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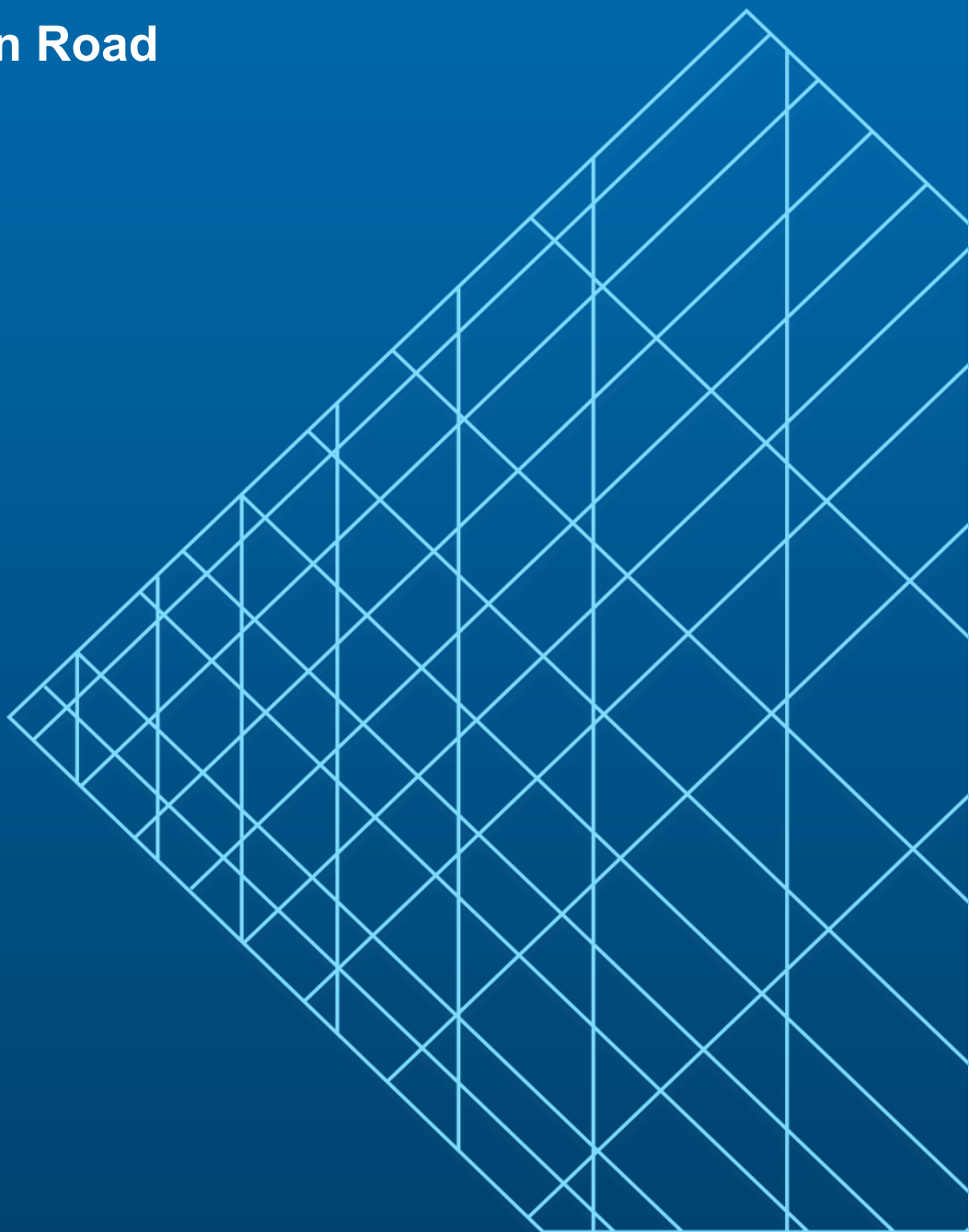
Independent Acoustic Consultancy Practice

Environmental Noise Assessment

Land at Station Road Bargoed

8017/ENS2



Hunter ACOUSTICS

Independent Acoustic Consultancy Practice

Henstaff Court Business Centre
Llantrisant Road, Cardiff
CF72 8NG

t: +44(0)2920 891020

e: enquiries@hunteracoustics.co.uk

w: www.hunteracoustics.co.uk

Environmental Noise Assessment

Project:	**Land at Station Road**
Site Address:	Bargoed CF81
HA Reference:	8017/ENS2
Date:	19/05/2026
Client:	Langstone Construction Maple House, Greenwood Close Cardiff Gate Business Park Cardiff CF23 8RD
Contact:	gjones@langstoneconstruction.com

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			Prepared by:	**Checked by:**
		Name	Hannah Moody BEng(Hons) AMIOA	Paul McGrath BSc(Hons) MIOA
		Signature		

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1. INTRODUCTION

We understand a residential development consisting of 29no flats are proposed at Land at Station Road, Bargoed, CF81.

The Local Planning Authority have requested a noise impact assessment is submitted 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 including road traffic noise, rail noise and car wash noise.

Survey results have been used for comparison 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.”

2.5 British Standard 4142:2014+A1:2019

British Standard 4142:2014+A1:2019 “Methods for rating and assessing industrial and commercial sound”, provides current guidance for the assessment of industrial noise affecting residential receivers.

This standard describes a rating method comparing L_{Aeq} noise levels from the industrial source with pre-existing background L_{A90} levels at the residential receiver. It advises at a difference (industrial noise - background) of:

- +10dB or higher, likely to be an indication of a significant adverse impact, depending on the context.
- A difference of + 5dB, likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

A sliding scale of penalties can be applied to industrial/commercial sound levels which have acoustically distinguishing characteristics, including tonality, impulsivity and intermittency.

Tonality – A penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible, and 6dB where it is highly perceptible.

Impulsivity – A penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it clearly perceptible, and 9dB where it is highly perceptible.

Other sound characteristics – Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied

Intermittency – If intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied.

BS 4142:2014 states under section 11;

"Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following.

1) The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.

Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse."

3. ENVIRONMENTAL NOISE SURVEY

3.1 Procedures

Continuous noise monitoring was carried out from 1100hrs on Friday, 08 May 2026 to 0900hrs on Monday, 11 May 2026 at positions A and B.

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	Located at the northern boundary between the proposed site and car wash site, approximately 17m from Station Road
B	Located at the front façade of the proposed flats, approximately 5m from Station Road

Note: All microphone positions approximately 1.5m above local ground level.

3.2 Meteorological Conditions

Approximate weather conditions are shown in time history graphs in Figure B.1, Figure B.2, Figure B.3 & Figure B.4 of Appendix B.

To summarise, the weather conditions during the monitoring period were dry with an occasional breeze.

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-Jun-25	UK-25-074
	Preamplifier	MA220	1820	11-Jun-25	UK-25-074
	Filters	XL2-TA	A2A-08723-E0	11-Jun-25	UK-25-074
	Microphone Capsule	MC230	9381	11-Jun-25	UK-25-074
NTi	Type 1 - Sound Level Meter	XL2-TA	A2A-10021-E0	28-Aug-25	UK-25-112
	Preamplifier	MA220	5435	28-Aug-25	UK-25-112
	Microphone Capsule	MC230	8547	28-Aug-25	UK-25-112
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.5 and Figure B.6 of Appendix B show L_{Amax}, L_{Aeq} and L_{A90} sound pressure levels measured at positions A and B.

3.4.1 Ambient $L_{Aeq,T}$ sound levels

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

Date	Period	A	B
08/05/2026	Daytime (1100-2300hrs) $L_{Aeq,12hr}$ (dB)	59	65
08-09/05/2026	Night-time (2300-0700hrs) $L_{Aeq,8hr}$ (dB)	53	57
08/05/2026	Daytime (0700-2300hrs) $L_{Aeq,16hr}$ (dB)	58	64
08-09/05/2026	Night-time (2300-0700hrs) $L_{Aeq,8hr}$ (dB)	51	56
08/05/2026	Daytime (0700-2300hrs) $L_{Aeq,16hr}$ (dB)	57	63
08-09/05/2026	Night-time (2300-0700hrs) $L_{Aeq,8hr}$ (dB)	53	58
08/05/2026	Daytime (0700-0900hrs) $L_{Aeq,2hr}$ (dB)	59	66

Ambient noise climate controlled by road traffic noise; no significant rail noise has been assessed. Daytime period is therefore assessed as critical (>5dB difference between daytime and night-time).

3.4.1 $L_{AMax,F}$ sound levels

There were no $L_{Amax,F}$ events over 82dB measured at Position A. There were two events per night over 82dB $L_{Amax,F}$ measured at Position B caused by vehicle pass-bys.

The 10th highest measured $L_{Amax,F}$ level measured at position B each night was at 79dB, caused by car pass-bys.

Up to 6no trains are timetabled during the night-time period. 2no trains could pass between 2300-0000hrs and 4no trains between 0600-0700hrs. Typical train noise levels are indicated at around 65dB L_{Amax}.

3.4.2 Background $L_{A90,T}$ sound levels

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

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
Daytime (0700-2300hrs) L_{A90} (dB)	47	46
Night-time (2300-0700hrs) L_{A90} (dB)	47	37

Daytime and night-time background sound levels were controlled by the Rhymney River at Position A.

Daytime background sound levels were controlled by the road traffic noise at Position B and the Rhymney River at night.

4. CAR WASH NOISE

Car Valeting activities were recorded at Position A from Bargoed Hand Car Wash.

The car wash operates seven days a week, 0800-1800hrs.

4.1 Car Wash Activities

Car Wash activities included Jet Washing and vacuuming. Jet washing was observed taking place under the canopy 10-15m away from Position A; vacuuming took place close the site boundary around 5m away. No compressor was audible during jet washing.

The following activity noise levels have been assessed:

Table 4.1 – Summary of Car Wash Activity Noise Levels

Activity	$L_{Aeq,T}$ (dB)	$L_{Amax,F}$ (dB)
Jet Wash	55	66
Vacuum	54	63

These were audible in between car pass-bys. However, road traffic noise still controlled the residual noise climate. Measured activity spectra are included in

Therefore a representative 1-hr car wash activity noise level for the period Sunday 10/5/26 1020-1120hrs has been extracted from the data, excluding contributions from road traffic:

Table 4.2 – Summary of 1-hour Car Wash Noise Levels

Activity	$L_{Aeq,T}$ (dB)	Time(s)
Jet Wash	55	637
Vacuuming	54	614
Total (time corrected to 1hr)	50	3600

The proposed residential building is set back 25m from the Car Wash, so a significant reduction over distance is indicated (approx. 10dB) to the flats.

Residual road traffic noise at Position A was around 57dB $L_{Aeq,1hr}$. Background sound levels are 47dB $L_{A90,1hr}$.

Car wash noise levels at the residential façade is therefore indicated to fall well below residual and background sound levels. A low impact is indicated.

5. ROAD TRAFFIC NOISE MAP MODELLING

Three dimensional noise map modelling has been undertaken using 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 and night-time 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 noise levels at proposed residential facades to be predicted.

5.1 Undeveloped Site

The noise map model in Figure C.1 and Figure C.2 of Appendix C show predicted road traffic noise levels during the daytime and night-time periods at 1.5m above local ground level across the undeveloped site.

