ACOUSTIC PLANNING REPORT

LAND WEST OF SHOREHAM ROAD, SMALL DOLE

Wates Developments Ltd.

2062077-RSKA-RP-001-(03)

RSK Acoustics Limited Reg. in England and Wales No.7102436
rskacoustics.com info@rskacoustics.com +44(0)1932 829007

Registered Office: Spring Lodge, 172 Chester Road, Helsby, WA6 0AR
Addlestone | Bristol | Coventry | Glasgow | Helsby | Hemel | Leeds | London | Manchester

General notes

Project Name:	Land West of Shoreham Road, Small Dole
Title:	Acoustic Planning Report
Client:	Wates Developments Ltd.
Issue Date:	01 April 2025
Report No.	2062077-RSKA-RP-001-(03)

Revision:	Description:	Author(s):	Reviewer:	Date:
01	Issue	Morgan Quarless-Oates	Matthew White	20/12/2023
02	Update to site layout	Morgan Quarless-Oates	Matthew White	01/04/2025
03	Minor changes	Morgan Quarless-Oates	Matthew White	03/04/2025

Author(s):	Morgan Quarless-Oates	Technical reviewer:	Matthew White
Signature:	[redacted]	Signature:	[redacted]
Date:	03/04/2025	Date:	03/04/2025

RSK Acoustics Ltd (RSKA) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSKA. No other warranty, expressed or implied, is made as to the professional advice included in this report.
Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSKA for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.
No part of this report may be copied or duplicated without the express permission of RSKA and the party for whom it was prepared.
Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.
This work has been undertaken in accordance with the quality management system of RSK Acoustics Ltd.

Contents

List of Tables & Figures

1 Introduction

Planning permission is being sought for a residential development to be constructed on the site Land West of Shoreham Road, Small Dole.

This report summaries an acoustic survey and assessment of the site for residential development in line with current national and Local Authority guidance for the purpose of supplementing the planning application

1.1 Site Description

The site is located on land west of Shoreham Road (A2307), Small Dole, West Sussex. The site and it's surrounding area is illustrated in the figure below.

A description of the surrounding area is detailed below:

- North – Residential properties along New Hall Road.
- East – The A2307 runs along the eastern boundary of the site.
- South – Some residential properties located along A2307 and agricultural land.
- West – Agricultural land and the Southbank Equestrian Centre

The site falls within the jurisdiction of Horsham District Council.

Figure 1 Proposed Development Site

2 Planning Policy & Guidance

2.1 National Planning Policy

Relevant sections of the National Planning Policy Framework (NPPF), Noise Policy Statement for England (NPSE) and Planning Practice Guidance (PPG) are summarised in Appendix C – National Planning Policy.

2.2 BS 8233:2014

Guidance on the acceptable noise levels for living rooms and bedrooms within residential buildings is given in BS 8233:2014 *'Guidance on Sound Insulation and Noise Reduction for Buildings'* (BS 8233). Advice is given on the design range of internal noise levels, depending on the use of each room and the sensitivity to noise of the operations expected to be conducted in the rooms. An extract of the indoor ambient noise levels for dwellings is reproduced in Table 1.

Activity	Location	Time period	
		07:00 – 23:00	23:00 – 07:00
Resting	Living room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining room / area	40 dB $L_{Aeq,8hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

Table 1 Indoor ambient noise levels for dwellings (BS 8233 table 4)

2.2.1 BS 8233: 2014 'Guidance on sound insulation and noise reduction for buildings' - Design criteria for external noise

BS8233 also provides design criteria for external noise and Section 7.7.3.2 states:

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

2.3 Professional Planning Guidance on Planning and Noise: 2017

The ProPG: Planning and Noise guidance document was published in May 2017 by the Association of Noise Consultants, the Institute of Acoustics and the Chartered Institute of Environmental Health.

The main objective of ProPG is to provide technical guidance regarding the management of noise affecting new residential developments in England. The document provides advice on good acoustic design and 'aims to protect people from the harmful effects of noise'.

The ProPG documents emphasise the importance of considering acoustics during the early stages of the design process; this approach should enable potential acoustic constraints and/or opportunities to be identified, thereby minimising the reliance on mitigation measures during

subsequent design stages. The document also encourages undertaking early consultation with the local planning authority to obtain appropriate feedback on the proposed acoustic methodology.

2.4 Local Planning Authority

2.4.1 Planning Advice Document: Sussex

Detailed guidance on design criteria for new noise sensitive developments for the Horsham District is provided in Planning Advice Document: Sussex 2021.

Section 6.5 states:

"6.5.1. Where the noise assessment has shown that habitable rooms will be exposed to noise levels likely to give rise to any adverse impact, noise mitigation will be required.

6.5.2. Design control measures should aim to meet the recommended standards set out in table 4 of BS 8233:2014 and regular night time noise events such as scheduled aircraft or passing trains which can cause sleep disturbance shall be minimized and assessed as (LAfmax), as recommended in the World Health Organisation's (WHO) Night Noise Guidelines for Europe (2009), unless there are particular reasons why this is not considered appropriate. In such cases, a clear explanation of the reasons should be provided.

