

NOISE ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT ON LAND OFF WINDSOR DRIVE, DEVIZES

ROBERT HITCHINS LIMITED

JANUARY 2025

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Revision	Prepared By	Date
1.0	L Jephson BEng (Hons) MIOA	29/1/25

This report has been prepared using all reasonable skill and care within the resources and brief agreed with the client. LF Acoustics Ltd accept no responsibility for matters outside the terms of the brief or for use of this report, wholly or in part, by third parties.

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1. Introduction

LF Acoustics Ltd have been appointed to undertake an assessment of the noise levels within a proposed residential development to be located on land off Windsor Drive, Devizes.

The Application Site is located on land to the east of Windsor Drive. Noise levels within the site are noted to be principally influenced by road traffic travelling along the road.

Noise monitoring has been carried out to establish current levels of noise along the site boundaries. The results of the noise modelling have been used to calculate the noise levels within the development, based upon the illustrative site layout.

An assessment of the noise levels has been made to identify any potential constraints and outline noise mitigation requirements to ensure a satisfactory noise environment would be achieved.

2. Applicable Standards and Guidance

A description of the noise and vibration units referred to within this report is provided in Appendix A.

2.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF), revised in December 2024 [1], sets out the Government's planning policies for England and how these should be applied. It provides a framework upon which locally prepared plans for housing and other development can be produced.

The purpose of the planning system is to contribute to the achievement of sustainable development and at the heart of the Framework is a presumption in favour of sustainable development.

Planning policies and decisions should ensure that developments:

- f) *create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.*

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- e) *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment. In doing so they should: mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life.

Reference is made within the NPPF to the Noise Policy Statement for England [2] (NPSE), which sets out the long term vision of the Government noise policy. Further information has been provided on the assessment of noise within recent Planning Practice Guidance, updated in July 2019 and available on the Government planning web site. Whilst this guidance does not provide any objective criteria upon which to base noise assessments, the guidance provides a description of the relevant Effects Levels identified within the NPPF and NPSE and this is reproduced in Table 2.1.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect (NOEL)	No specific measures required
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level (LOAEL)	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level (SOAEL)	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 2.1 Significance Criteria

The NPPF advises that development should seek to ensure that noise from proposed developments does not give rise to significant impacts, i.e. a level identified as a Significant Observed Adverse Effect (SOAEL), which is at a level where the noise would cause a material change in behaviour.

The National Planning Policy for Waste was published in October 2014 [3]. The Policy requires local planning authorities to consider potential impacts of proposed waste facilities, to include noise and advises that intermittent and sustained working may be a problem if not properly managed.

2.2. British Standard BS 8233

British Standard BS 8233 [3] recommends design aims for noise levels to be achieved in new buildings and is the most appropriate guidance in defining applicable noise levels within the proposed development. The Standard was updated in 2014 to better reflect the requirements of the NPPF in terms of impact classifications and achieving the recommended guidance values,

seeks to ensure that the occupants would not be subject to any significant adverse impacts, to ensure compliance with the requirements of the NPPF.

For residential properties, the guidance recommends the following design aims for the daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods:

- 35 dB $L_{Aeq,T}$ within living rooms and bedrooms during the daytime period;
- 40 dB $L_{Aeq,T}$ within dining areas / rooms during the daytime period;
- 30 dB $L_{Aeq,T}$ within bedrooms at night; and
- 50 – 55 dB $L_{Aeq,T}$ within gardens and patios during the daytime.

With regards internal noise levels, the Standard advises:

“Where development is considered necessary or desirable, external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”

Where the above limits require windows to be closed to maintain the standard of noise, there needs to be appropriate alternative ventilation provided that does not compromise the façade insulation or resulting noise level.

For outdoor amenity spaces, it is recognised in the Standard that these guideline values may not be achievable in all circumstances. Where development might be desirable, 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 can be met, the development should be designed to achieve the lowest practicable levels but should not be prohibited. Given that there is a need for the development, it is considered in this situation, that this relaxation could be applied, providing the lowest practicable levels have been achieved.

2.3. World Health Organisation Guidelines

The World Health Organisation guidance [4] provides additional guidance upon potential effects in relation to noise.

The guidance advises that few people are moderately annoyed by external noise levels of below 50 dB L_{Aeq} during the daytime.

2.4. ProPG: Planning and Noise

Professional planning guidance on planning and noise was published in May 2017 [5]. The guidance seeks to provide a recommended approach to the management of noise within the planning system in England. The guidance has been prepared jointly between the Association of Noise Consultants, The Institute of Acoustics and the Chartered Institute of Environmental Health with the aim of providing a coherent approach to achieving the requirements of the NPPF.

At present, the guidance principally relates developments where noise is principally influenced by transportation sources, although it does include consideration of commercial where it is audible but not the dominant noise source.

The guidance advocates a systematic, proportionate, risk based, 2-stage approach, encouraging early consideration of noise within the design process for new residential developments:

- Stage 1 provides an initial noise risk assessment of the development site;

- Stage 2 provides systematic consideration of four key elements: demonstrating a good acoustic design process; observing internal noise level guidelines; undertaking an external amenity area noise assessment; and consideration of other relevant issues.

The initial risk assessment should identify the risk of adverse effects from noise and identifying whether the site poses a negligible, low, medium or high risk. The level of risk does not determine whether a site may be unsuitable for development but highlights an increasing requirement for noise to be considered within the design of the development and the likelihood of a need for specific noise mitigation measures.

For a Stage 2 assessment, which would be prepared at a later stage, the guidance additionally refers to BS 8233 with respect of achieving an acceptable internal noise environment and within gardens.

Internally, the guidance recommends that the targets within BS 8233 are adopted as an aim. Expanding upon the guidance within BS 8233, for internal noise environments it is stated:

“Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as “unreasonable”. Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as “unacceptable” by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing “unacceptable” noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form.”

Within external amenity areas, the guidance reflects BS 8233, as follows:

“These guideline values (i.e. a level of between 50 – 55 dB L_{Aeq}) may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces but should not be prohibited.”

2.5. Approved Document O

Approved Document O of the Building Regulations came into force during June 2022. The document provides the requirements within dwellings to minimise the potential solar gains and to provide adequate means to remove heat from the indoor environment.

Whilst the requirements of ADO have not been considered in detail at this stage, reference has been made to identify areas where the requirement for additional assisted ventilation may be required.

ADO requires excess heat to be removed by the following means:

- Opening windows;
- Ventilation louvres in external walls;
- A mechanical ventilation system; and
- A mechanical cooling system.

The building should be designed to remove excessive heat by passive means as far as reasonably practical.

With regards to noise, ADO requires the following:

