

NOISE IMPACT ASSESSMENT

Proposed Residential Development

Land off Turnpike Close, Semington

Issue Date: 18 November 2025

QUALITY ASSURANCE & REPORT INFORMATION

Report Version	R1	R2	R3	R4
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Project: Proposed Residential Development

Client: Hollins Strategic Land

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EXECUTIVE SUMMARY

The Development seeks permission for the total of 48 residential dwellings and a local shop, with associated infrastructure.

The Site currently comprises of open land.

The soundscape across the Site is predominantly due to road traffic noise from vehicles using the A331 to the south.

This Assessment has shown that one garden will have noise levels which exceed the 55dB LAeq,16hr noise criteria level and as such, noise mitigation has been incorporated into the Development in order to reduce this exceedance. It should be noted however that the layout presented is illustrative only and the garden in question can incorporate noise mitigation in order to reduce the exceedance to not exceed the noise criteria level.

This Assessment has determined the required sound insulation performance requirements for the glazing for living rooms and bedrooms. Additionally, this Assessment has determined the appropriate alternative ventilation system for habitable rooms, where required.

In summary, the future noise climate at the Development can be controlled through appropriate noise mitigation measures to meet acceptable noise levels in both internal and external amenity areas which will accord with the 'No Observed Adverse Effect Level' as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

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1 INTRODUCTION

1.1 Appointment

- 1.1.1 Professional Consult Limited was instructed by Hollins Strategic Land to prepare a Noise Impact Assessment ('the Assessment') in support of a proposed residential development ('the Development') on land located off Turnpike Close in Semington, Trowbridge BA14 to be referred to hereafter as 'the Site'.

1.2 Purpose of Assessment

- 1.2.1 The Site is likely to be impacted by noise from road traffic vehicles using the A361 and so it is expected that Wiltshire Council will require a Noise Impact Assessment to be issued in support of the scheme planning application.
- 1.2.2 Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.
- 1.2.3 All acronyms used within this report are defined in the Glossary presented in Appendix 2.

1.3 The Development

- 1.3.1 The Development seeks permission for the total of 48 residential dwellings and a local shop with associated infrastructure.

1.4 The Site, Locality & Soundscape

- 1.4.1 The Site currently comprises of open land.
- 1.4.2 The soundscape across the Site is predominantly due to road traffic noise from vehicles using the A331 to the south.

1.5 Limitations

- 1.5.1 The limitations of this report are presented in Appendix 1.

1.6 Confidentiality

- 1.6.1 Professional Consult has prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2 POLICY & GUIDANCE

2.1 National Planning Policy Framework & National Planning Practice Guidance

- 2.1.1 The Government updated the National Planning Policy Framework (NPPF) on 7th February 2025 and its associated National Planning Practice Guidance (NPPG) on 14th February 2024. Together, the NPPF and NPPG set out what the Government expects of local authorities. The overall aim is to ensure the planning system allows land to be used for new homes and jobs, while protecting valuable natural and historic environments.
- 2.1.2 The NPPG adds further context to the NPPF and it is intended that the two documents should be read together.
- 2.1.3 Noise needs to be considered when development may create additional noise, or would be sensitive to the prevailing acoustic environment (including any anticipated changes to that environment from activities that are permitted but not yet commenced). When preparing plans, or taking decisions about new development, there may also be opportunities to make improvements to the acoustic environment. Good acoustic design needs to be considered early in the planning process to ensure that the most appropriate and cost-effective solutions are identified from the outset.
- 2.1.4 Plan-making and decision making need to take account of the acoustic environment and in doing so consider:
- whether or not a significant adverse effect is occurring or likely to occur;
 - whether or not an adverse effect is occurring or likely to occur; and
 - whether or not a good standard of amenity can be achieved.
- 2.1.5 In line with the Explanatory note of the noise policy statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy.
- 2.1.6 The Observed Effect Levels are as follows:
- Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur;
 - Lowest observed adverse effect level: this is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
 - No observed effect level: this is the level of noise exposure below which no effect at all on health or quality of life can be detected.
- 2.1.7 Table 1 summarises the noise exposure hierarchy, based on the likely average response.

Table 1. Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present & 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			
Present & 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			
Present & 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 Effect	Avoid
Present & 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

2.1.8 The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation.

2.1.9 These factors include:

- the source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day – this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;
- for a new noise making source, how the noise from it relates to the existing sound environment;
- for non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- the spectral content of the noise (i.e. whether or not the noise contains particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features), and

- the local arrangement of buildings, surfaces and green infrastructure, and the extent to which it reflects or absorbs noise.

2.1.10 More specific factors to consider when relevant include:

- the cumulative impacts of more than one source of noise;
- whether any adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time (and the effect this may have on living conditions). In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations;
- In cases where existing noise sensitive locations already experience high noise levels, a development that is expected to cause even a small increase in the overall noise level may result in a significant adverse effect occurring even though little to no change in behaviour would be likely to occur;
- Noise Action Plans (where these exist), and, in particular the Important Areas identified through the process associated with the Environmental Noise Directive and corresponding regulations should be taken into account. Defra's website has information on Noise Action Plans and Important Areas. Local authority environmental health departments will also be able to provide information about Important Areas;
- the effect of noise on wildlife. Noise can adversely affect wildlife and ecosystems. Particular consideration needs to be given to the potential effects of noisy development on international, national and locally designated sites of importance for biodiversity;
- where external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended; and
- some commercial developments including restaurants, hot food takeaways, night clubs and public houses can have particular impacts, not least because activities are often at their peak in the evening and late at night. Local planning authorities will wish to bear in mind not only the noise that is generated within the premises but also the noise that may be made by customers in the vicinity.

2.2 BS8233:2014 'Guidance on sound insulation and noise reduction for buildings'

Noise Criteria Limits

2.2.1 The scope of this standard is the provision of recommendations for the control of noise in and around buildings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new buildings or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise climate.

2.2.2 The standard suggests suitable internal noise levels within different types of buildings, including dwellings, as shown in Table 2.

Table 2. BS8233:2014 Internal Target Noise Levels

Criterion	Typical Situation	Design $L_{Aeq,T}$ (dB)
Suitable resting / sleeping conditions	Living Room	35

	Bedroom*	30
*For a Reasonable standard in bedrooms at night, individual noise evens (measured with fast time weighting) should not exceed 45dB L _{max}		

2.2.3 BS8233 goes on to recommend noise levels for gardens as follows:

"It is desirable that the external noise level does not exceed 50dB L_{Aeq,T}, with an upper guideline value of 55dB 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 might be warranted".

2.2.4 BS8233 goes on to say:

"In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited".

2.2.5 With regards to external noise within balcony areas, BS8233: 2014 provides the following advice:

"Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels"

Ventilation Requirements

2.2.6 Where a partially open window cannot be relied upon to provide an adequate level of facade sound insulation performance, it is necessary to consider alternative ventilation for habitable rooms. Section 8.4.5.4 within BS8233 states:

"The Building Regulations' supporting documents on ventilation [48, 49, 50] recommend that habitable rooms in dwellings have background ventilation. Where openable windows cannot be relied upon for this ventilation, trickle ventilators can be used and sound attenuating types are available. However, windows may remain openable for rapid or purge ventilation, or at the occupant's choice.

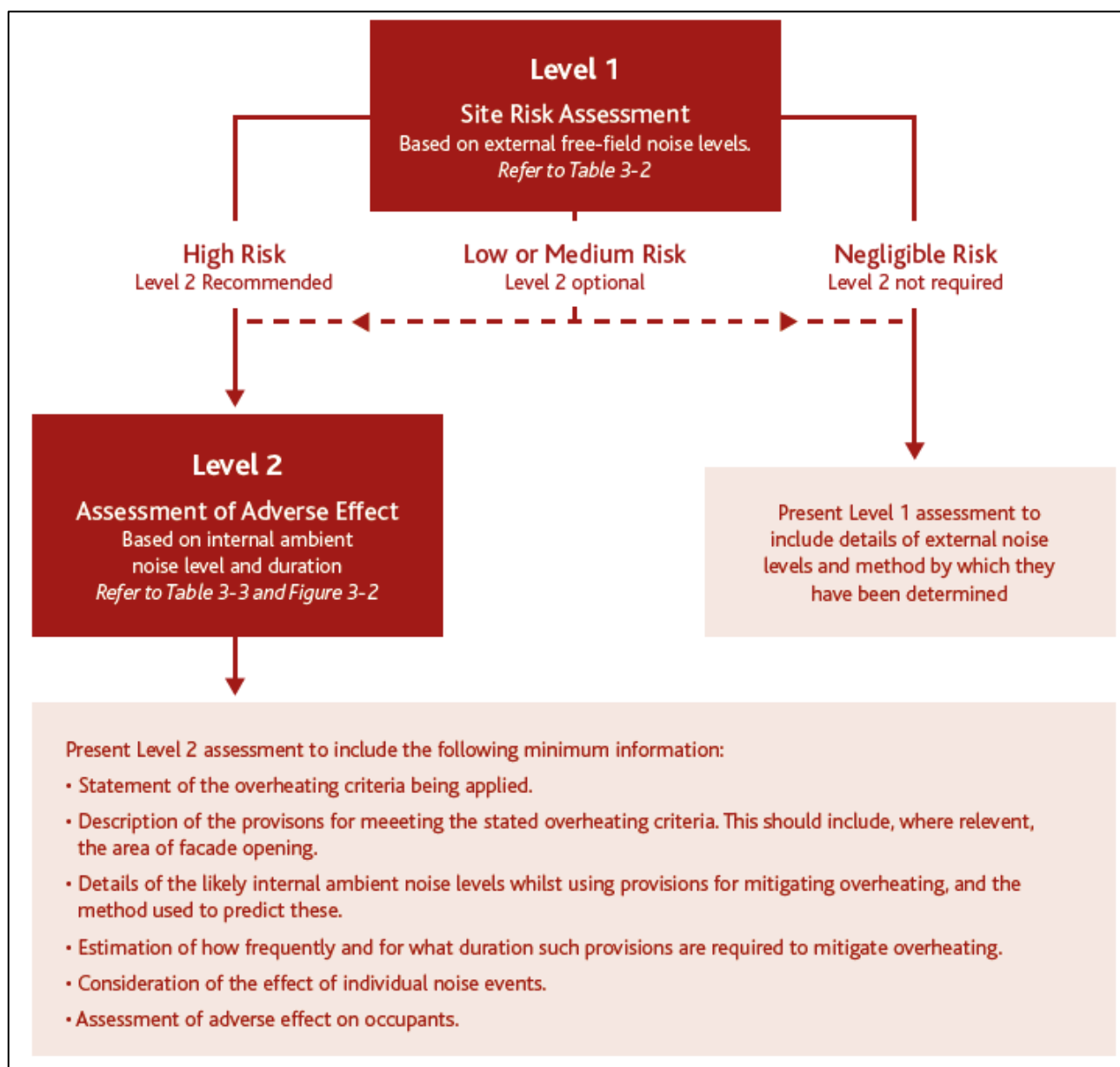
Alternatively, acoustic ventilation units (see 7.7.2 below) are available for insertion in external walls. These can provide sound reduction comparable with double glazed windows. However, ducted systems with intakes on the quiet side of the building might be required in very noisy situations, or where appearance rules out through-the-wall fans."

Section 7.7.2 states:

"NOTE 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level."

2.3 INSTITUTE OF ACOUSTICS AND ASSOCIATION OF NOISE CONSULTANTS (2020) ACOUSTICS VENTILATION & OVERHEATING: RESIDENTIAL DESIGN GUIDE

2.3.1 The Acoustics Ventilation and Overheating (AVO) Residential Design Guide provides an approach as to how the competing aspects of thermal and acoustic comfort can be managed. The AVO Guide aims to assist designers to adopt an integrated approach to the acoustic design within the context of the ventilation and thermal comfort requirements. The AVO Guide provides a method for assessing the impact of opening windows and providing whole house ventilation due to the impact of noise via a two-level noise assessment procedure, as below:



2.3.2 A level 1 risk assessment is based on external free-field noise levels with the assumption of a partially opened window in use for mitigation of overheating. A level 1 assessment is appropriate for scenarios where the risk to a development is deemed 'Negligible'. 'Low' and 'Medium' risk sites only require a level 2 assessment on an optional basis in order to give further confidence in the suitability of internal noise conditions.

2.3.3 The noise levels suggested in Tables 3 and 4 assume steady road traffic noise source but can be adapted for other transport sources.

Table 3. Guidance for Level 1 Site Risk Assessment for Transportation Noise Sources Relating to Overheating Condition

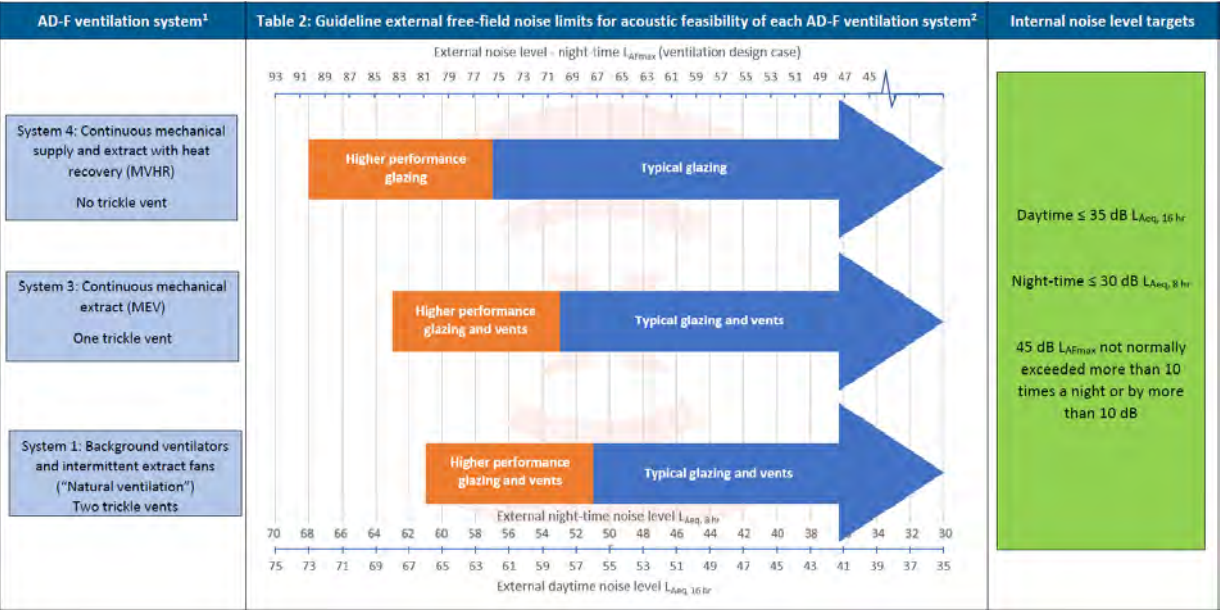
Risk Category for Level 1 Assessment - External		Risk Level	Potential Effect Without Mitigation	Recommendation for Level 2 Assessment
Daytime Noise Level, $L_{Aeq,t}$ (07:00 – 23:00)	Night-time Noise Level, $L_{Aeq,t}$ (23:00 – 07:00)			
$\geq 65\text{dB}$	$\geq 55\text{dB}$	High	Increasing risk of adverse effect	Recommended
$>55\text{dB}$ & $<63\text{dB}$	>45 & $<55\text{dB}$	Medium		Optional
$>50\text{dB}$ & $<55\text{dB}$		Low		
$\leq 50\text{dB}$	$\leq 45\text{dB}$	Negligible	Use of opening windows as means of mitigating overheating is not likely to result in in adverse effect	Not required

2.3.4 A level 2 assessment will be carried out when the risk of adverse effect is ‘High’ or it is deemed appropriate for a ‘low’ or ‘medium’ risk site. An increase in internal ambient noise level can cause a change in human behaviour. At high levels this creates situations where occupants can no longer open windows for ventilation due to high external noise levels. A level 2 assessment identifies these situations and allows for appropriate alternative ventilation systems to be recommended.

