

Land at Station Road, Warnham

ProPG Noise Impact Assessment

Date: 20 February 2026

Client: DHA Planning
Astral Towers
Betts Way
Crawley
RH10 9XA

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Document Control

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For Information

Please Note

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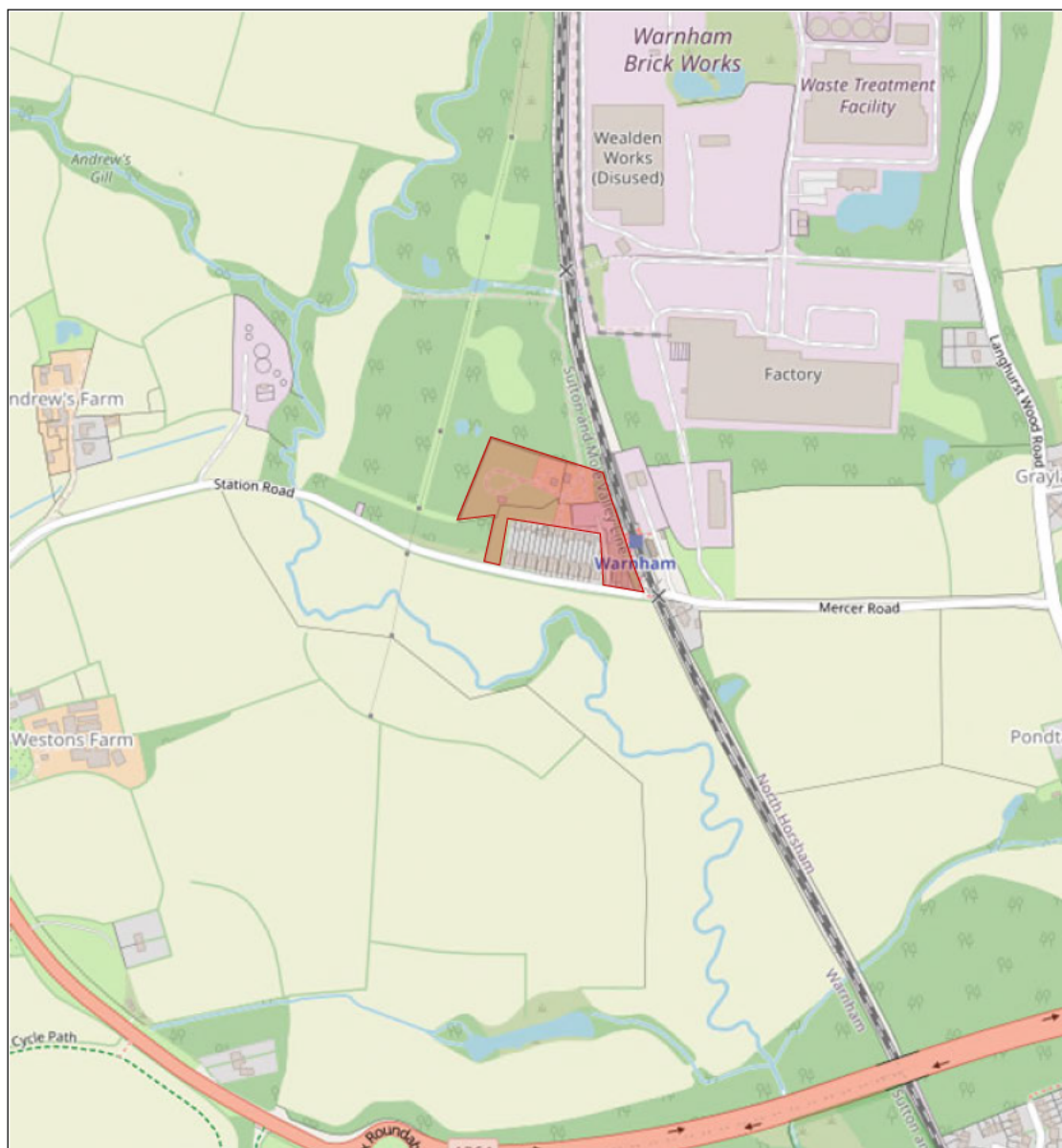
1.0 INTRODUCTION

- 1.1 Quantum Acoustics Ltd has been commissioned by DHA Planning to prepare this Noise Assessment which accompanies a planning application for a new residential development at Station Road, Warnham, to deliver 24 new homes.
- 1.2 This report presents the results of noise monitoring undertaken at the site and considers the suitability of the site for residential development in the context of national and local planning policy.
- 1.3 The approach to assessment and format of this report are aligned with the guidance set out in the ANC/IAO/CIEH publication "ProPG: Planning and Noise: Professional Practice on Planning and Noise: New Residential Development". This guidance is directly referenced in the Government's "Planning Practice Guidance" on noise. Other industry standard design guidance is also referred to where appropriate.
- 1.4 Additionally, an assessment of the noise impact of vehicles passing by existing houses on the proposed access road has been carried out as well as the noise impact of additional vehicles on existing roads.
- 1.5 This report is structured as follows:
 - Section 2 reviews the location of the site and neighbouring land uses;
 - Section 3 outlines the development proposals;
 - Section 4 reviews planning policy relevant to noise and other industry standard design guidance;
 - Section 5 presents the results of noise monitoring undertaken at the site to determine existing environmental noise levels.
 - Section 6 assesses the results of the noise monitoring in line with a "ProPG Stage 1 Initial Site Noise Risk Assessment".
 - Sections 7 to 10 present a ProPG "Stage 2 Full Assessment" of the scheme design proposals, including an assessment of how the scheme embeds good acoustic design principles; assessments of indoor and external noise levels and an assessment of other considerations, including potential "agent of change" implications;
 - Section 11 presents an assessment of noise impact from passing vehicles on the access road; and
 - Conclusions are presented in Section 12.

2.0 SITE LOCATION

- 2.1 The site lies within the jurisdiction of Horsham District Council.
- 2.2 The site is located to the north of Station Road and east of the Warnham railway station on land to the rear of existing housing, shown in Figure 2.1 below outlined in red.

Figure 2.1 – Site Location (Open Street Map 2026)



- 2.3 The surrounding area is predominantly rural, with some residential to the south of the development site (fronting Station Road) and Warnham Railway Station to the east with the

railway line running along the eastern boundary of the site. Additionally, an industrial area is located north-east of the site, beyond the railway line.

3.0 PROPOSED DEVELOPMENT

- 3.1 The proposed development is an outline planning application (with all matters reserved except for access) for the erection of up to 24 dwellings with associated infrastructure, landscaping and open space.
- 3.2 The illustrative layout plan for the scheme is shown in the Figure 3.1 below.