In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

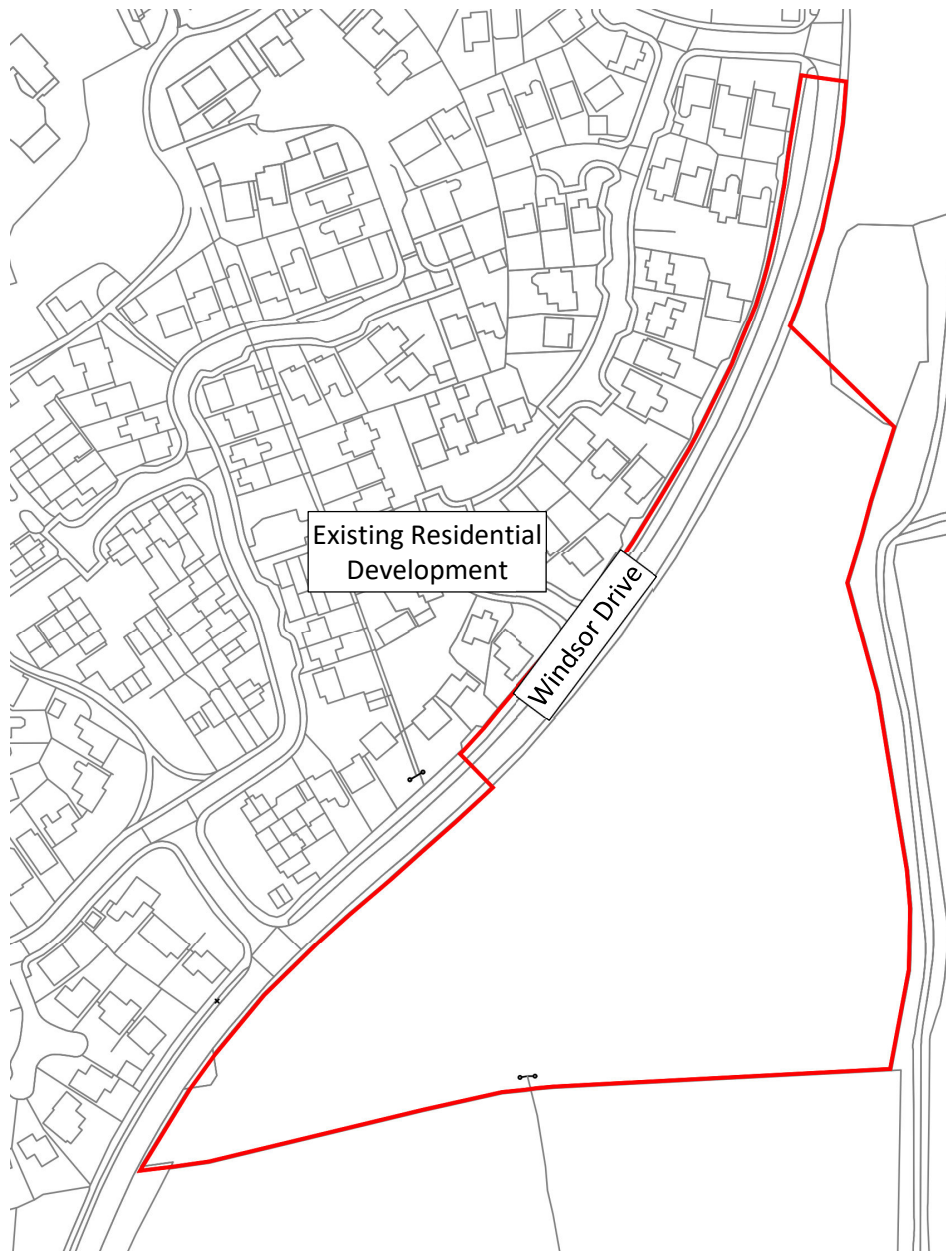
- 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).
- 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).

Assuming a partially open windows typically provides around 15 dB(A) reduction between outside and in, windows would be likely to be considered closed when the following equivalent external noise levels are exceeded:

- 55dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).
- 70dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).

3. Site Description

The site lies to the east of Windsor Drive, Devizes. The site location is indicated below.



Windsor Drive runs along the western boundary of the site. Traffic along this road was noted to be frequent with regular traffic throughout the day. Traffic using this road was noted to be the main source of noise within the application site.

As indicated above, there are existing residential developments on the land to the west of Windsor Drive.

4. Noise Monitoring

In order to establish the current noise environment within the site, noise surveys were carried out between Tuesday 5 and Friday 8 November 2024.

Unattended noise surveys were used to determine the day and night-time noise environment at two positions along the western site boundaries. The monitoring positions were selected to be representative of the distance from the road as the proposed dwellings.

Weather conditions for the survey were acceptable for environmental noise monitoring, remaining generally dry, with winds remaining below 5 m/s.

4.1. Unattended Noise Surveys

Unattended noise surveys have been carried out at two positions along the western and northern site boundaries. The monitoring positions are indicated on Figure 1.

Rion NL-52 Class 1 Sound Level Meters were used for the survey, which were calibrated before and after the exercise using a Rion NC-74 Class 1 Acoustic Calibrator, with the instruments reading 94.0 dB on each occasion. All the instrumentation used had been laboratory calibrated within the previous 12/24 months in accordance with national standards. Details of the instrumentation used, and most recent calibration dates are provided below (the copies of the calibration certificates can be provided upon request).

Position	Instrument	Serial No.	Calibration Date	Laboratory / Certificate No.
1 – North-Western Site Boundary (approx. 13m from Windsor Drive)	Rion NL-52 Class 1 SLM	00921231	11/4/24	AcSoft – 1508401-1
2 – South-Western Site Boundary (Approx. 15m from Windsor Drive)	Rion NL-52 Class 1 SLM	00987349	15/3/23	AcSoft – 1504856-1
All	Rion NC-74 Class 1 Acoustic Calibrator	35125830	5/9/24	AcSoft – 1509697-1

Table 4.1 Instrumentation Details

At each position, the microphone was set free-field and at a height of 1.4 metres from the ground. The microphones were fitted with a Rion WS-15 outdoor microphone protection, to ensure Class 1 performance was maintained under a wide range of weather conditions.

The instruments were configured to record over contiguous 5-minute periods throughout the survey period, which allowed a comparison to be made with the sample measurement results. The measured data has been summarised into hourly periods for reporting purposes, using the Rion AS-60 Data Management Software, and to enable the period day and night-time levels to be determined.

The results of the survey are presented in Appendices B and C.

4.1.1. Results of Noise Monitoring Along North-Western Windsor Drive Boundary

The monitoring equipment at this location was positioned approximately 13 metres from the kerb of Windsor Drive.

Traffic travelling along Windsor Drive was observed to be the principal source of noise at this location.

The results of the noise survey at this location have been analysed to provide the day and night-time noise levels, as follows.

Period	Period $L_{Aeq,T}$ Noise Levels [dB]	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Tuesday 5/11/24	63.8*	55.9
Wednesday 6/11/24	62.8	55.5
Thursday 7/11/24	62.7	55.5
Average	63	56

Note: * Period comprised 11:00 – 23:00 hours Tuesday and 07:00 – 12:00 hours Friday

Table 4.1 Period L_{Aeq} Noise Levels Evaluated from Unattended Noise Survey Along North-Western Windsor Drive Boundary

Maximum noise levels monitored during the daytime periods were typically 75 dB $L_{Amax,F}$ associated with the heavier vehicles using the road and were noted to fall to the order of 70 dB $L_{Amax,F}$ or lower overnight, when traffic was lighter.

4.1.2. Results of Noise Monitoring South-Western Windsor Drive Boundary

The monitoring equipment at this location was positioned approximately 15 metres from the kerb of Windsor Drive.

Traffic travelling along Windsor Drive was observed to be the principal source of noise at this location.

The results of the noise survey at this location have been analysed to provide the day and night-time noise levels, as follows.

Period	Period $L_{Aeq,T}$ Noise Levels [dB]	
	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Tuesday 5/11/24	59.7*	52.5
Wednesday 6/11/24	59.7	52.6
Thursday 7/11/24	59.8	52.8
Average	60	53

Note: * Period comprised 12:00 – 23:00 hours Tuesday and 07:00 – 12:00 hours Friday

Table 4.2 Period L_{Aeq} Noise Levels Evaluated from Unattended Noise Survey Along South-Western Windsor Drive Boundary

Maximum noise levels monitored at this location during the daytime periods were typically 70-75 dB $L_{Amax,F}$ and were noted to fall to around 70 dB $L_{Amax,F}$ typically overnight.

5. Preliminary Assessment of Noise Environment

Noise levels along the boundary with Windsor Drive were noted to be relatively high during the day, as there was regular traffic passing along the road, which is subject to a 40 mph limit. Based upon the measured ambient (L_{Aeq}) noise levels at this location, a preliminary assessment in accordance with the ProPG guidance indicates that the area of the site closest to Windsor Drive would be subject to a medium risk of exposure from noise during the day and night-time periods.