Table 4. Guidance for Level 2 Assessment of Noise from Transport Noise Sources Relating to Overheating Condition

Internal Ambient Noise Level			Example of Outcome
Daytime $L_{Aeq,t}$ (07:00 – 23:00)	Night-time $L_{Aeq,t}$ (23:00 – 07:00)	Individual Noise Events During 23:00 – 07:00	
$>50\text{dB}$	$>42\text{dB}$	Normally exceeds $65\text{dB } L_{A_{f,max}}$	Noise causes a material change in behaviour eg. having to keep windows closed most of the time
Increasing noise level			Increasing the likelihood of impact on reliable speech communication during the daytime or sleep disturbance at night

2.3.5 The Table below details guideline external free-field noise limits and determines the appropriate AD-F ventilation system (Systems 1 – 4).



2.4 Approved Document O of the Building Regulations 2022

2.4.1 This approved document supports Part O of Schedule 1 to the Building Regulations 2010 and took effect on 15th June 2022 for use in England.

2.4.2 Section 3 of the approved document details the requirements for noise ingress into a bedroom and states 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.

- a. 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am); and*
- b. 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).'*

2.4.3 The above internal noise criteria levels are higher than those presented in BS8233:2014 and so the trigger point for alternative ventilation for bedrooms, where required, will be dictated primarily by the assessment which considers compliance with the BS8233:2014 internal noise criteria levels. Nevertheless, compliance with the above noise criteria levels will be observed where the internal average and maximum noise levels with a partially open window, or where recommended appropriate alternative ventilation for the bedroom, results in noise levels not exceeding the above noise criteria levels.

Information for the SAP Assessor

2.4.4 With regards to windows being opened, BS8233:2014 refers to a partially open window and so for the purposes of AD-O and Standard Assessment Procedure (SAP) calculations a 'partially open' window should be taken as being 'fully open' for SAP calculations. Furthermore, windows of habitable rooms are never recommended to be 'sealed closed', ie a resident has the option to open a habitable room window at their discretion and not use any recommended alternative ventilation. Accordingly, for the purposes of SAP calculations, windows should be modelled as open to inform a worst-case SAP Assessment.

2.5 Local Authority Guidance and Criteria – Wiltshire Council's Environmental Health Department

2.5.1 Consultation was provided to Wiltshire Council on 7th August 2025 which stated:

'We have been appointed by a client to undertake a Noise Impact Assessment to support a planning application for a proposed residential development on land at Turnpike Close in Semington.

Proposed Scope of Works Following Appointment

- ***Road Traffic Noise Survey:*** *A road traffic noise survey will be completed in line with the guidance detailed in Calculation of Road Traffic Noise for the A361.*

Following completion of all noise surveys we will undertake the following assessments, as proposed to the Local Planning Authority:

- ***Road Traffic Noise:*** *An assessment will be completed which assesses the noise impact from road traffic upon the proposed residential dwellings in line with the guidance presented in BS8233:2014.*

We will advise on appropriate and reasonable noise mitigation measures, where required

If you have any comments, then please do advise at your earliest convenience.'

2.5.2 At the time of issuing this Assessment, no response had been received.

3 NOISE SURVEYS

3.1 Road Traffic Noise Survey – A361

3.1.1 Professional Consult has completed noise measurements as follows:

- **Noise Measurement Position 1:** Located at 16.5m from the centre of the A361 between 11:30 – 14:30 on 12th August 2025 in free-field conditions. Noise sources at the measurement position comprised of road traffic movements along Shipton Rd.

3.1.2 Table 5 summarises the measured road traffic noise levels at the microphone location.

Table 5. Summary of Measured Road Traffic Noise Levels

Noise Measurement Position	Period	Measured Sound Pressure Level (dB)		
		L _{Aeq,1hr}	L _{A10,1hr}	L _{Amax,fast}
1	14/08/2025 10:00	63.3	66.6	78.9*
	14/08/2025 11:00	63	66.2	
	14/08/2025 12:00	65.2	66.8	
*10 th highest L _{Amax,fast}				

3.2 Noise Survey Equipment

3.2.1 The following equipment was used for the noise survey.

Table 6. Noise Measurement Equipment

Measurement Position	Equipment Description	Manufacturer & Type No	Serial No.	Calibration Due Date
NMP1	Sound Level Meter	01dB Fusion	11755	28 June 2026
	Pre-amplifier	01dB PRE22	1707173	
	Microphone	GRAS 40CE	291693	
	Calibrator	01dB CAL-31	84086	09 July 2026

3.2.2 The sound level meter was field calibrated prior to and following the noise surveys and there was no drift beyond the allowable limit of 1dB.

3.2.3 Table 7 indicates a summary of the measured weather conditions.

Table 7. Range of Measured Wind Speeds

Period	Range of Measured Wind Speeds (m/s)	Rainfall Recorded?
All periods	0 – 1.8	No

4 NOISE IMPACT ASSESSMENT

4.1 Road Traffic

4.1.1 For the purposes of this assessment, the daytime and night-time average ($L_{Aeq,T}$) noise levels have been calculated based on the shortened measurement procedure detailed in CRTN. The respective daytime and night-time noise levels have been calculated using the following formulas:

- Calculation of the $L_{A10,18hr}$ noise level by using the following formula:

$$L_{10,18hr} = L_{10,3hr} - 1dB$$

- Calculation of the $L_{Aeq,16hr}$ noise level by using the following formula:

$$L_{eq,16hr} = L_{10,18hr} - 2dB$$

- Calculation of the night-time $L_{Aeq,8hr}$ noise level by using the following formula:

$$L_{night} (L_{eq,8hr}) = (0.90 \times L_{10,18hr}) - 3.77dB$$

4.1.2 Table 8 calculates the daytime and night-time noise levels.

Table 8. Calculation of Road Traffic Noise Levels

Measurement Position	Period	Calculated $L_{Aeq,t}$ (dB)	10 th Highest Measured $L_{Amax,fast}$ (dB)	Distance from Centre of Road (m)
NMP1	Daytime (07:00 – 23:00)	63.5	-	16.5
	Night-time (23:00 – 07:00)	55.2	78.9	

4.1.3 For the purposes of this Assessment, Professional Consult has used noise modelling software CadnaA to determine the impact of road traffic noise at the proposed residential dwellings. A noise model has been constructed in order to calculate façade noise levels and external noise levels in amenity areas.

4.1.4 The following inputs have been included in the model:

- Proposed Scheme Layout;
- Site elevations have been taken as existing using 1m contours;
- Existing buildings or features that provide shielding from the road have been included in the model;
- Noise Measurement Position 1 has been used in order to calibrate the noise model;
- A floor height of 2.5m has been taken for all proposed dwellings;
- A reflection order of 2 has been used in all calculations;
- All dwellings have been taken to be 7.5m to apex (2-storey);

- Noise levels generated using ISO 9613-1 and ISO 9613-2 “Acoustics – Attenuation of sound during propagation outdoors” as incorporated into CadnaA software.

External Noise Impact in Garden Areas of Proposed Dwellings

- 4.1.5 In order to assess noise levels in external amenity areas across the Site, a grid noise map was calculated in the noise model. The grid noise map shows that one garden area exceeds the 55dB LAeq,16hr noise criteria level and so the following section considers noise mitigation measures.

Internal Noise Impact for Proposed Dwellings

- 4.1.6 With regards internal noise levels, BS8233:2014 suggests that standard thermal double glazing will afford 33dB R_w of sound reduction, however this is for the pink noise spectrum and the same configuration will afford 30dB $R_w + C_{tr}$ for average noise levels from road traffic noise and so this value has been used to calculate internal noise levels. With regard to the maximum noise level ($L_{Amax,fast}$), the value of 33dB R_w has been used. The AVO Residential Design Guide states that a partially open window provides approximately 13dB of attenuation.
- 4.1.7 Professional Consult uses a library database of glazing configurations issued by Saint Gobain and the glazing configuration 6mm glass / 12mm air space / 6mm glass affords 30dB $R_w + C_{tr}$ and 33dB R_w respectively.
- 4.1.8 Appendix 6 calculates the average daytime noise levels, for living rooms, at the various facades of the plots and determines the requirement for upgraded glazing or alternative ventilation.
- 4.1.9 Appendix 7 calculates the average and maximum night-time noise levels, for bedrooms, at the various facades of the plots and determines the requirement for upgraded glazing or alternative ventilation.
- 4.1.10 Appendices 8 and 9 provide example alternative ventilation systems and glazing sound reduction performance specifications.

5 MITIGATION

5.1 Road Traffic

- 5.1.1 With regards to external average noise levels in garden areas, Figure 1 in Appendix 4 shows that one garden areas exceed the 55dB noise criteria level. Figure 3 in Appendix 4 shows the garden which requires an acoustic-grade fence in order to reduce the exceedances. The fence should have a minimum mass of 10kg/m² and be free from holes.
- 5.1.2 Appendix 6 calculates the average daytime noise levels, for living rooms, at the various facades of the plots and determines the requirement for upgraded glazing or alternative ventilation.
- 5.1.3 Appendix 7 calculates the average and maximum night-time noise levels, for bedrooms, at the various facades of the plots and determines the requirement for upgraded glazing or alternative ventilation.

5.2 Compliance with Approved Document O

- 5.2.1 Appendix 7 indicates compliance with the Approved Document O noise criteria levels, based on the internal target noise criteria levels not being exceeded with regards to BS8233:2014, the noise criteria levels for which are more stringent than those detailed in Approved Document O.
- 5.2.2 Appendix 8 provides a summary of the bedroom windows which are required to be closed in order to achieve the noise criteria levels presented in Approved Document O, irrespective of the noise criteria presented in BS8233:2014.
- 5.2.3 With regards to SAP calculations, which is beyond the remit of this Assessment, a partially open window should be taken as a fully open window.

6 CONCLUSION

- 6.1.1 Professional Consult Limited was instructed by Hollins Strategic Land to prepare a Noise Impact Assessment in support of a proposed residential development on land located off Turnpike Close in Semington, Trowbridge BA14.
- 6.1.2 The Site is likely to be impacted by noise from road traffic vehicles using the A361 and so it is expected that Wiltshire Council will require a Noise Impact Assessment to be issued in support of the scheme planning application.
- 6.1.3 Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts.
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- 6.1.8 This Assessment has determined the required sound insulation performance requirements for the glazing for living rooms and bedrooms. Additionally, this Assessment has determined the appropriate alternative ventilation system for habitable rooms, where required.
- 6.1.9 In summary, the future noise climate at the Development can be controlled through appropriate noise mitigation measures to meet acceptable noise levels in both internal and external amenity areas which will accord with the 'No Observed Adverse Effect Level' as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

APPENDIX 1: LIMITATIONS

The purpose of this Assessment is to satisfy the requirements of the regulator and to provide the Client with reasonable advice in supporting their development.

This Noise Impact Assessment has been prepared using reasonable skill and care based on the information available to us at the time of undertaking the noise survey and preparing the Assessment.

All noise sources evident to us during the period of the noise survey will be considered, where required, for the purposes of informing the Assessment. We cannot be held accountable for any unknown noise impacts brought about by noise sources which were not evident to us during the period of the noise survey.

This report and its findings should be considered in relation to the terms of reference and objectives agreed between Professional Consult Limited and the Client.

The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

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APPENDIX 2: GLOSSARY OF ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A' -weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq} , L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

An indication of the range of sound levels commonly found in the environment is given in the following table.

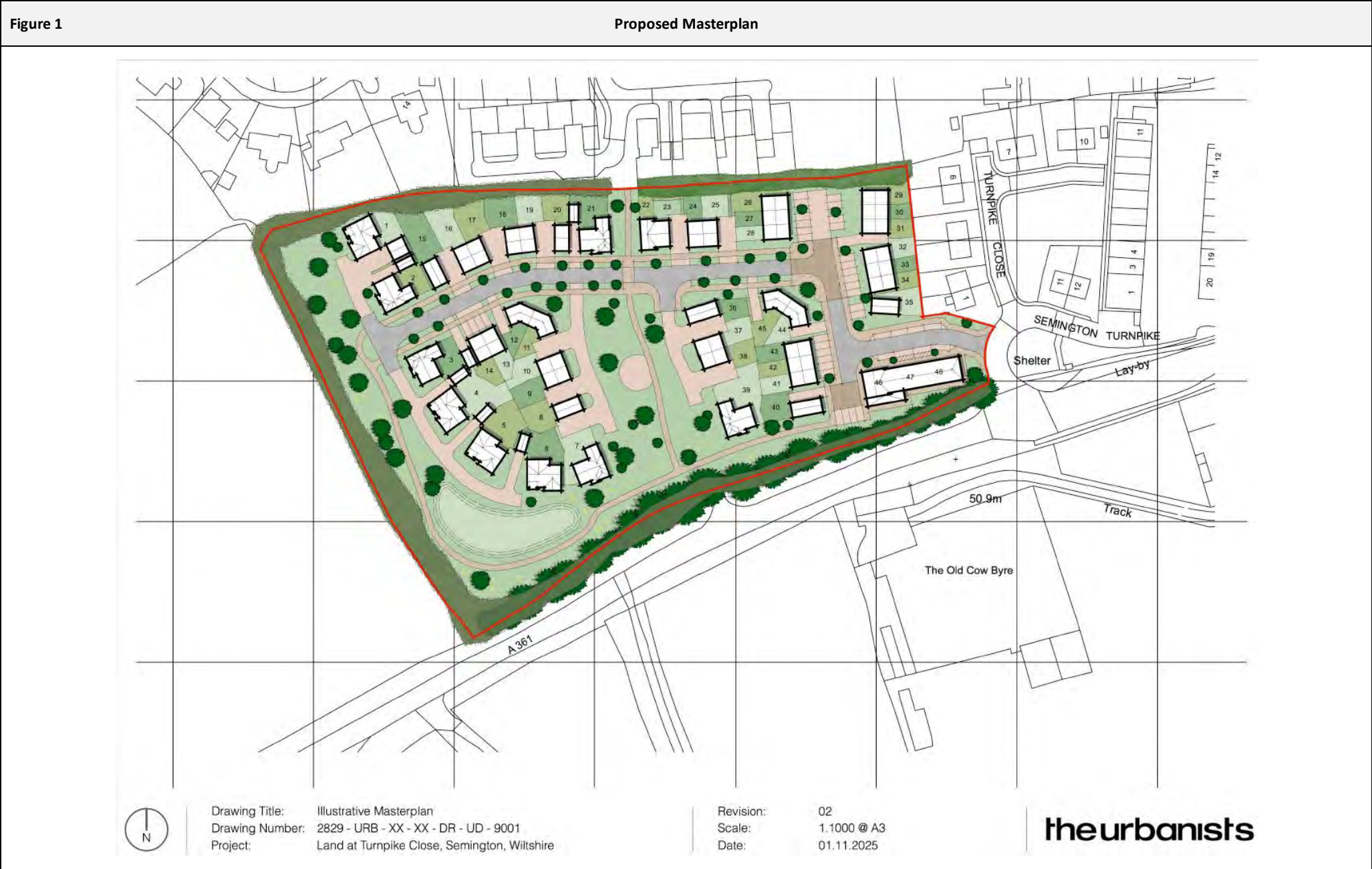
Table 1: Typical Sound Pressure Levels

Sound Pressure Level (dB)	Location/Example
0	Threshold of hearing
20 - 30	Quiet bedroom at night
30 - 40	Living room during the day
40 - 50	Typical office
50 - 60	Inside a car
60 - 70	Typical high street
70 - 90	Inside factory
100 - 110	Burglar alarm at 1m away
110 - 130	Jet aircraft on take off
140	Threshold of pain

Table 2: Terminology

Descriptor	Explanation
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10 ⁻⁵ Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
L _{Aeq, T}	L _{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L _{Amax}	L _{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L _{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L ₁₀ & L ₉₀	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L ₁₀ is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L ₉₀ is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L ₁₀ index to describe traffic noise.
Free-field Level	2A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Fast	A time weighting used in the root mean square section of a sound level meter with a 125millisecond time constant.
Slow	A time weighting used in the root mean square section of a sound level meter with a 1000millisecond time constant.