6.5.3. As the standards for BS 8233:2014 and the WHO relate only to anonymous noise, eg distant road traffic and noise without characteristics such as impulsivity, low frequency content or tones then, if these are present, additional discussion will be required with the LPA for the purpose of establishing suitable assessment techniques and standards to be achieved eg BS 4142:2014 + A1: 2019 for delivery noise.

6.5.4. While noise mitigation measures can be used to achieve suitable internal sound levels, preference is to be given to criteria based on windows being partially open.

6.5.5 Where the property is at risk of overheating an overheating assessment shall be conducted in accordance with Acoustics Ventilation and Overheating (AVO) Residential Design Guide (January 2020) and CIBSE's Design Methodology for the Assessment of Overheating Risk in Homes (TM59: 2017)."

2.5 Design Targets for Normal Conditions

For the purpose of this assessment, the acoustic standards set out in BS 8233:2014 have been adopted during normal conditions. The values presented in the table represent the level above which adverse effects on health and quality of life can be detected.

Location	Criterion	Origin
Internal daytime noise levels in living rooms & bedrooms	35 dB $L_{Aeq,16hr}$	BS 8233 [1]
Internal daytime noise levels within dining rooms/areas	40 dB $L_{Aeq,16hr}$	BS 8233
Internal noise levels within bedrooms at night	30 dB $L_{Aeq,8hr}$	BS 8233
Internal noise levels within bedrooms during the night from individual events (>10 occurrences)	45 dB L_{AFmax}	ProPG [2]
Noise levels within external amenity areas associated with dwellings	50-55 dB $L_{Aeq,T}$ [3]	BS 8233

Notes

[1] BS 8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*

[2] ProPG: Planning & Noise *'Professional Practice Guidance on Planning & Noise'*

[3] 50 dB $L_{Aeq,T}$ is the desirable threshold level, 55 dB $L_{Aeq,T}$ is the upper guideline level

Table 2 Noise criteria for residential use (normal conditions)

2.6 Design Targets for Overheating Control

2.6.1 Building Regulations Approved Document O (AD-O)

While compliance with AD-O criteria is required as evidence of compliance with Building Regulations, guidance is provided within this document regarding the noise constraints at planning stage due to the potential implications this may have on the development overheating mitigation strategy.

It is widely considered that a relaxation in the above acoustic criteria is permissible during peak summer months where occupants may be willing to compromise on noise ingress for purpose of thermal comfort. Suitable internal noise levels during overheating periods (i.e. when open windows or other measures are required to be implemented for the control of overheating) are provided below.

Location	Criterion	Origin
Internal noise levels within bedrooms at night	40 dB $L_{Aeq,8hrs}$	AD-O [1]
Internal noise levels within bedrooms during the night from individual events (>10 occurrences)	55 dB L_{AFmax}	AD-O

Notes

[1] Overheating: *Approved Document O*, 2021

Table 3 Noise criteria for residential use (overheating control)

3 Environmental Noise Survey

3.1 Methodology & Instrumentation

3.1.1 Unattended Noise Survey

An unattended noise survey was undertaken at the site between the following dates and times:

- Start: 11h45 22nd September 2023
- End: 11h00 29th September 2023

Measurements were undertaken at three locations, indicated as UL1 and UL2 within Figure 2 and are described as follows:

- UL1: Positioned at ground level on the eastern boundary of the site
- UL2: Positioned at ground level at ground level on the western extreme of proposed housing locations

UL1 was selected to quantify the existing noise climate produced by the adjacent A2037. The results from this position were then used subsequently to calibrate levels from the road in a noise model of the proposed site.

UL2 was selected to provide the existing background noise levels at the proposed residential site furthest from the A2307.

Figure 2 Measurement position locations

Measurements of the L_{Aeq}, L_{A90} and L_{Amax} indices were recorded over consecutive 15-minute periods (see the glossary of this report for an explanation of the noise units used) for the duration of the survey at both measurement positions using the equipment listed within Table 4 below.

Item	Manufacturer	Type
Sound Level Analyser x2	Rion	NL-52
Acoustic Calibrator	Rion	NC-75
Weatherproof Windshield x2	Rion	WS-15

Table 4 Equipment used during unattended noise survey

The microphones were fitted within weatherproof windshields and the sound level meters were calibrated before and after the survey to confirm an acceptable level of accuracy. Both positions calibrated with the accepted tolerance of ±0.5dB.

The sound level meters used, conform to the requirements of BS EN 61672-1: 2003 Electroacoustics. Sound level meter, Specifications. The calibrator used, conforms to the requirements of BS EN 60942: 2003 Electroacoustics, Sound calibrators. The equipment used, has a calibration history that is traceable to a certified calibration institution.

3.1.2 Attended Noise Survey

An attended noise survey was conducted at the site on the 22nd September 2023. Measurements were undertaken at two locations indicated as AL1 and AL2 on the site plan in Figure 2 above and described as follows:

- AL1: Positioned at the northern boundary of the site.
- AL2: Positioned in the southeast corner of the site

AL1 was selected to quantify existing noise levels at the northern boundary of the site. AL2 was selected to quantify the existing noise emissions from a substation located in the southeastern corner of the site.