A good acoustic design process will need to be followed during the detailed design stage, as part of a reserved matters application, to ensure that adverse effects of noise would be mitigated and minimised, and that it can be demonstrated that a significant adverse noise impact would be avoided to ensure that the requirements of the NPPF could be achieved.

In this regard, the development would need to be designed to meet the requirements of BS 8233, ProPG and any specific local guidance, with the following limits recommended to avoid significant effects:

- 35 dB $L_{Aeq, 16 \text{ hour}}$ within habitable rooms during the daytime period, assuming windows closed and alternative means of background ventilation provided;
- 30 dB $L_{Aeq, 8 \text{ hour}}$ night-time within bedrooms, assuming windows closed and alternative means of background ventilation provided;
- Seek to ensure maximum noise levels within bedrooms do not exceed a level of 45 dB $L_{Amax,F}$ more than 10 times a night, with windows closed and alternative means of background ventilation provided;
- Aim to achieve a level of 55 dB $L_{Aeq, 16 \text{ hour}}$ within gardens through appropriate designs.

Initial recommendations for appropriate mitigation are discussed in the following section.

6. Assessment of Noise Levels Based Upon Illustrative Masterplan

An assessment of the noise levels within the Proposed Development has been prepared on the basis of the illustrative layout indicated on Figure 2.

For the purposes of the present assessment, it has been assumed that all properties would be 2storeys in height. Where indicated on the layout drawing, close-boarded garden fences / walls to a height of 1.8 metres have been assumed as standard with the development.

6.1. Calculation of Noise Levels

To demonstrate that an acceptable noise environment could be achieved within the proposed development with appropriate noise mitigation measures adopted, an assessment of the noise levels has been made based upon the illustrative layout which has accompanied the outline planning application.

Noise levels within the development have been calculated using the SoundPlan computer modelling package.

The noise model utilises the calculation methodology within a Calculation of Road Traffic Noise (CRTN) [6] for the surrounding roads. The calculation of the period daytime and night-time L_{Aeq} noise levels has utilised the Defra / TRL methodology [7], which provides a methodology for converting the calculated CRTN L_{A10} noise levels into the equivalent $L_{Aeq, 16 \text{ hour}}$ day and $L_{Aeq, 8 \text{ hour}}$ night-time noise levels.

An initial noise model was prepared, based upon the current open site. This model was used to calibrate the calculated road traffic noise levels against the results obtained from the noise monitoring exercise. The results of the initial noise modelling based on the open site are indicated on Figures 3 and 4 for the day and night-time periods.

A second noise model was prepared, taking account of the illustrative layout. The results of the noise modelling for this scenario are presented on Figures 5 and 6.

The noise modelling indicated the following day and night-time $L_{Aeq,T}$ noise levels at the façades of the properties closest to Windsor Drive:

- Properties Orientated Perpendicular and closest to the road - 66 – 67 dB $L_{Aeq, 16 \text{ hr}}$ daytime / 57 – 58 dB $L_{Aeq, 8 \text{ hr}}$ night-time; and
- Properties in southern area of development set further back from road – 58 – 60 dB $L_{Aeq, 16 \text{ hr}}$ daytime / 52 – 54 dB $L_{Aeq, 8 \text{ hr}}$ night-time.

6.2. Assessment of Noise Levels

The illustrative layout indicates properties closest to the road would be constructed perpendicular to the road. Orientating the properties in this manner restricts the line of sight onto the road, reducing the noise levels at the main façades by 3 dB(A).

Other dwellings within the development would be set back from the road, and generally orientated to front towards the road, with the gardens to these properties to the rear.

The modelling indicates that the dwellings set back from the road would experience acceptable levels of noise, with noise levels achieving the requirements of BS 8233 with standard constructions.

Indicative calculations within those properties, based upon standard building constructions, the provision of typical thermal double glazing, and window vents with an indirect air path, indicate internal noise levels of up to 29 dB daytime / 23 dB $L_{Aeq, 8 \text{ hr}}$ night-time, with maximum noise levels within the bedrooms overnight typically below 40 dB $L_{Amax,F}$. No specific noise mitigation measures would be required for these dwellings.

Noise levels at the façades of the properties closest the road would be higher, and mitigation will be required to ensure the requirements of BS 8233 are achieved internally.

Mitigation will be required to ensure noise levels within the properties achieve the requirements of BS 8233. Whilst orientation of the properties will reduce this stipulation slightly, a requirement for a high specification glazing and appropriate ventilation will still be necessary.

With regards glazing, for properties closest to the road, a reduction of up to 32 dB(A) will be required between outside and in to ensure the requirements of BS 8233 were achieved with windows closed. This level of reduction will require consideration of glazing such as SGG 8/15/10.8 Stadip Silence, which provides a sound reduction of 39 dB R_{W-5Ctr} , or a triple-glazed solution which would provide an equivalent or higher performance. For windows where higher specification glazing is used, acoustically treated vents (e.g. Titon SF V50 / SF418) would be necessary to maintain the overall acoustic performance of the façades.

Indicative calculations of the internal noise levels within the properties, based upon the highest predicted noise levels, have been made utilising this mitigation strategy. The calculations are provided in Appendix D. The calculations indicate internal noise levels of up to 30 dB $L_{Aeq, 16 \text{ hr}}$ daytime / 22 dB $L_{Aeq, 8 \text{ hr}}$ night-time, with maximum noise levels within the bedrooms overnight typically below 40 dB $L_{Amax,F}$. This level of mitigation within the façades of the properties closest to the road would ensure the requirements of BS 8233 were achieved internally.

It would not be possible to achieve satisfactory living conditions internally with windows open within habitable rooms of the closest properties which face onto the road. Consideration would need to be given to providing ventilation from the quiet façades of the properties (which may be possible within the ground floor between the kitchen and living rooms), alternative assisted ventilation, or MVHR systems for properties constructed alongside the road. Adopting such a system would also ensure that the requirements of Approved Document O could be met.

The illustrative layout indicates that the plots which are perpendicular to the road would have gardens alongside the road. For these properties, the provision of standard 1.8-metre-high close-boarded fences / walls would not be sufficient to reduce noise levels within the gardens to below the recommended level of 55 dB $L_{Aeq,T}$. For the properties closest to the road, consideration would need to be given to increasing the height of the fences / walls to 2.1 metres. The increased height would provide further noise mitigation from the road traffic. The additional mitigation was included within the noise modelling, which indicates that the noise levels within majority of those gardens would be below the recommended upper limit of 55 dB $L_{Aeq,T}$ specified in BS8233, allowing the seating / patio areas, which are considered to be the most sensitive, to be positioned in the quieter areas of the gardens. The modelling indicates the areas closest to the road would, however, remain marginally above this value. The height specified seeks to achieve a balance between noise and other aspects, principally visual, with a higher fence unlikely to be acceptable and potentially resulting in a loss of light within the gardens. On this basis the lowest practicable levels have been achieved, thus complying with the requirements of BS 8233.

With appropriate mitigation and design for the dwellings along Windsor Drive, a satisfactory noise environment would be achievable.

7. Summary

LF Acoustics Ltd have been appointed to undertake an assessment of the noise levels within a proposed residential development to be located on land off Windsor Drive, Devizes.

The Application Site is located on land to the east of Windsor Drive. Noise levels within the site are noted to be principally influenced by road traffic travelling along the road.

Noise monitoring has been carried out to establish the noise levels within the site attributable to the traffic passing along the road.

Noise levels within the site were noted to be relatively high, along the western, Windsor Drive boundary. A preliminary assessment of the noise levels along this boundary indicated a medium to high risk from noise, when assessed against the ProPG guidance.