APPENDIX 3: PROPOSED MASTERPLAN



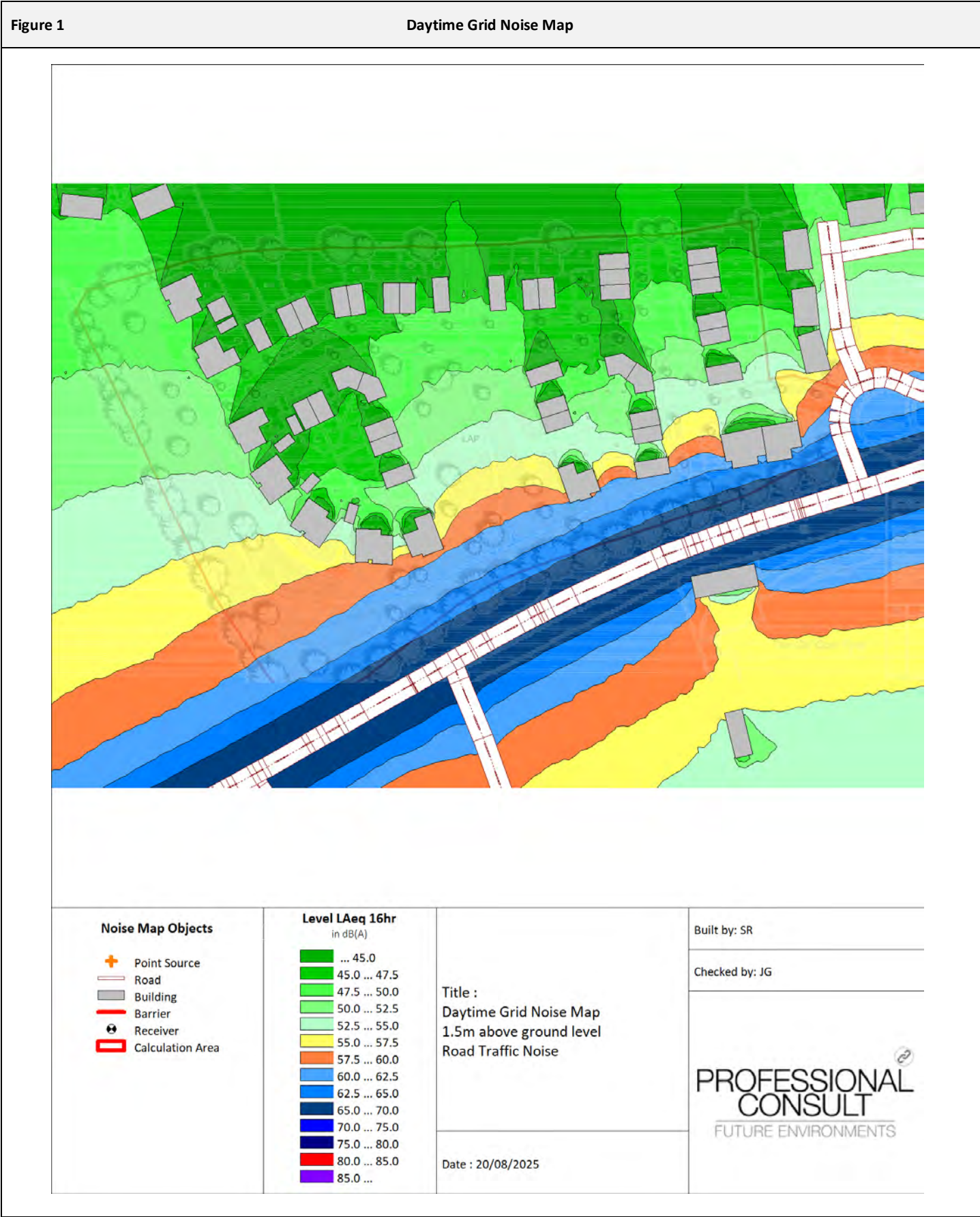
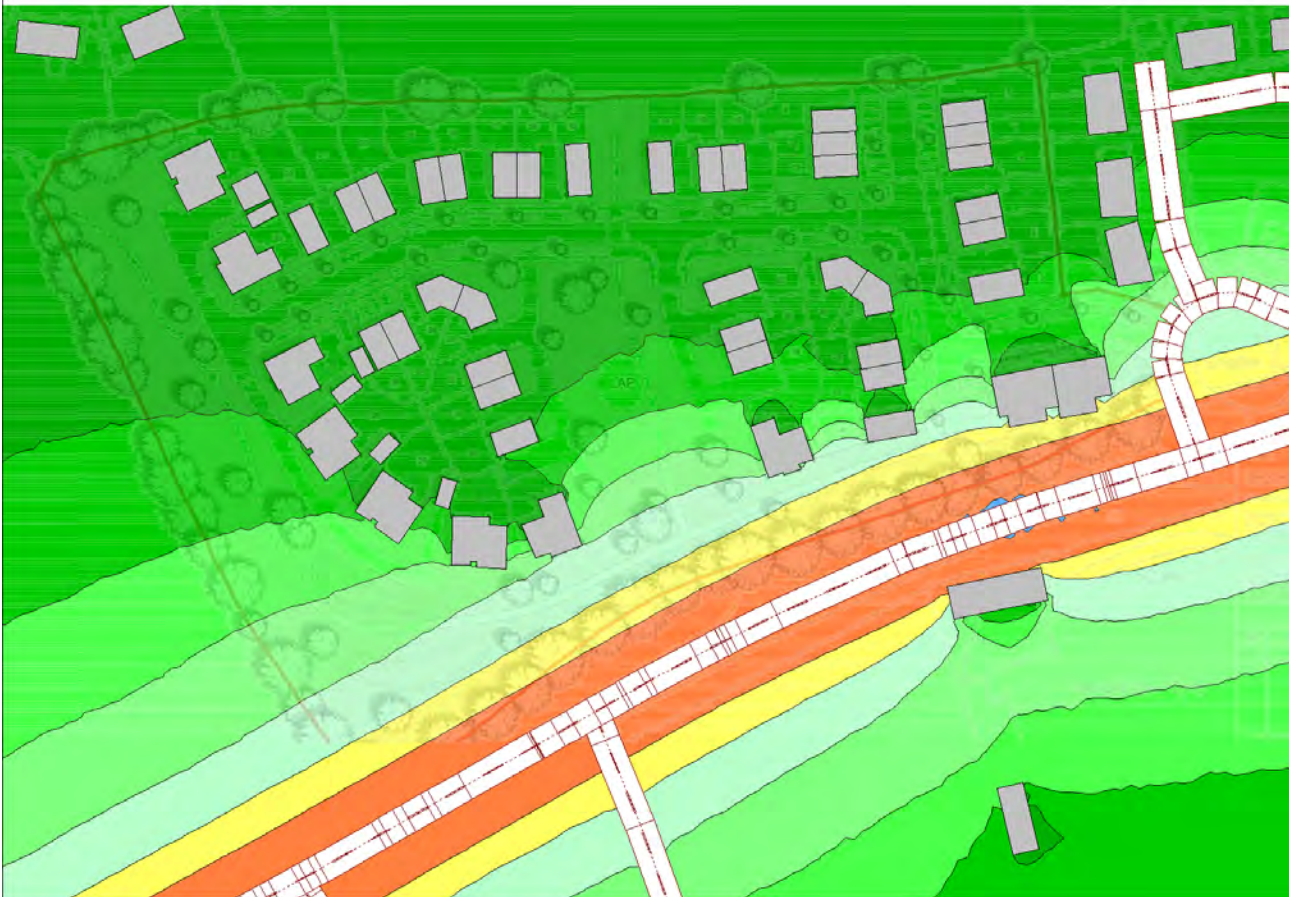


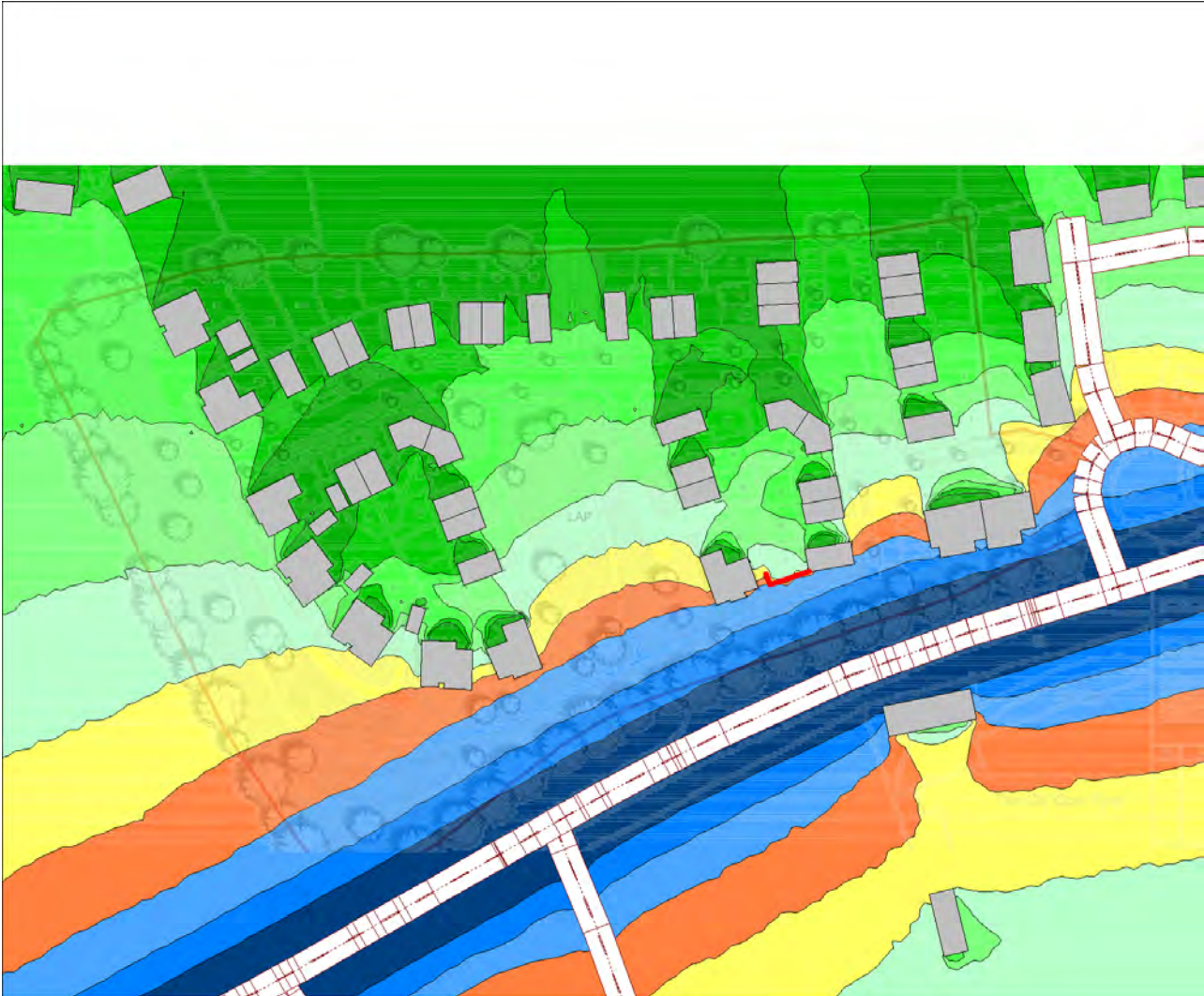
Figure 2 Night-time Grid Noise Map



Noise Map Objects - Point Source - Road - Building - Barrier - Receiver - Calculation Area	Level LAeq 8hr in dB(A) ... 45.0 45.0 ... 47.5 47.5 ... 50.0 50.0 ... 52.5 52.5 ... 55.0 55.0 ... 57.5 57.5 ... 60.0 60.0 ... 62.5 62.5 ... 65.0 65.0 ... 70.0 70.0 ... 75.0 75.0 ... 80.0 80.0 ... 85.0 85.0 ...	Title : Night-Time Grid Noise Map 4.5m above ground level Road Traffic Noise Date : 20/08/2025	Built by: SR Checked by: JG PROFESSIONAL CONSULT FUTURE ENVIRONMENTS
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Figure 3

Daytime Grid Noise Map - Mitigated



Noise Map Objects  Point Source  Road  Building  Barrier  Receiver  Calculation Area	Level LAeq 16hr in dB(A) ... 45.0 45.0 ... 47.5 47.5 ... 50.0 50.0 ... 52.5 52.5 ... 55.0 55.0 ... 57.5 57.5 ... 60.0 60.0 ... 62.5 62.5 ... 65.0 65.0 ... 70.0 70.0 ... 75.0 75.0 ... 80.0 80.0 ... 85.0 85.0 ...	Title: Daytime Grid Noise Map 1.5m above ground level Road Traffic Noise with Mitigation	Built by: SR Checked by: JG PROFESSIONAL CONSULT FUTURE ENVIRONMENTS
Barrer Height (m) 1.8m		Date : 20/08/2025	