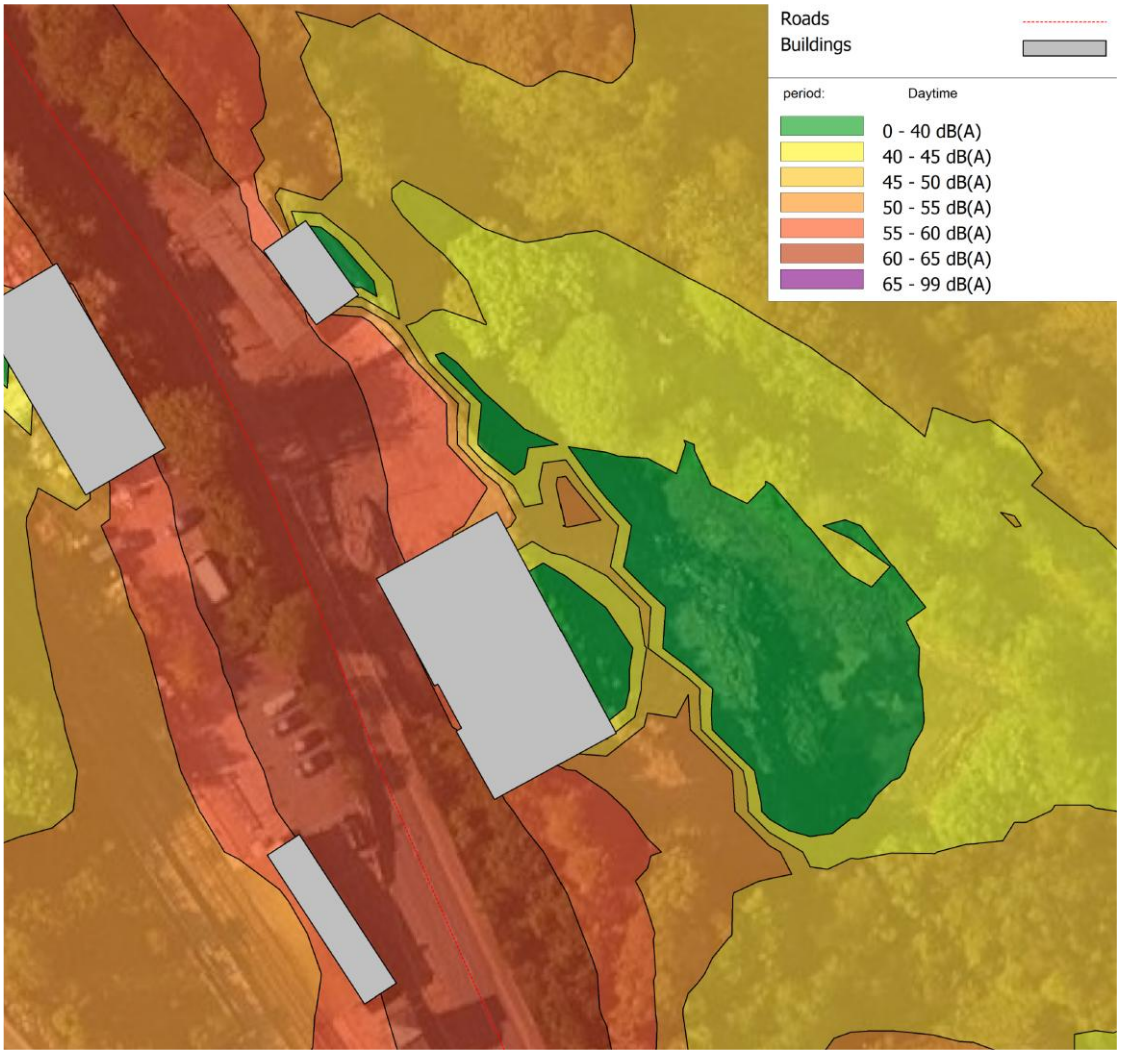
5.2 Developed Site

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

Appendix C shows noise map models for daytime and night-time periods for each floor level of the proposed development.

Noise map model in Figure 5.1 below shows predicted road traffic noise levels during the critical daytime period (0700-2300hrs) at 4.5m above local ground level on the developed site.

Figure 5.1 - Daytime Model (Developed Site) $L_{Aeq,16hr}$ Contours at 4.5m Height



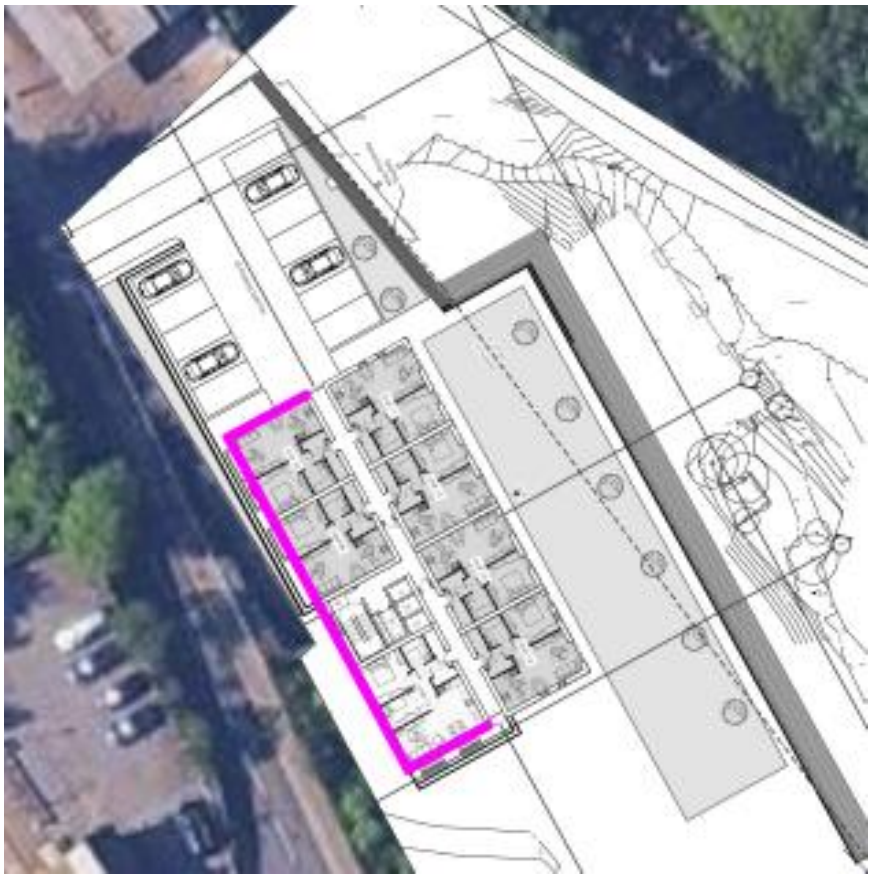
6. EXTERNAL BUILDING FABRIC ASSESSMENT

Based on survey results and noise map models, we have carried out an 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 (if required)

Critical façades are shown on site plan in Figure 6.1 below, marked up with **MAGENTA** lines.

Figure 6.1 – 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 all floor levels) on façades highlighted above require up-rated acoustic glazing, walls, roof and ventilation as specified below. Standard thermal double glazing and trickle ventilation should be sufficient on remaining façades (not highlighted).

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

6.1 External Walls

A lightweight external wall system is proposed. The following external wall construction has been used in our analysis;

- External Cladding + Insulation, cement sheathing board, 100mm SFS with mineral wool insulation

The proposed constructions should be capable of achieving a minimum 45dB R_w+C_{tr}.

The following minimum sound reduction figures have been used in our analysis based on INSUL software:

Table 6.1 – 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	External Cladding + Insulation, cement sheathing board, 100mm SFS with mineral wool insulation, 2x12.5mm plasterboard	30	55	65	70	70

6.2 Roof

A flat roof is proposed. The following typcial roof construction has been used in our analysis;

• External roof finish on thermal insulation, metal *or* timber roof deck, 15mm plasterboard MF ceiling

The following minimum sound reduction figures have been used in our analysis based on INSUL software:

Table 6.2 – 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
Flat Roof	External roof finish on thermal insulation, metal or timber roof deck, 15mm plasterboard MF ceiling	36	42	45	59	70

6.3 Glazing

The housing layout plan in Figure 6.1 shows façades where windows require up-rating. The following sound reduction index figures shall be met for glazing on these critical façades:

Table 6.3 - Glazing Sound Reduction Index Figures

Element	Description	dB* R_w+C_{tr}	Sound Reduction Index dB R (BS EN ISO 10140-2:2010) @ Octave Band Centre Frequency (Hz)				
			125	250	500	1k	2k
MAGENTA (Bedrooms)	For budgetary guidance: based on Pilkington 10mm / 16mm argon / 8.8mm Optiphon	38	28	31	42	45	50
MAGENTA (Living Rooms)	For budgetary guidance: based on Pilkington 8mm / 6 - 16mm / 6mm	29	20	21	33	40	36

An overall single figure R_w+C_{tr} along with typical glazing systems 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.

6.4 Ventilation

All habitable rooms on critical façades highlighted **MAGENTA** 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.

6.4.1 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 6.4 – Acoustic Trickle Ventilator Specifications

Element	Description	dB* $D_{n,ew}+C_{tr}$	Element-Normalised Level Difference dB $D_{n,e}$ (BS EN ISO 10140-2:2010)				
			125	250	500	1k	2k
MAGENTA (Bedrooms)	For budgetary guidance: based on Greenwood 2500EA + 1 acoustic set	40	41	39	36	42	44
MAGENTA (Living Rooms)	For budgetary guidance: based on Greenwood 2500EA	36	45	44	40	35	34

The calculation has allowed for a maximum of **2no 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 ventilators, along with overall single figure $D_{new}+C_{tr}$. However;

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.

6.4.2 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.

6.4.3 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."*

6.4.4 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.

7. CONCLUSION

An environmental noise assessment has been carried out for the proposed residential development on Land at Station Road, Bargoed, CF81.

Road traffic is indicated to control the ambient noise climate day and night.

Noise surveys have been carried out across the site. 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.

An 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.

APPENDIX A - ACOUSTIC TERMINOLOGY

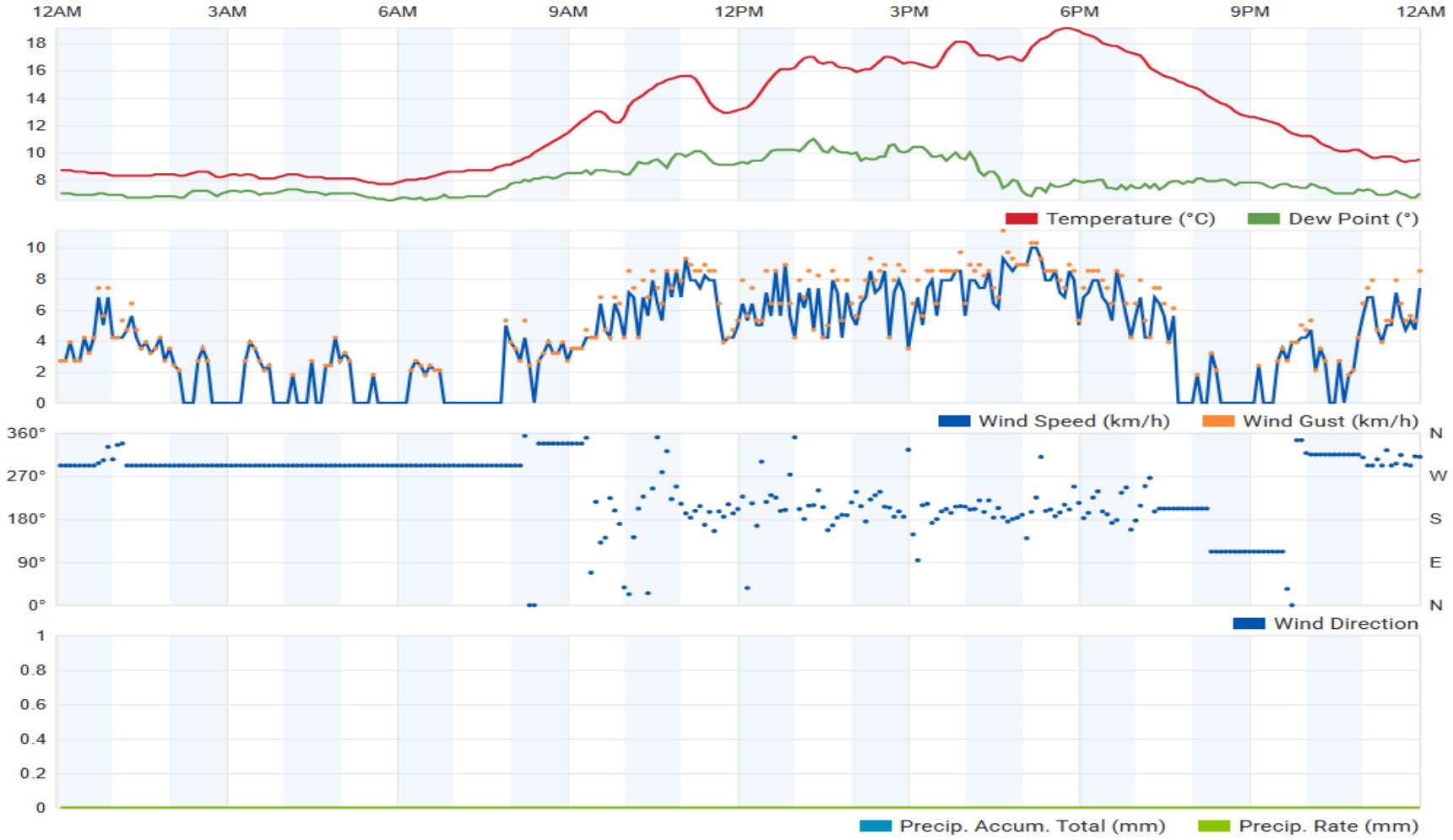
Human response to noise depends on a number of factors including loudness, frequency content and variations in level with time. Various frequency weightings and statistical indices have been developed in order to objectively quantify 'annoyance'.