At this stage, the assessment has been based upon the illustrative layout to demonstrate that, in principle, the site is suitable for residential development. A further noise assessment would be prepared to support a reserved matters application, which would consider the final layout for the development.

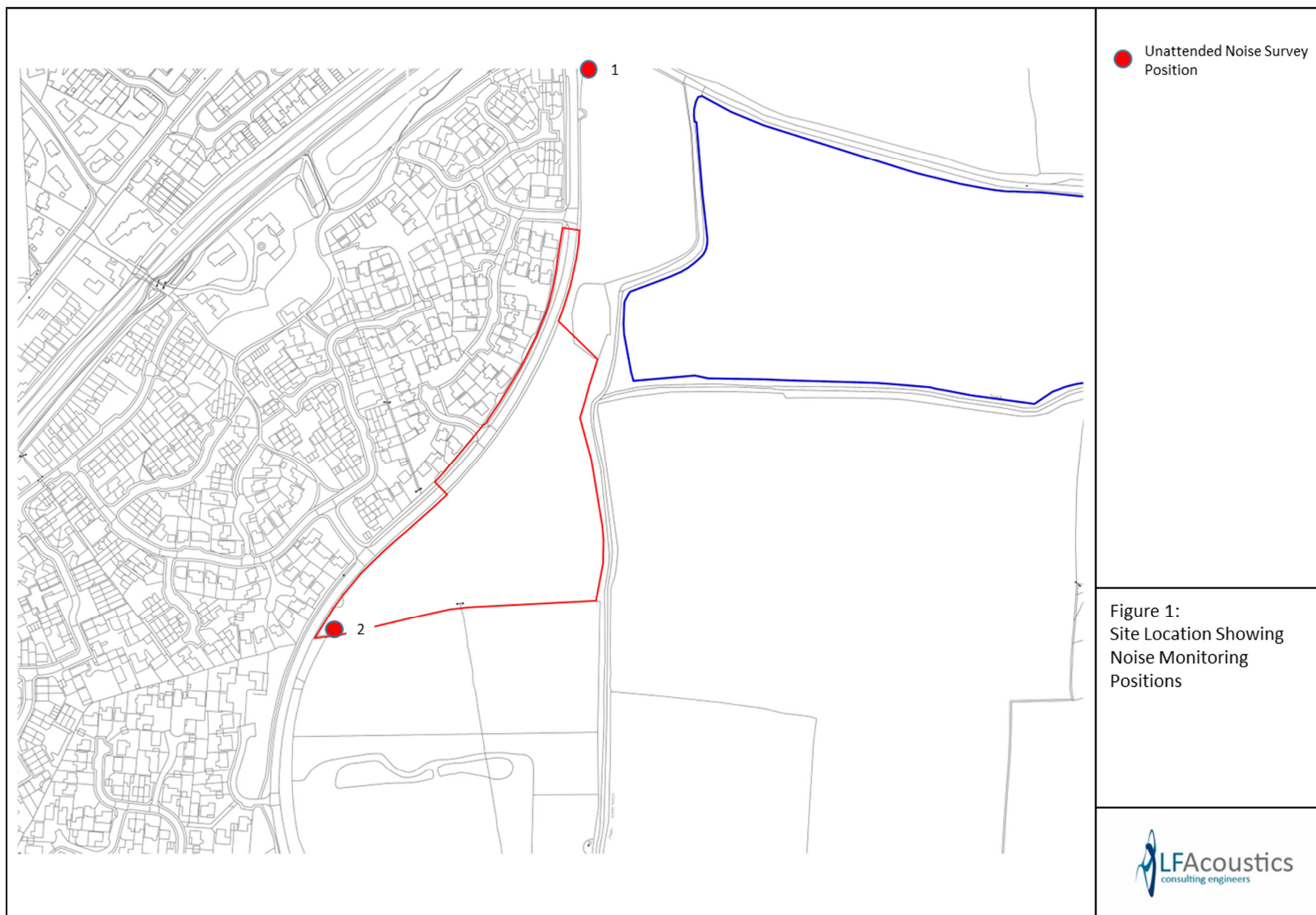
Care will need to be taken within the design of the site to ensure an acceptable standard of noise was achieved within the dwellings. The assessment of the noise levels based upon the illustrative layout, indicated the following areas would need to be considered during the detailed design:

- Careful orientation of properties, particularly along the western site boundary closest to Windsor Drive, to ensure a good acoustic design is implemented to minimise noise levels within habitable rooms and gardens of properties;
- Consideration of higher fences / walls around the gardens of properties constructed alongside Windsor Drive. To provide a balanced approach, it has been recommended that the height of the fencing does not exceed 2.1 metres;
- Glazing with a high acoustic specification is likely to be required for façades of dwellings constructed closest to Windsor Drive; and
- Appropriate ventilation is likely to be required for dwellings constructed along the Windsor Drive boundary. Options to be considered include the provision of MVHR in the worst-affected plots and assisted ventilation for bedrooms.

References

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Figures



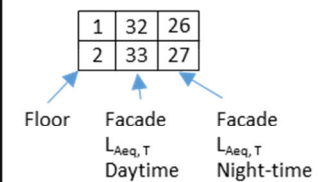
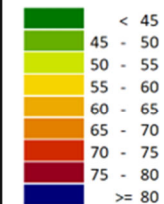


-  RED LINE BOUNDARY
-  PROPOSED VEHICULAR ACCESS INTO THE SITE
-  PROPOSED RESIDENTIAL UP TO 38 UNITS @30DPH
-  MAIN ROAD WITH GREEN VERGE AND STREET TREE PLANTING
-  PRIVATE DRIVEWAY
-  PROPOSED WOODLAND PLANTING
-  EXISTING PROWL
-  PROPOSED PLAY AREA
-  PROPOSED ATTENUATION
-  1 STOREY DWELLINGS

Figure 2:
Illustrative Site Layout



Noise Level LAeq,T
in dB(A)

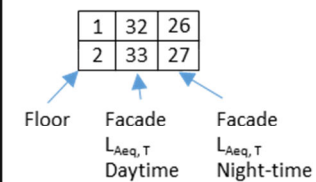
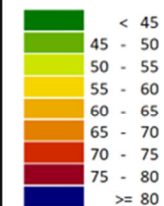


Grid map calculated at 1.5m height

Figure 3:
Calculated Noise Levels –
Open Site, Daytime



Noise Level LAeq,T
in dB(A)



Grid map calculated at 4m height

Figure 4:
Calculated Noise Levels –
Open Site, Night-time





Appendix A

Noise Units

Decibels (dB)

Noise can be considered as ‘unwanted sound’. Sound in air can be considered as the propagation of energy through the air in the form of oscillatory changes in pressure. The size of the pressure changes in acoustic waves is quantified on a logarithmic decibel (dB) scale firstly because the range of audible sound pressures is very great, and secondly because the loudness function of the human auditory system is approximately logarithmic.

The dynamic range of the auditory system is generally taken to be 0 dB to 140 dB. Generally, the addition of noise from two sources producing the same sound pressure level will lead to an increase in sound pressure level of 3 dB. A 3 dB noise change is generally considered to be just noticeable, a 5 dB change is generally considered to be clearly discernible and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness.

A-Weighting

The bandwidth of the frequency response of the ear is usually taken to be from about 18 Hz to 18,000 Hz. The auditory system is not equally sensitive throughout this frequency range. This is taken into account when making acoustic measurements by the use of A-weighting, a filter circuit that has a frequency response similar to the human auditory system. All the measurement results referred to in this report are A-weighted.

Units Used to Describe Time-Varying Noise Sources (L_{Aeq} , L_{Amax} , L_{A10} , and L_{A90})

Instantaneous A-weighted sound pressure level is not generally considered as an adequate indicator of subjective response to noise because levels of noise usually vary with time.