Reference: 25.203.1.R2
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APPENDIX 5: DAYTIME AVERAGE FAÇADE NOISE LEVELS (LIVING ROOMS)

Calculated Living Room Façade Noise Levels, by Plot				Required Glazing Sound Insulation Performance - Average LAeq Noise Levels					Alternative Ventilation Requirement			Summary Requirement for Living Rooms - Overall Glazing & Alternative Ventilation Requirements		
Plot	Floor	Façade Direction	Calculated LAeq,16hr at Façade (dB)	Glazing Sound Reduction Index (Rw +Ctr) (Standard Thermal) (dB)	Calculated Noise Level Inside Room (dB)	Criteria (dB)	Difference +/- (dB)	Minimum Required Sound Insulation Performance for Glazing (Rw +Ctr) (dB)	Calculated Internal Noise Level with a Partially Open Window (dB)	Alternative Ventilation Required?	Minimum Required Sound Insulation Performance for Alternative Vent (if Required) (Rw +Ctr) (dB)	Minimum Required Sound Insulation Performance for Glazing (Rw +Ctr) (dB)	Overall Minimum Required Alternative Ventilation ADF System	Appropriate Alternative Ventilation Scheme
Plot 1	Ground	S	64.1	30	34.1	35	-0.9	29	51.1	Yes	29.0	29	ADF System 4	MVHR without T.V.
Plot 1	Ground	N	41.1	30	11.1	35	-23.9	6	28.1	No	6.0	6	N/A	Alt. Vent. not Required
Plot 1	Ground	E	59.5	30	29.5	35	-5.5	25	46.5	Yes	25.0	25	ADF System 3	MEV System & Acoustic-grade 'T.V.'
Plot 2	Ground	S	63.7	30	33.7	35	-1.3	29	50.7	Yes	29.0	29	ADF System 4	MVHR without T.V.
Plot 2	Ground	N	40.3	30	10.3	35	-24.7	5	27.3	No	5.0	5	N/A	Alt. Vent. not Required
Plot 2	Ground	W	59	30	29	35	-6	24	46	Yes	24.0	24	ADF System 3	MEV System & Acoustic-grade 'T.V.'
Plot 3	Ground	W	52.4	30	22.4	35	-12.6	17	39.4	Yes	17.0	17	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 3	Ground	S	54.4	30	24.4	35	-10.6	19	41.4	Yes	19.0	19	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 3	Ground	E	52.5	30	22.5	35	-12.5	18	39.5	Yes	18.0	18	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 3	Ground	N	38.1	30	8.1	35	-26.9	3	25.1	No	3.0	3	N/A	Alt. Vent. not Required
Plot 4	Ground	W	49.8	30	19.8	35	-15.2	15	36.8	Yes	15.0	15	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 4	Ground	S	49.5	30	19.5	35	-15.5	15	36.5	Yes	15.0	15	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 4	Ground	E	49.3	30	19.3	35	-15.7	14	36.3	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 5	Ground	W	48.8	30	18.8	35	-16.2	14	35.8	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 5	Ground	E	48.2	30	18.2	35	-16.8	13	35.2	Yes	13.0	13	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 5	Ground	N	36.8	30	6.8	35	-28.2	2	23.8	No	2.0	2	N/A	Alt. Vent. not Required
Plot 6	Ground	E	46.6	30	16.6	35	-18.4	12	33.6	No	12.0	12	N/A	Alt. Vent. not Required
Plot 6	Ground	W	47.4	30	17.4	35	-17.6	12	34.4	No	12.0	12	N/A	Alt. Vent. not Required
Plot 6	Ground	S	44.3	30	14.3	35	-20.7	9	31.3	No	9.0	9	N/A	Alt. Vent. not Required
Plot 7	Ground	E	46	30	16	35	-19	11	33	No	11.0	11	N/A	Alt. Vent. not Required
Plot 7	Ground	W	46.8	30	16.8	35	-18.2	12	33.8	No	12.0	12	N/A	Alt. Vent. not Required
Plot 7	Ground	E	45.4	30	15.4	35	-19.6	10	32.4	No	10.0	10	N/A	Alt. Vent. not Required
Plot 8	Ground	N	35.6	30	5.6	35	-29.4	1	22.6	No	1.0	1	N/A	Alt. Vent. not Required
Plot 8	Ground	W	46.1	30	16.1	35	-18.9	11	33.1	No	11.0	11	N/A	Alt. Vent. not Required
Plot 9	Ground	E	46.8	30	16.8	35	-18.2	12	33.8	No	12.0	12	N/A	Alt. Vent. not Required
Plot 9	Ground	N	35.4	30	5.4	35	-29.6	0	22.4	No	0.0	0	N/A	Alt. Vent. not Required
Plot 9	Ground	W	41.2	30	11.2	35	-23.8	6	28.2	No	6.0	6	N/A	Alt. Vent. not Required
Plot 10	Ground	E	47.1	30	17.1	35	-17.9	12	34.1	No	12.0	12	N/A	Alt. Vent. not Required
Plot 10	Ground	W	42.1	30	12.1	35	-22.9	7	29.1	No	7.0	7	N/A	Alt. Vent. not Required

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Plot 11	Ground	E	47.3	30	17.3	35	-17.7	12	34.3	No	12.0	12	N/A	Alt. Vent. not Required
Plot 11	Ground	W	42.3	30	12.3	35	-22.7	7	29.3	No	7.0	7	N/A	Alt. Vent. not Required
Plot 11	Ground	S	46	30	16	35	-19	11	33	No	11.0	11	N/A	Alt. Vent. not Required
Plot 12	Ground	S	46.8	30	16.8	35	-18.2	12	33.8	No	12.0	12	N/A	Alt. Vent. not Required
Plot 12	Ground	E	44.1	30	14.1	35	-20.9	9	31.1	No	9.0	9	N/A	Alt. Vent. not Required
Plot 12	Ground	N	35.4	30	5.4	35	-29.6	0	22.4	No	0.0	0	N/A	Alt. Vent. not Required
Plot 13	Ground	W	46.4	30	16.4	35	-18.6	11	33.4	No	11.0	11	N/A	Alt. Vent. not Required
Plot 13	Ground	S	47.6	30	17.6	35	-17.4	13	34.6	No	13.0	13	N/A	Alt. Vent. not Required
Plot 13	Ground	N	35.4	30	5.4	35	-29.6	0	22.4	No	0.0	0	N/A	Alt. Vent. not Required
Plot 14	Ground	W	45.7	30	15.7	35	-19.3	11	32.7	No	11.0	11	N/A	Alt. Vent. not Required
Plot 14	Ground	S	48.9	30	18.9	35	-16.1	14	35.9	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 14	Ground	E	44.6	30	14.6	35	-20.4	10	31.6	No	10.0	10	N/A	Alt. Vent. not Required
Plot 14	Ground	N	35.1	30	5.1	35	-29.9	0	22.1	No	0.0	0	N/A	Alt. Vent. not Required
Plot 15	Ground	W	41	30	11	35	-24	6	28	No	6.0	6	N/A	Alt. Vent. not Required
Plot 15	Ground	S	48.6	30	18.6	35	-16.4	14	35.6	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 15	Ground	E	47.1	30	17.1	35	-17.9	12	34.1	No	12.0	12	N/A	Alt. Vent. not Required
Plot 15	Ground	N	34.9	30	4.9	35	-30.1	0	21.9	No	0.0	0	N/A	Alt. Vent. not Required
Plot 16	Ground	S	48.2	30	18.2	35	-16.8	13	35.2	Yes	13.0	13	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 16	Ground	E	47.3	30	17.3	35	-17.7	12	34.3	No	12.0	12	N/A	Alt. Vent. not Required
Plot 16	Ground	N	34.9	30	4.9	35	-30.1	0	21.9	No	0.0	0	N/A	Alt. Vent. not Required
Plot 17	Ground	W	39.2	30	9.2	35	-25.8	4	26.2	No	4.0	4	N/A	Alt. Vent. not Required
Plot 17	Ground	S	48.1	30	18.1	35	-16.9	13	35.1	Yes	13.0	13	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 17	Ground	N	34.8	30	4.8	35	-30.2	0	21.8	No	0.0	0	N/A	Alt. Vent. not Required
Plot 18	Ground	S	47.9	30	17.9	35	-17.1	13	34.9	No	13.0	13	N/A	Alt. Vent. not Required
Plot 18	Ground	E	46.5	30	16.5	35	-18.5	12	33.5	No	12.0	12	N/A	Alt. Vent. not Required
Plot 18	Ground	N	34.6	30	4.6	35	-30.4	0	21.6	No	0.0	0	N/A	Alt. Vent. not Required
Plot 19	Ground	W	39.4	30	9.4	35	-25.6	4	26.4	No	4.0	4	N/A	Alt. Vent. not Required
Plot 19	Ground	S	47.1	30	17.1	35	-17.9	12	34.1	No	12.0	12	N/A	Alt. Vent. not Required
Plot 19	Ground	N	34.6	30	4.6	35	-30.4	0	21.6	No	0.0	0	N/A	Alt. Vent. not Required
Plot 20	Ground	SE	46.1	30	16.1	35	-18.9	11	33.1	No	11.0	11	N/A	Alt. Vent. not Required
Plot 20	Ground	NE	42.9	30	12.9	35	-22.1	8	29.9	No	8.0	8	N/A	Alt. Vent. not Required
Plot 20	Ground	NW	34.5	30	4.5	35	-30.5	-1	21.5	No	-1.0	-1	N/A	Alt. Vent. not Required
Plot 21	Ground	SW	39.7	30	9.7	35	-25.3	5	26.7	No	5.0	5	N/A	Alt. Vent. not Required
Plot 21	Ground	SE	46	30	16	35	-19	11	33	No	11.0	11	N/A	Alt. Vent. not Required
Plot 21	Ground	NW	34.5	30	4.5	35	-30.5	-1	21.5	No	-1.0	-1	N/A	Alt. Vent. not Required
Plot 22	Ground	SW	43.6	30	13.6	35	-21.4	9	30.6	No	9.0	9	N/A	Alt. Vent. not Required
Plot 22	Ground	SE	47	30	17	35	-18	12	34	No	12.0	12	N/A	Alt. Vent. not Required
Plot 22	Ground	NE	39.5	30	9.5	35	-25.5	5	26.5	No	5.0	5	N/A	Alt. Vent. not Required
Plot 22	Ground	NW	34.6	30	4.6	35	-30.4	0	21.6	No	0.0	0	N/A	Alt. Vent. not Required
Plot 23	Ground	SW	50.4	30	20.4	35	-14.6	15	37.4	Yes	15.0	15	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 23	Ground	SE	49.5	30	19.5	35	-15.5	15	36.5	Yes	15.0	15	ADF Systems 1 or 2	Acoustic-grade T.V.

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Plot 23	Ground	NE	39.7	30	9.7	35	-25.3	5	26.7	No	5.0	5	N/A	Alt. Vent. not Required
Plot 23	Ground	NW	34.5	30	4.5	35	-30.5	-1	21.5	No	-1.0	-1	N/A	Alt. Vent. not Required
Plot 24	Ground	SW	49.3	30	19.3	35	-15.7	14	36.3	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 24	Ground	SE	48.6	30	18.6	35	-16.4	14	35.6	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 24	Ground	NE	38.5	30	8.5	35	-26.5	4	25.5	No	4.0	4	N/A	Alt. Vent. not Required
Plot 24	Ground	NW	33.9	30	3.9	35	-31.1	-1	20.9	No	-1.0	-1	N/A	Alt. Vent. not Required
Plot 25	Ground	SE	49.6	30	19.6	35	-15.4	15	36.6	Yes	15.0	15	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 25	Ground	NE	40.1	30	10.1	35	-24.9	5	27.1	No	5.0	5	N/A	Alt. Vent. not Required
Plot 25	Ground	NW	35.6	30	5.6	35	-29.4	1	22.6	No	1.0	1	N/A	Alt. Vent. not Required
Plot 25	Ground	SW	51.6	30	21.6	35	-13.4	17	38.6	Yes	17.0	17	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 26	Ground	SW	53.5	30	23.5	35	-11.5	19	40.5	Yes	19.0	19	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 26	Ground	SE	53	30	23	35	-12	18	40	Yes	18.0	18	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 26	Ground	NE	43.5	30	13.5	35	-21.5	9	30.5	No	9.0	9	N/A	Alt. Vent. not Required
Plot 26	Ground	NW	39.6	30	9.6	35	-25.4	5	26.6	No	5.0	5	N/A	Alt. Vent. not Required
Plot 27	Ground	SW	56.1	30	26.1	35	-8.9	21	43.1	Yes	21.0	21	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 27	Ground	SE	54.5	30	24.5	35	-10.5	20	41.5	Yes	20.0	20	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 27	Ground	NE	41.4	30	11.4	35	-23.6	6	28.4	No	6.0	6	N/A	Alt. Vent. not Required
Plot 27	Ground	NW	48.3	30	18.3	35	-16.7	13	35.3	Yes	13.0	13	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 28	Ground	S	59.1	30	29.1	35	-5.9	24	46.1	Yes	24.0	24	ADF System 3	MEV System & Acoustic-grade 'T.V.'
Plot 28	Ground	E	55.5	30	25.5	35	-9.5	21	42.5	Yes	21.0	21	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 28	Ground	N	39	30	9	35	-26	4	26	No	4.0	4	N/A	Alt. Vent. not Required
Plot 28	Ground	W	54.1	30	24.1	35	-10.9	19	41.1	Yes	19.0	19	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 29	Ground	SW	55.2	30	25.2	35	-9.8	20	42.2	Yes	20.0	20	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 29	Ground	S	60.3	30	30.3	35	-4.7	25	47.3	Yes	25.0	25	ADF System 3	MEV System & Acoustic-grade 'T.V.'
Plot 29	Ground	E	56.9	30	26.9	35	-8.1	22	43.9	Yes	22.0	22	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 29	Ground	N	38.9	30	8.9	35	-26.1	4	25.9	No	4.0	4	N/A	Alt. Vent. not Required
Plot 30	Ground	W	48.3	30	18.3	35	-16.7	13	35.3	Yes	13.0	13	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 30	Ground	S	53	30	23	35	-12	18	40	Yes	18.0	18	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 30	Ground	E	52.9	30	22.9	35	-12.1	18	39.9	Yes	18.0	18	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 30	Ground	N	37.5	30	7.5	35	-27.5	3	24.5	No	3.0	3	N/A	Alt. Vent. not Required
Plot 31	Ground	W	47.1	30	17.1	35	-17.9	12	34.1	No	12.0	12	N/A	Alt. Vent. not Required
Plot 31	Ground	S	49	30	19	35	-16	14	36	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 31	Ground	E	51.3	30	21.3	35	-13.7	16	38.3	Yes	16.0	16	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 32	Ground	W	47.2	30	17.2	35	-17.8	12	34.2	No	12.0	12	N/A	Alt. Vent. not Required
Plot 32	Ground	E	50.6	30	20.6	35	-14.4	16	37.6	Yes	16.0	16	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 32	Ground	N	36.6	30	6.6	35	-28.4	2	23.6	No	2.0	2	N/A	Alt. Vent. not Required
Plot 33	Ground	E	49.3	30	19.3	35	-15.7	14	36.3	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 33	Ground	S	48.4	30	18.4	35	-16.6	13	35.4	Yes	13.0	13	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 33	Ground	SW	44.8	30	14.8	35	-20.2	10	31.8	No	10.0	10	N/A	Alt. Vent. not Required
Plot 34	Ground	NW	35.6	30	5.6	35	-29.4	1	22.6	No	1.0	1	N/A	Alt. Vent. not Required
Plot 34	Ground	SW	43.3	30	13.3	35	-21.7	8	30.3	No	8.0	8	N/A	Alt. Vent. not Required