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

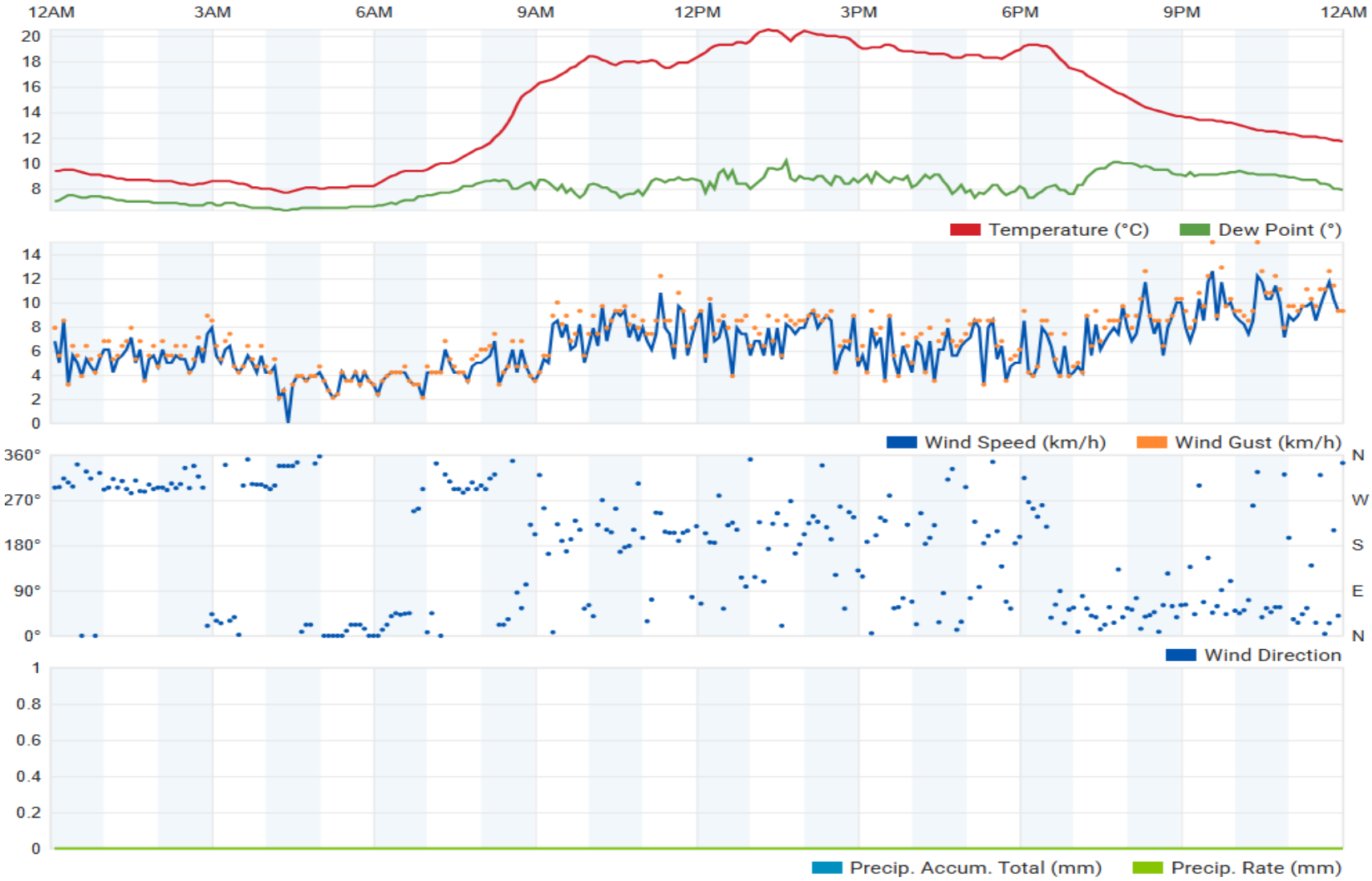
APPENDIX B - DIAGRAMS, GRAPHS AND TABLES

Figure B.1 – Approximate Weather History for Friday, 08 May 2026



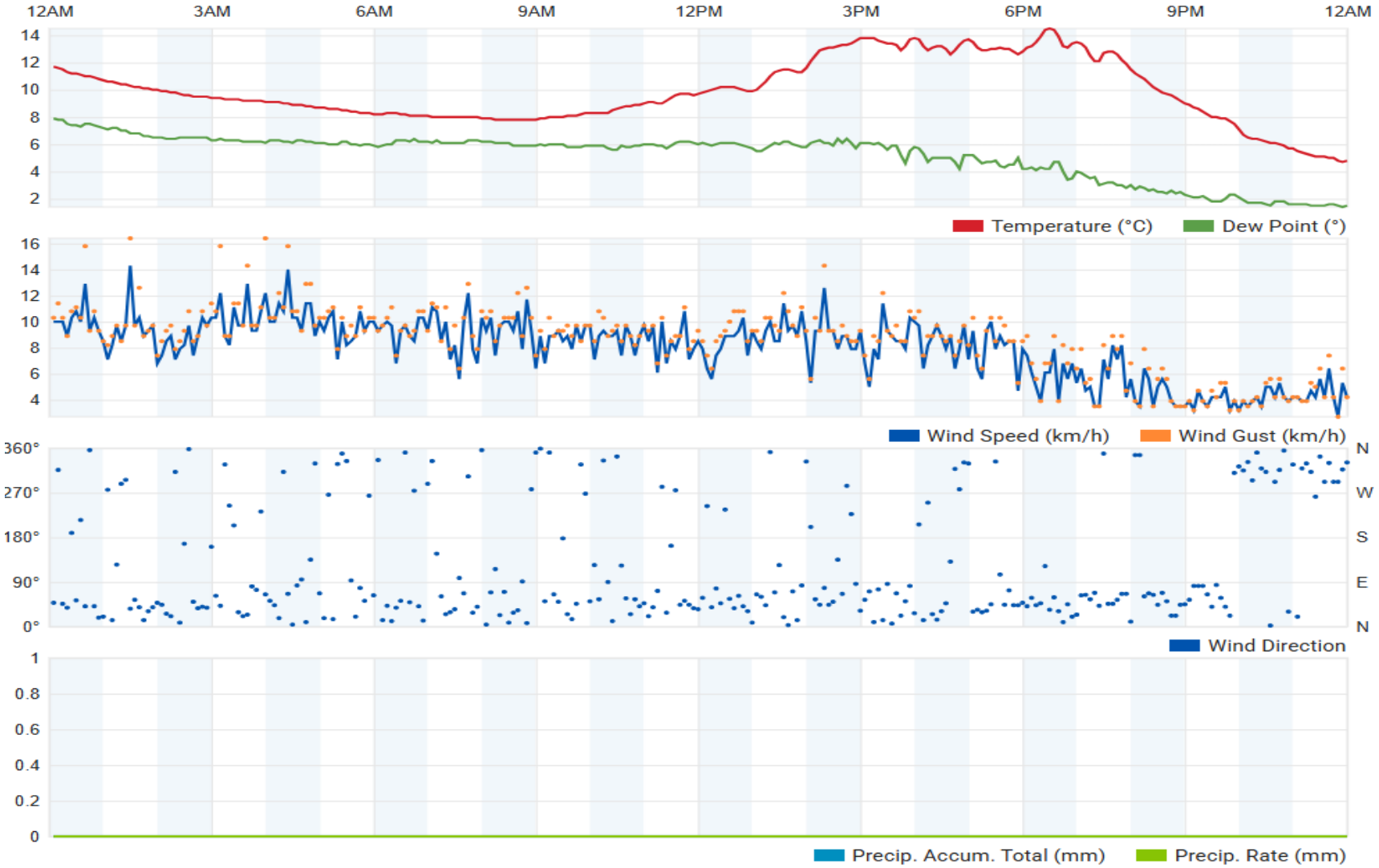
Note: Taken from www.wunderground.com - weather station IBARGO18 located in Bargoed [Elev 267 m, 51.70 °N, 3.22 °W]

Figure B.2 – Approximate Weather History for Saturday, 09 May 2026



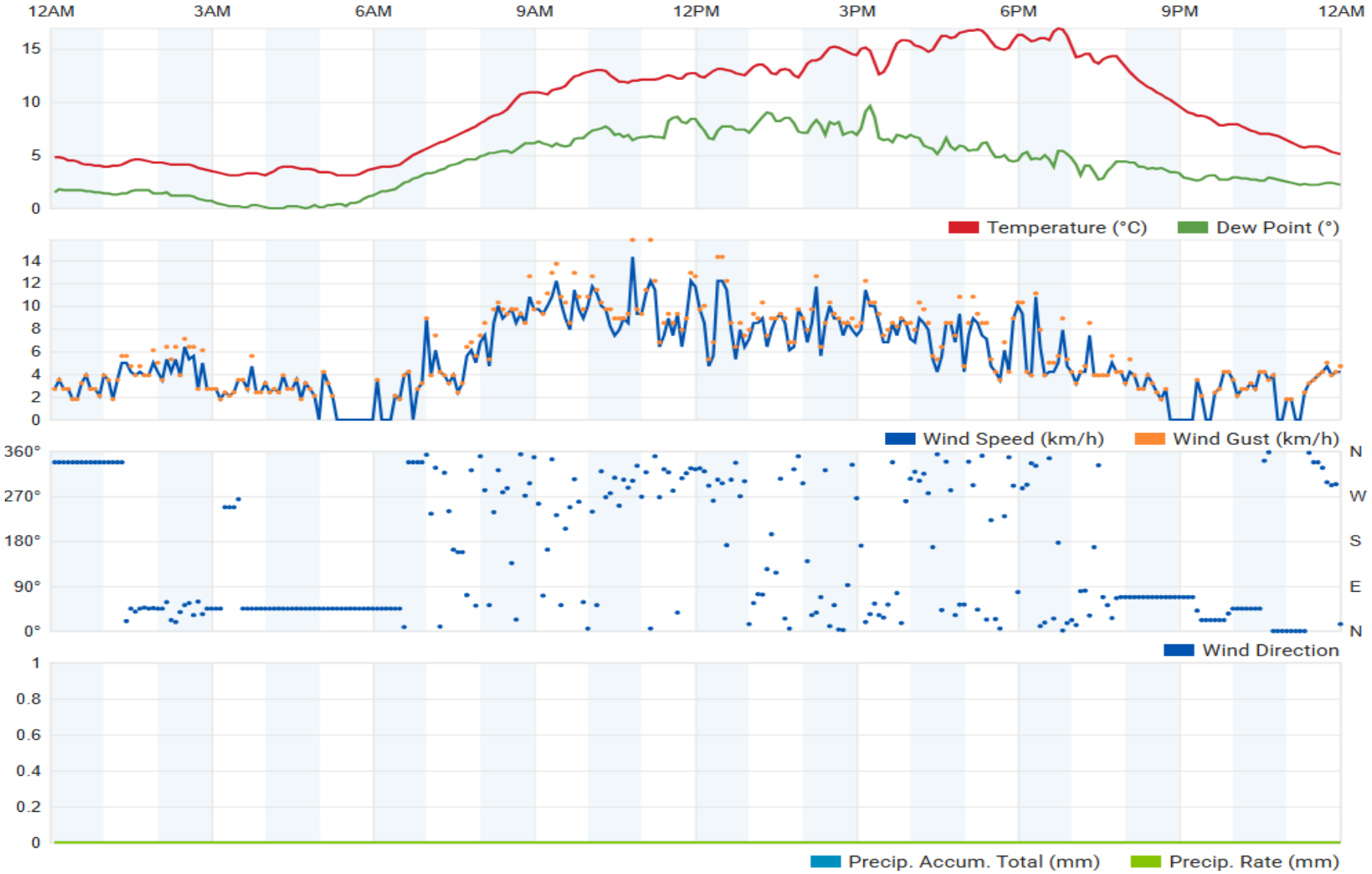
Note: Taken from www.wunderground.com - weather station IBARGO18 located in Bargoed [Elev 267 m, 51.70 °N, 3.22 °W]