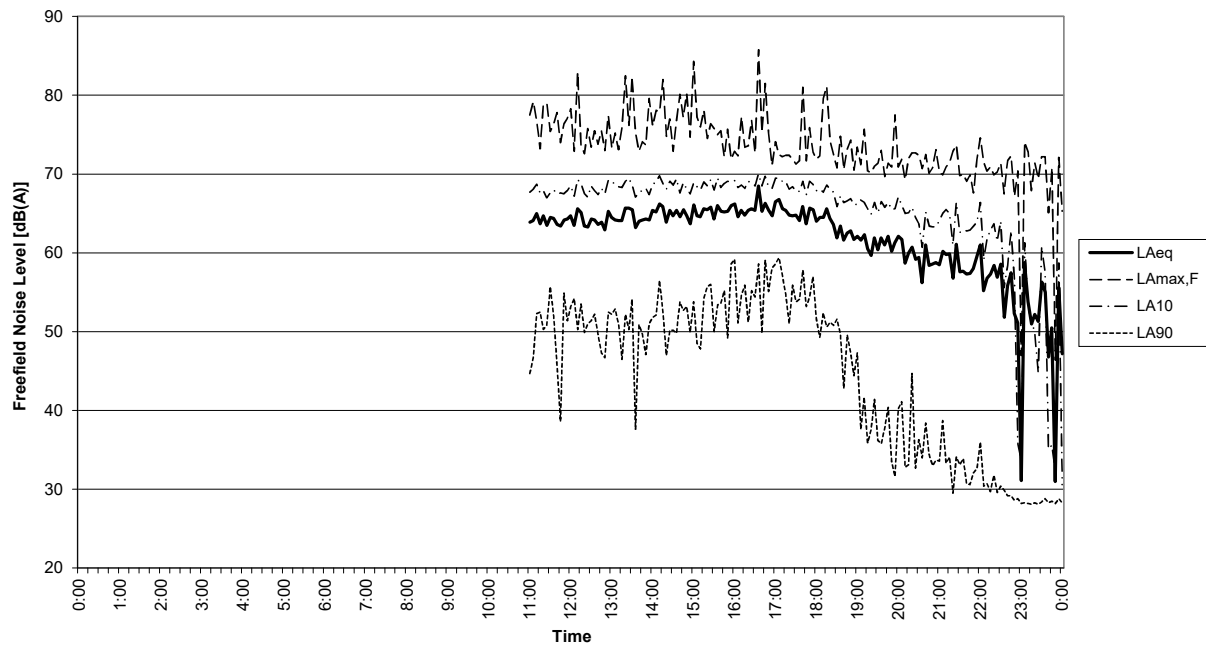
For many types of noise the Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$) is used as the basis of determining community response. The $L_{Aeq,T}$ is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

The L_{Amax} is the maximum value that the A-weighted sound pressure level reaches during a measurement period. $L_{Amax F}$, or Fast, is averaged over 0.125 of a second and $L_{Amax S}$, or Slow, is averaged over 1 second. All L_{Amax} values referred to in this report are Fast.

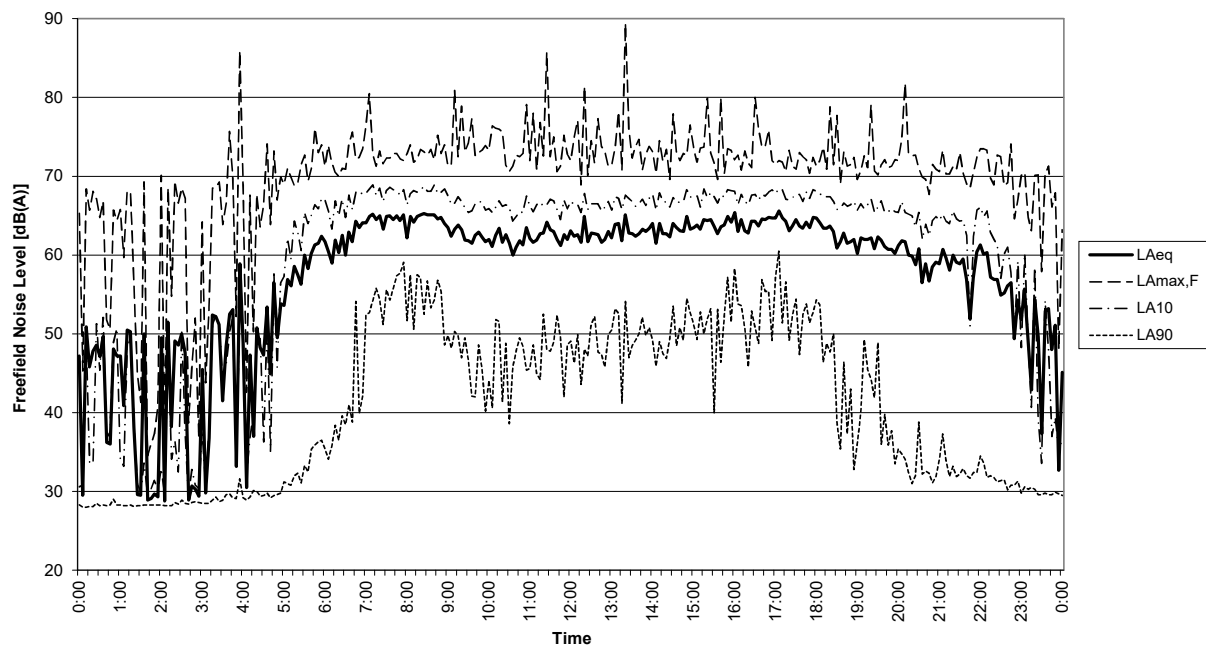
The L_{A90} is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise that is present even during the quieter parts of measurement period.

Appendix B**Results of Unattended Noise Survey****Position 1 – North Western Site Boundary (approx. 13m from Windsor Drive)**