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Plot 34	Ground	SE	44.6	30	14.6	35	-20.4	10	31.6	No	10.0	10	N/A	Alt. Vent. not Required
Plot 35	Ground	SE	46.6	30	16.6	35	-18.4	12	33.6	No	12.0	12	N/A	Alt. Vent. not Required
Plot 35	Ground	NE	41.9	30	11.9	35	-23.1	7	28.9	No	7.0	7	N/A	Alt. Vent. not Required
Plot 35	Ground	NW	35.7	30	5.7	35	-29.3	1	22.7	No	1.0	1	N/A	Alt. Vent. not Required
Plot 36	Ground	SW	42.1	30	12.1	35	-22.9	7	29.1	No	7.0	7	N/A	Alt. Vent. not Required
Plot 36	Ground	SE	46.1	30	16.1	35	-18.9	11	33.1	No	11.0	11	N/A	Alt. Vent. not Required
Plot 36	Ground	NW	35.8	30	5.8	35	-29.2	1	22.8	No	1.0	1	N/A	Alt. Vent. not Required
Plot 37	Ground	W	51.3	30	21.3	35	-13.7	16	38.3	Yes	16.0	16	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 37	Ground	S	46.3	30	16.3	35	-18.7	11	33.3	No	11.0	11	N/A	Alt. Vent. not Required
Plot 37	Ground	E	46	30	16	35	-19	11	33	No	11.0	11	N/A	Alt. Vent. not Required
Plot 37	Ground	N	36.8	30	6.8	35	-28.2	2	23.8	No	2.0	2	N/A	Alt. Vent. not Required
Plot 38	Ground	W	52.7	30	22.7	35	-12.3	18	39.7	Yes	18.0	18	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 38	Ground	E	49.3	30	19.3	35	-15.7	14	36.3	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 38	Ground	N	37.5	30	7.5	35	-27.5	3	24.5	No	3.0	3	N/A	Alt. Vent. not Required
Plot 39	Ground	W	53.6	30	23.6	35	-11.4	19	40.6	Yes	19.0	19	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 39	Ground	S	54	30	24	35	-11	19	41	Yes	19.0	19	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 39	Ground	E	49.2	30	19.2	35	-15.8	14	36.2	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 40	Ground	E	57.3	30	27.3	35	-7.7	22	44.3	Yes	22.0	22	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 40	Ground	N	39.4	30	9.4	35	-25.6	4	26.4	No	4.0	4	N/A	Alt. Vent. not Required
Plot 40	Ground	W	57.1	30	27.1	35	-7.9	22	44.1	Yes	22.0	22	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 40	Ground	S	61.5	30	31.5	35	-3.5	27	48.5	Yes	27.0	27	ADF System 3	MEV System & Acoustic-grade 'T.V.'
Plot 41	Ground	W	57.4	30	27.4	35	-7.6	22	44.4	Yes	22.0	22	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 41	Ground	S	61.8	30	31.8	35	-3.2	27	48.8	Yes	27.0	27	ADF System 3	MEV System & Acoustic-grade 'T.V.'
Plot 41	Ground	E	58.7	30	28.7	35	-6.3	24	45.7	Yes	24.0	24	ADF System 3	MEV System & Acoustic-grade 'T.V.'
Plot 41	Ground	N	40.5	30	10.5	35	-24.5	6	27.5	No	6.0	6	N/A	Alt. Vent. not Required
Plot 42	Ground	W	50.4	30	20.4	35	-14.6	15	37.4	Yes	15.0	15	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 42	Ground	S	53	30	23	35	-12	18	40	Yes	18.0	18	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 42	Ground	E	55.3	30	25.3	35	-9.7	20	42.3	Yes	20.0	20	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 43	Ground	W	49.1	30	19.1	35	-15.9	14	36.1	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 43	Ground	E	54.5	30	24.5	35	-10.5	20	41.5	Yes	20.0	20	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 43	Ground	N	38.7	30	8.7	35	-26.3	4	25.7	No	4.0	4	N/A	Alt. Vent. not Required
Plot 44	Ground	E	53.1	30	23.1	35	-11.9	18	40.1	Yes	18.0	18	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 44	Ground	S	51.2	30	21.2	35	-13.8	16	38.2	Yes	16.0	16	ADF Systems 1 or 2	Acoustic-grade T.V.
Plot 44	Ground	W	47.5	30	17.5	35	-17.5	13	34.5	No	13.0	13	N/A	Alt. Vent. not Required
Plot 45	Ground	N	37.1	30	7.1	35	-27.9	2	24.1	No	2.0	2	N/A	Alt. Vent. not Required
Plot 45	Ground	W	47	30	17	35	-18	12	34	No	12.0	12	N/A	Alt. Vent. not Required
Plot 45	Ground	S	49.1	30	19.1	35	-15.9	14	36.1	Yes	14.0	14	ADF Systems 1 or 2	Acoustic-grade T.V.

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APPENDIX 6: NIGHT-TIME AVERAGE & MAXIMUM FAÇADE NOISE LEVELS (BEDROOMS)

Calculated Bedroom Façade Noise Levels, by Plot					Required Glazing Sound Insulation Performance - Average LAeq Noise Levels					Alternative Ventilation Requirement & Appropriate System - Average LAeq Noise Levels					Required Glazing Sound Insulation Performance - Maximum L _{max} Noise Levels					Alternative Ventilation Requirement & Appropriate System - Maximum L _{max} Noise Levels					Summary Requirements for Bedrooms - Overall Glazing & Alternative Ventilation Requirements		
Plot	Floor	Façade Direction	Calculated LAeq,8hr at Façade (dB)	Calculated L _{max} ,fast at Façade (dB)	Glazing Sound Reduction Index (Rw +Ctr) (Standard Thermal) (dB)	Calculated Noise Level Inside Room (dB)	Criteria (dB)	Difference +/- (dB)	Required Sound Insulation Performance for Glazing (Rw +Ctr) (dB)	Calculated Internal Noise Level with a Partially Open Window (dB)	Alternative Ventilation Required?	Required Sound Insulation Performance for Alternative Vent (if Required) (Rw +Ctr) (dB)	Do Average Night-time Internal Noise Levels Achieve Compliance with AD-O?	Acoustics Ventilation & Overheating Assessment - Appropriate AD-F System for Average Noise Levels	Glazing Sound Reduction Index (Rw) (Standard Thermal) (dB)	Calculated Noise Level Inside Room (dB)	Criteria (dB)	Difference +/- (dB)	Required Sound Insulation Performance for Glazing (Rw) (dB)	Calculated Internal Noise Level with a Partially Open Window (dB)	Alternative Ventilation Required?	Required Sound Insulation Performance for Alternative Vent (if Required) (Rw) (dB)	Do Average Night-time Internal Noise Levels Achieve Compliance with AD-O?	Acoustics Ventilation & Overheating Assessment - Appropriate AD-F System for Maximum Noise Levels	Overall Minimum Required Sound Insulation Performance for Glazing - Average & Maximum Noise Levels (Rw +Ctr) (dB)	Overall Minimum Required Alternative Ventilation AD-F System	Overall Appropriate Alternative Ventilation Scheme
Plot 1	1st	E	51.8	76.2	30	21.8	30	-8.2	22	38.8	Yes	22	Yes	ADF Systems 1 or 2	33	43.2	45	-1.8	31	63	Yes	31	Yes	ADF System 3	28	AD-F System 3	MEV System & Acoustic-grade T.V.¹
Plot 1	1st	N	36.2	64.3	30	6.2	30	-23.8	6	23.2	No	6	Yes	N/A	33	31.3	45	-13.7	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 1	1st	S	56.3	79.6	30	26.3	30	-3.7	26	43.3	Yes	26	Yes	ADF System 3	33	46.6	45	1.6	35	67	Yes	35	Yes	ADF System 3	32	AD-F System 3	MEV System & Acoustic-grade T.V.¹
Plot 10	1st	E	39.8	61.9	30	9.8	30	-20.2	10	26.8	No	10	Yes	N/A	33	28.9	45	-16.1	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 10	1st	W	35.9	59.6	30	5.9	30	-24.1	6	22.9	No	6	Yes	N/A	33	26.6	45	-18.4	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 11	1st	E	40	61.8	30	10	30	-20	10	27	No	10	Yes	N/A	33	28.8	45	-16.2	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 11	1st	S	39.2	62.4	30	9.2	30	-20.8	9	26.2	No	9	Yes	N/A	33	29.4	45	-15.6	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 11	1st	W	36.2	59.9	30	6.2	30	-23.8	6	23.2	No	6	Yes	N/A	33	26.9	45	-18.1	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 12	1st	E	37.3	60.5	30	7.3	30	-22.7	7	24.3	No	7	Yes	N/A	33	27.5	45	-17.5	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 12	1st	N	30.8	50.8	30	0.8	30	-29.2	1	17.8	No	1	Yes	N/A	33	17.8	45	-27.2	6	38	No	6	Yes	N/A	3	N/A	Alt. Vent. Not Required
Plot 12	1st	S	39.9	63.2	30	9.9	30	-20.1	10	26.9	No	10	Yes	N/A	33	30.2	45	-14.8	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 13	1st	N	30.8	50.3	30	0.8	30	-29.2	1	17.8	No	1	Yes	N/A	33	17.3	45	-27.7	5	37	No	5	Yes	N/A	2	N/A	Alt. Vent. Not Required
Plot 13	1st	S	40.6	63.4	30	10.6	30	-19.4	11	27.6	No	11	Yes	N/A	33	30.4	45	-14.6	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 13	1st	W	39.4	61.9	30	9.4	30	-20.6	9	26.4	No	9	Yes	N/A	33	28.9	45	-16.1	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 14	1st	E	37.7	60	30	7.7	30	-22.3	8	24.7	No	8	Yes	N/A	33	27.0	45	-18.0	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 14	1st	N	30.6	50.3	30	0.6	30	-29.4	1	17.6	No	1	Yes	N/A	33	17.3	45	-27.7	5	37	No	5	Yes	N/A	2	N/A	Alt. Vent. Not Required

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Plot 14	1st	S	41.7	63.9	30	11.7	30	-18.3	12	28.7	No	12	Yes	N/A	33	30.9	45	-14.1	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 14	1st	W	38.9	60.9	30	8.9	30	-21.1	9	25.9	No	9	Yes	N/A	33	27.9	45	-17.1	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 15	1st	E	39.8	61.4	30	9.8	30	-20.2	10	26.8	No	10	Yes	N/A	33	28.4	45	-16.6	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 15	1st	N	30.4	49.9	30	0.4	30	-29.6	0	17.4	No	0	Yes	N/A	33	16.9	45	-28.1	5	37	No	5	Yes	N/A	2	N/A	Alt. Vent. Not Required
Plot 15	1st	S	41.4	63	30	11.4	30	-18.6	11	28.4	No	11	Yes	N/A	33	30.0	45	-15.0	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 15	1st	W	35	58.6	30	5	30	-25	5	22	No	5	Yes	N/A	33	25.6	45	-19.4	14	46	Yes	14	Yes	ADF Systems 1 or 2	11	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 16	1st	E	40	61.2	30	10	30	-20	10	27	No	10	Yes	N/A	33	28.2	45	-16.8	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 16	1st	N	30.3	49.7	30	0.3	30	-29.7	0	17.3	No	0	Yes	N/A	33	16.7	45	-28.3	5	37	No	5	Yes	N/A	2	N/A	Alt. Vent. Not Required
Plot 16	1st	S	41	62.3	30	11	30	-19	11	28	No	11	Yes	N/A	33	29.3	45	-15.7	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 17	1st	N	30.2	49	30	0.2	30	-29.8	0	17.2	No	0	Yes	N/A	33	16.0	45	-29.0	4	36	No	4	Yes	N/A	1	N/A	Alt. Vent. Not Required
Plot 17	1st	S	41	62.1	30	11	30	-19	11	28	No	11	Yes	N/A	33	29.1	45	-15.9	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 17	1st	W	34.1	55.7	30	4.1	30	-25.9	4	21.1	No	4	Yes	N/A	33	22.7	45	-22.3	11	43	No	11	Yes	N/A	8	N/A	Alt. Vent. Not Required
Plot 18	1st	E	39.3	60.4	30	9.3	30	-20.7	9	26.3	No	9	Yes	N/A	33	27.4	45	-17.6	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 18	1st	N	30.1	48.8	30	0.1	30	-29.9	0	17.1	No	0	Yes	N/A	33	15.8	45	-29.2	4	36	No	4	Yes	N/A	1	N/A	Alt. Vent. Not Required
Plot 18	1st	S	40.8	62.1	30	10.8	30	-19.2	11	27.8	No	11	Yes	N/A	33	29.1	45	-15.9	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 19	1st	N	30	48.3	30	0	30	-30	0	17	No	0	Yes	N/A	33	15.3	45	-29.7	3	35	No	3	Yes	N/A	0	N/A	Alt. Vent. Not Required
Plot 19	1st	S	40.1	62	30	10.1	30	-19.9	10	27.1	No	10	Yes	N/A	33	29.0	45	-16.0	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 19	1st	W	34.1	55.2	30	4.1	30	-25.9	4	21.1	No	4	Yes	N/A	33	22.2	45	-22.8	10	42	No	10	Yes	N/A	7	N/A	Alt. Vent. Not Required
Plot 2	1st	N	35.7	62.9	30	5.7	30	-24.3	6	22.7	No	6	Yes	N/A	33	29.9	45	-15.1	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 2	1st	S	56	79.1	30	26	30	-4	26	43	Yes	26	Yes	ADF System 3	33	46.1	45	1.1	34	66	Yes	34	Yes	ADF System 3	31	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 2	1st	W	51.5	73.6	30	21.5	30	-8.5	22	38.5	Yes	22	Yes	ADF Systems 1 or 2	33	40.6	45	-4.4	29	61	Yes	29	Yes	ADF System 3	26	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 20	1st	NE	36.2	58.6	30	6.2	30	-23.8	6	23.2	No	6	Yes	N/A	33	25.6	45	-19.4	14	46	Yes	14	Yes	ADF Systems 1 or 2	11	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 20	1st	NW	30	51.6	30	0	30	-30	0	17	No	0	Yes	N/A	33	18.6	45	-26.4	7	39	No	7	Yes	N/A	4	N/A	Alt. Vent. Not Required
Plot 20	1st	SE	39.2	60.5	30	9.2	30	-20.8	9	26.2	No	9	Yes	N/A	33	27.5	45	-17.5	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 21	1st	NW	30	52.4	30	0	30	-30	0	17	No	0	Yes	N/A	33	19.4	45	-25.6	7	39	No	7	Yes	N/A	4	N/A	Alt. Vent. Not Required
Plot 21	1st	SE	39.1	59.6	30	9.1	30	-20.9	9	26.1	No	9	Yes	N/A	33	26.6	45	-18.4	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 21	1st	SW	34.3	56.3	30	4.3	30	-25.7	4	21.3	No	4	Yes	N/A	33	23.3	45	-21.7	11	43	No	11	Yes	N/A	8	N/A	Alt. Vent. Not Required
Plot 22	1st	NE	33.6	55.5	30	3.6	30	-26.4	4	20.6	No	4	Yes	N/A	33	22.5	45	-22.5	11	43	No	11	Yes	N/A	8	N/A	Alt. Vent. Not Required

