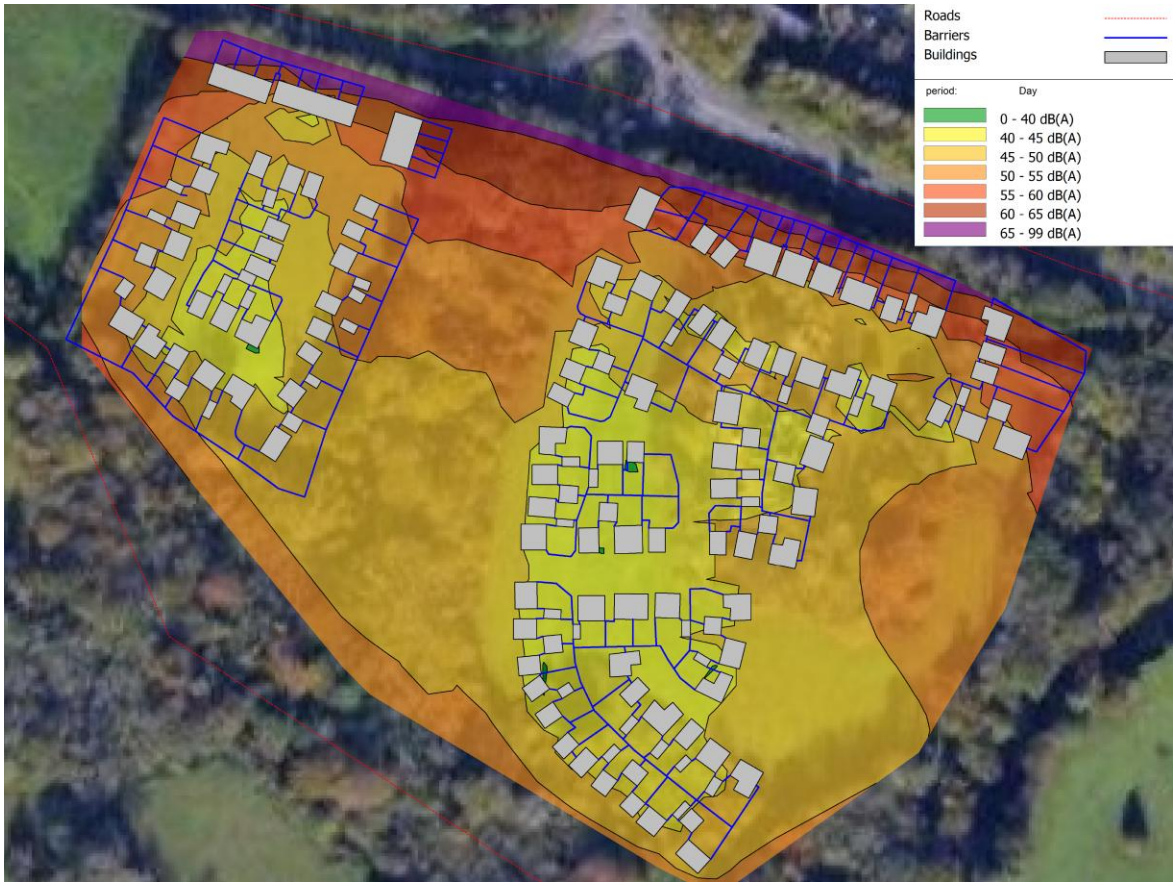


Figure C.5 – Night-time Noise Map (Developed Site) $L_{Aeq,8hr}$ Contours at 1.5m Height