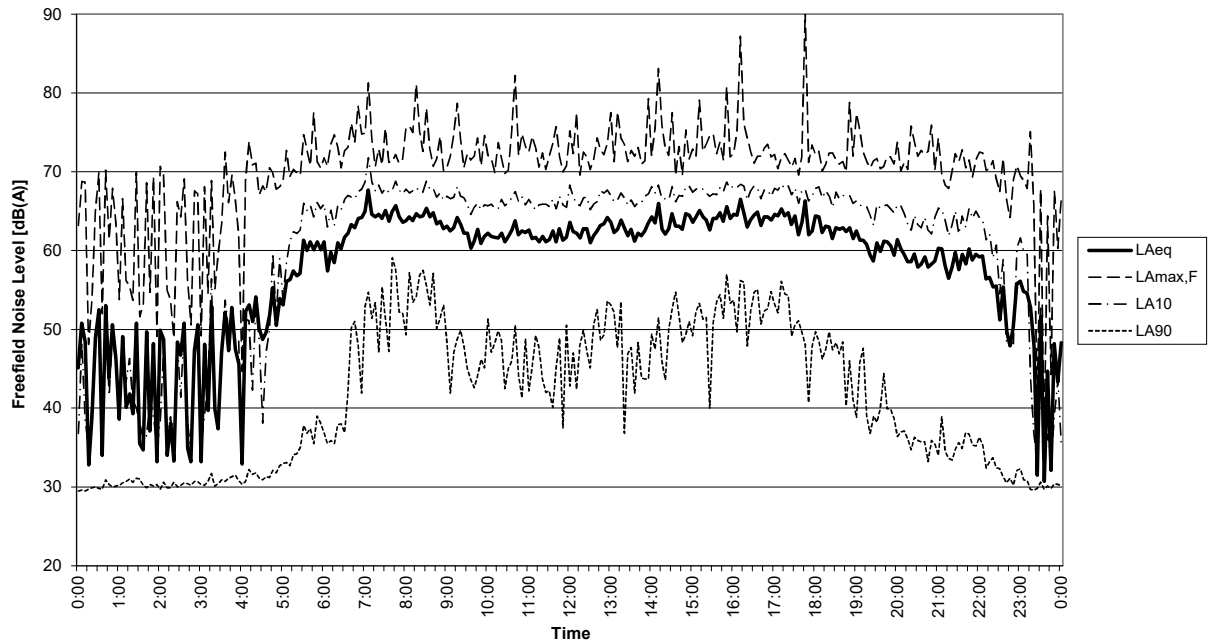
Tuesday 5/11/24



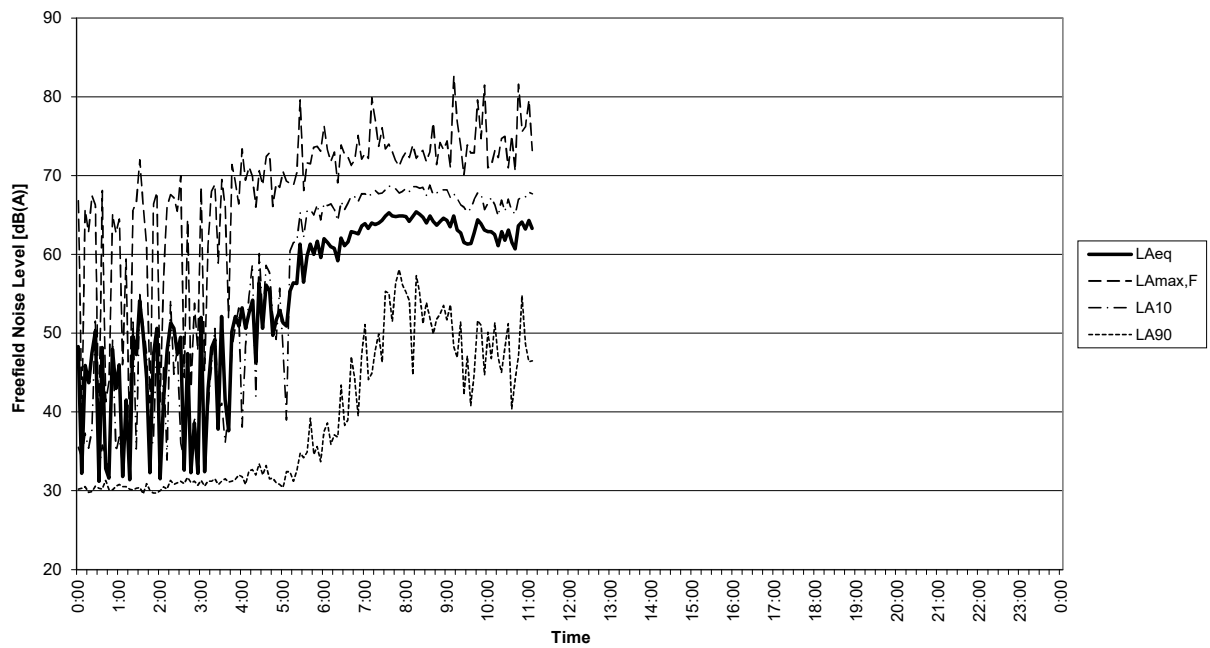
Wednesday 6/11/24



Thursday 7/11/24



Friday 8/11/24

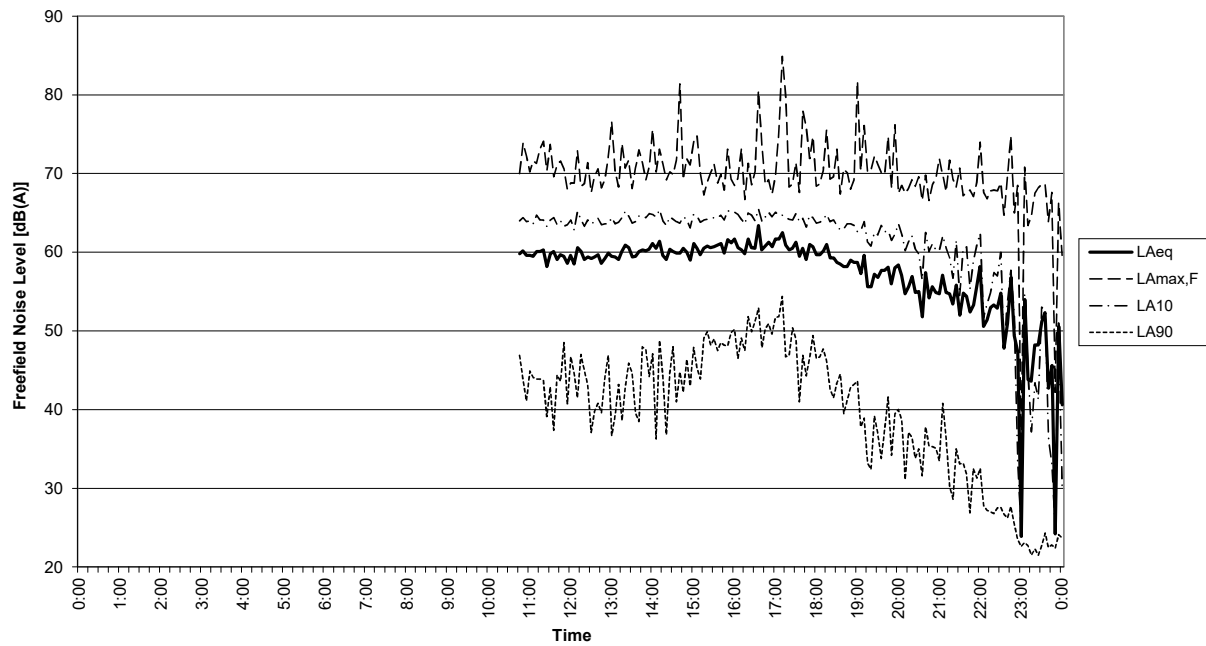


Appendix C

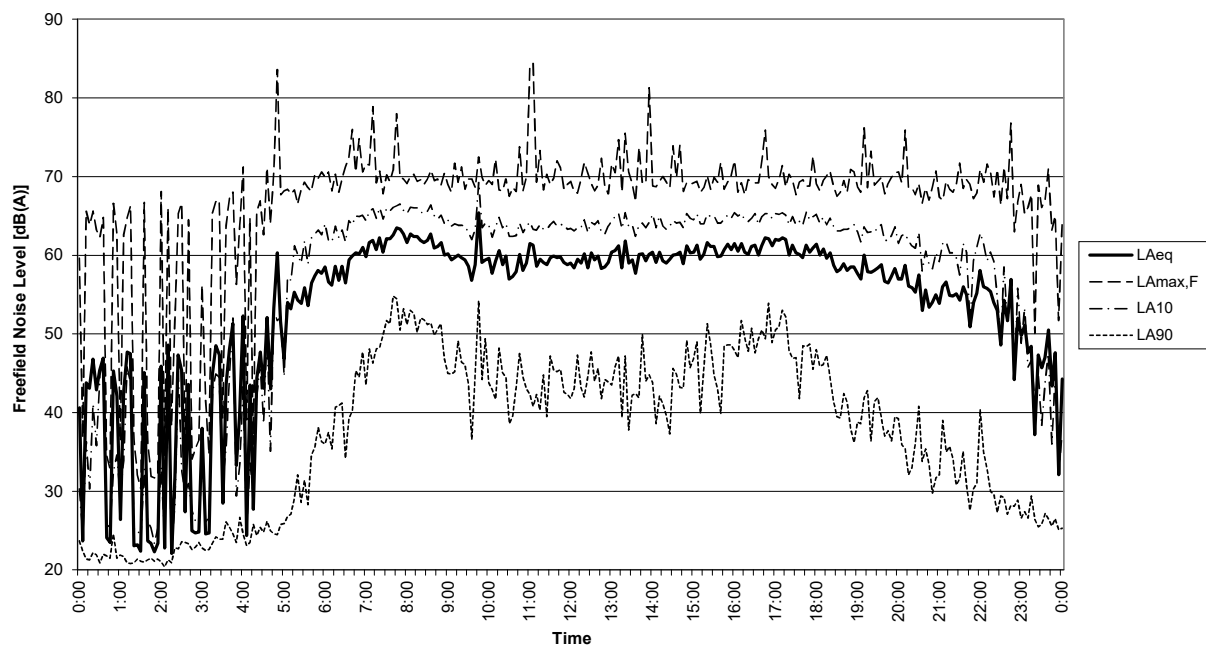
Results of Unattended Noise Survey

Position 2 – South Western Site Boundary (approx. 15m from Windsor Drive)