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Plot 22	1st	NW	30	53.5	30	0	30	-30	0	17	No	0	Yes	N/A	33	20.5	45	-24.5	9	41	No	9	Yes	N/A	6	N/A	Alt. Vent. Not Required
Plot 22	1st	SE	40	59	30	10	30	-20	10	27	No	10	Yes	N/A	33	26.0	45	-19.0	14	46	Yes	14	Yes	ADF Systems 1 or 2	11	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 22	1st	SW	37	57.8	30	7	30	-23	7	24	No	7	Yes	N/A	33	24.8	45	-20.2	13	45	No	13	Yes	N/A	10	N/A	Alt. Vent. Not Required
Plot 23	1st	NE	33.5	56.2	30	3.5	30	-26.5	4	20.5	No	4	Yes	N/A	33	23.2	45	-21.8	11	43	No	11	Yes	N/A	8	N/A	Alt. Vent. Not Required
Plot 23	1st	NW	30	56.1	30	0	30	-30	0	17	No	0	Yes	N/A	33	23.1	45	-21.9	11	43	No	11	Yes	N/A	8	N/A	Alt. Vent. Not Required
Plot 23	1st	SE	42.2	60.6	30	12.2	30	-17.8	12	29.2	No	12	Yes	N/A	33	27.6	45	-17.4	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 23	1st	SW	42.9	60.8	30	12.9	30	-17.1	13	29.9	No	13	Yes	N/A	33	27.8	45	-17.2	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 24	1st	NE	32.6	55.7	30	2.6	30	-27.4	3	19.6	No	3	Yes	N/A	33	22.7	45	-22.3	11	43	No	11	Yes	N/A	8	N/A	Alt. Vent. Not Required
Plot 24	1st	NW	29.3	52.9	30	-0.7	30	-30.7	-1	16.3	No	-1	Yes	N/A	33	19.9	45	-25.1	8	40	No	8	Yes	N/A	5	N/A	Alt. Vent. Not Required
Plot 24	1st	SE	41.3	59.7	30	11.3	30	-18.7	11	28.3	No	11	Yes	N/A	33	26.7	45	-18.3	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 24	1st	SW	41.9	59.4	30	11.9	30	-18.1	12	28.9	No	12	Yes	N/A	33	26.4	45	-18.6	14	46	Yes	14	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 25	1st	NE	34.3	57.8	30	4.3	30	-25.7	4	21.3	No	4	Yes	N/A	33	24.8	45	-20.2	13	45	No	13	Yes	N/A	10	N/A	Alt. Vent. Not Required
Plot 25	1st	NW	31.1	55.1	30	1.1	30	-28.9	1	18.1	No	1	Yes	N/A	33	22.1	45	-22.9	10	42	No	10	Yes	N/A	7	N/A	Alt. Vent. Not Required
Plot 25	1st	SE	42.4	61.2	30	12.4	30	-17.6	12	29.4	No	12	Yes	N/A	33	28.2	45	-16.8	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 25	1st	SW	44	62.4	30	14	30	-16	14	31	Yes	14	Yes	ADF Systems 1 or 2	33	29.4	45	-15.6	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 26	1st	NE	37.6	60.2	30	7.6	30	-22.4	8	24.6	No	8	Yes	N/A	33	27.2	45	-17.8	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 26	1st	NW	34.1	57.8	30	4.1	30	-25.9	4	21.1	No	4	Yes	N/A	33	24.8	45	-20.2	13	45	No	13	Yes	N/A	10	N/A	Alt. Vent. Not Required
Plot 26	1st	SE	45.6	65.8	30	15.6	30	-14.4	16	32.6	Yes	16	Yes	ADF Systems 1 or 2	33	32.8	45	-12.2	21	53	Yes	21	Yes	ADF Systems 1 or 2	18	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 26	1st	SW	46	65.6	30	16	30	-14	16	33	Yes	16	Yes	ADF Systems 1 or 2	33	32.6	45	-12.4	21	53	Yes	21	Yes	ADF Systems 1 or 2	18	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 27	1st	NE	38.2	61	30	8.2	30	-21.8	8	25.2	No	8	Yes	N/A	33	28.0	45	-17.0	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 27	1st	NW	41.1	61.1	30	11.1	30	-18.9	11	28.1	No	11	Yes	N/A	33	28.1	45	-16.9	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 27	1st	SE	47.1	69.4	30	17.1	30	-12.9	17	34.1	Yes	17	Yes	ADF Systems 1 or 2	33	36.4	45	-8.6	24	56	Yes	24	Yes	ADF System 3	21	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 27	1st	SW	48.5	69.3	30	18.5	30	-11.5	19	35.5	Yes	19	Yes	ADF Systems 1 or 2	33	36.3	45	-8.7	24	56	Yes	24	Yes	ADF System 3	21	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 28	1st	E	48.1	72	30	18.1	30	-11.9	18	35.1	Yes	18	Yes	ADF Systems 1 or 2	33	39.0	45	-6.0	27	59	Yes	27	Yes	ADF System 3	24	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 28	1st	N	34.7	62.6	30	4.7	30	-25.3	5	21.7	No	5	Yes	N/A	33	29.6	45	-15.4	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 28	1st	S	51.5	73.3	30	21.5	30	-8.5	22	38.5	Yes	22	Yes	ADF Systems 1 or 2	33	40.3	45	-4.7	28	60	Yes	28	Yes	ADF System 3	25	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 28	1st	W	46.6	67.6	30	16.6	30	-13.4	17	33.6	Yes	17	Yes	ADF Systems 1 or 2	33	34.6	45	-10.4	23	55	Yes	23	Yes	ADF System 3	20	AD-F System 3	MEV System & Acoustic-grade 'T.V.'

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Plot 29	1st	E	49.4	71.2	30	19.4	30	-10.6	19	36.4	Yes	19	Yes	ADF Systems 1 or 2	33	38.2	45	-6.8	26	58	Yes	26	Yes	ADF System 3	23	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 29	1st	N	34.4	62.6	30	4.4	30	-25.6	4	21.4	No	4	Yes	N/A	33	29.6	45	-15.4	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 29	1st	S	52.7	74.5	30	22.7	30	-7.3	23	39.7	Yes	23	Yes	ADF Systems 1 or 2	33	41.5	45	-3.5	30	62	Yes	30	Yes	ADF System 3	27	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 29	1st	SW	47.8	71.7	30	17.8	30	-12.2	18	34.8	Yes	18	Yes	ADF Systems 1 or 2	33	38.7	45	-6.3	27	59	Yes	27	Yes	ADF System 3	24	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 3	1st	E	45	66.5	30	15	30	-15	15	32	Yes	15	Yes	ADF Systems 1 or 2	33	33.5	45	-11.5	22	54	Yes	22	Yes	ADF Systems 1 or 2	19	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 3	1st	N	33.5	60.2	30	3.5	30	-26.5	4	20.5	No	4	Yes	N/A	33	27.2	45	-17.8	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 3	1st	S	46.9	68.5	30	16.9	30	-13.1	17	33.9	Yes	17	Yes	ADF Systems 1 or 2	33	35.5	45	-9.5	24	56	Yes	24	Yes	ADF System 3	21	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 3	1st	W	45	68.2	30	15	30	-15	15	32	Yes	15	Yes	ADF Systems 1 or 2	33	35.2	45	-9.8	23	55	Yes	23	Yes	ADF System 3	20	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 30	1st	E	45.4	67.6	30	15.4	30	-14.6	15	32.4	Yes	15	Yes	ADF Systems 1 or 2	33	34.6	45	-10.4	23	55	Yes	23	Yes	ADF System 3	20	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 30	1st	N	33	61.1	30	3	30	-27	3	20	No	3	Yes	N/A	33	28.1	45	-16.9	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 30	1st	S	45.8	67.9	30	15.8	30	-14.2	16	32.8	Yes	16	Yes	ADF Systems 1 or 2	33	34.9	45	-10.1	23	55	Yes	23	Yes	ADF System 3	20	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 30	1st	W	42.3	63.4	30	12.3	30	-17.7	12	29.3	No	12	Yes	N/A	33	30.4	45	-14.6	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 31	1st	E	43.9	66.2	30	13.9	30	-16.1	14	30.9	Yes	14	Yes	ADF Systems 1 or 2	33	33.2	45	-11.8	21	53	Yes	21	Yes	ADF Systems 1 or 2	18	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 31	1st	S	43	65.4	30	13	30	-17	13	30	No	13	Yes	N/A	33	32.4	45	-12.6	20	52	Yes	20	Yes	ADF Systems 1 or 2	17	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 31	1st	W	41.3	63.1	30	11.3	30	-18.7	11	28.3	No	11	Yes	N/A	33	30.1	45	-14.9	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 32	1st	E	43.2	65.5	30	13.2	30	-16.8	13	30.2	Yes	13	Yes	ADF Systems 1 or 2	33	32.5	45	-12.5	21	53	Yes	21	Yes	ADF Systems 1 or 2	18	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 32	1st	N	32.1	59.2	30	2.1	30	-27.9	2	19.1	No	2	Yes	N/A	33	26.2	45	-18.8	14	46	Yes	14	Yes	ADF Systems 1 or 2	11	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 32	1st	W	41.6	62.4	30	11.6	30	-18.4	12	28.6	No	12	Yes	N/A	33	29.4	45	-15.6	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 33	1st	E	41.9	63.8	30	11.9	30	-18.1	12	28.9	No	12	Yes	N/A	33	30.8	45	-14.2	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 33	1st	S	42	63.9	30	12	30	-18	12	29	No	12	Yes	N/A	33	30.9	45	-14.1	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 33	1st	SW	39.6	60.2	30	9.6	30	-20.4	10	26.6	No	10	Yes	N/A	33	27.2	45	-17.8	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 34	1st	NW	31.1	56.3	30	1.1	30	-28.9	1	18.1	No	1	Yes	N/A	33	23.3	45	-21.7	11	43	No	11	Yes	N/A	8	N/A	Alt. Vent. Not Required
Plot 34	1st	SE	38.4	62.8	30	8.4	30	-21.6	8	25.4	No	8	Yes	N/A	33	29.8	45	-15.2	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 34	1st	SW	37	60.6	30	7	30	-23	7	24	No	7	Yes	N/A	33	27.6	45	-17.4	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.

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Plot 35	1st	NE	35.7	58.9	30	5.7	30	-24.3	6	22.7	No	6	Yes	N/A	33	25.9	45	-19.1	14	46	Yes	14	Yes	ADF Systems 1 or 2	11	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 35	1st	NW	31.2	54.8	30	1.2	30	-28.8	1	18.2	No	1	Yes	N/A	33	21.8	45	-23.2	10	42	No	10	Yes	N/A	7	N/A	Alt. Vent. Not Required
Plot 35	1st	SE	40.5	62.9	30	10.5	30	-19.5	11	27.5	No	11	Yes	N/A	33	29.9	45	-15.1	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 36	1st	NW	31.2	56.5	30	1.2	30	-28.8	1	18.2	No	1	Yes	N/A	33	23.5	45	-21.5	12	44	No	12	Yes	N/A	9	N/A	Alt. Vent. Not Required
Plot 36	1st	SE	39.8	62.8	30	9.8	30	-20.2	10	26.8	No	10	Yes	N/A	33	29.8	45	-15.2	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 36	1st	SW	38.7	60.8	30	8.7	30	-21.3	9	25.7	No	9	Yes	N/A	33	27.8	45	-17.2	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 37	1st	E	39.8	63.5	30	9.8	30	-20.2	10	26.8	No	10	Yes	N/A	33	30.5	45	-14.5	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 37	1st	N	32.2	57.4	30	2.2	30	-27.8	2	19.2	No	2	Yes	N/A	33	24.4	45	-20.6	12	44	No	12	Yes	N/A	9	N/A	Alt. Vent. Not Required
Plot 37	1st	S	39.9	64.5	30	9.9	30	-20.1	10	26.9	No	10	Yes	N/A	33	31.5	45	-13.5	20	52	Yes	20	Yes	ADF Systems 1 or 2	17	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 37	1st	W	43.9	65.9	30	13.9	30	-16.1	14	30.9	Yes	14	Yes	ADF Systems 1 or 2	33	32.9	45	-12.1	21	53	Yes	21	Yes	ADF Systems 1 or 2	18	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 38	1st	E	42.9	66.3	30	12.9	30	-17.1	13	29.9	No	13	Yes	N/A	33	33.3	45	-11.7	21	53	Yes	21	Yes	ADF Systems 1 or 2	18	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 38	1st	N	33	61.1	30	3	30	-27	3	20	No	3	Yes	N/A	33	28.1	45	-16.9	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 38	1st	W	45.2	67.1	30	15.2	30	-14.8	15	32.2	Yes	15	Yes	ADF Systems 1 or 2	33	34.1	45	-10.9	22	54	Yes	22	Yes	ADF System 3	19	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 39	1st	E	43.5	67.2	30	13.5	30	-16.5	14	30.5	Yes	14	Yes	ADF Systems 1 or 2	33	34.2	45	-10.8	22	54	Yes	22	Yes	ADF System 3	19	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 39	1st	S	47.2	69.8	30	17.2	30	-12.8	17	34.2	Yes	17	Yes	ADF Systems 1 or 2	33	36.8	45	-8.2	25	57	Yes	25	Yes	ADF System 3	22	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 39	1st	W	46.1	68.3	30	16.1	30	-13.9	16	33.1	Yes	16	Yes	ADF Systems 1 or 2	33	35.3	45	-9.7	23	55	Yes	23	Yes	ADF System 3	20	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 4	1st	E	42	66.5	30	12	30	-18	12	29	No	12	Yes	N/A	33	33.5	45	-11.5	22	54	Yes	22	Yes	ADF Systems 1 or 2	19	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 4	1st	S	42.5	66.5	30	12.5	30	-17.5	13	29.5	No	13	Yes	N/A	33	33.5	45	-11.5	22	54	Yes	22	Yes	ADF Systems 1 or 2	19	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 4	1st	W	42.5	65	30	12.5	30	-17.5	13	29.5	No	13	Yes	N/A	33	32.0	45	-13.0	20	52	Yes	20	Yes	ADF Systems 1 or 2	17	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 40	1st	E	50	73	30	20	30	-10	20	37	Yes	20	Yes	ADF Systems 1 or 2	33	40.0	45	-5.0	28	60	Yes	28	Yes	ADF System 3	25	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 40	1st	N	34.9	63.5	30	4.9	30	-25.1	5	21.9	No	5	Yes	N/A	33	30.5	45	-14.5	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 40	1st	S	54	76.2	30	24	30	-6	24	41	Yes	24	Yes	ADF System 3	33	43.2	45	-1.8	31	63	Yes	31	Yes	ADF System 3	28	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 40	1st	W	49.6	71.6	30	19.6	30	-10.4	20	36.6	Yes	20	Yes	ADF Systems 1 or 2	33	38.6	45	-6.4	27	59	Yes	27	Yes	ADF System 3	24	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 41	1st	E	51.1	74.8	30	21.1	30	-8.9	21	38.1	Yes	21	Yes	ADF Systems 1 or 2	33	41.8	45	-3.2	30	62	Yes	30	Yes	ADF System 3	27	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 41	1st	N	35.9	67	30	5.9	30	-24.1	6	22.9	No	6	Yes	N/A	33	34.0	45	-11.0	22	54	Yes	22	Yes	ADF Systems 1 or 2	19	AD-F System 1 or 2	Acoustic-grade T.V.