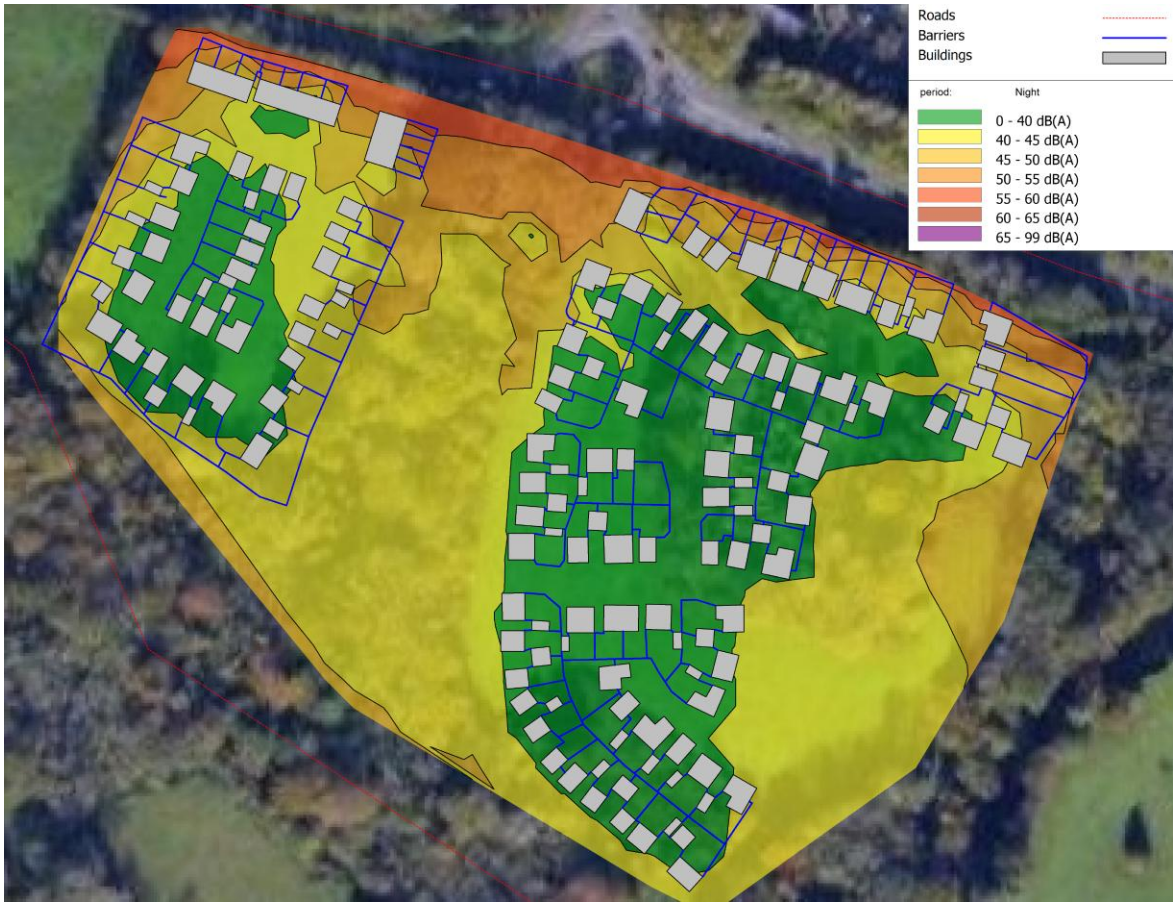
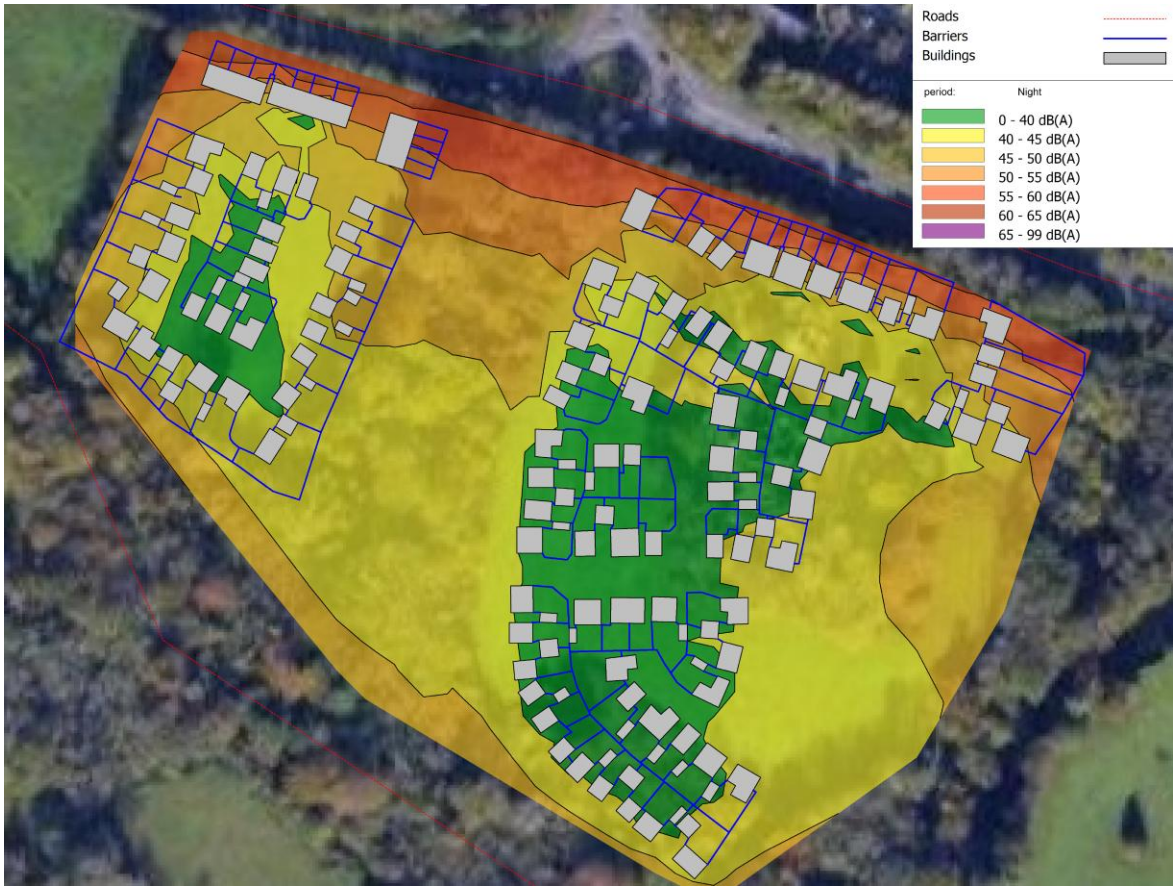


Figure C.6 – Night-time Noise Map (Developed Site) $L_{Aeq,8hr}$ Contours at 4.5m Height



APPENDIX D - DRAWING LISTS

The following drawings and documents have been used in our assessment:

Table D.1 – Pegasus Group Drawing List

Drawing Title	Drawing Number	Date
Craig Y Parcau – Current Testing Layout	P24-1590_DE_03_AB_1	14/10/2025

Table D.2 – Healer Surveys Drawing List

Drawing Title	Drawing Number	Date
Engineering Layout Sheet 1 of 3	3954-110-1	Sept 2025
Engineering Layout Sheet 2 of 3	3954-110-2	Sept 2025
Engineering Layout Sheet 3 of 3	3954-110-3	Sept 2025