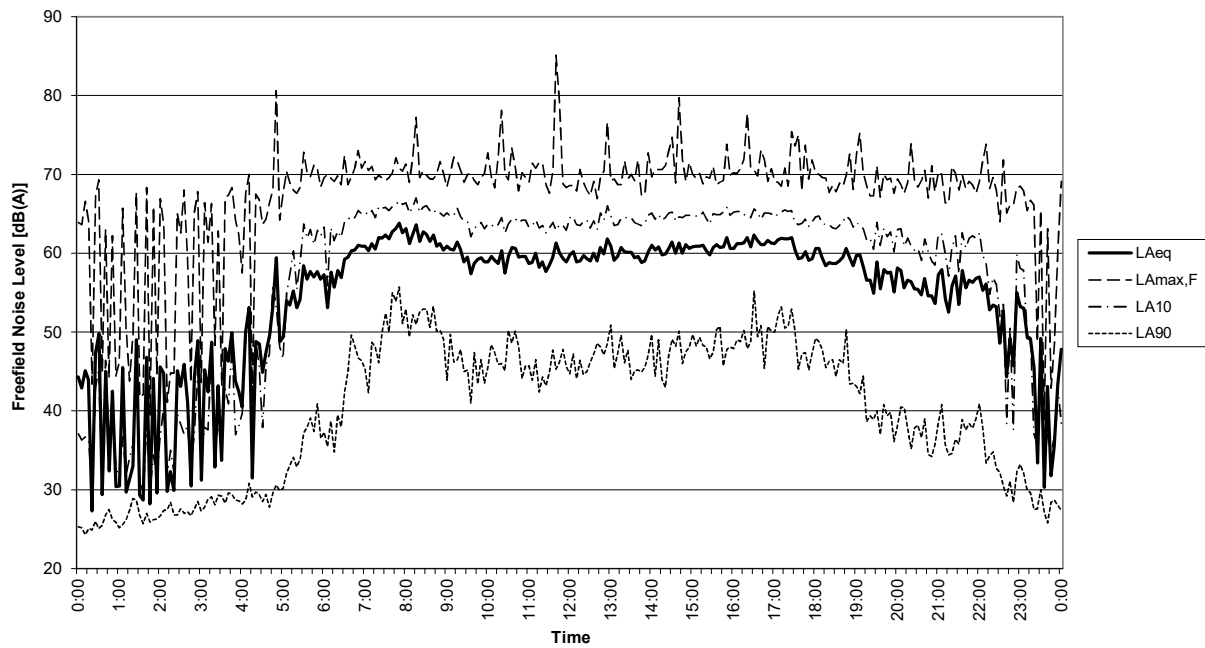
Tuesday 5/11/24



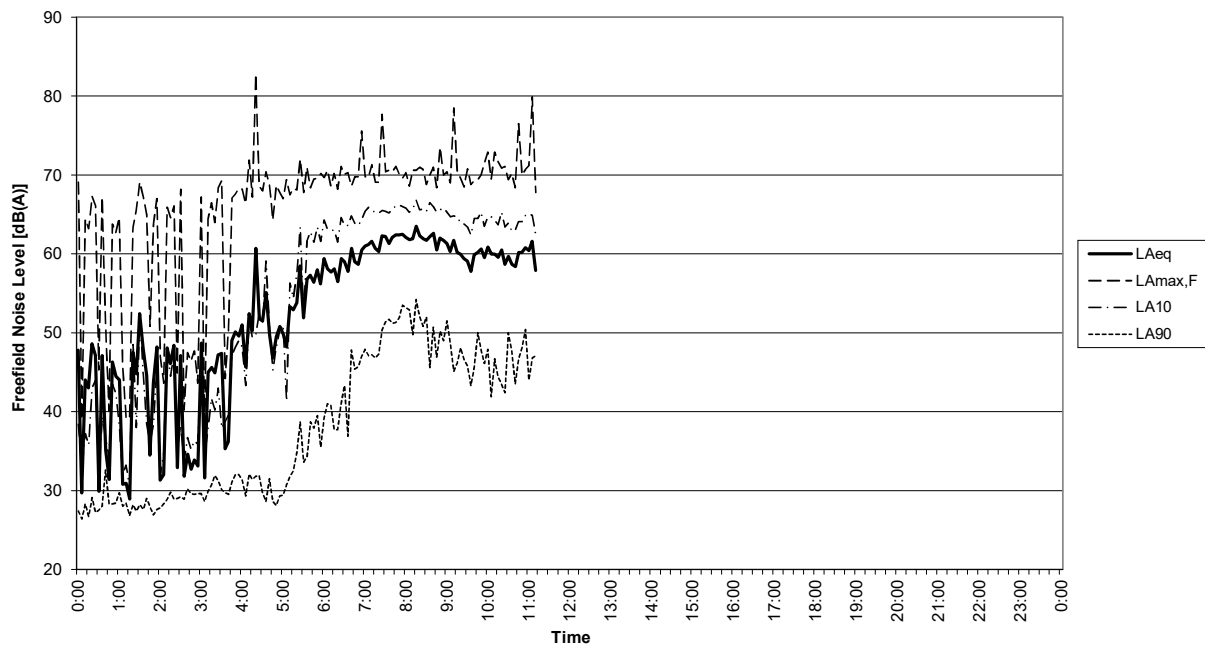
Wednesday 6/11/24



Thursday 7/11/24



Friday 8/11/24



Appendix D

Calculations of Internal Noise Levels at Properties Closest to Windsor Drive

Proposed Residential Development - Land Adjacent to Windsor Drive, Devizes
Calculation of Internal Noise Levels

Position : Closest Dwellings Adjacent to Windsor Drive

Prepared By: LPJ - 29/1/25

STANDARD GLAZING & OPEN VENTS

Sf	Facade Area (inc Window)	10
Swi	Window Area	2
Sew	Sf-Swi	8
Srr	Area of Ceiling	12
S	Sf+Srr	22
A0	Ref Absorption Area	10

			Overall	1/3 Octave Band Leq							
			A-Wtd	125	250	500	1000	2000	4000		
Source Level	L _{eq} Freefield	A	65	54	55	57	62	58	49	Equivalent Freefield Level	(67 dB LAeq Fa
Window Vent	Dn,e			21	34	33	29	31	36	M335 TV (Open)	
	B			0.00361	0.00018	0.00023	0.00057	0.00036	0.00011		
Glazing	Rwi			25	21	26	34	43	45	Standard Glazing 4-20-4	
	C			0.00029	0.00072	0.00023	0.00004	0.00000	0.00000		
Wall	Rew			41	45	45	54	58	58		
	D			2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07		
Ceiling	Rrr			30	42	50	54	54	54		
	E			0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06		
10Log (B+C+D+E)				-23.494592	-30.227386	-33.250292	-32.132134	-34.337248	-39.215458		
A (Furnished)				11	14	16	16	15	15		
10*log (S/A)				3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142		
Leq,2				36.7	29.6	28.2	34.4	28.5	14.5		
A-Weighting				-16.1	-8.6	-3.2	0	1.2	1		
LAeq,2				20.6	21.0	25.0	34.4	29.7	15.5		
LAeq, Internal			Day	Night							
			36	28							
Reduction			-29								