Figure B.3 – Approximate Weather History for Sunday, 10 May 2026



Note: Taken from www.wunderground.com - weather station IBARGO18 located in Bargoed [Elev 267 m, 51.70 °N, 3.22 °W]

Figure B.4 – Approximate Weather History for Monday, 11 May 2026



Note: Taken from www.wunderground.com - weather station IBARGO18 located in Bargoed [Elev 267 m, 51.70 °N, 3.22 °W]

Figure B.5 – Time History at Position A (Friday, 08 May 2026 to Monday, 11 May 2026)

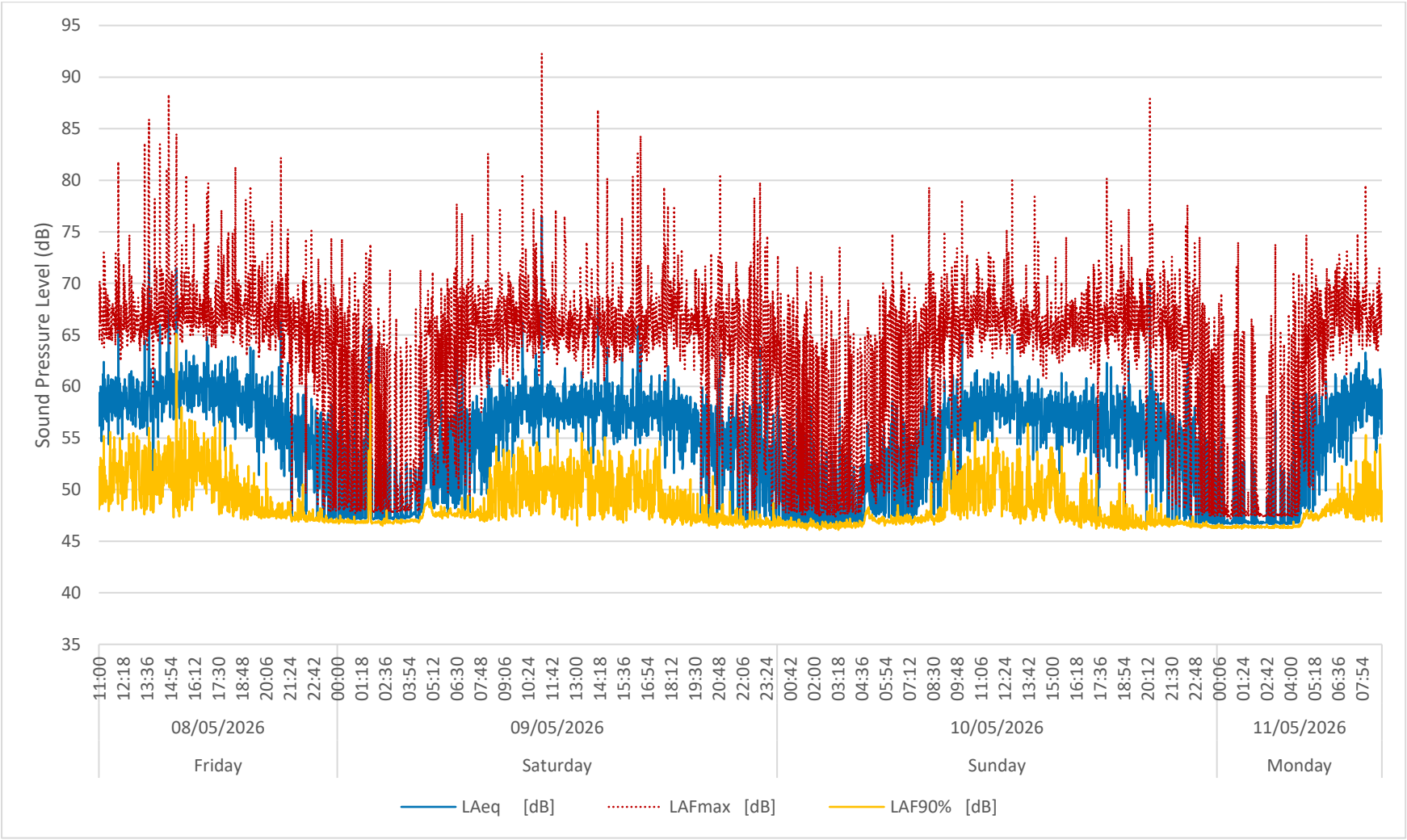


Figure B.6 – Time History at Position B (Friday, 08 May 2026 to Monday, 11 May 2026)

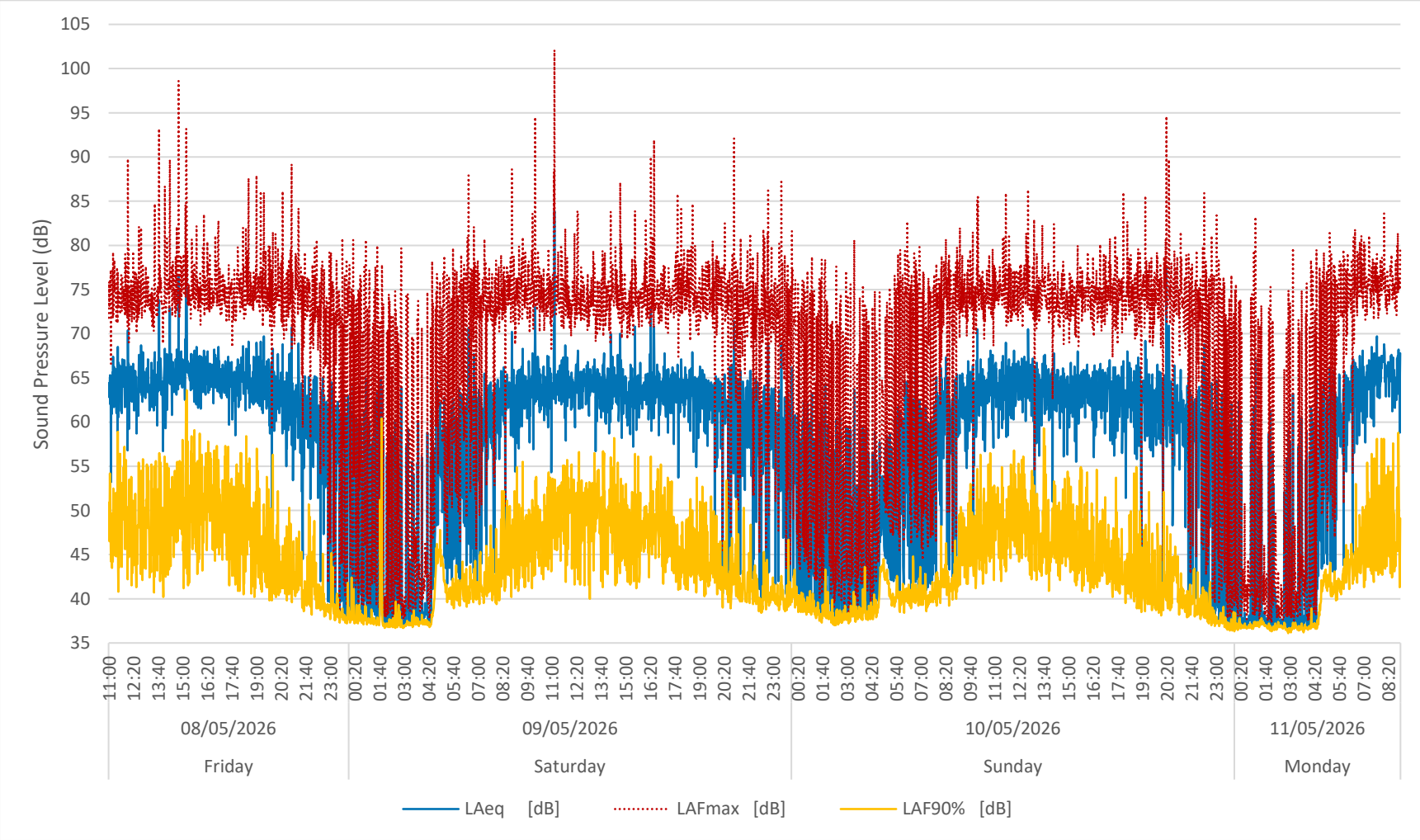


Figure B.7 – Statistical Analysis of Background Sound Levels Measured at Position A

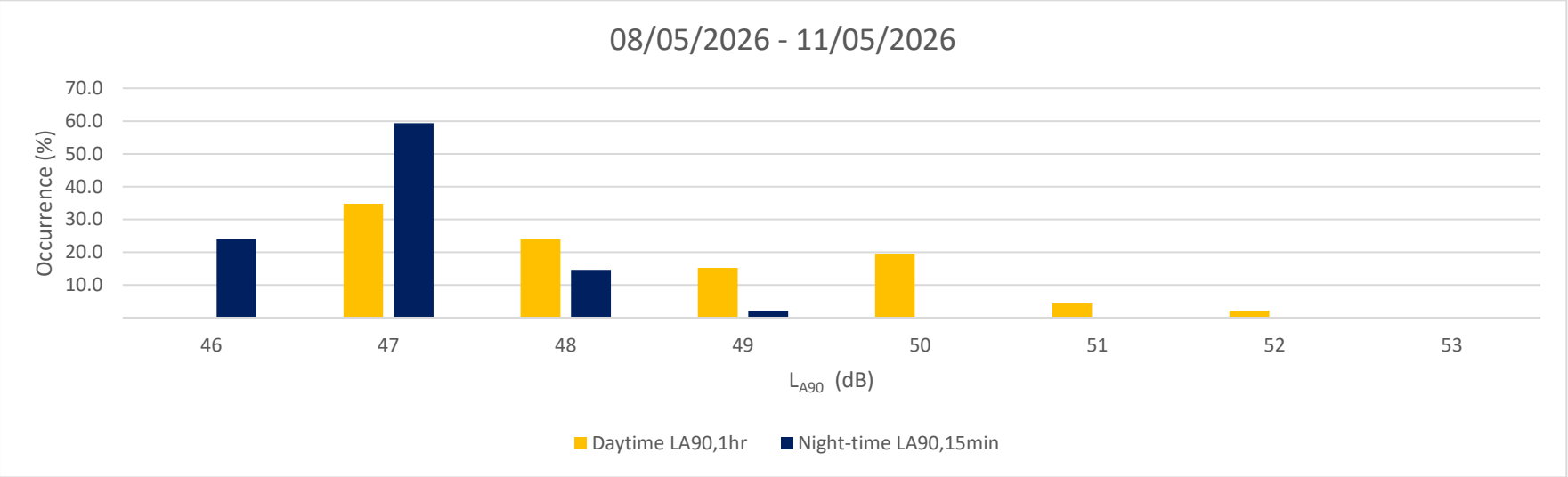


Figure B.8 – Statistical Analysis of Background Sound Levels Measured at Position B