Figure 3.1 – Proposed Layout Plan (Weinerberger, Drawing No:WAR-WBR-ZZ-ZZ-DR-A-13301, 29 May 2025)



4.0 PLANNING POLICY CONTEXT & DESIGN GUIDANCE

National

4.1 The following national planning policy is relevant to the Proposed Development:

- National Planning Policy Framework (2024).
- Planning Practice Guidance (Noise) (2019); and
- Noise Policy Statement for England (2010).

Local

4.2 The following local planning policy is relevant to the Proposed Development:

- The Horsham District Planning Framework (adopted November 2015).

Guidance

4.3 The following guidance is relevant to the Development:

- ProPG: Professional Practice Guidance on Planning and Noise: New Residential Development. (2017);
- Acoustics Ventilation and Overheating: Residential Design Guide. Ver. 1.1. (2020);
- BS 4142: 2014 + A1: 2019: "Methods for rating and assessing industrial noise and commercial sound";
- BS 8233: 2014: "Guidance on sound insulation and noise reduction for buildings"; and
- Approved Document O. The Building Regulations. (2010, as amended)
- Design Manual for Roads and Bridges: LA111 – Noise and Vibration (2020)

4.4 Set out below is a brief explanation of key national and local planning policies, which provide the key policy framework for determining whether the development meets the Government's overarching policy requirement for sustainable development. A detailed commentary on the above legislation, planning policy and guidance is presented in Appendix B of this report.

National Planning Policy Framework (December 2024)

- 4.5 The overarching aim of the planning regime is to promote sustainable development. However, such development must be delivered in a manner that delivers compatibility with the location of the Site of land and existing neighbouring land uses. With regard to noise, the National Planning Policy Framework sets out two primary policies which (a) seek to ensure that new noise sensitive development is adequately protected from noise and impacts from new noise generating land uses are appropriately controlled and (b) existing commercial/industrial uses and community facilities do not have unreasonable restrictions imposed on them by new noise sensitive development:

Paragraph 198:

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 impacts 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; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

Paragraph 200:

"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 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

- 4.6 With regard to 'adverse' impacts and 'significant adverse' impacts, the NPPF directs the reader to the advice contained in DEFRA's "Noise Policy Statement for England" (NPSE). This Policy Statement introduces the concept of a "Significant Observed Adverse Effect Level" (SOAEL), "Lowest Observed Adverse Effect Level" (LOAEL) and "No Observed Effect Level" (NOEL). These are concepts aligned with toxicology outcomes derived from guidance given by the World Health Organisation.

- NOEL – No Observed Effect Level

This is the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise.

- LOAEL – Lowest Observable Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

- SOAEL – Significant Observed Adverse Effect Level

- 4.7 This is the level above which significant adverse effects on health and quality of life occur.

Planning Practice Guidance

- 4.8 The application of national planning policy is amplified in the government's "Planning Practice Guidance" (PPG). This seeks to help clarify understanding the perception of noise effects, outcomes and actions that should be taken to align decision making with the NPPF. In line with the NPPF concept of basing decision making on the identification of "significant" or "other" impacts on health and quality of life, the NPPG aligns its guidance with the NPSE.

- 4.9 The following table summarises this guidance:

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

Local Planning policy

- 4.10 The Horsham District Planning Framework (adopted November 2015) contains the following relevant policies:

"Policy 24

Strategic Policy: Environmental Protection

The high quality of the district's environment will be protected through the planning process and the provision of local guidance documents. Taking into account any relevant Planning Guidance Documents, developments will be expected to minimise exposure to and the emission of pollutants including noise, odour, air and light pollution and ensure that they:

- 1. Address land contamination by promoting the appropriate re-use of sites and requiring the delivery of appropriate remediation;*
- 2. Are appropriate to their location, taking account of ground conditions and land instability;*
- 3. Maintain or improve the environmental quality of any watercourses, groundwater and drinking water supplies, and prevents contaminated run-off to surface water sewers;*
- 4. Minimise the air pollution and greenhouse gas emissions in order to protect human health and the environment;*
- 5. Contribute to the implementation of local Air Quality Action Plans and do not conflict with its objectives;*
- 6. Maintain or reduce the number of people exposed to poor air quality including odour. Consideration should be given to development that will result in new public exposure, particularly where vulnerable people (e.g. the elderly, care homes or schools) would be exposed to the areas of poor air quality; and*
- 7. Ensure that the cumulative impact of all relevant committed developments is appropriately assessed."*

"Policy 33

Development Principles

In order to conserve and enhance the natural and built environment developments shall be required to:

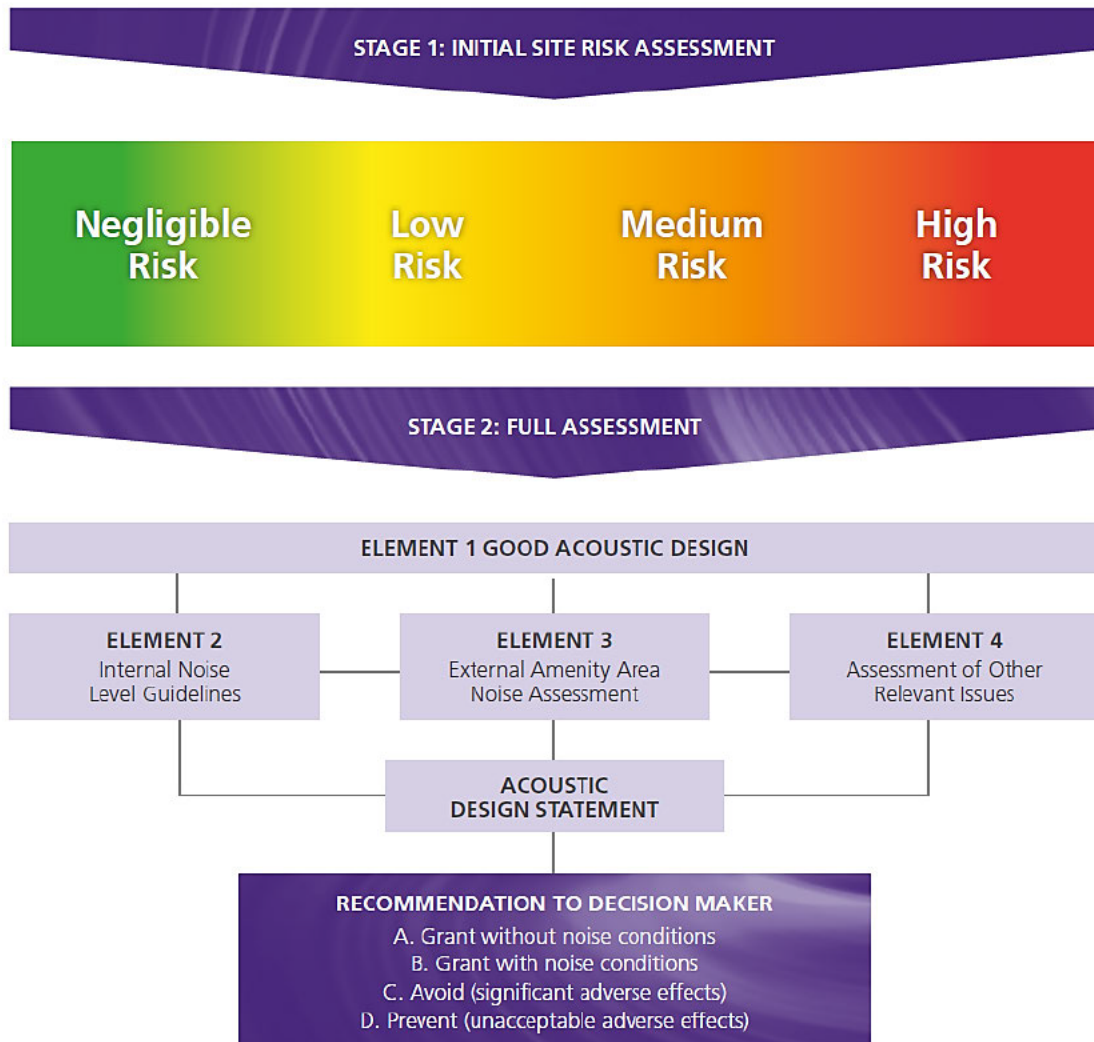
- 1. Make efficient use of land, and prioritise the use of previously developed land and buildings whilst respecting any constraints that exist;*