			Overall	1/3 Octave Band Lmax							
			A-Wtd	125	250	500	1000	2000	4000		
Source Level	L _{max} Freefield	A	74	65	72	71	70	64	60	Equivalent Freefield Level	
Window Vent	Dn,e			21	34	33	29	31	36	M335 TV (Open)	
		B		0.00361	0.00018	0.00023	0.00057	0.00036	0.00011		
Glazing				25	21	26	34	43	45	Standard Glazing 4-20-4	
				0.00029	0.00072	0.00023	0.00004	0.00000	0.00000		
Wall	Rew			41	45	45	54	58	58		
		D		2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07		
Ceiling	Rrr			30	42	50	54	54	54		
		E		0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06		
10Log (B+C+D+E)				-23.494592	-30.227386	-33.250292	-32.132134	-34.337248	-39.215458		
A (Furnished)				11	14	16	16	15	15		
10*log (S/A)				3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142		
Lmax,2				47.8	46.8	42.1	42.4	34.6	25.0		
A-Weighting				-16.1	-8.6	-3.2	0	1.2	1		
LAmax,2				31.7	38.2	38.9	42.4	35.8	26.0		
LAmax, Internal			46								
Reduction			-28								

Proposed Residential Development - Land Adjacent to Windsor Drive, Devizes
Calculation of Internal Noise Levels

Position : Closest Dwellings Adjacent to Windsor Drive

Prepared By: LPJ - 29/1/25

ENHANCED GLAZING & OPEN ACOUSTIC VENTS

Sf	Facade Area (inc Window)	10
Swi	Window Area	2
Sew	Sf-Swi	8
Srr	Area of Ceiling	12
S	Sf+Srr	22
A0	Ref Absorption Area	10

			Overall A-Wtd	1/3 Octave Band Leq					
				125	250	500	1000	2000	4000
Source Level	L _{eq} Freefield	A	65	54	55	57	62	58	49
Window Vent	Dn,e			34	36	34	35	40	41
		B	0.00018	0.00011	0.00018	0.00014	0.00005	0.00004	
Glazing	Rwi			27	30	41	41	37	50
		C	0.00018	0.00009	0.00001	0.00001	0.00002	0.00000	
Wall	Rew			41	45	45	54	58	58
		D	2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07	
Ceiling	Rrr			30	42	50	54	54	54
		E	0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06	
10Log (B+C+D+E)				-30.284067	-36.003249	-36.879651	-38.108461	-41.782173	-44.005237
A (Furnished)				11	14	16	16	15	15
10*log (S/A)				3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142
Leq,2				30.0	23.8	24.5	28.4	21.1	9.7
A-Weighting				-16.1	-8.6	-3.2	0	1.2	1
LAeq,2				13.9	15.2	21.3	28.4	22.3	10.7
			Day 30	Night 22					
LAeq, Internal									
Reduction			-35						

Equivalent Freefield Level (67 dB LAeq Fa

Acoustic Trickle Vent
Titon SF X V50 / SF 418 (OPEN)

SGG 8/15/10.5 (39 dB RW- 5CTR)

			Overall A-Wtd	1/3 Octave Band Lmax					
				125	250	500	1000	2000	4000
Source Level	L _{max} Freefield	A	74	65	72	71	70	64	60
Window Vent	Dn,e			34	36	34	35	40	41
		B	0.00018	0.00011	0.00018	0.00014	0.00005	0.00004	
Glazing				27	30	41	41	37	50
			0.00018	0.00009	0.00001	0.00001	0.00002	0.00000	
Wall	Rew			41	45	45	54	58	58
		D	2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07	
Ceiling	Rrr			30	42	50	54	54	54
		E	0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06	
10Log (B+C+D+E)				-30.284067	-36.003249	-36.879651	-38.108461	-41.782173	-44.005237
A (Furnished)				11	14	16	16	15	15
10*log (S/A)				3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142
Lmax,2				41.0	41.0	38.4	36.4	27.1	20.2
A-Weighting				-16.1	-8.6	-3.2	0	1.2	1
LAmx,2				24.9	32.4	35.2	36.4	28.3	21.2
LAmx, Internal			40						
Reduction			-34						

Equivalent Freefield Level

Acoustic Trickle Vent
Titon SF V50 / SF 418 (OPEN)

SGG 8/15/10.5 (39 dB RW- 5CTR)

Proposed Residential Development - Land Adjacent to Windsor Drive, Devizes
Calculation of Internal Noise Levels

Position : Dwellings Adjacent to Windsor Drive - Set Back from Road

Prepared By: LPJ - 29/1/25

STANDARD GLAZING & OPEN VENTS

Sf	Facade Area (inc Window)	10
Swi	Window Area	2
Sew	Sf-Swi	8
Srr	Area of Ceiling	12
S	Sf+Srr	22
AO	Ref Absorption Area	10

		Overall A-Wtd	125	250	500	1000	2000	4000		
Source Level	L _{eq} Freefield A	58	47	48	50	55	51	42	Equivalent Freefield Level	(60 dB LAeq Façade)
Window Vent	Dn,e		21	34	33	29	31	36	M335 TV (Open)	
	B		0.00361	0.00018	0.00023	0.00057	0.00036	0.00011		
Glazing	Rwi		25	21	26	34	43	45	Standard Glazing 4-20-4	
	C		0.00029	0.00072	0.00023	0.00004	0.00000	0.00000		
Wall	Rew		41	45	45	54	58	58		
	D		2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07		
Ceiling	Rrr		30	42	50	54	54	54		
	E		0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06		
	10Log (B+C+D+E)		-23.494592	-30.227386	-33.250292	-32.132134	-34.337248	-39.215458		
	A (Furnished)		11	14	16	16	15	15		
	10*log (S/A)		3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142		
	Leq,2		29.7	22.6	21.2	27.4	21.5	7.5		
	A-Weighting		-16.1	-8.6	-3.2	0	1.2	1		
	LAeq,2		13.6	14.0	18.0	27.4	22.7	8.5		
	LAeq, Internal	Day 29	Night 23							
	Reduction	-29								

		Overall A-Wtd	125	250	500	1000	2000	4000		
Source Level	L _{max} Freefield A	71	62	69	68	67	61	57	Equivalent Freefield Level	
Window Vent	Dn,e		21	34	33	29	31	36	M335 TV (Open)	
	B		0.00361	0.00018	0.00023	0.00057	0.00036	0.00011		
Glazing	Rwi		25	21	26	34	43	45	Standard Glazing 4-20-4	
	C		0.00029	0.00072	0.00023	0.00004	0.00000	0.00000		
Wall	Rew		41	45	45	54	58	58		
	D		2.888E-05	1.15E-05	1.15E-05	1.448E-06	5.763E-07	5.763E-07		
Ceiling	Rrr		30	42	50	54	54	54		
	E		0.0005455	3.442E-05	5.455E-06	2.171E-06	2.171E-06	2.171E-06		
	10Log (B+C+D+E)		-23.494592	-30.227386	-33.250292	-32.132134	-34.337248	-39.215458		
	A (Furnished)		11	14	16	16	15	15		
	10*log (S/A)		3.0103	1.9629465	1.383027	1.383027	1.6633142	1.6633142		
	Lmax,2		44.8	43.8	39.1	39.4	31.6	22.0		
	A-Weighting		-16.1	-8.6	-3.2	0	1.2	1		
	LAmx,2		28.7	35.2	35.9	39.4	32.8	23.0		
	LAmx, Internal	43								
	Reduction	-28								