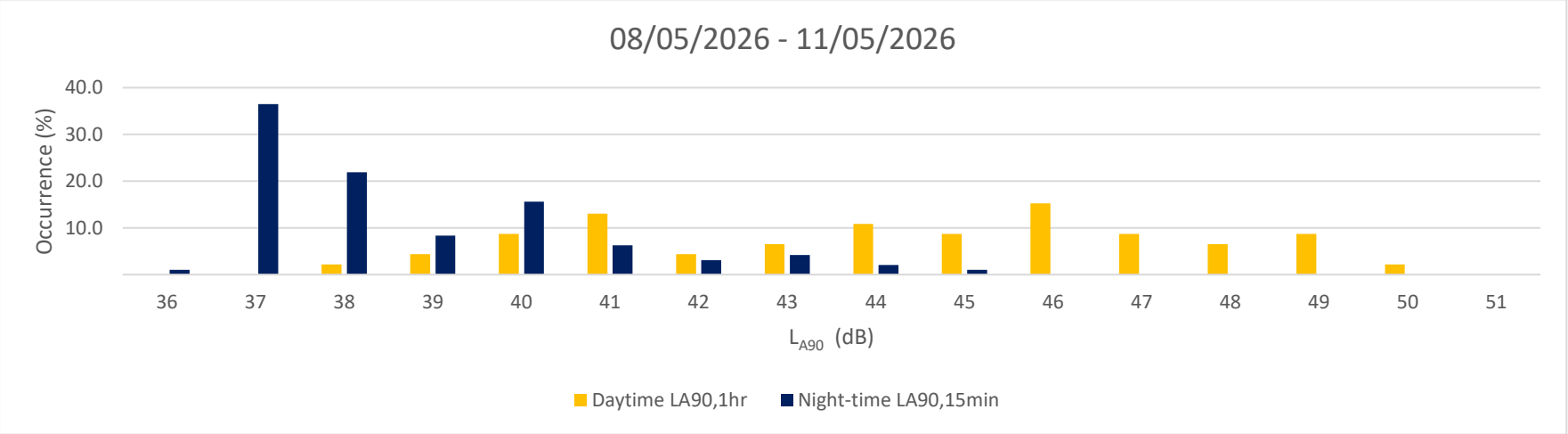


Figure B.9 – L_{eq} and $L_{max,F}$ Octave Band Spectra – Car Washing Activitites – Position A

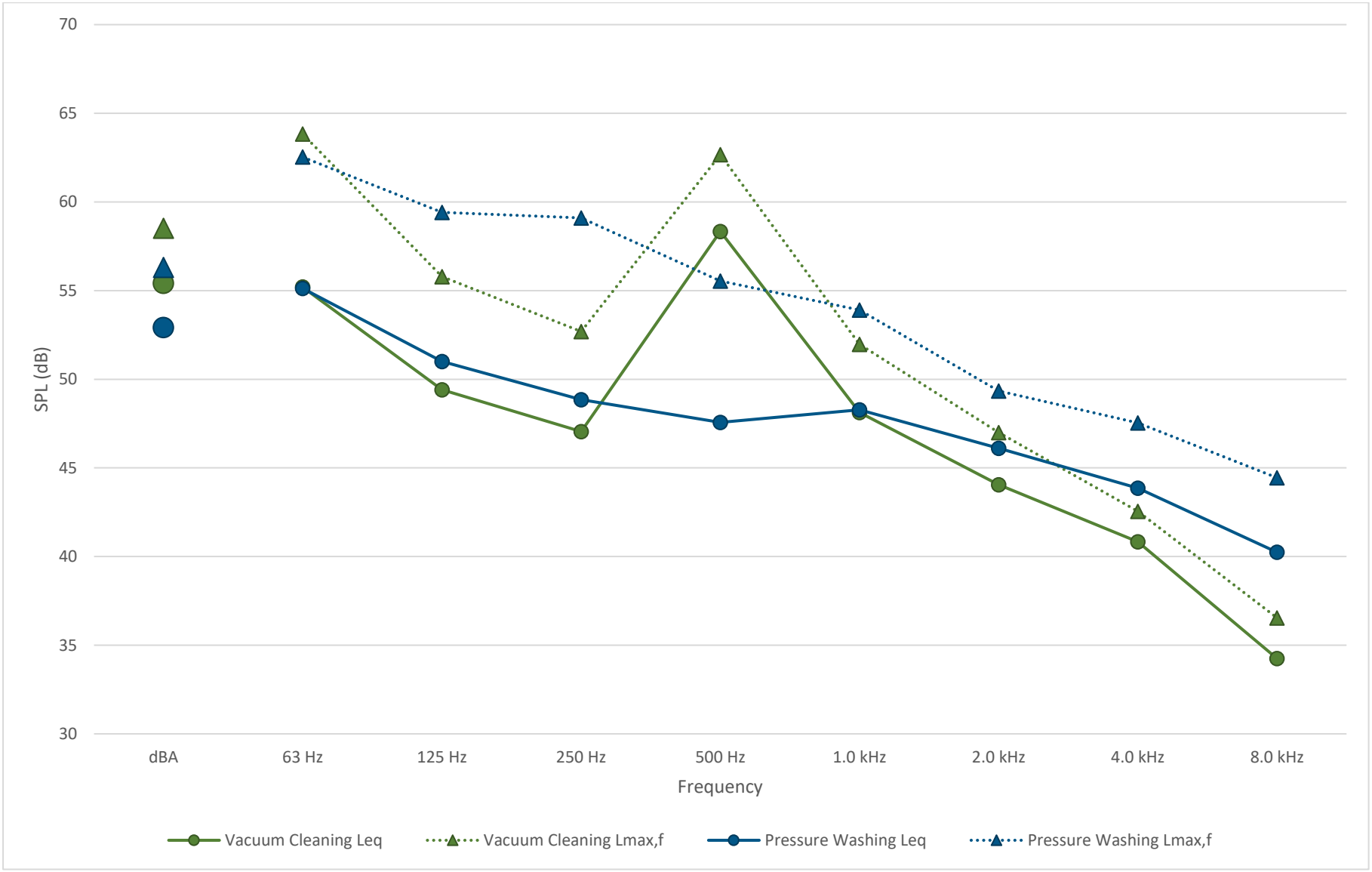
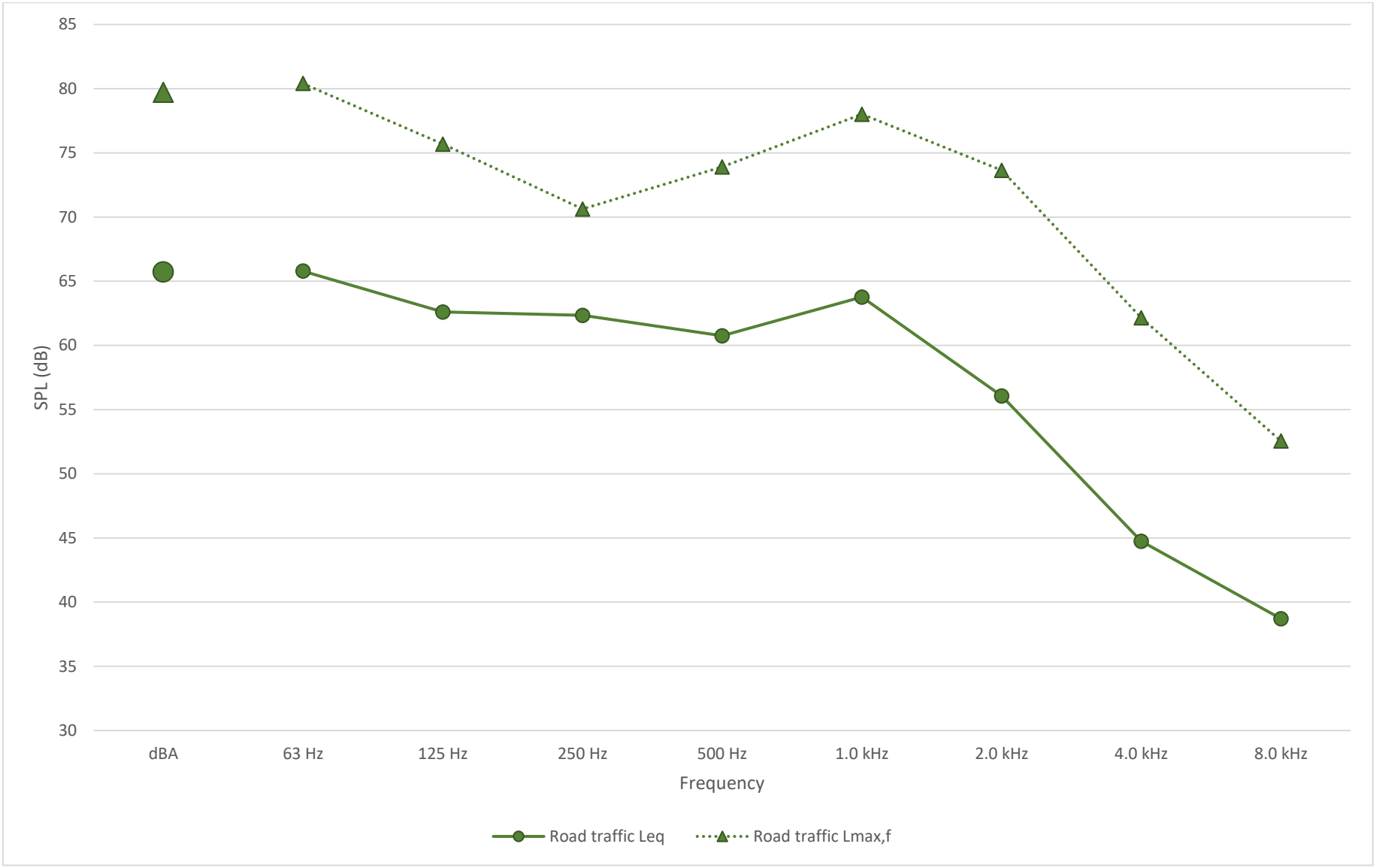


Figure B.10 – L_{eq} and $L_{max,F}$ Octave Band Spectra – Road Traffic Noise – Position B



APPENDIX C - NOISE MAP MODELS

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

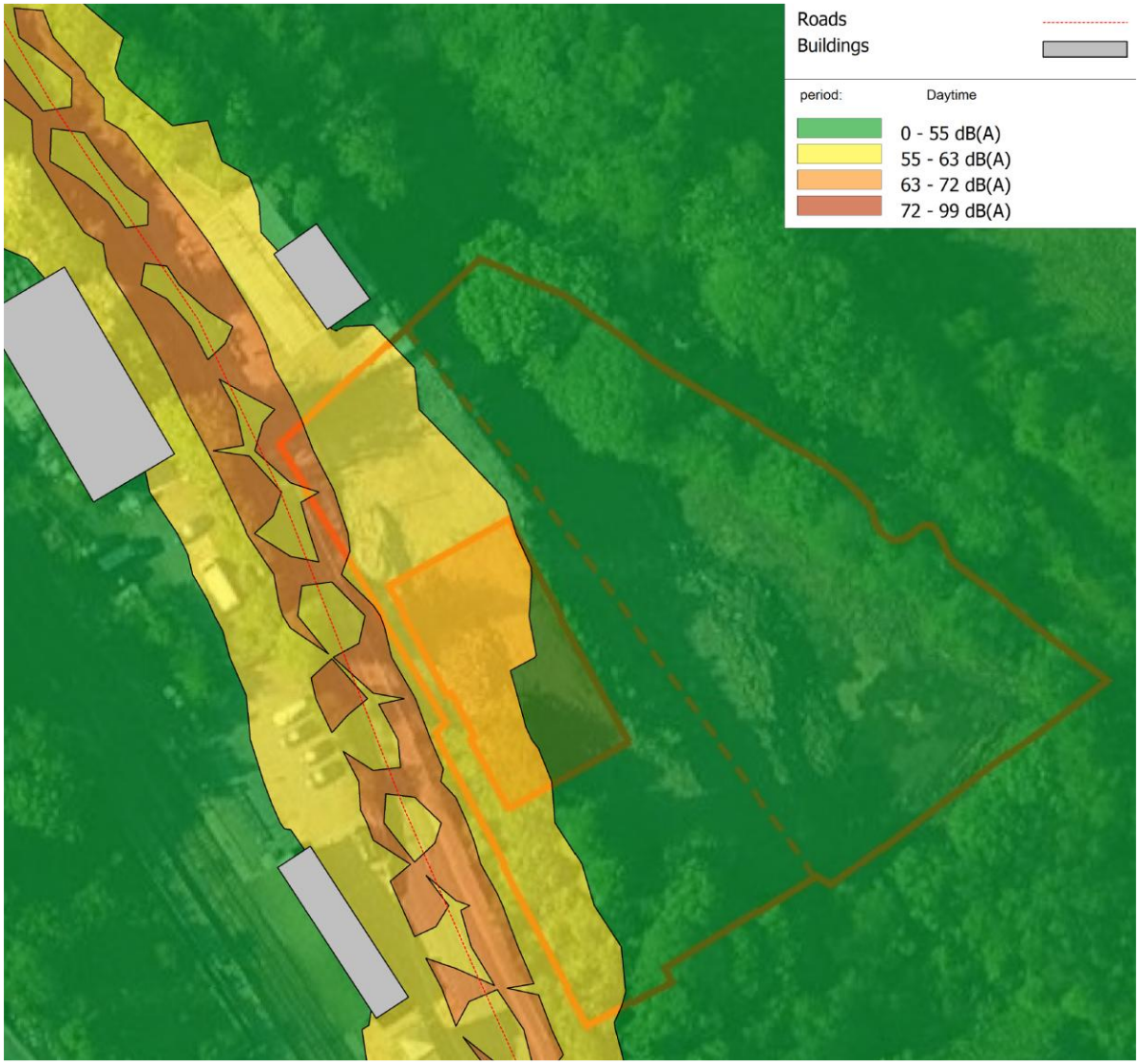


Figure C.2 – Night-time Noise Map (Undeveloped Site) $L_{Aeq,8hr}$ Contours at 1.5m Height