2. Ensure that it is designed to avoid unacceptable harm to the amenity of occupiers/users of nearby property and land, for example through overlooking or noise, whilst having regard to the sensitivities of surrounding development;

..."

Design Guidance

- 4.11 The approach to assessment presented in this report is aligned with the Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and Chartered Institute of Environmental Health (CIEH) publication "*ProPG: Planning and Noise: Professional Practice Guidance on Planning and Noise: New Residential Development*". (2017). This builds on guidance given in BS 8233: 2012 and BS 4142: 2014 + A1: 2019.
- 4.12 ProPG provides two stages of assessment, the first being an initial Site risk assessment and the second being a full assessment, as illustrated in the following figure:



- 4.13 Potential conflicts between acoustic ventilation and overheating have been assessed based on the guidance given in the ANC/IOA publication *"Acoustics Ventilation and Overheating: Residential Design Guide"* and the statutory requirements of Approved Documents F and O of the Building Regulations 2010 (as amended).

Design Manual for Roads and Bridges: LA111 - Noise and Vibration

- 4.14 The *"Design Manual for Roads and Bridges: LA111 - Noise and Vibration"*, Revision 2 (2020) published by Highways England sets out a methodology for assessing and reporting the effects of noise from highway projects. The guidance is also considered an appropriate reference point for assessing the potential noise impacts of developments which may result in the introduction of additional vehicular traffic to existing or new roads.

Table 4.2: Magnitude of Change in Traffic Noise Level: Long Term

Long Term Magnitude	Long Term Noise Change (dB $L_{A10,18\text{hour}}$)
Major	Greater than or equal to 10.0
Moderate	5.0 to 9.9
Minor	3.0 to 4.9
Negligible	Less than 3.0

BS 8233:2014: "Guidance on Sound Insulation and Noise Reduction for Buildings"

- 4.15 BS 8233: 2014 *"Sound Insulation and Noise Reduction for Buildings"* is directly referenced in Paragraph 015 Reference ID: 30-015-20190722 of the Government's Planning Practice Guidance. It offers the following design guidance for indoor ambient noise levels within dwellings:

Table 4.3: BS 8233 Indoor Ambient Noise Level Guidance

Activity	Location	Daytime (07.00 to 23.00 hours)	Night-time (23.00 to 07.00 hours)
Resting	Living Room	35dB $L_{Aeq,16\text{hour}}$	--
Dining	Dining Room/Area	40dB $L_{Aeq,16\text{hour}}$	--
Sleeping	Bedroom	35dB $L_{Aeq,16\text{hour}}$	30dB $L_{Aeq,8\text{hour}}$

- 4.16 A note accompanying the above Table states:

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

- 4.17 Despite identifying that maximum values 'may' be set, guidance values for differing types of noise/frequency of events is not given. It can, however, be noted that the recommendations of BS8233 are aligned with guidance set out in the World Health Organisation's *"Guidelines for Community Noise"* (see later commentary in relation to this

guidance). This suggests that noise levels in bedrooms at night should not exceed a value of 45dB $L_{Amax,fast}$ more than 10-15 times per night.

- 4.18 A further note to the above Table indicates that where "development is considered necessary or desirable", the above guideline values can be relaxed by 5 dB and "reasonable" internal conditions still be achieved.

- 4.19 With regard to external amenity spaces, Section 7.7.3.2 of BS 8233: 2014 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."

"Guidelines for Community Noise" (World Health Organisation, 1999)

- 4.20 The criteria outlined in this document provide a summary of research regarding the effects of noise on the community. Section 2 of the Guidelines presents a general discussion regarding the types of noise affecting communities and their measurement. The guidelines promote the use of the $L_{Aeq,T}$ noise index. However, where there are distinct events to the noise, such as with aircraft or railway noise, the guidelines recommend that measures of the individual events should be obtained (using, for example, L_{Amax} or L_{AE}), in addition to $L_{Aeq,T}$ measurements.

- 4.21 The guidelines identify three critical effects of noise on dwellings – speech interference, annoyance and sleep disturbance.

- 4.22 With regard to 'speech interference', section 4.2 of the Guidelines identifies that:

"Speech in relaxed conversation is 100% intelligible in background noise levels of about 35dB(A) and can be understood fairly well in background levels of 45dB(A)."

Speech with more vocal effort can be understood when the background sound pressure level is about 65dB(A)."

4.23 With regard to 'annoyance', section 3.8 of the Guidelines states:

"Annoyance in populations exposed to environmental noise varies not only with the acoustical characteristics of the noise (source, exposure), but also with many non-acoustical factors of social, psychological, or economic nature. These factors include fear associated with the noise source, conviction that the noise could be reduced by third parties, individual noise sensitivity, the degree to which an individual feels able to control the noise (coping strategies) and whether the noise originates from important economic activity."

4.24 Section 4.2.7 of the Guidelines further states that:

"The annoyance response to noise is affected by several factors, including the equivalent sound pressure level and the highest sound pressure level of the noise, the number of such events, and the time of day. Methods for combining these effects have been extensively studied. The results are not inconsistent with the simple, physically based energy equivalent energy theory, which is represented by the L_{Aeq} noise index.

.....

During the daytime, few people are seriously annoyed by activities with L_{Aeq} levels below 55dB; or moderately annoyed with L_{Aeq} levels below 50dB".