Measurements of the L_{Aeq}, L_{A90} and L_{Amax} indices were recorded for the duration of the survey at both measurement positions using the equipment listed within Table 5 below.

Item	Manufacturer	Type
Sound Level Analyser	Rion	NL-52
Acoustic Calibrator	Rion	NC-75
Weatherproof Windshield	Rion	WS-10

Table 5 Attended noise survey equipment

The microphones were fitted within weatherproof windshields and the sound level meters were calibrated before and after the survey to confirm an acceptable level of accuracy. Both positions calibrated with the accepted tolerance of ±0.5dB.

3.2 Survey Weather Conditions

Weather conditions over the duration of the survey are presented in Table 6 below, obtained from Wunderground at the closest weather station to the site.

Date	Temperature (°C)	Wind Speed (m/s)	Rainfall (mm)	Wind Direction	Weather station
22/09/23	12	2.2	9.6	W	IHENFIEL5
23/09/23	13	1.8	0	WSW	IHENFIEL5
24/09/23	17	3.1	0	SSW	IHENFIEL5
25/09/23	17	2.4	0	SW	IHENFIEL5
26/09/23	17	2.2	0.3	SW	IHENFIEL5
27/09/23	18	2.4	0.6	SSW	IHENFIEL5
28/09/23	17	3	0	SW	IHENFIEL5
29/09/23	16	2.4	0	W	IHENFIEL5

Table 6 Weather Conditions

Any measurements affected by adverse weather conditions have been discounted from this assessment.

3.3 Results

3.3.1 Unattended Noise Survey

The results of the unattended noise survey are presented in a time history graph in Appendix A – Time Histories. The noise climate at the site was noted to be primarily affected by traffic on nearby roads. Table 7 displays the unattended noise survey results.

$L_{Aeq,T}$ values are the logarithmic average of $L_{Aeq,15min}$ samples. In line with WHO Night Noise Guidelines for Europe (2009), ProPG and AD-O, noise levels have also been considered in terms of the L_{Amax} index during the night-time hours to ensure reasonable maximum internal noise levels within the bedrooms. These levels correspond to the 10th highest value that typically occurred over the various nights of the survey, based upon 1 minute resolution data from the night time periods (2300-0700).

Position	Daytime Noise Level, dB	Night-Time Noise Levels, dB	
	$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	Typical $L_{Amax, F}$
UL1	57	48	68
UL2	44	38	54

Table 7 Unattended noise survey results

3.3.2 Attended Noise Survey

Table below details the results of the attended noise surveys.

Position	Start Time	Duration (hh:mm)	$L_{Aeq, T}$ dB	$L_{Amax, F}$ dB
AL1	11h19	01:15	41	61
AL2	12h40	00:02	65	78

Table 8 Attended noise survey results

4 Assessment Scope

4.1 Site Suitability

The acoustic suitability of the site for residential development is assessed using internal and external noise criteria in BS8233:2014.

Using SoundPLAN noise modelling software, noise levels have been predicted across the site with the indicative layout in place to demonstrate the noise levels at facades of the residential development, during the daytime and night-time periods.

The baseline noise survey data detailed earlier in the report is used in conjunction with model predictions to validate the modelling.

Noise grids have been prepared to demonstrate the propagation of noise across the site.

4.2 Noise Model

A computer noise model of the site has been constructed using SoundPLAN (v9.1) noise prediction software. A model has been set up to replicate the existing noise conditions on and around the site. The model has been set up with the following parameters.

Item	Setting
Ground Absorption	Acoustically soft (assumed 0.85 coefficient) – grass or vegetated areas
Met Conditions	10 degrees Celsius 70% humidity Wind from source to receiver
Façade Corrections	A 3 dB (A) correction has been applied to convert a free-field noise prediction to a façade level.
Receptor Height	Ground Floor 1.5m above ground First Floor 3.5 m above ground
Source Modelling	Sound power for the A2307 road source has been derived from unattended noise survey data.
Terrain	OS height point and 2m contour terrain data has been included within the model
Site Layout	Provided by Wates Development Ltd

Table 9 Noise modelling parameters

Daytime ambient $L_{Aeq,16h}$ and night-time ambient $L_{Aeq,8h}$ noise levels, have been calculated across the development. Noise Maps for day (at 1.5m height) and night (at 3.5m height) are included in Appendix B – Noise Contour Maps

4.3 Façade Assessment

By using the output from the noise modelling an assessment has been undertaken for the most exposed residential façades to provide a robust worst-case scenario of internal noise levels against BS8233:2014 noise criteria.

Table 10 displays the daytime and night-time levels calculated at the most exposed residential façade. The 10th highest value that typically occurred over the various nights of the survey L_{Amax}

value from UL1 has been distance corrected from its measurement position to the most exposed residential façade to provide an assessment level for the noise break-in calculations.

Daytime Noise Level, dB	Night-Time Noise Levels, dB	
$L_{Aeq, 16h}$	$L_{Aeq, 8h}$	$L_{Amax, F}$
54	47	64

Table 10 Noise levels at worst-case façade

Noise break in calculations have also been carried out, taking into consideration the measured octave band noise level data, and the octave band performance data of the proposed façade construction & glazing/ ventilation strategy.