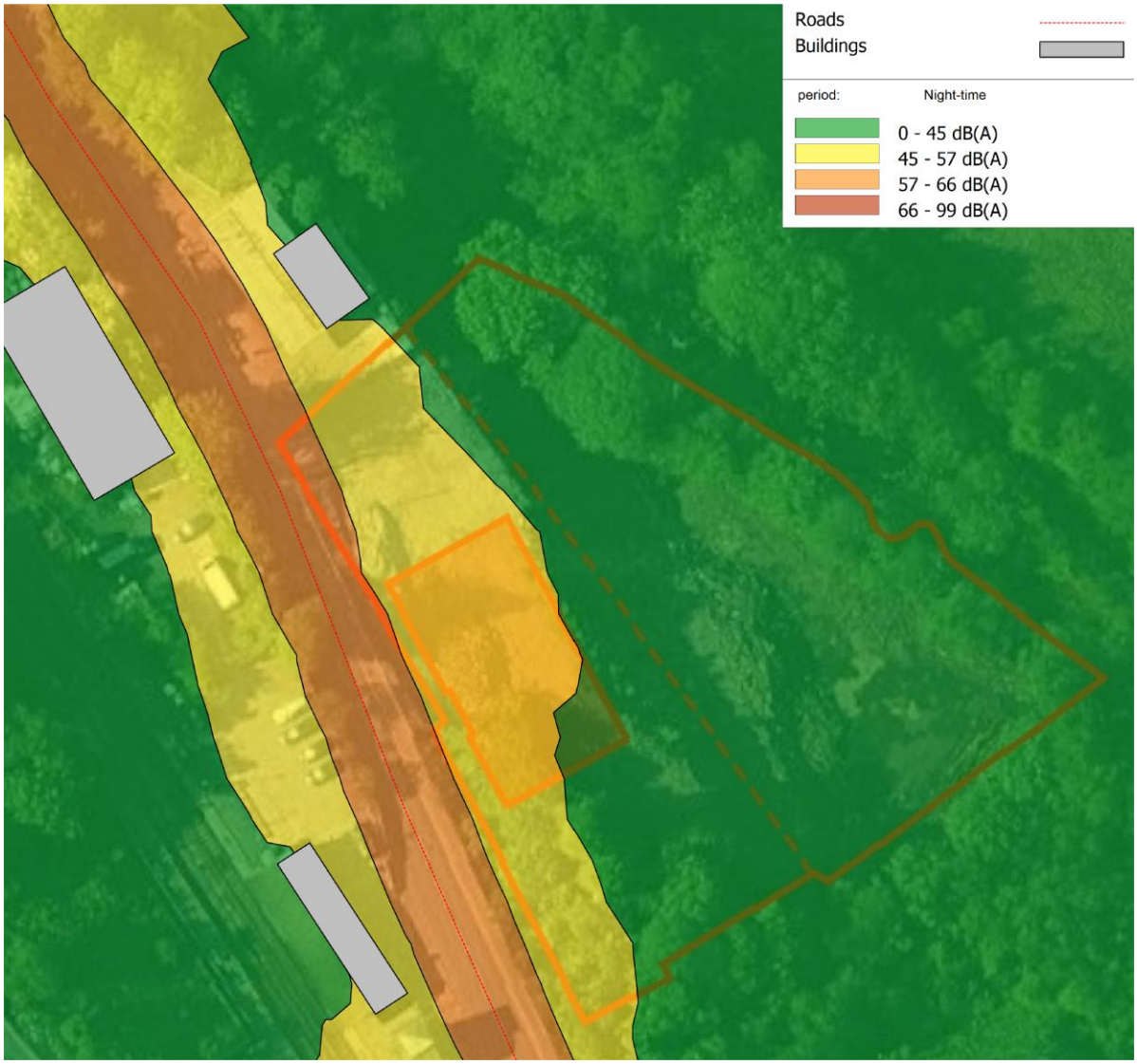


Figure C.3 – Daytime Noise Map (Developed Site) $L_{Aeq,16hr}$ Contours at 1.5m Height

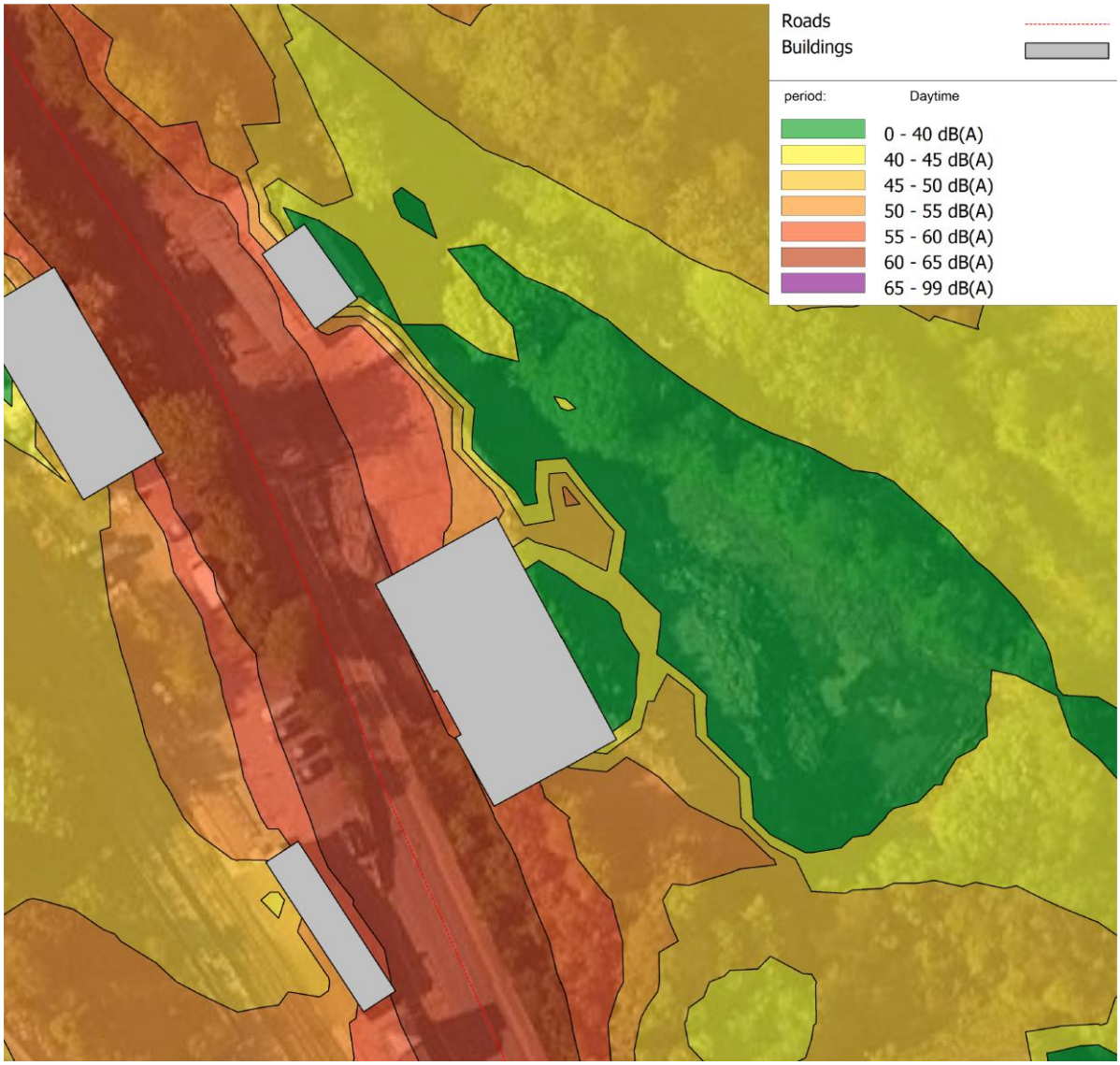


Figure C.4 – Daytime Noise Map (Developed Site) $L_{Aeq,16hr}$ Contours at 4.5m Height

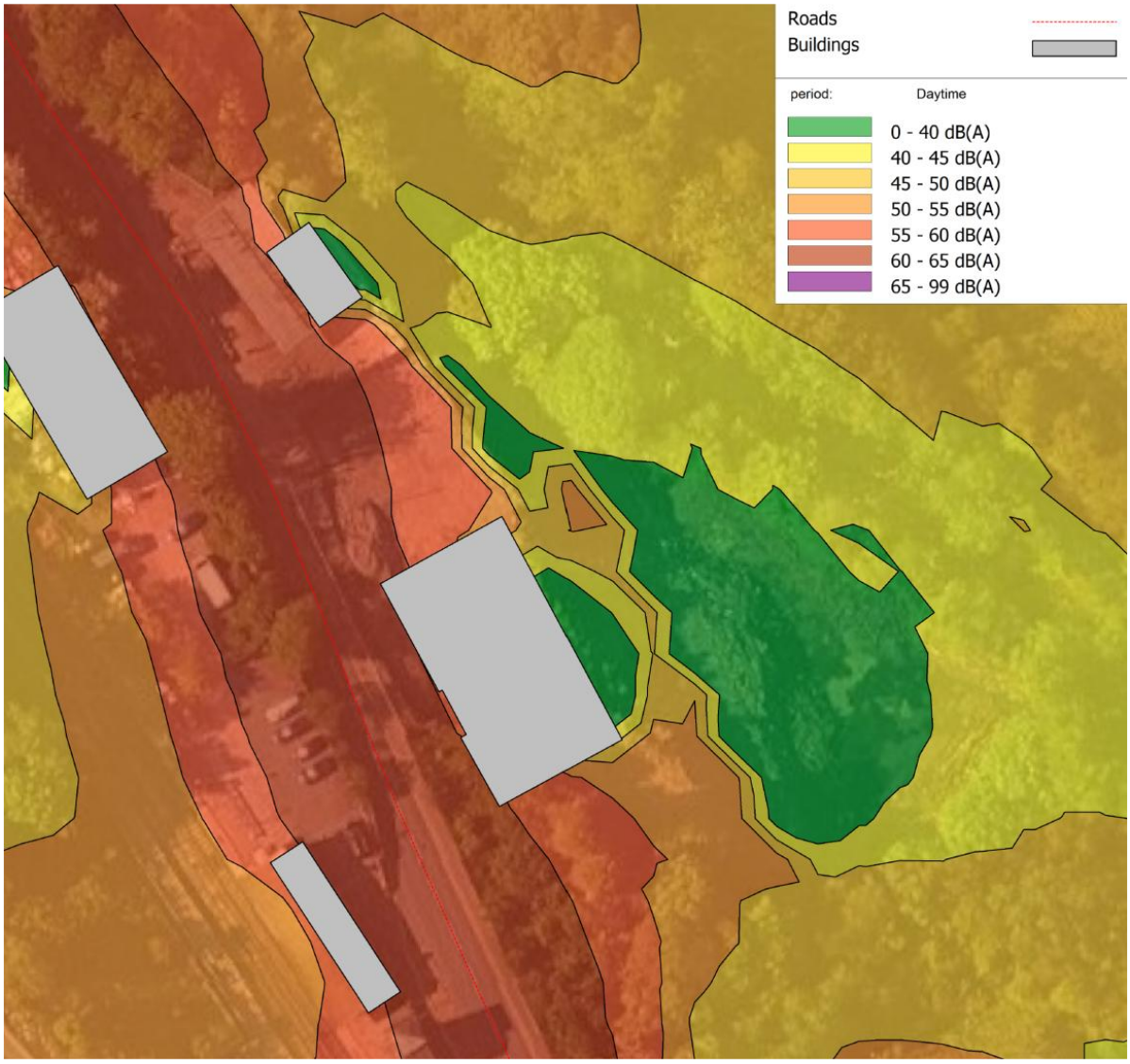


Figure C.5 – Daytime Noise Map (Developed Site) $L_{Aeq,16hr}$ Contours at 7.5m Height