4.25 With regard to 'sleep disturbance', Section 3.4 of the guidelines states:

"If negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30dB(A) indoors for continuous noise. If the noise is not continuous, sleep disturbance correlates best with L_{Amax} and effects have been observed at 45dB or less. This is particularly true if the background noise level is low. Noise events exceeding 45dB(A) should therefore be limited if possible. For sensitive people an even lower limit would be preferred. It should be noted that it should be possible to sleep with a bedroom window slightly open (a reduction of outside to inside of 15dB). To prevent sleep disturbance, one should thus consider the equivalent sound pressure level and the number and level of sound events. Mitigation targeted to the first part of the night is believed to be effective for the ability to fall asleep".

- 4.26 In section 4.3.1, the above guidelines are presented in terms of external noise levels incident on buildings:

"At night, sound pressure levels at the outside facades of the living spaces should not exceed 45dB L_{Aeq} and 60dB L_{Amax} , so that people may sleep with windows open".

- 4.27 With regard to the frequency of noise events, the WHO guideline's imply that indicated values should not be exceeded more than 10-15 time per night.

"Night Noise Guidelines for Europe" (World Health Organisation, 2009)

- 4.28 This guidance presents the findings of further research regarding the potential significance of night-time noise impacts. The guidance provides the following advice relating to potential night-time noise impacts:

"Below the level of 30 dB $L_{night,outside}$, no effects on sleep are observed except for a slight increase in the frequency of body movements during sleep due to night noise. There is no sufficient evidence that the biological effects observed at the level below 40 dB $L_{night,outside}$ are harmful to health. However, adverse health effects are observed at the level above 40 dB $L_{night,outside}$, such as self-reported sleep disturbance, environmental insomnia, and increased use of somnifacient drugs and sedatives.

Therefore, 40 dB $L_{night,outside}$ is equivalent to the lowest observed adverse effect level (LOAEL) for night noise. Above 55 dB the cardiovascular effects become the major public health concern, which are likely to be less dependent on the nature of the noise....."

- 4.29 The guidelines further note that for night-time levels above 55 dB $L_{night,outside}$:

"The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed, There is evidence that the risk of cardio-vascular disease increases".

- 4.30 The guidelines therefore recommend a value of 55 dB $L_{night,outside}$ is adopted as an interim target level for night-time noise.

"ProPG: Professional Practice Guidance on Planning and Noise: New Residential Development"

- 4.31 ProPG was published in 2017 and co-authored by the Chartered Institute of Environmental Health (CIEH), Institute of Acoustics (IOA) and Association of Noise Consultants (ANC). The guidance seeks to consolidate and standardise existing industry good practice in order to

expedite the planning process with regard to the consideration of noise. Whilst the standard is primarily intended to assist with the design of new dwellings, the guidance set out in this document is considered helpful in providing benchmark guidance for considering the potential effects of noise on individuals within their homes and amenity spaces. The guidance is directly referenced in Paragraph 015 Reference ID: 30-015-20190722 of the Government's Planning Practice Guidance.

- 4.32 ProPG considers the guidance provided within BS 8233:2014 to be suitable for the assessment of internal noise levels. However, the ProPG provides additional commentary. The table below reproduces the internal ambient criteria provided within Figure 2 of ProPG. The guidance from BS 8233:2014 is displayed in black, with additional comments and criteria from ProPG in blue:

Table 4.4: ProPG Indoor Ambient Noise Level Recommendations

Activity	Location	Daytime (07.00 to 23.00 hours)	Night-time (23.00 to 07.00 hours)
Resting	Living Room	35 dB $L_{Aeq,16hour}$	--
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	--
Sleeping	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ 45 dB $L_{Amax,F}$ (Note 4)

- 4.33 Note 4 states:

"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g., bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (see Appendix A [which advocates reference to available dose-response relationships appropriate for the types of noise source being considered])."

- 4.34 With regard to potential sleep disturbance, Appendix A of ProPG advises:

"In the light of the above it is clear, as recognised by BS8233, that the effects of noise on sleep from individual noise events are an important consideration; and that the initial site noise risk assessment should include the consideration of the individual noise events when the external $L_{Amax,F}$ exceeds 60 dB. A site should not be regarded as negligible risk if the $L_{Amax,F}$ exceeds, or is likely to exceed, 60 dB more than 10 times a night. A site should be regarded as high risk if the $L_{Amax,F}$ exceeds, or is likely to exceed, 80 dB more than 20 times a night."

Noise Insulation Regulations 1975 (As Amended)

- 4.35 The Noise Insulation Regulations (as amended) provide a statutory framework for the provision of statutory sound insulation where the operation of a new or modified road may have a significant effect on existing dwellings.
- 4.36 The eligibility for sound insulation is triggered by a number of criteria, including the absolute sound level experienced at existing dwellings following the opening of the new/modified highway.
- 4.37 The specified sound level is 68 dB $L_{A10,18hour}$ (as determined one metre in front of the most exposed windows and doors in a facade of a building).
- 4.38 The $L_{A10,18hour}$ noise metric represents the arithmetic average of hourly $L_{A10,T}$ sound levels between the period of 06.00 hours to 00.00 hours.

5.0 EXISTING BASELINE NOISE LEVELS

General

- 5.1 Automated noise monitoring at the site was undertaken over a notional one week period between Tuesday 8 April 2025 and Tuesday 15 April 2025.
- 5.2 Noise levels were monitored at four locations, as shown in the figure and described in the table below.

Figure 5.1 – Noise Monitoring Locations



Noise Monitoring Locations	
Location	Description
A	Towards the northern corner of the proposed site, overlooking the existing railway track. The measurement microphone was positioned approximately 2.0 m above local ground level by means of an extended boom pole attached to a tree, in free-field conditions.
B	Towards the northeastern corner of the proposed site, overlooking the railway. The measurement microphone was positioned approximately 1.8 m above local ground level, in free-field conditions.
C	At the entrance of the proposed site, located at the southeastern corner, overlooking Station Road. The measurement microphone was positioned approximately 2m above local ground level, in free-field conditions.
D	Towards the southwest of the site, overlooking Station Road. The measurement microphone was positioned approximately 1.5 m above local ground level, in free-field conditions.

Instrumentation

5.3 Details of the equipment used for the survey are summarised In the following Table.

Noise Monitoring Equipment			
Position	Manufacturer	Type	Serial Number
A	Svantek	971A	127617
B	Convergence instruments	NSRT-mk4	CtDUBIWYU30fijPyTyJRID
C	Convergence instruments	NSRT-mk4	AHFWpf0aOX83lpFy60h5vD
D	Convergence instruments	NSRT-mk4	AnJerX2S8X23KDlyxODRvD
All	Rion	NC74	34651766

5.4 All instruments hold current laboratory calibration certificates (available on request).

5.5 A field calibration check on all equipment was made at the start of the survey and a further calibration check made on completion. No significant drift in the calibration of any instrument was observed.