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Plot 41	1st	S	54.3	76.9	30	24.3	30	-5.7	24	41.3	Yes	24	Yes	ADF System 3	33	43.9	45	-1.1	32	64	Yes	32	Yes	ADF System 3	29	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 41	1st	W	50	72.5	30	20	30	-10	20	37	Yes	20	Yes	ADF Systems 1 or 2	33	39.5	45	-5.5	28	60	Yes	28	Yes	ADF System 3	25	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 42	1st	E	47.8	71.5	30	17.8	30	-12.2	18	34.8	Yes	18	Yes	ADF Systems 1 or 2	33	38.5	45	-6.5	27	59	Yes	27	Yes	ADF System 3	24	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 42	1st	S	46.3	70.4	30	16.3	30	-13.7	16	33.3	Yes	16	Yes	ADF Systems 1 or 2	33	37.4	45	-7.6	25	57	Yes	25	Yes	ADF System 3	22	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 42	1st	W	45.4	68.9	30	15.4	30	-14.6	15	32.4	Yes	15	Yes	ADF Systems 1 or 2	33	35.9	45	-9.1	24	56	Yes	24	Yes	ADF System 3	21	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 43	1st	E	46.9	70.7	30	16.9	30	-13.1	17	33.9	Yes	17	Yes	ADF Systems 1 or 2	33	37.7	45	-7.3	26	58	Yes	26	Yes	ADF System 3	23	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 43	1st	N	34.1	62.9	30	4.1	30	-25.9	4	21.1	No	4	Yes	N/A	33	29.9	45	-15.1	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 43	1st	W	43.8	68.2	30	13.8	30	-16.2	14	30.8	Yes	14	Yes	ADF Systems 1 or 2	33	35.2	45	-9.8	23	55	Yes	23	Yes	ADF System 3	20	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 44	1st	E	45.6	67.9	30	15.6	30	-14.4	16	32.6	Yes	16	Yes	ADF Systems 1 or 2	33	34.9	45	-10.1	23	55	Yes	23	Yes	ADF System 3	20	AD-F System 3	MEV System & Acoustic-grade 'T.V.'
Plot 44	1st	S	44	66.7	30	14	30	-16	14	31	Yes	14	Yes	ADF Systems 1 or 2	33	33.7	45	-11.3	22	54	Yes	22	Yes	ADF Systems 1 or 2	19	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 44	1st	W	41.1	64.7	30	11.1	30	-18.9	11	28.1	No	11	Yes	N/A	33	31.7	45	-13.3	20	52	Yes	20	Yes	ADF Systems 1 or 2	17	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 45	1st	N	32.5	57.4	30	2.5	30	-27.5	3	19.5	No	3	Yes	N/A	33	24.4	45	-20.6	12	44	No	12	Yes	N/A	9	N/A	Alt. Vent. Not Required
Plot 45	1st	S	42.7	66.6	30	12.7	30	-17.3	13	29.7	No	13	Yes	N/A	33	33.6	45	-11.4	22	54	Yes	22	Yes	ADF Systems 1 or 2	19	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 45	1st	W	40.7	64.1	30	10.7	30	-19.3	11	27.7	No	11	Yes	N/A	33	31.1	45	-13.9	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 5	1st	E	40.9	65.8	30	10.9	30	-19.1	11	27.9	No	11	Yes	N/A	33	32.8	45	-12.2	21	53	Yes	21	Yes	ADF Systems 1 or 2	18	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 5	1st	N	32.2	61.9	30	2.2	30	-27.8	2	19.2	No	2	Yes	N/A	33	28.9	45	-16.1	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 5	1st	W	41.5	64.1	30	11.5	30	-18.5	12	28.5	No	12	Yes	N/A	33	31.1	45	-13.9	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 6	1st	E	39.4	64.5	30	9.4	30	-20.6	9	26.4	No	9	Yes	N/A	33	31.5	45	-13.5	20	52	Yes	20	Yes	ADF Systems 1 or 2	17	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 6	1st	S	38.2	62.7	30	8.2	30	-21.8	8	25.2	No	8	Yes	N/A	33	29.7	45	-15.3	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 6	1st	W	40.3	62.7	30	10.3	30	-19.7	10	27.3	No	10	Yes	N/A	33	29.7	45	-15.3	18	50	Yes	18	Yes	ADF Systems 1 or 2	15	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 7	1st	E	38.8	64.2	30	8.8	30	-21.2	9	25.8	No	9	Yes	N/A	33	31.2	45	-13.8	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 7	1st	W	39.7	62.1	30	9.7	30	-20.3	10	26.7	No	10	Yes	N/A	33	29.1	45	-15.9	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 8	1st	E	38.2	63.7	30	8.2	30	-21.8	8	25.2	No	8	Yes	N/A	33	30.7	45	-14.3	19	51	Yes	19	Yes	ADF Systems 1 or 2	16	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 8	1st	N	31	50.6	30	1	30	-29	1	18	No	1	Yes	N/A	33	17.6	45	-27.4	6	38	No	6	Yes	N/A	3	N/A	Alt. Vent. Not Required
Plot 8	1st	W	39	61.7	30	9	30	-21	9	26	No	9	Yes	N/A	33	28.7	45	-16.3	17	49	Yes	17	Yes	ADF Systems 1 or 2	14	AD-F System 1 or 2	Acoustic-grade T.V.

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Plot 9	1st	E	39.5	61.4	30	9.5	30	-20.5	10	26.5	No	10	Yes	N/A	33	28.4	45	-16.6	16	48	Yes	16	Yes	ADF Systems 1 or 2	13	AD-F System 1 or 2	Acoustic-grade T.V.
Plot 9	1st	N	30.8	50.3	30	0.8	30	-29.2	1	17.8	No	1	Yes	N/A	33	17.3	45	-27.7	5	37	No	5	Yes	N/A	2	N/A	Alt. Vent. Not Required
Plot 9	1st	W	35.1	59.5	30	5.1	30	-24.9	5	22.1	No	5	Yes	N/A	33	26.5	45	-18.5	15	47	Yes	15	Yes	ADF Systems 1 or 2	12	AD-F System 1 or 2	Acoustic-grade T.V.

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APPENDIX 7: NIGHT-TIME AVERAGE & MAXIMUM NOISE LEVELS COMPLIANCE CHECK WITH AD-O

Calculated Bedroom Façade Noise Levels, by Plot, & Determination of Simplified or Dynamic Thermal Calculation Method						Open Window Sound Reduction Performance for 'Moderate' Sites (dB)	Calculation of Internal Average Noise Level with Open Window (dB)			Calculation of Internal Maximum Noise Level with Open Window (dB)		
Plot	Floor	Façade Direction	Calculated LAeq,8hr at Façade (dB)	Calculated LAmax,fast at Façade (dB)	Based on the Calculated External Average & Maximum Noise Levels, can the Simplified Calculation Method be Used for AD-O?		Calculated Internal LAeq,8hr Noise Level (dB)	AD-O Noise Criteria Limit, LAeq,t (dB)	Difference +/- (dB)	Calculated Internal LAmax,fast Noise Level (dB)	AD-O Noise Criteria Limit, LAmax,fast (dB)	Difference +/- (dB)
Plot 1	1st	E	51.8	76.2	No, Dynamic Thermal Modelling Required	9	42.8	40	2.8	67.2	55	12.2
Plot 1	1st	N	36.2	64.3	No, Dynamic Thermal Modelling Required	9	27.2	40	-12.8	55.3	55	0.3
Plot 1	1st	S	56.3	79.6	No, Dynamic Thermal Modelling Required	9	47.3	40	7.3	70.6	55	15.6
Plot 10	1st	E	39.8	61.9	Yes	9	30.8	40	-9.2	52.9	55	-2.1
Plot 10	1st	W	35.9	59.6	Yes	9	26.9	40	-13.1	50.6	55	-4.4
Plot 11	1st	E	40	61.8	Yes	9	31	40	-9	52.8	55	-2.2
Plot 11	1st	S	39.2	62.4	Yes	9	30.2	40	-9.8	53.4	55	-1.6
Plot 11	1st	W	36.2	59.9	Yes	9	27.2	40	-12.8	50.9	55	-4.1
Plot 12	1st	E	37.3	60.5	Yes	9	28.3	40	-11.7	51.5	55	-3.5
Plot 12	1st	N	30.8	50.8	Yes	9	21.8	40	-18.2	41.8	55	-13.2
Plot 12	1st	S	39.9	63.2	Yes	9	30.9	40	-9.1	54.2	55	-0.8
Plot 13	1st	N	30.8	50.3	Yes	9	21.8	40	-18.2	41.3	55	-13.7
Plot 13	1st	S	40.6	63.4	Yes	9	31.6	40	-8.4	54.4	55	-0.6
Plot 13	1st	W	39.4	61.9	Yes	9	30.4	40	-9.6	52.9	55	-2.1
Plot 14	1st	E	37.7	60	Yes	9	28.7	40	-11.3	51	55	-4
Plot 14	1st	N	30.6	50.3	Yes	9	21.6	40	-18.4	41.3	55	-13.7
Plot 14	1st	S	41.7	63.9	Yes	9	32.7	40	-7.3	54.9	55	-0.1
Plot 14	1st	W	38.9	60.9	Yes	9	29.9	40	-10.1	51.9	55	-3.1
Plot 15	1st	E	39.8	61.4	Yes	9	30.8	40	-9.2	52.4	55	-2.6
Plot 15	1st	N	30.4	49.9	Yes	9	21.4	40	-18.6	40.9	55	-14.1
Plot 15	1st	S	41.4	63	Yes	9	32.4	40	-7.6	54	55	-1
Plot 15	1st	W	35	58.6	Yes	9	26	40	-14	49.6	55	-5.4
Plot 16	1st	E	40	61.2	Yes	9	31	40	-9	52.2	55	-2.8
Plot 16	1st	N	30.3	49.7	Yes	9	21.3	40	-18.7	40.7	55	-14.3
Plot 16	1st	S	41	62.3	Yes	9	32	40	-8	53.3	55	-1.7
Plot 17	1st	N	30.2	49	Yes	9	21.2	40	-18.8	40	55	-15
Plot 17	1st	S	41	62.1	Yes	9	32	40	-8	53.1	55	-1.9
Plot 17	1st	W	34.1	55.7	Yes	9	25.1	40	-14.9	46.7	55	-8.3
Plot 18	1st	E	39.3	60.4	Yes	9	30.3	40	-9.7	51.4	55	-3.6
Plot 18	1st	N	30.1	48.8	Yes	9	21.1	40	-18.9	39.8	55	-15.2
Plot 18	1st	S	40.8	62.1	Yes	9	31.8	40	-8.2	53.1	55	-1.9
Plot 19	1st	N	30	48.3	Yes	9	21	40	-19	39.3	55	-15.7

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Plot 19	1st	S	40.1	62	Yes	9	31.1	40	-8.9	53	55	-2
Plot 19	1st	W	34.1	55.2	Yes	9	25.1	40	-14.9	46.2	55	-8.8
Plot 2	1st	N	35.7	62.9	Yes	9	26.7	40	-13.3	53.9	55	-1.1
Plot 2	1st	S	56	79.1	No, Dynamic Thermal Modelling Required	9	47	40	7	70.1	55	15.1
Plot 2	1st	W	51.5	73.6	No, Dynamic Thermal Modelling Required	9	42.5	40	2.5	64.6	55	9.6
Plot 20	1st	NE	36.2	58.6	Yes	9	27.2	40	-12.8	49.6	55	-5.4
Plot 20	1st	NW	30	51.6	Yes	9	21	40	-19	42.6	55	-12.4
Plot 20	1st	SE	39.2	60.5	Yes	9	30.2	40	-9.8	51.5	55	-3.5
Plot 21	1st	NW	30	52.4	Yes	9	21	40	-19	43.4	55	-11.6
Plot 21	1st	SE	39.1	59.6	Yes	9	30.1	40	-9.9	50.6	55	-4.4
Plot 21	1st	SW	34.3	56.3	Yes	9	25.3	40	-14.7	47.3	55	-7.7
Plot 22	1st	NE	33.6	55.5	Yes	9	24.6	40	-15.4	46.5	55	-8.5
Plot 22	1st	NW	30	53.5	Yes	9	21	40	-19	44.5	55	-10.5
Plot 22	1st	SE	40	59	Yes	9	31	40	-9	50	55	-5
Plot 22	1st	SW	37	57.8	Yes	9	28	40	-12	48.8	55	-6.2
Plot 23	1st	NE	33.5	56.2	Yes	9	24.5	40	-15.5	47.2	55	-7.8
Plot 23	1st	NW	30	56.1	Yes	9	21	40	-19	47.1	55	-7.9
Plot 23	1st	SE	42.2	60.6	Yes	9	33.2	40	-6.8	51.6	55	-3.4
Plot 23	1st	SW	42.9	60.8	Yes	9	33.9	40	-6.1	51.8	55	-3.2
Plot 24	1st	NE	32.6	55.7	Yes	9	23.6	40	-16.4	46.7	55	-8.3
Plot 24	1st	NW	29.3	52.9	Yes	9	20.3	40	-19.7	43.9	55	-11.1
Plot 24	1st	SE	41.3	59.7	Yes	9	32.3	40	-7.7	50.7	55	-4.3
Plot 24	1st	SW	41.9	59.4	Yes	9	32.9	40	-7.1	50.4	55	-4.6
Plot 25	1st	NE	34.3	57.8	Yes	9	25.3	40	-14.7	48.8	55	-6.2
Plot 25	1st	NW	31.1	55.1	Yes	9	22.1	40	-17.9	46.1	55	-8.9
Plot 25	1st	SE	42.4	61.2	Yes	9	33.4	40	-6.6	52.2	55	-2.8
Plot 25	1st	SW	44	62.4	Yes	9	35	40	-5	53.4	55	-1.6
Plot 26	1st	NE	37.6	60.2	Yes	9	28.6	40	-11.4	51.2	55	-3.8
Plot 26	1st	NW	34.1	57.8	Yes	9	25.1	40	-14.9	48.8	55	-6.2
Plot 26	1st	SE	45.6	65.8	No, Dynamic Thermal Modelling Required	9	36.6	40	-3.4	56.8	55	1.8
Plot 26	1st	SW	46	65.6	No, Dynamic Thermal Modelling Required	9	37	40	-3	56.6	55	1.6
Plot 27	1st	NE	38.2	61	Yes	9	29.2	40	-10.8	52	55	-3
Plot 27	1st	NW	41.1	61.1	Yes	9	32.1	40	-7.9	52.1	55	-2.9
Plot 27	1st	SE	47.1	69.4	No, Dynamic Thermal Modelling Required	9	38.1	40	-1.9	60.4	55	5.4
Plot 27	1st	SW	48.5	69.3	No, Dynamic Thermal Modelling Required	9	39.5	40	-0.5	60.3	55	5.3
Plot 28	1st	E	48.1	72	No, Dynamic Thermal Modelling Required	9	39.1	40	-0.9	63	55	8
Plot 28	1st	N	34.7	62.6	Yes	9	25.7	40	-14.3	53.6	55	-1.4
Plot 28	1st	S	51.5	73.3	No, Dynamic Thermal Modelling Required	9	42.5	40	2.5	64.3	55	9.3
Plot 28	1st	W	46.6	67.6	No, Dynamic Thermal Modelling Required	9	37.6	40	-2.4	58.6	55	3.6
Plot 29	1st	E	49.4	71.2	No, Dynamic Thermal Modelling Required	9	40.4	40	0.4	62.2	55	7.2
Plot 29	1st	N	34.4	62.6	Yes	9	25.4	40	-14.6	53.6	55	-1.4
Plot 29	1st	S	52.7	74.5	No, Dynamic Thermal Modelling Required	9	43.7	40	3.7	65.5	55	10.5
Plot 29	1st	SW	47.8	71.7	No, Dynamic Thermal Modelling Required	9	38.8	40	-1.2	62.7	55	7.7