The assessment is based on up to $3m^2$ for bedrooms and $6m^2$ for living rooms of glazing and up to two trickle vents (where required) per room. Where larger glazing areas or additional trickle vents are required, then recommended performance requirements should be adjusted.

The results of the assessment show that standard thermal double glazing construction of 4mm glass – 12mm gap – 4mm glass in combination with a masonry construction façade will provide adequate sound insulation from external noise levels to meet the criteria set out in BS8233:2014 for daytime and nigh-time. Table 11 below details the representative sound insulation performance of standard thermal double glazing used within the assessment.

Glazing Type	Octave band centre frequency (Hz)					R_w	$R_w + C_{tr}$
	125	250	500	1k	2k		
Standard Thermal Double Glazing	20	18	26	33	33	30	26

Table 11 Glazing sound insulation performance

4.4 Ventilation

For all residences, a natural ventilation strategy can be employed with the use of trickle vents. This specification is provided on the basis of no more than two vents with a $D_{n,e,w}$ value of 31dB. In the unlikely event that more units are required in a room, then it will be necessary to re-evaluate the ventilation performance requirement.

4.5 Overheating

In line with the guidance set out in the Acoustics, Ventilation and Overheating Residential Design Guide (AVO Guide), it is considered reasonable to allow higher levels of internal ambient noise when increased rates of ventilation are required in relation to an overheating condition. The basis for this is that the overheating condition occurs for a limited time and during this period, occupants may accept a trade-off between acoustic and thermal conditions, given that they have some control over their environment.

During an overheating condition, the preference is to adopt opening windows as a primary means of mitigating thermal issues, however, this is subject to the resultant internal ambient noise level.

The recommendations within AVO under overheating conditions have since been superseded by guidance in Approved Document O (2021).

It is anticipated that the opening of windows to relieve overheating is likely to meet the requirements of Approved Document O in bedrooms at night, where applicable. This is due to the external night-time $L_{Aeq,8h}$ and L_{Amax} being at a level where an open window sufficient to mitigate overheating will provide sufficient sound reduction to meet the internal Approved Document O criteria for bedrooms at night. This is with the assumption that an open window in a medium risk environment will provide 9dB sound reduction.

4.6 External Amenity

All assessed external amenity are within the BS8233 recommended upper limit of 55dB $L_{Aeq,16h}$, with a significant majority of the site within the desirable limit of 50dB $L_{Aeq,16h}$.

5 Summary

Planning permission is being sought for the construction of a residential development on the Land West of Shoreham Road, Small Dole. A noise survey has been undertaken at the site and noise levels have been duly assessed in terms of average (L_{Aeq}) and maximum (L_{Amax}) noise levels.

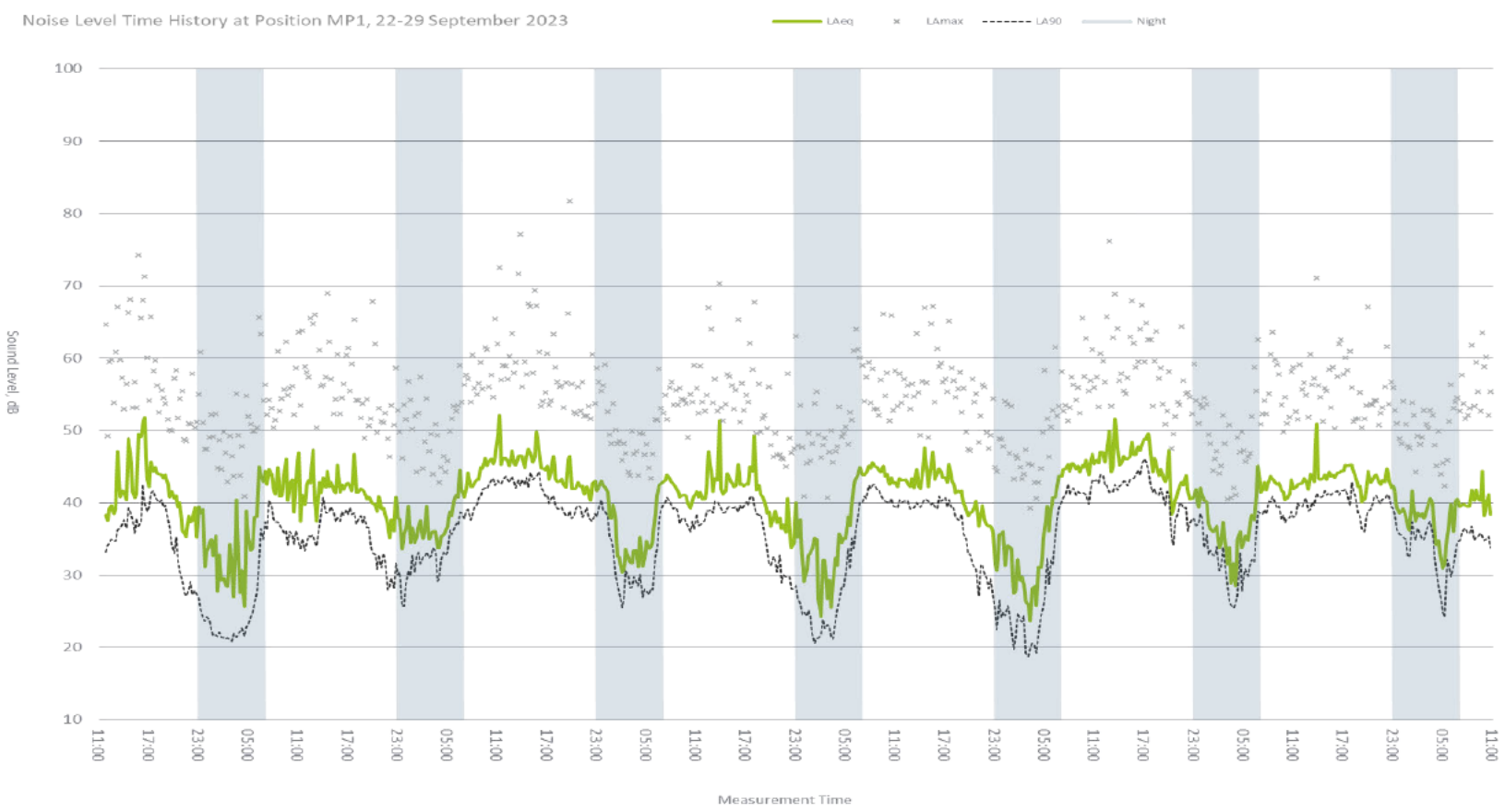
An assessment of internal noise levels has shown that the limits set out within the local authority requirements can be met. Specifications for the glazing and ventilation acoustic performance have been provided to demonstrate the requirements of BS8233:2014 and of the local planning authority are met.