Procedure

- 5.6 The noise monitoring equipment at position A was configured to record the $L_{A90,T}$, $L_{Aeq,T}$, and $L_{Amax,fast}$ sound pressure levels over consecutive 15-minute periods to provide a detailed time history profile showing fluctuations in noise levels.
- 5.7 The equipment at positions B, C and D was configured to continuously log fast A-weighted sound pressure levels, which have been post-processed to determine $L_{A90,T}$, $L_{Aeq,T}$, and $L_{Amax,fast}$ sound pressure levels over consecutive 15-minute.

Results

Automated Noise Monitoring

- 5.8 The results of the automated noise measurements are shown on the graphs presented in Figures 5.2 to 5.5.

Figure 5.2 – Noise Monitoring Results: Position A

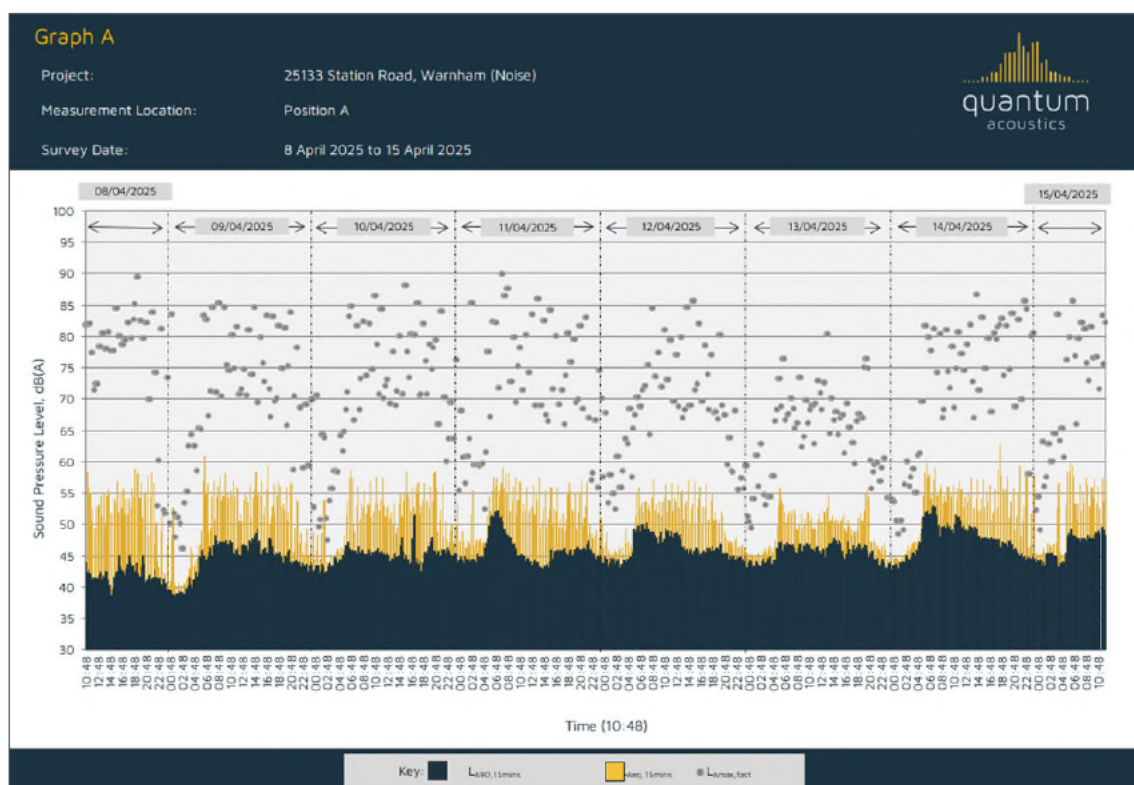


Figure 5.3 – Noise Monitoring Results: Position B

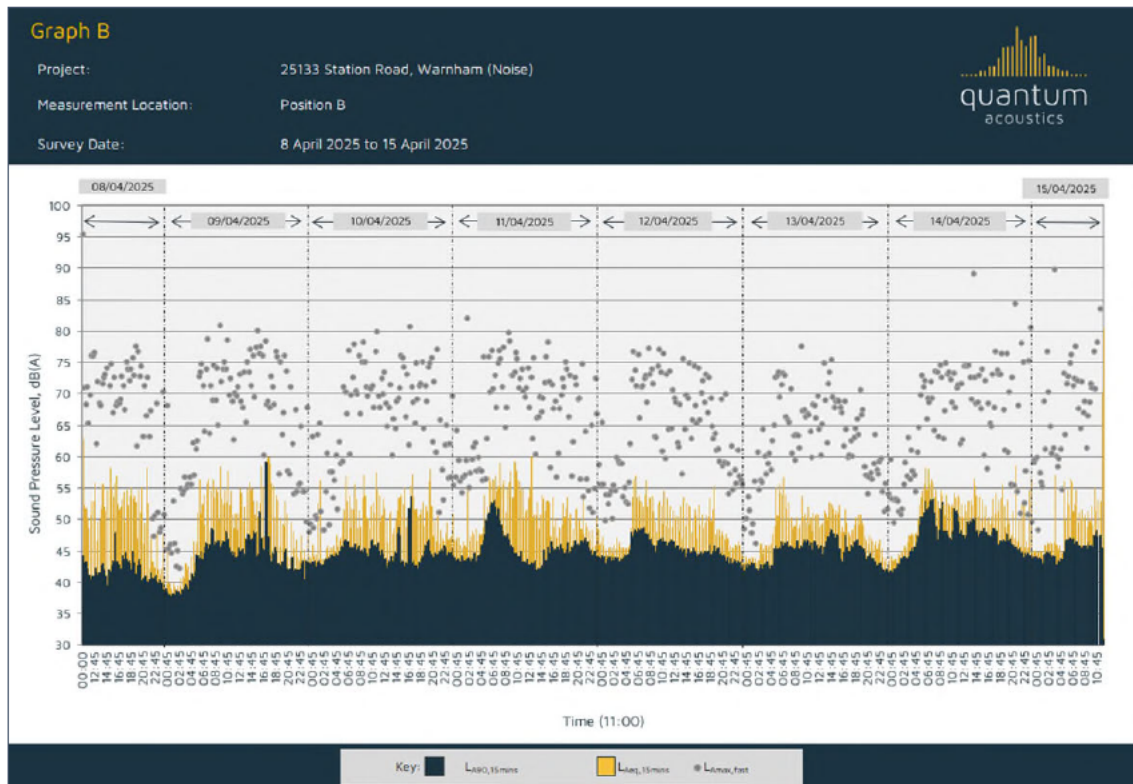


Figure 5.4 – Noise Monitoring Results: Position C

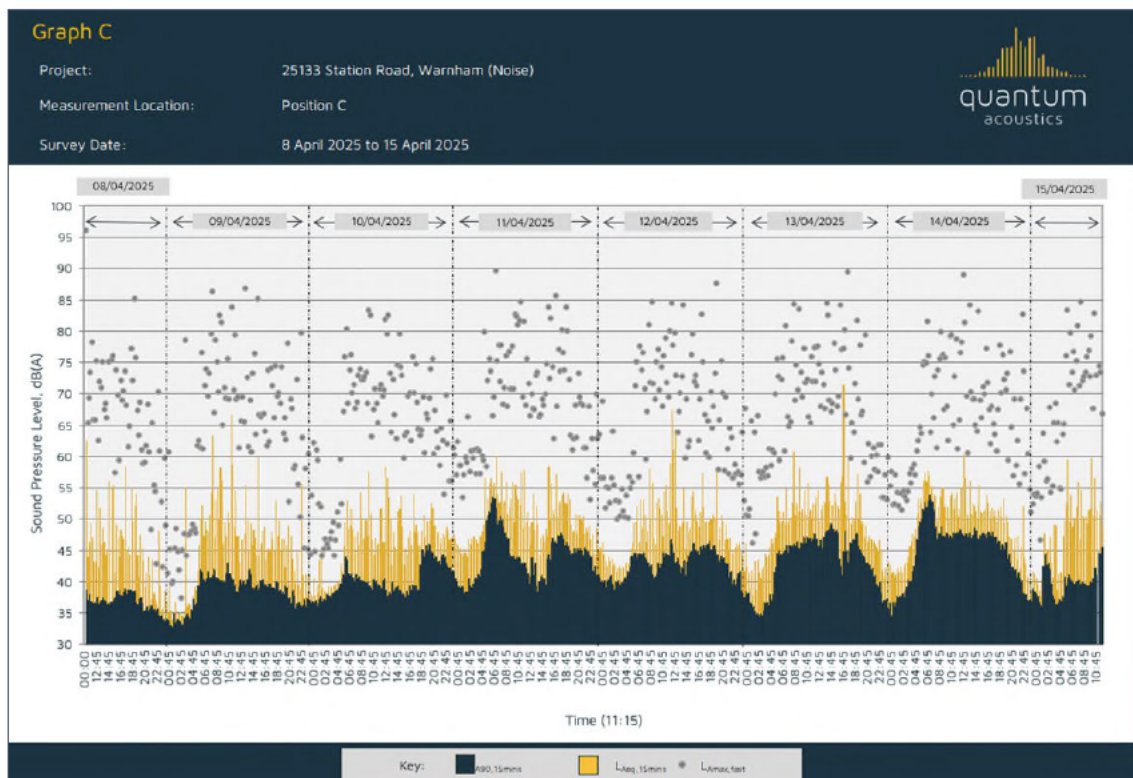
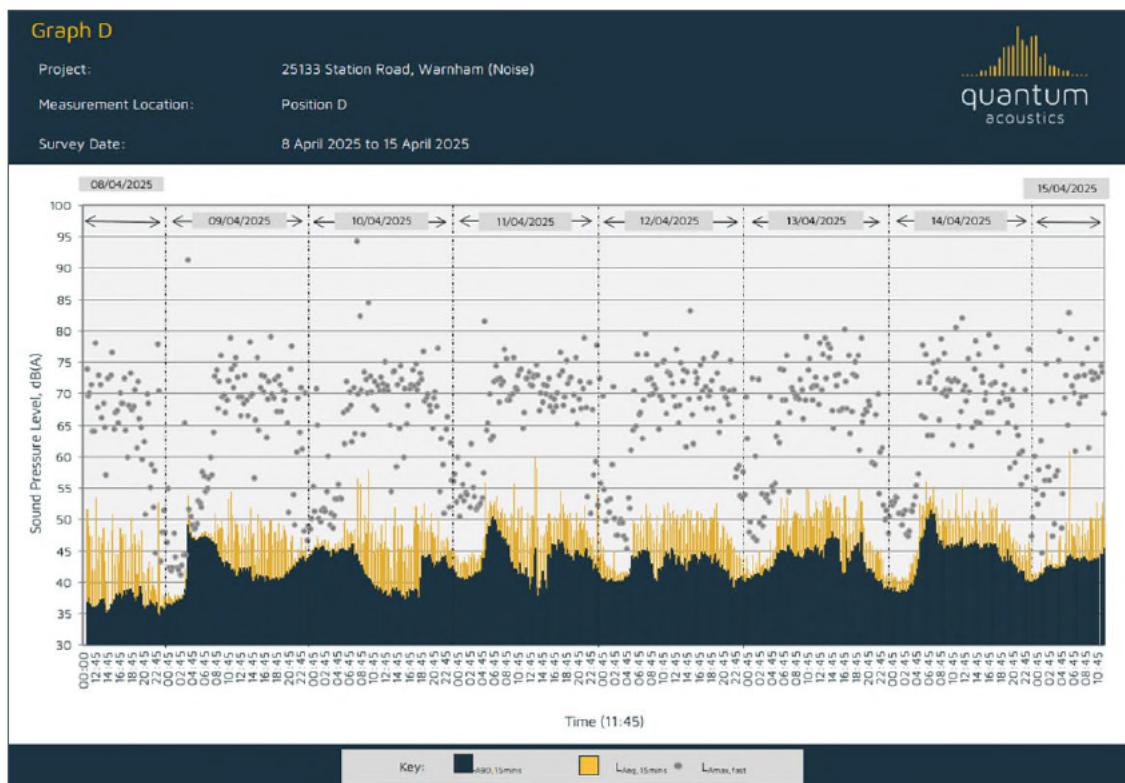


Figure 5.4 – Noise Monitoring Results: Position D



Weather

- 5.9 Whilst weather conditions during the survey were not actively measured, weather conditions at the time of equipment installation and removal were fine and dry, with light winds. Publicly available historic weather data for the survey periods indicates the following typical conditions:

Summary of Weather Conditions	
08 April 2025	09 April 2025