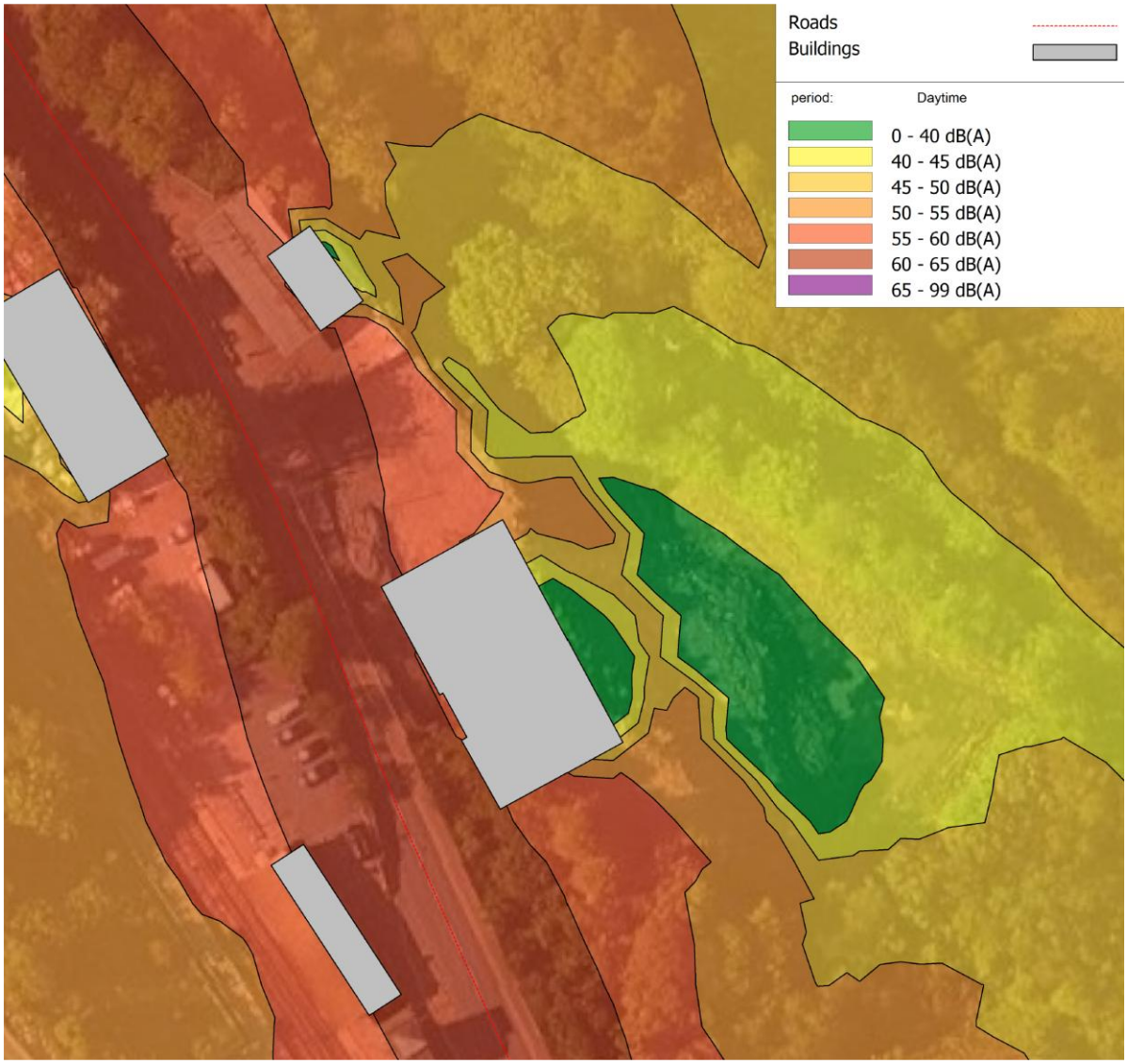


Figure C.6 – Daytime Noise Map (Developed Site) $L_{Aeq,16hr}$ Contours at 10.5m Height

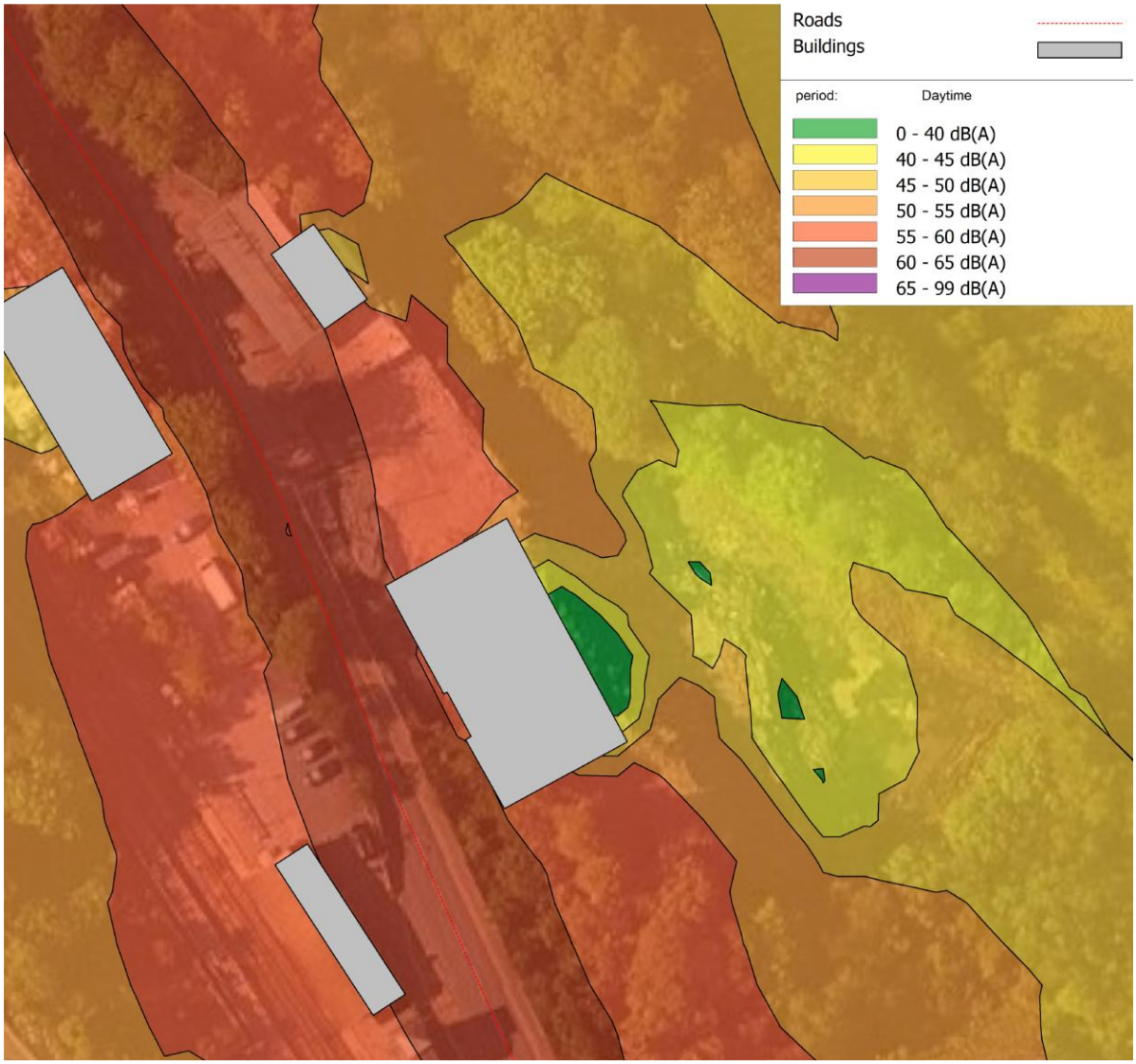


Figure C.7 – Night-time Noise Map (Developed Site) $L_{Aeq,8hr}$ Contours at 1.5m Height

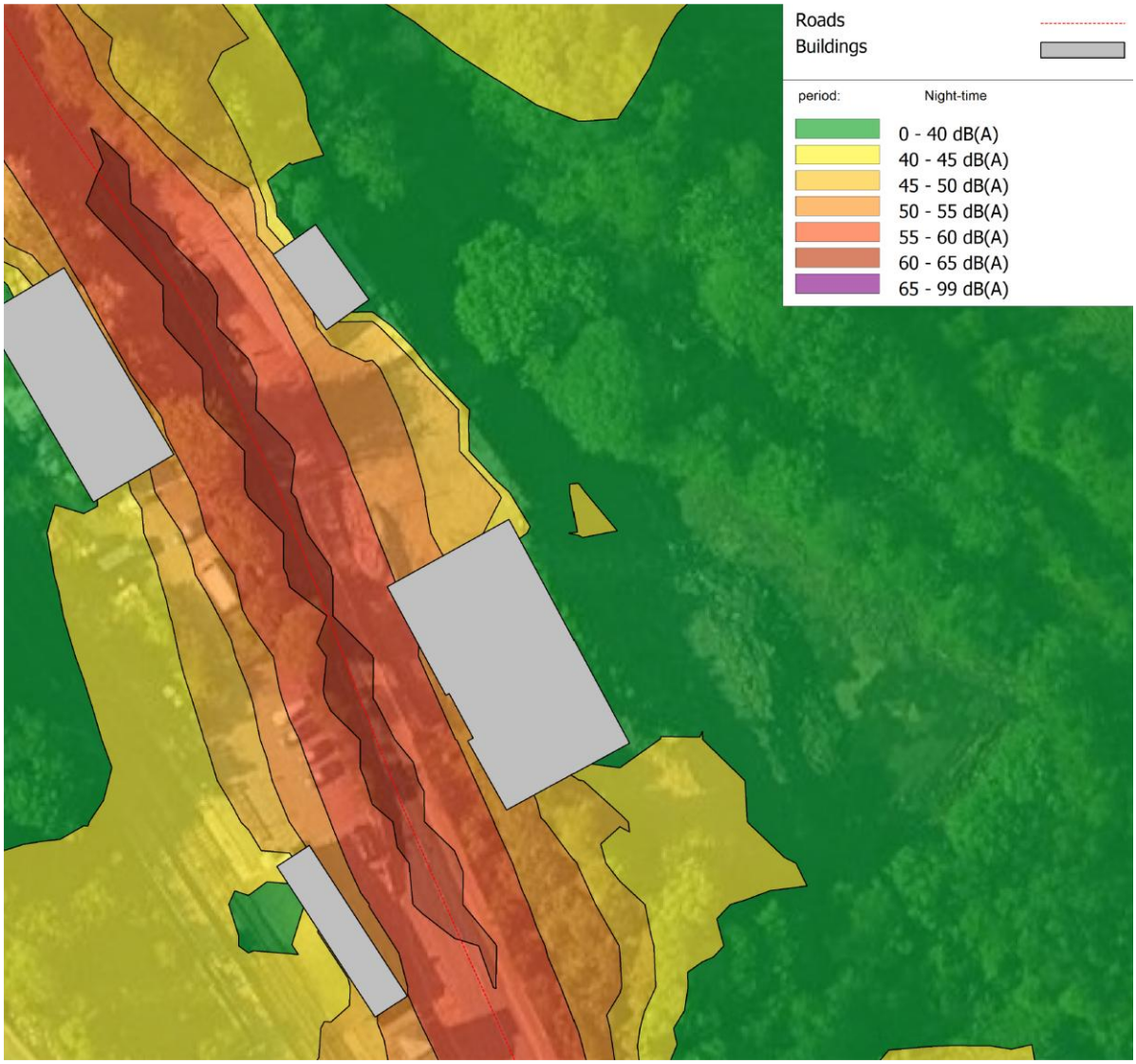


Figure C.8 – Night-time Noise Map (Developed Site) $L_{Aeq,8hr}$ Contours at 4.5m Height