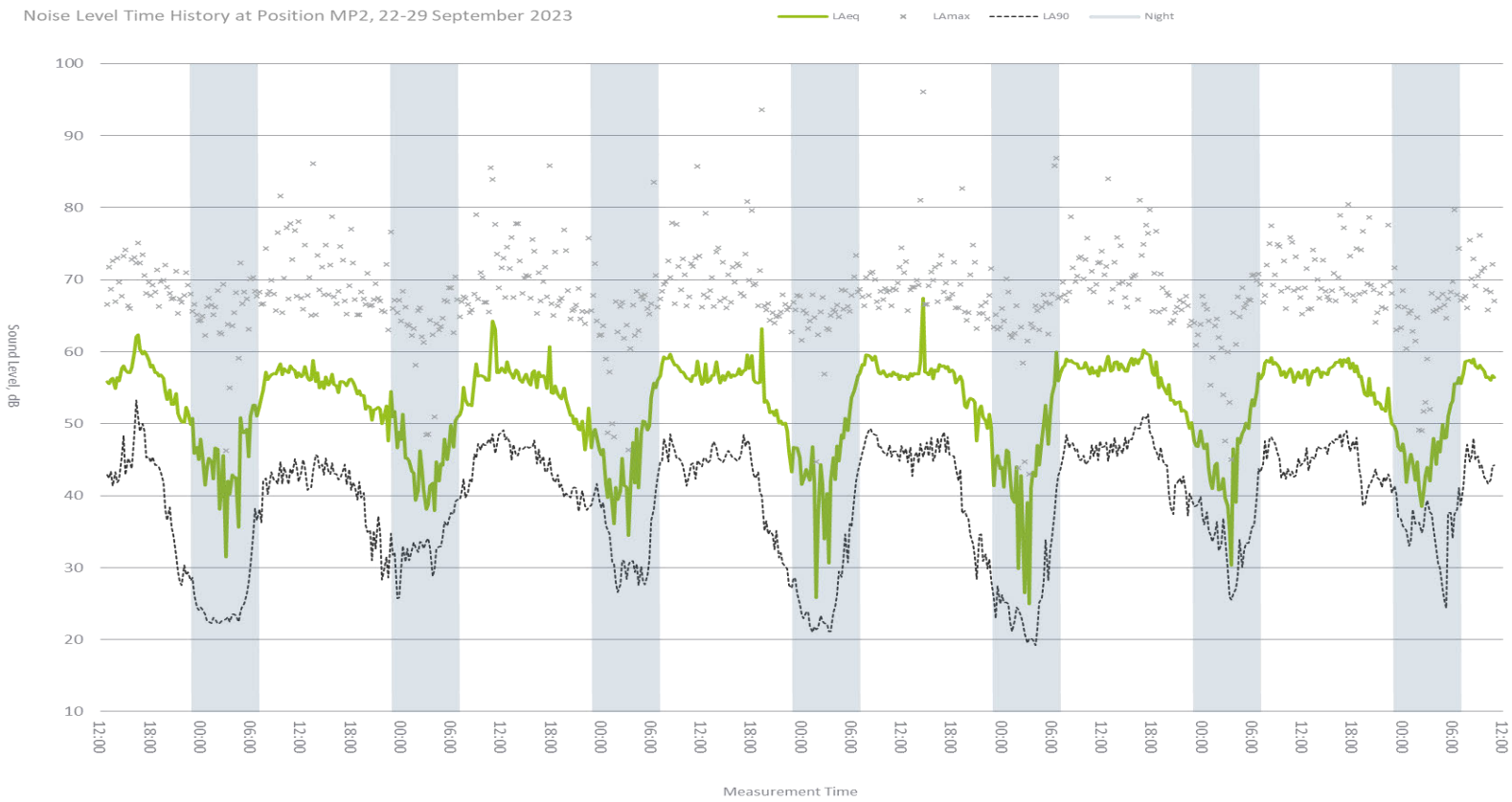
It can be concluded that noise to the proposed development can be controlled in a sufficient manner to meet the requirements of the local authority, and in line with national planning policy and guidance.