Temperature: 1 to 16°C Pressure: 1017 – 1020 hPa Humidity: 39 – 93% Average wind speed: 9.5km/h Average wind direction: NW Precipitation: 0mm	Temperature: 4 to 12°C Pressure: 1018– 1023 hPa Humidity range: 58 – 93% Average wind speed: 15.5km/h Average wind direction: NE Precipitation: 0mm

Summary of Weather Conditions	
10 April 2025	11 April 2025
Temperature: 4 to 15°C Pressure: 1019 – 1024 hPa Humidity: 51 – 93% Average wind speed: 9km/h Average wind direction: NE Precipitation: 0mm	Temperature: 2 to 21°C Pressure: 1008 – 1019 hPa Humidity range: 31 – 100% Average wind speed: 5km/h Average wind direction: NNE Precipitation: 0mm
12 April 2025	13 April 2025
Temperature: 5 to 21°C Pressure: 1008 – 992 hPa Humidity: 28 – 87% Average wind speed: 9km/h Average wind direction: NE Precipitation: 0mm	Temperature: 8 to 16°C Pressure: 999 – 1007 hPa Humidity: 43 – 98% Average wind speed: 15km/h Average wind direction: NE Precipitation: 0mm
14 April 2025	15 April 2025
Temperature: 5 to 14°C Pressure: 982 – 999 hPa Humidity: 58 – 98% Average wind speed: 16km/h Average wind direction: NE Precipitation: 0mm	Temperature: 9 to 15°C Pressure: 999 – 1007 hPa Humidity: 43 – 98% Average wind speed: 11km/h Average wind direction: NE Precipitation: 2.54mm

Discussion

- 5.10 The noise climate of the site was predominantly influenced by intermittent railway noise and road traffic noise from Station Road. Intermittent industrial noise was also audible during gaps in transportation noise sources, however was not considered dominant.