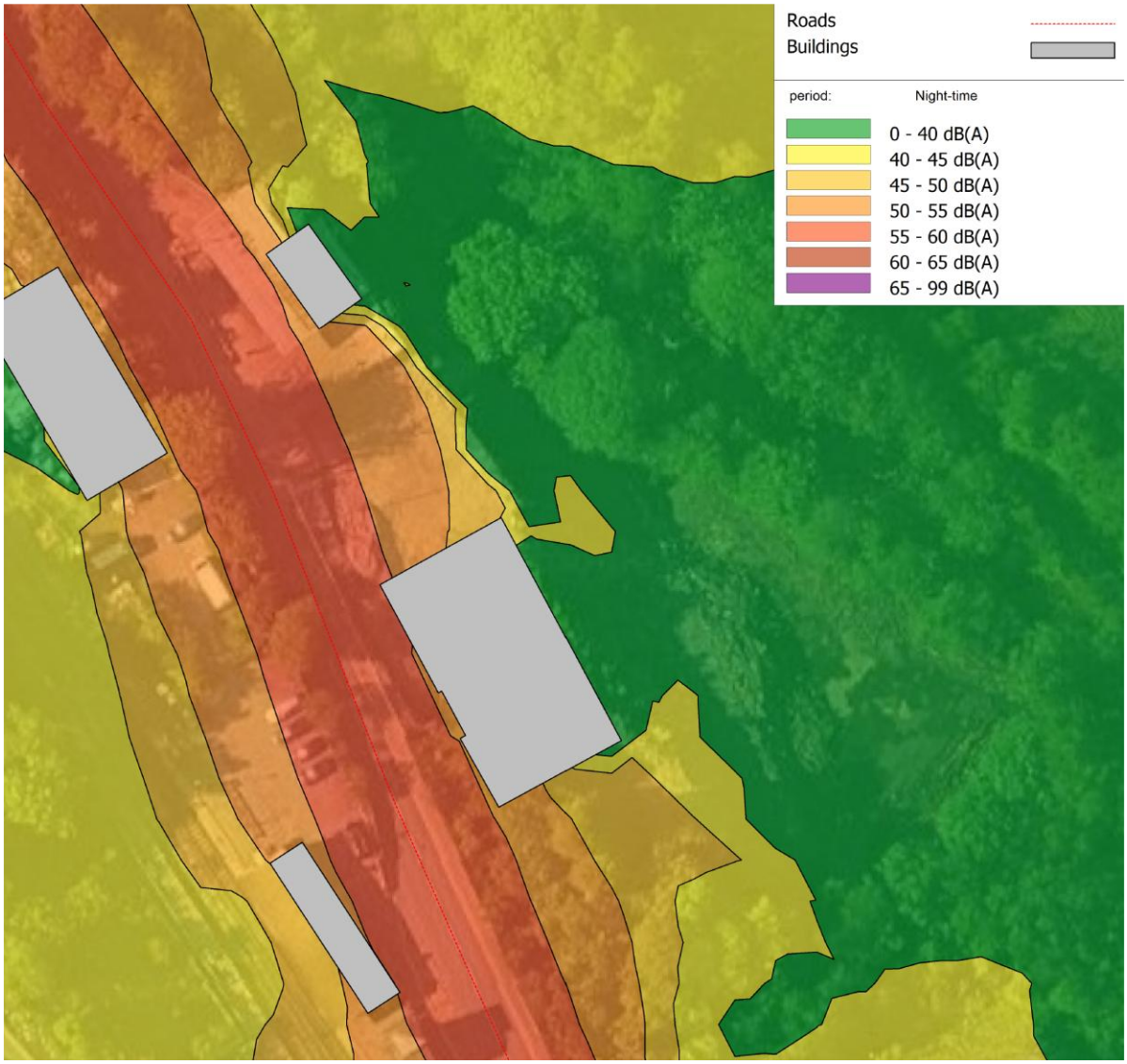


Figure C.9 – Night-time Noise Map (Developed Site) $L_{Aeq,8hr}$ Contours at 7.5m Height

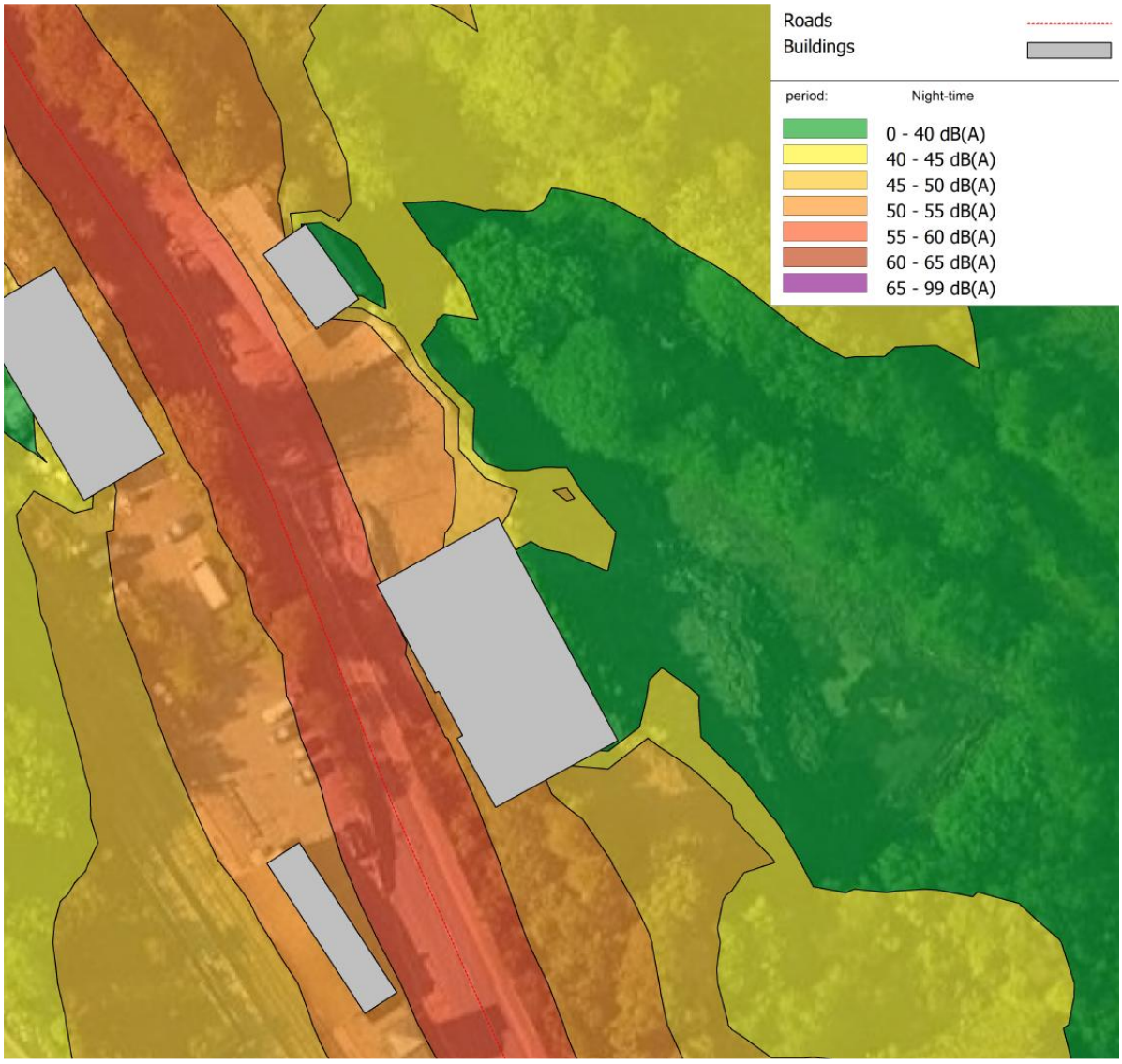
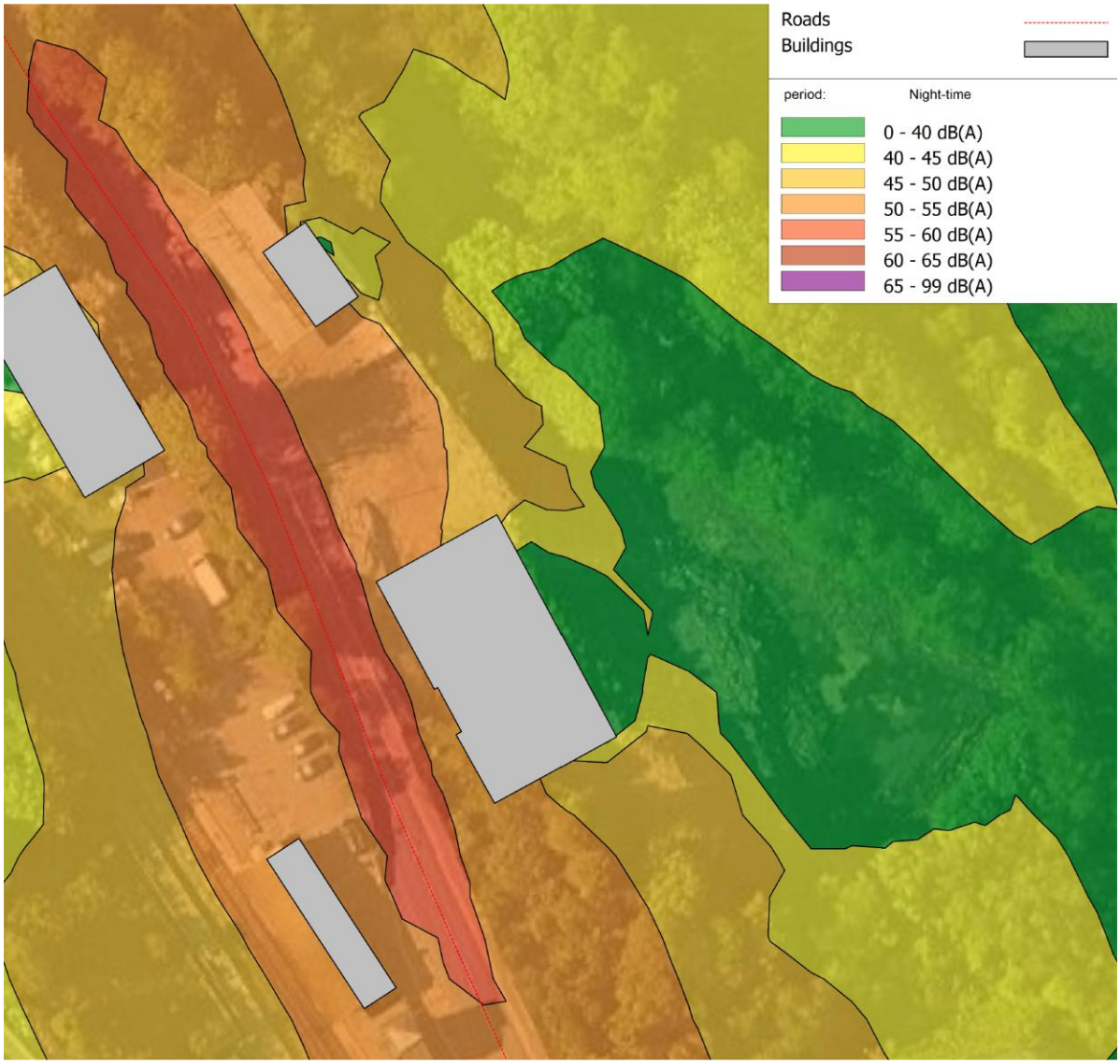


Figure C.10 – Night-time Noise Map (Developed Site) $L_{Aeq,8hr}$ Contours at 10.5m Height



APPENDIX D - DRAWING LISTS

The following C2J Architects drawings and documents have been used in our assessment;

Table D.1 – Drawing List

Drawing Title	Drawing Number	Rev	Date
Existing Site Plan	AL(90)02	-	March 2026
Proposed Site Plan	AL(90)10	-	March 2026
Proposed Ground Floor Plans	AL(0)01	A	March 2026
Proposed First and Second Floor Plans	AL(0)02	A	March 2026
Proposed Third Floor and Roof Plans	AL(0)03	A	March 2026
Proposed Sections AA and BB	AL(0)10	A	March 2026
Proposed Sections CC and DD	AL(0)11	A	March 2026
Proposed Sections EE and FF	AL(0)12	A	March 2026