Glossary

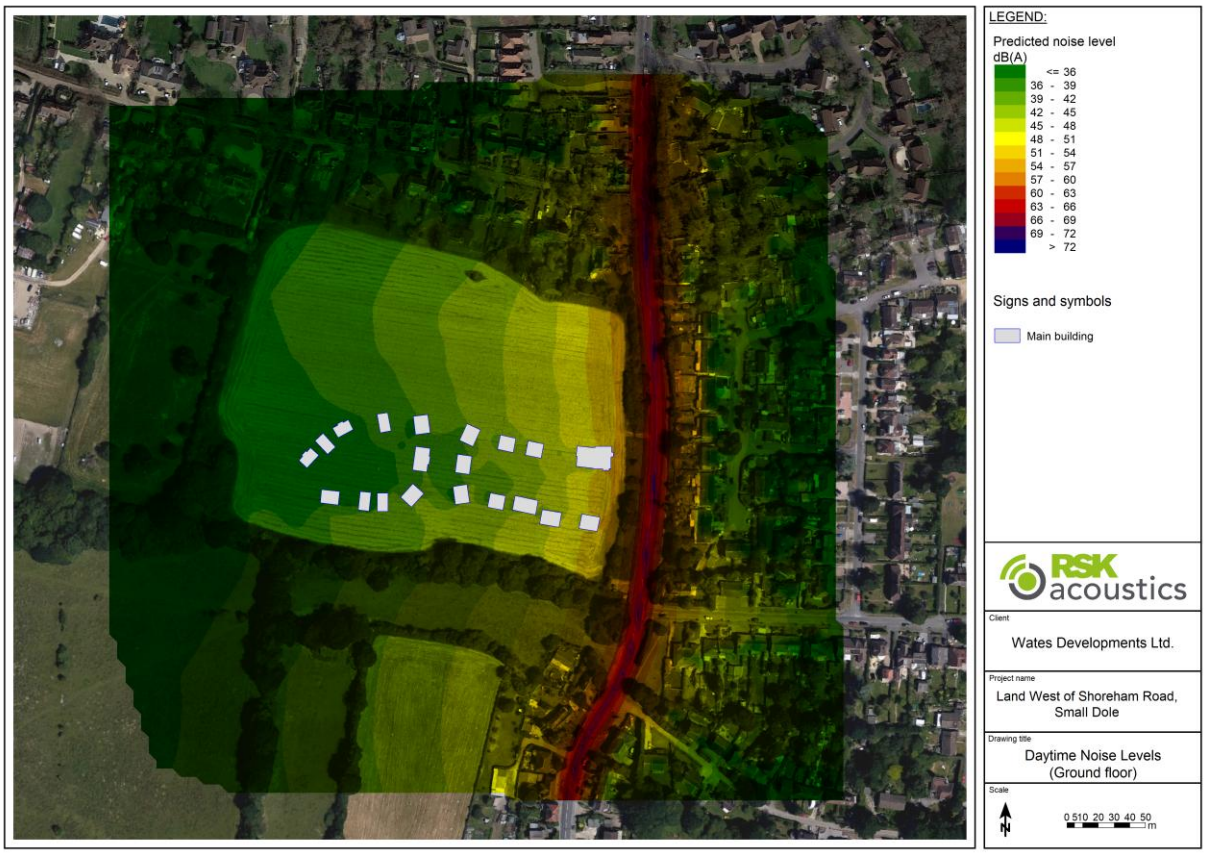
Term	Definition
Ambient sound	The total sound at a given place, usually a composite of sounds from many sources near and far.
Background sound, $L_{A90,T}$	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval.
dB	Decibel. Scale for expressing sound pressure level. 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 i.e. $2x10^{-5}$ Pascal.
dB(A)	A-weighted decibel. This provides a measure of the overall level of sound across the audible spectrum with a frequency weighting to compensate for the varying sensitivity of the human ear to sound at different frequencies. Example sound levels include: 140 dB(A) Threshold of pain 120 dB(A) Threshold of feeling 100 dB(A) Loud nightclub 80 dB(A) Traffic at busy roadside 60 dB(A) Normal speech level at 1m 40 dB(A) Quiet office 20 dB(A) Broadcasting studio 0 dB(A) Median hearing threshold (1000 Hz)
Frequency	The repetition rate of a sound wave. The subjective equivalent in music is pitch. The unit of frequency is the Hertz (Hz), which is identical to cycles per second. A thousand hertz is often denoted as kHz, e.g. 2 kHz = 2000 Hz. Human hearing ranges approximately from 20 Hz to 20kHz.
$L_{Aeq,T}$	This is defined as the notional steady sound level 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.
NR	Noise rating. A set of curves based on the sensitivity of the human ear. They are used to give a single-figure rating for a range of frequencies.
Rating level	Specific sound level of a source plus any adjustment for the characteristic features of the sound.
Sound insulation	The reduction or attenuation of airborne sound by a solid element between source and receiver.
Specific sound	Sound pressure level produced by the source being assessed at the assessment location.