Data Analysis

- 5.11 The measurement results from the automated surveys have been averaged to determine typical daytime ($L_{Aeq,16\text{ hour}}$) and night-time ($L_{Aeq,8\text{ hour}}$ and $L_{Amax,fast}$) sound levels.

5.12 As noted above, the $L_{Amax,fast}$ noise levels have been determined from consecutive 1 minute time periods to obtain the typical 10th highest $L_{Amax,fast}$ noise level in accordance with the requirements of the ProPG.

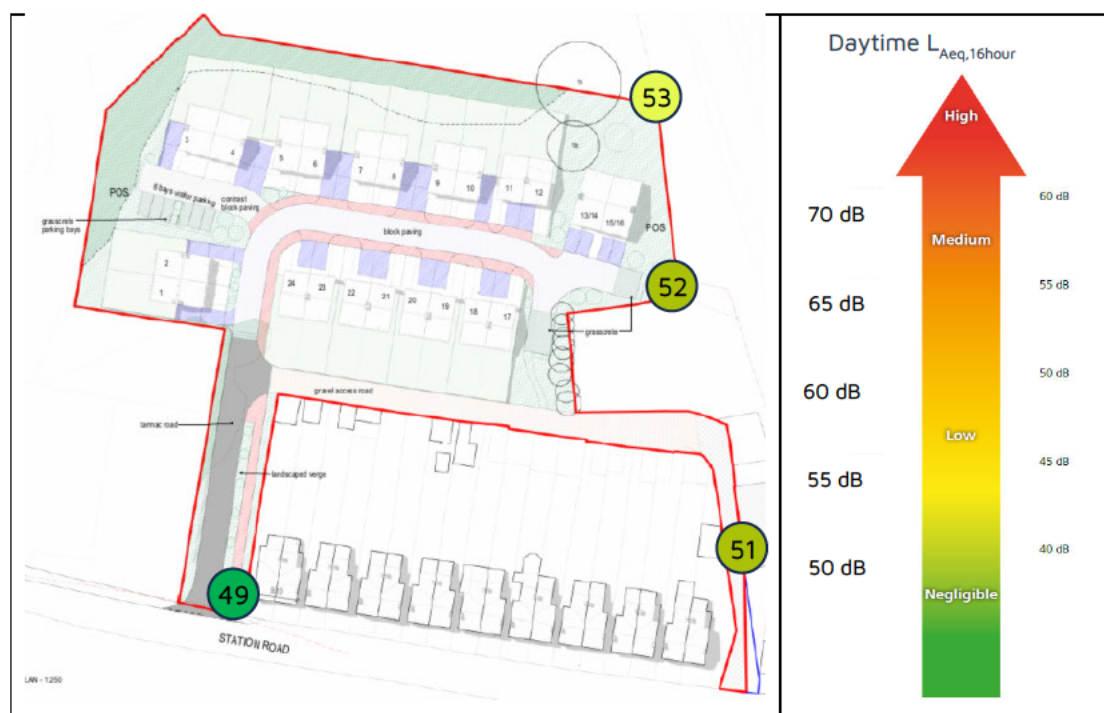
5.13 The results of this analysis are summarised in the following table.

Summary of Measured Noise Levels			
Position	Daytime $L_{Aeq,16hour}$ (dB) (07:00 – 23:00)	Night-time $L_{Aeq,8hour}$ (dB) (23:00 – 07:00)	Night-time $L_{Amax,fast}$ (dB) (23:00 – 07:00)
A	53	50	70
B	52	49	70
C	51	47	69
D	49	47	69

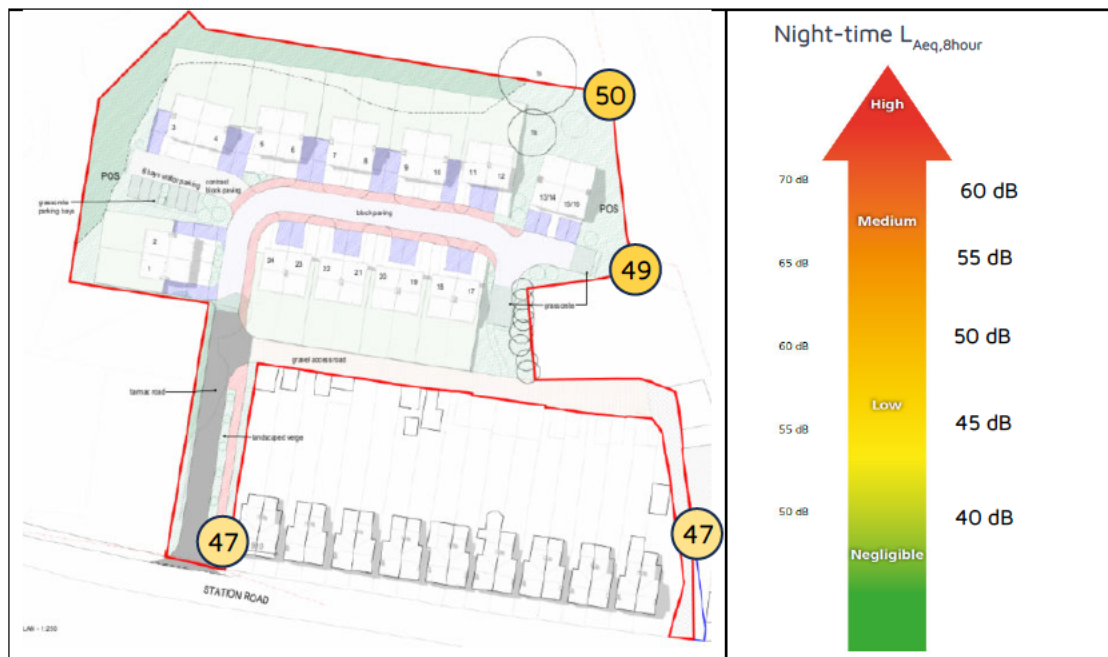
6.0 INITIAL SITE NOISE RISK ASSESSMENT

- 6.1 Based on the data collected from the site noise survey (results presented in section 5.0 above), the following ProPG Stage 1 assessment can be made
- 6.2 For presentation purposes the measured noise levels at all locations have been plotted against the site and addressed in accordance with the ProPG "stage 1 Initial Site Noise Risk Assessment" guidance.
- 6.3 The figures below present an initial risk assessment of daytime noise.