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Plot 3	1st	E	45	66.5	No, Dynamic Thermal Modelling Required	9	36	40	-4	57.5	55	2.5
Plot 3	1st	N	33.5	60.2	Yes	9	24.5	40	-15.5	51.2	55	-3.8
Plot 3	1st	S	46.9	68.5	No, Dynamic Thermal Modelling Required	9	37.9	40	-2.1	59.5	55	4.5
Plot 3	1st	W	45	68.2	No, Dynamic Thermal Modelling Required	9	36	40	-4	59.2	55	4.2
Plot 30	1st	E	45.4	67.6	No, Dynamic Thermal Modelling Required	9	36.4	40	-3.6	58.6	55	3.6
Plot 30	1st	N	33	61.1	Yes	9	24	40	-16	52.1	55	-2.9
Plot 30	1st	S	45.8	67.9	No, Dynamic Thermal Modelling Required	9	36.8	40	-3.2	58.9	55	3.9
Plot 30	1st	W	42.3	63.4	Yes	9	33.3	40	-6.7	54.4	55	-0.6
Plot 31	1st	E	43.9	66.2	No, Dynamic Thermal Modelling Required	9	34.9	40	-5.1	57.2	55	2.2
Plot 31	1st	S	43	65.4	No, Dynamic Thermal Modelling Required	9	34	40	-6	56.4	55	1.4
Plot 31	1st	W	41.3	63.1	Yes	9	32.3	40	-7.7	54.1	55	-0.9
Plot 32	1st	E	43.2	65.5	No, Dynamic Thermal Modelling Required	9	34.2	40	-5.8	56.5	55	1.5
Plot 32	1st	N	32.1	59.2	Yes	9	23.1	40	-16.9	50.2	55	-4.8
Plot 32	1st	W	41.6	62.4	Yes	9	32.6	40	-7.4	53.4	55	-1.6
Plot 32	1st	E	41.9	63.8	Yes	9	32.9	40	-7.1	54.8	55	-0.2
Plot 33	1st	S	42	63.9	Yes	9	33	40	-7	54.9	55	-0.1
Plot 33	1st	SW	39.6	60.2	Yes	9	30.6	40	-9.4	51.2	55	-3.8
Plot 34	1st	NW	31.1	56.3	Yes	9	22.1	40	-17.9	47.3	55	-7.7
Plot 34	1st	SE	38.4	62.8	Yes	9	29.4	40	-10.6	53.8	55	-1.2
Plot 34	1st	SW	37	60.6	Yes	9	28	40	-12	51.6	55	-3.4
Plot 35	1st	NE	35.7	58.9	Yes	9	26.7	40	-13.3	49.9	55	-5.1
Plot 35	1st	NW	31.2	54.8	Yes	9	22.2	40	-17.8	45.8	55	-9.2
Plot 35	1st	SE	40.5	62.9	Yes	9	31.5	40	-8.5	53.9	55	-1.1
Plot 36	1st	NW	31.2	56.5	Yes	9	22.2	40	-17.8	47.5	55	-7.5
Plot 36	1st	SE	39.8	62.8	Yes	9	30.8	40	-9.2	53.8	55	-1.2
Plot 36	1st	SW	38.7	60.8	Yes	9	29.7	40	-10.3	51.8	55	-3.2
Plot 37	1st	E	39.8	63.5	Yes	9	30.8	40	-9.2	54.5	55	-0.5
Plot 37	1st	N	32.2	57.4	Yes	9	23.2	40	-16.8	48.4	55	-6.6
Plot 37	1st	S	39.9	64.5	No, Dynamic Thermal Modelling Required	9	30.9	40	-9.1	55.5	55	0.5
Plot 37	1st	W	43.9	65.9	No, Dynamic Thermal Modelling Required	9	34.9	40	-5.1	56.9	55	1.9
Plot 38	1st	E	42.9	66.3	No, Dynamic Thermal Modelling Required	9	33.9	40	-6.1	57.3	55	2.3
Plot 38	1st	N	33	61.1	Yes	9	24	40	-16	52.1	55	-2.9
Plot 38	1st	W	45.2	67.1	No, Dynamic Thermal Modelling Required	9	36.2	40	-3.8	58.1	55	3.1
Plot 39	1st	E	43.5	67.2	No, Dynamic Thermal Modelling Required	9	34.5	40	-5.5	58.2	55	3.2
Plot 39	1st	S	47.2	69.8	No, Dynamic Thermal Modelling Required	9	38.2	40	-1.8	60.8	55	5.8
Plot 39	1st	W	46.1	68.3	No, Dynamic Thermal Modelling Required	9	37.1	40	-2.9	59.3	55	4.3
Plot 4	1st	E	42	66.5	No, Dynamic Thermal Modelling Required	9	33	40	-7	57.5	55	2.5
Plot 4	1st	S	42.5	66.5	No, Dynamic Thermal Modelling Required	9	33.5	40	-6.5	57.5	55	2.5
Plot 4	1st	W	42.5	65	No, Dynamic Thermal Modelling Required	9	33.5	40	-6.5	56	55	1
Plot 40	1st	E	50	73	No, Dynamic Thermal Modelling Required	9	41	40	1	64	55	9
Plot 40	1st	N	34.9	63.5	Yes	9	25.9	40	-14.1	54.5	55	-0.5
Plot 40	1st	S	54	76.2	No, Dynamic Thermal Modelling Required	9	45	40	5	67.2	55	12.2
Plot 40	1st	W	49.6	71.6	No, Dynamic Thermal Modelling Required	9	40.6	40	0.6	62.6	55	7.6

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Plot 41	1st	E	51.1	74.8	No, Dynamic Thermal Modelling Required	9	42.1	40	2.1	65.8	55	10.8
Plot 41	1st	N	35.9	67	No, Dynamic Thermal Modelling Required	9	26.9	40	-13.1	58	55	3
Plot 41	1st	S	54.3	76.9	No, Dynamic Thermal Modelling Required	9	45.3	40	5.3	67.9	55	12.9
Plot 41	1st	W	50	72.5	No, Dynamic Thermal Modelling Required	9	41	40	1	63.5	55	8.5
Plot 42	1st	E	47.8	71.5	No, Dynamic Thermal Modelling Required	9	38.8	40	-1.2	62.5	55	7.5
Plot 42	1st	S	46.3	70.4	No, Dynamic Thermal Modelling Required	9	37.3	40	-2.7	61.4	55	6.4
Plot 42	1st	W	45.4	68.9	No, Dynamic Thermal Modelling Required	9	36.4	40	-3.6	59.9	55	4.9
Plot 43	1st	E	46.9	70.7	No, Dynamic Thermal Modelling Required	9	37.9	40	-2.1	61.7	55	6.7
Plot 43	1st	N	34.1	62.9	Yes	9	25.1	40	-14.9	53.9	55	-1.1
Plot 43	1st	W	43.8	68.2	No, Dynamic Thermal Modelling Required	9	34.8	40	-5.2	59.2	55	4.2
Plot 44	1st	E	45.6	67.9	No, Dynamic Thermal Modelling Required	9	36.6	40	-3.4	58.9	55	3.9
Plot 44	1st	S	44	66.7	No, Dynamic Thermal Modelling Required	9	35	40	-5	57.7	55	2.7
Plot 44	1st	W	41.1	64.7	No, Dynamic Thermal Modelling Required	9	32.1	40	-7.9	55.7	55	0.7
Plot 45	1st	N	32.5	57.4	Yes	9	23.5	40	-16.5	48.4	55	-6.6
Plot 45	1st	S	42.7	66.6	No, Dynamic Thermal Modelling Required	9	33.7	40	-6.3	57.6	55	2.6
Plot 45	1st	W	40.7	64.1	No, Dynamic Thermal Modelling Required	9	31.7	40	-8.3	55.1	55	0.1
Plot 5	1st	E	40.9	65.8	No, Dynamic Thermal Modelling Required	9	31.9	40	-8.1	56.8	55	1.8
Plot 5	1st	N	32.2	61.9	Yes	9	23.2	40	-16.8	52.9	55	-2.1
Plot 5	1st	W	41.5	64.1	No, Dynamic Thermal Modelling Required	9	32.5	40	-7.5	55.1	55	0.1
Plot 6	1st	E	39.4	64.5	No, Dynamic Thermal Modelling Required	9	30.4	40	-9.6	55.5	55	0.5
Plot 6	1st	S	38.2	62.7	Yes	9	29.2	40	-10.8	53.7	55	-1.3
Plot 6	1st	W	40.3	62.7	Yes	9	31.3	40	-8.7	53.7	55	-1.3
Plot 7	1st	E	38.8	64.2	No, Dynamic Thermal Modelling Required	9	29.8	40	-10.2	55.2	55	0.2
Plot 7	1st	W	39.7	62.1	Yes	9	30.7	40	-9.3	53.1	55	-1.9
Plot 8	1st	E	38.2	63.7	Yes	9	29.2	40	-10.8	54.7	55	-0.3
Plot 8	1st	N	31	50.6	Yes	9	22	40	-18	41.6	55	-13.4
Plot 8	1st	W	39	61.7	Yes	9	30	40	-10	52.7	55	-2.3
Plot 9	1st	E	39.5	61.4	Yes	9	30.5	40	-9.5	52.4	55	-2.6
Plot 9	1st	N	30.8	50.3	Yes	9	21.8	40	-18.2	41.3	55	-13.7
Plot 9	1st	W	35.1	59.5	Yes	9	26.1	40	-13.9	50.5	55	-4.5

APPENDIX 8: EXAMPLE ALTERNATIVE VENTILATION SYSTEMS

System	Description	Example Product*
1 / 2	Window-frame mounted trickle ventilator.	Greenwoods DN Vent Can be used where a sound reduction performance of up to 36dB Rw +Ctr is required. Greenwoods Acoustic Trickle Ventilator EAQ42W. Can be used where a sound reduction performance of up to 42dB Rw +Ctr is required.
	Through-wall ventilator.	Greenwoods Wall Ventilator MA3051. Provides a sound reduction performance of 55dB D_{n,e,w} +C_{tr} in its open position. Highest performing acoustic wall ventilator in the UK - the MA3051 is ideal for new build applications where noise planning restrictions are in place. Providing up to 55dB reduction and suitable for wall thicknesses of 140mm and above
3	Continuous Mechanical Extract Ventilation (MEV) system. Centralised Mechanical Extract Ventilation (cMEV) is a whole-house extract system should be installed in conjunction with acoustic trickle ventilators which provide the air inlet.	Greenwoods CMEV.4e/CMEV.4eHT The low energy continuously running whole house extract system is ideal for apartments and houses. The HT model is available with additional SMART technology for humidity and timer sensor controls.
	Positive Input Ventilation (PIV) system. De-centralised PIV system is a room-by-room (bedroom / living room) wall mounted ventilation input fan. Can be installed in conjunction with acoustic trickle ventilators which provide air expulsion.	Blauberg Fresher 50 PIV Self-contained. low energy, acoustic positive input filtered supply air ventilation input fan. The unit provides a sound reduction performance of 41dB(A) with an internal (motor) noise level of 29dB(A) at 1m.
4	Mechanical Ventilation Heat Recovery (MVHR).	Zehnder ComfoAir Q350 ST Wall or floor mounted mechanical supply and extract ventilation with heat recovery (MVHR) with humidity sensor. Nuaire MRXBOXAB-ECO2B
*Example products detailed; other products are available.		

APPENDIX 9: EXAMPLE SAINT GOBAIN GLAZING SOUND REDUCTION SPECIFICATIONS

Glazing Configuration					Sound Reduction Performance (dB)		
Glass Type	Thickness (mm)	Cavity (mm)	Glass Type	Thickness (mm)	Rw	Rw +C (rail traffic noise)	Rw +Ctr (road traffic noise)
PLANICLEAR	6	10	PLANICLEAR	4	33	32	30
PLANICLEAR	4	12	PLANICLEAR	8	36	34	31
PLANICLEAR	4	10	PLANICLEAR	10	36	35	32
PLANICLEAR	4	6	PLANICLEAR	10	36	35	33
PLANICLEAR	6	12	PLANICLEAR	10	37	36	34
PLANICLEAR	6	16	STADIP SILENCE	8.8	42	40	35
PLANICLEAR	6	15	STADIP SILENCE	12.4	42	40	36
PLANICLEAR	10	15	STADIP SILENCE	8.8	42	40	37
PLANICLEAR	10	12	STADIP SILENCE	8.8	42	41	38
PLANICLEAR	12	15	STADIP SILENCE	8.8	43	42	39
PLANICLEAR	10	16	STADIP SILENCE	12.8	44	43	40
STADIP	14.4	24	STADIP SILENCE	8.4	47	46	41
STADIP SILENCE	12.8	16	STADIP SILENCE	8.8	48	46	42