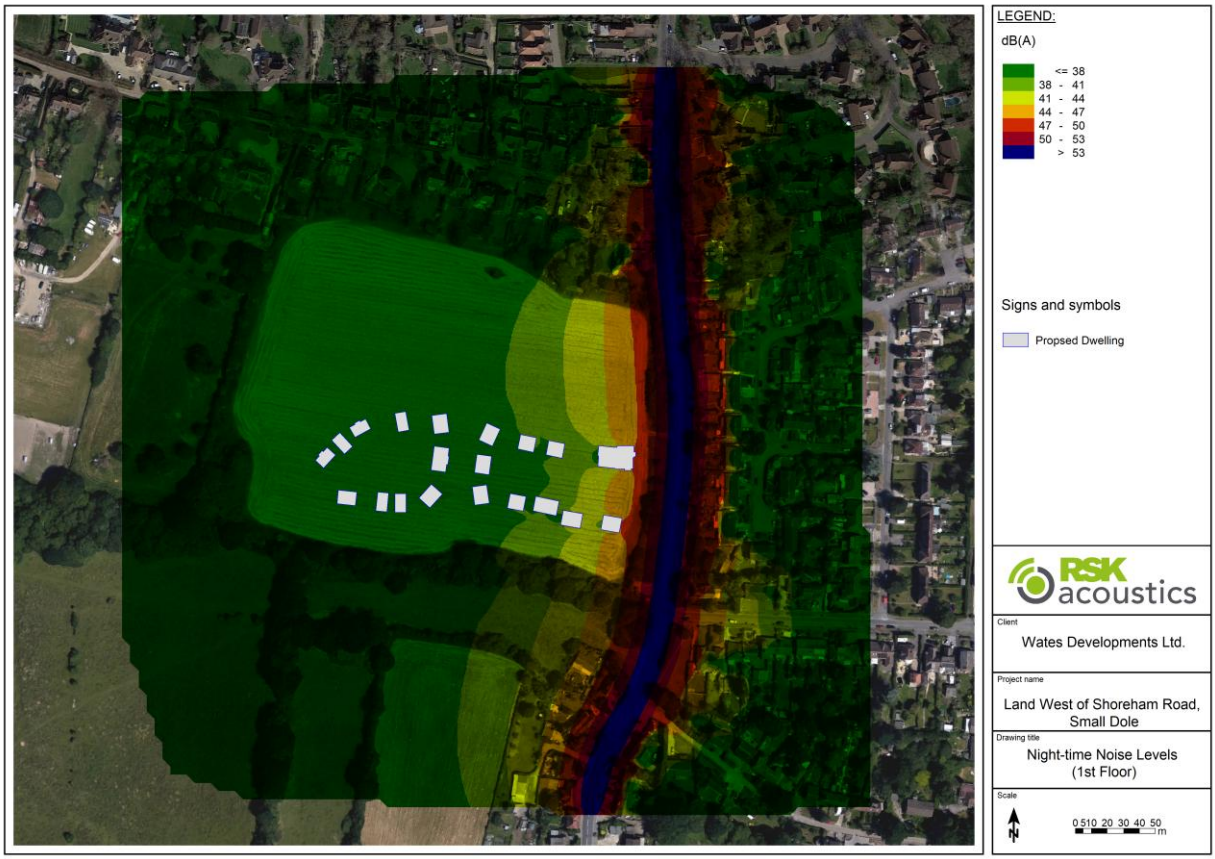
Appendix A – Time Histories




Noise Level Time History at Position MP2, 22-29 September 2023
LAeq
LAmax
LA90
Night
100
90
80
70
60
50
40
30
20
10
Sound Level, dB
12:00
18:00
00:00
06:00
Measurement Time

Appendix B – Noise Contour Maps




LEGEND:
dB(A)
<= 38
38 - 41
41 - 44
44 - 47
47 - 50
50 - 53
> 53
Signs and symbols
Propsed Dwelling
RSK acoustics
Client
Wates Developments Ltd.
Project name
Land West of Shoreham Road, Small Dole
Drawing title
Night-time Noise Levels (1st Floor)
Scale
0 5 10 20 30 40 50 m

Appendix C – National Planning Policy

National Planning Policy Framework (NPPF): 2024

The National Planning Policy Framework (NPPF) (published March 2012 & updated December 2024) is the means by which noise is considered within the planning regime. The NPPF does not contain assessment design targets, instead providing a series of policies, giving local authorities the flexibility in meeting the needs of local communities. The NPPF states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by […] 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, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."

"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

Noise Policy Statement for England (NPSE): 2010

Environment, Food and Rural Affairs (Defra) and sets out the approach to noise within the Government's sustainable development strategy.

The significance of impacts from noise are defined within the NPSE as follows:

"There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

NOEL – (No Observed Effect Level) - This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL (Lowest Observed Adverse Effect Level) - This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – (Significant Observed Adverse Effect Level) - This is the level above which significant adverse effects on health and quality of life occur."

The three aims of the NPSE are to:

"Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development."

Planning Practice Guidance (PPG)

The Department for Communities and Local Government 'Planning Practice Guidance' (PPG) expands upon the NPPF and NPSE. The guidance does not include any specific noise levels but sets out further principles that should underpin a noise assessment. The PPG states:

"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."

It then refers to the NPSE and states that the aim is to identify where the overall effect of the noise exposure falls in relation to SOAEL, LOAEL and NOEL and presents a table, reproduced below. The implication of the final line of the table is that only the 'noticeable and very disruptive' outcomes are unacceptable and should be prevented. All other outcomes (i.e. all other lines in the table) can be acceptable, depending upon the specific circumstances and factors such as the practicalities of mitigation.

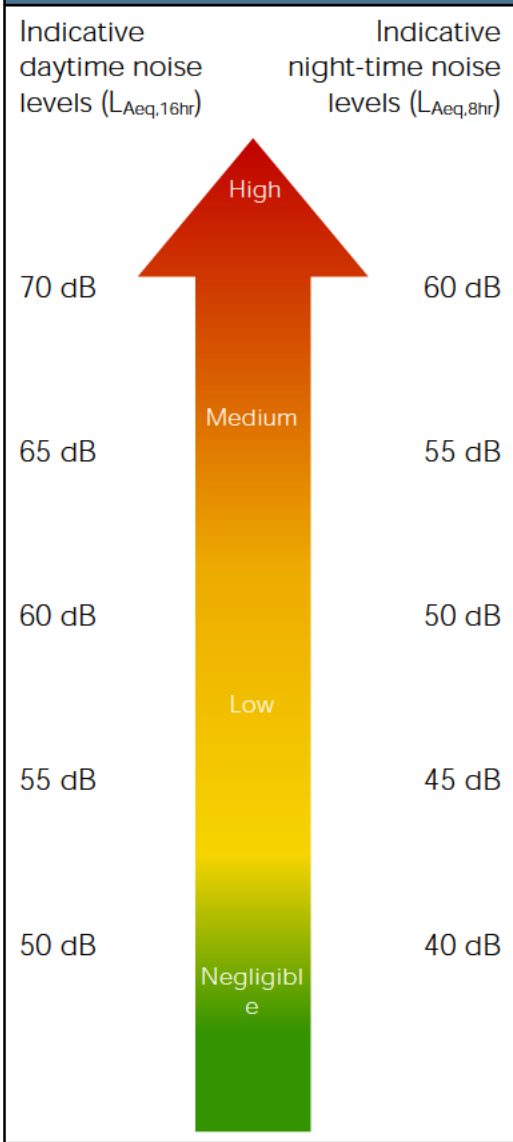
Response	Examples of outcomes	Increasing effect level	Action
NOAEL (No Observed Effect Level)			
Not present	No effect	No observed effect	No specific measures required

Response	Examples of outcomes	Increasing effect level	Action
NOAEL (No Observed Adverse Effect Level)			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No observed adverse effect	No specific measures required
LOAEL (Lowest Observable Adverse Effect Level)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed adverse effect	Mitigate and reduce to a minimum
SOAEL (Significant Observed Adverse Effect Level)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable adverse effect	Prevent

Table 12 Summary of noise exposure hierarchy

Initial noise risk assessment

ProPG provides a framework for an early-stage approach to understanding the potential risk of adverse effects from noise. This should not be used as the basis of any decision regarding site suitability, however it enables identification of the challenges that will be faced when determining the mitigation measures required to meet residential acoustic design standards.

Noise risk assessment	Potential effect	Pre-planning application advice
	Increasing risk of adverse effect	High noise levels indicate that there is an increased risk that development may be refused. This risk may be reduced by demonstrating a good acoustic design process has been followed. As noise levels increase, the site is likely to be less suitable form a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed. It should be demonstrated how the adverse impacts of noise will be mitigated and minimised and that a significant adverse noise impact will be avoided in the finished development. At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and demonstrated in an acoustic design statement, which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.
	No adverse effect	These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.

Notes

[1] Noise levels do not account for the acoustic effect of any scheme mitigation measures

[2] $L_{Aeq,16hr}$ for daytime (07:00 – 23:00), $L_{Aeq,8hr}$ for night-time (23:00 – 07:00)

[3] An indication that there may be >10 noise events at night with L_{Amax} > 60dB means that the site should not be regarded as a negligible risk

Table 13 ProPG initial site noise risk assessment

RSK acoustics