Initial ProPG Daytime Noise Risk Assessment



- 6.4 The initial day time noise risk assessment indicates a *negligible* to *low* risk.



6.5 The initial nighttime noise risk assessment indicates a *low* to *medium* risk.

6.6 For "low" sites, the ProPG states:

"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 is demonstrated in an Acoustic Design Statement (ADS) which confirms how the adverse impacts on noise will be mitigated and minimised in the finished development."

6.7 For "medium" risk sites, ProPG states:

"As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impacts will be avoided in the finished development."

6.8 In light of the above, it is clear that the site generally experiences *low* noise levels with a *medium* risk in terms of noise identified at night close to the site entrance, near existing properties. Accordingly, consideration will need to be given to noise mitigation of the site. A more detailed consideration of noise impacts for the site and potential mitigation strategies, in line with a ProPG "Stage 2" assessment (which constitutes an Acoustic Design Statement) is required.

6.9 A ProPG Stage 2 “Full Assessment” requires consideration of four key elements:

- Element 1 – Good Acoustic Design Process
- Element 2 – Internal Noise Level Guidelines
- Element 3 – External Amenity Area Noise Assessment
- Element 4 – Assessment of Other Relevant Issues

7.0 ELEMENT 1: GOOD ACOUSTIC DESIGN

General

7.1 ProPG references a preferred hierarchy of strategies that represent a “good acoustic design process”. These include the following:

- Reducing noise “at source” and or relocating the noise source;
- Providing “buffer” zones to maximise the spatial separation between noise source and receiver locations;
- Reducing noise propagation across the site by introducing acoustic screening (e.g. barriers, earth bunds, etc.)
- Optimise the acoustic screening provided by the proposed development by creating “barrier” blocks to reduce the noise propagation across the site and may assist in protecting external amenity areas;
- Optimising the orientation and internal layout of buildings to help minimise the noise exposure of noise sensitive rooms (for example, by positioning non-habitable rooms on elevations with a greater noise risk and noise sensitive rooms on quieter elevations);
- Designing the building envelope to mitigate noise intrusion; and
- Designing an appropriate strategy for minimising noise intrusion under all building ventilation modes (including the control of summertime overheating).

“At Source” Noise Reduction

7.2 As noted previously, the dominant noise source affecting the site railway and road traffic noise, with occasionally low level industrial noise. This noise source cannot be “removed” or “relocated” and any scope to provide “at source” mitigation (through the use of rail grinding, “low noise” road surface or a reduction of speed limit of the railway or roads) would not fall within the control of the developer. As such, there are no practicable options for providing “at source” noise control.

Buffer Zones

7.3 It is simple to appreciate that increasing the separation between a sound source and a noise sensitive receptor will reduce incident noise levels. However, relying entirely on distance to reduce noise levels can result in an inefficient use of land, contrary to other planning policy

requirements and, given the large distances to the site from major noise sources, and the absolute noise levels across the site, is not considered an appropriate strategy for this site.

Acoustic Screening / Barrier Blocks

- 7.4 Acoustic screens (such as bespoke noise barriers, earth bunds or fencing) can assist in minimising noise. However, again, given the large distances to the site from major noise sources, and the absolute noise levels across the site, is not considered an appropriate strategy for this site.

Building Orientation / Internal Arrangements

- 7.5 The layout of the site can effectively create sheltered rear garden areas in most areas of the site with groups of houses facing outwards and having their rear gardens behind the buildings in relation to noise sources.

Sound Insulation

- 7.6 Any residual sound insulation necessary to achieve appropriate internal sound levels can be delivered through the appropriate specification of the external fabric of the buildings and acoustically appropriate forms of ventilation. More detailed acoustic performance recommendations for controlling noise intrusion are addressed in Section 9 of this report.

Conclusions

- 7.7 It is concluded that the proposed site layout follows a good acoustic design process and can embed mitigation to help minimise noise impacts, in line with the spirit of ProPG, the NPPF, NPSE, NPPG and local planning policy.

8.0 ELEMENT 2 - INDOOR AMBIENT NOISE LEVELS

Internal Acoustic Design Recommendations for Dwellings

- 8.1 Figure 2 in the ProPG outlines the following internal acoustic design recommendations for dwellings:

ProPG Indoor Ambient Noise Level Design Guidance			
Activity	Location	Daytime (07.00 to 23.00 hours)	Night-time (23.00 to 07.00 hours)
Resting	Living Room	35dB $L_{Aeq,16hour}$	--
Dining	Dining Room/Area	40dB $L_{Aeq,16hour}$	--
Sleeping	Bedroom	35dB $L_{Aeq,16hour}$	30dB $L_{Aeq,8hour}$ 45 dB $L_{Amax,F}$ (Note 4)

- 8.2 The above values are taken to be "*Lowest Observed Adverse Effect Levels*" in line with national planning practice guidance.

Sound Insulation Requirements for Façades

- 8.3 The required level of sound insulation for a building's façade to achieve the above design targets is determined by:
- The noise levels affecting specific areas of the façade, with higher insulation needed for units facing noisy sources like roads.
 - The sound insulation properties of building elements, such as windows in masonry walls.
 - The proportion of different building elements; larger façades require more insulation.
 - The acoustics of the receiving room, with harder (reverberant) rooms needing more insulation.
- 8.4 Based on the measured/predicted incident noise levels, preliminary calculations have been undertaken to determine the typical sound reduction performance requirements for windows.

- 8.5 The following preliminary specifications are based on an assumption that all dwellings will be ventilated using acoustic trickle vents compliant with Approved Document F1 of the Building Regulations 2010 (as amended).
- 8.6 Standard double glazing and acoustic trickle vents with the following configurations will be acceptable across the development:
- Standard double glazing to achieve a minimum sound insulation of 26 dB $R_w + C_{tr}$ (e.g. in a 6-16-4 configuration).
 - Acoustic trickle vents with a minimum sound reduction of 32 dB $D_{n,e,w} + C_{tr}$.
- 8.7 The acoustic performance values of windows are specified in terms of the "Weighted Sound Reduction Index" ($R'_w + C_{tr}$) as determined in accordance with BS EN ISO 10140-2:2021: "Acoustics. Laboratory Measurement of Sound Insulation of Building Elements. Measurement procedures and requirements" and rated in accordance with BS EN ISO 717-1:2020: "Acoustics. Rating of Sound Insulation in Buildings and of Building Elements – Airborne Sound Insulation". The sound reduction index relates to the composite performance of the complete window system including the glass, framing, mullions, transoms, seals, etc.
- 8.8 It is therefore concluded that the Proposed Development can be designated to deliver acceptable indoor noise levels for future residents.
- 8.9 An appropriately worded condition should be used to ensure detailed design calculations are captured during later design stages of the project.

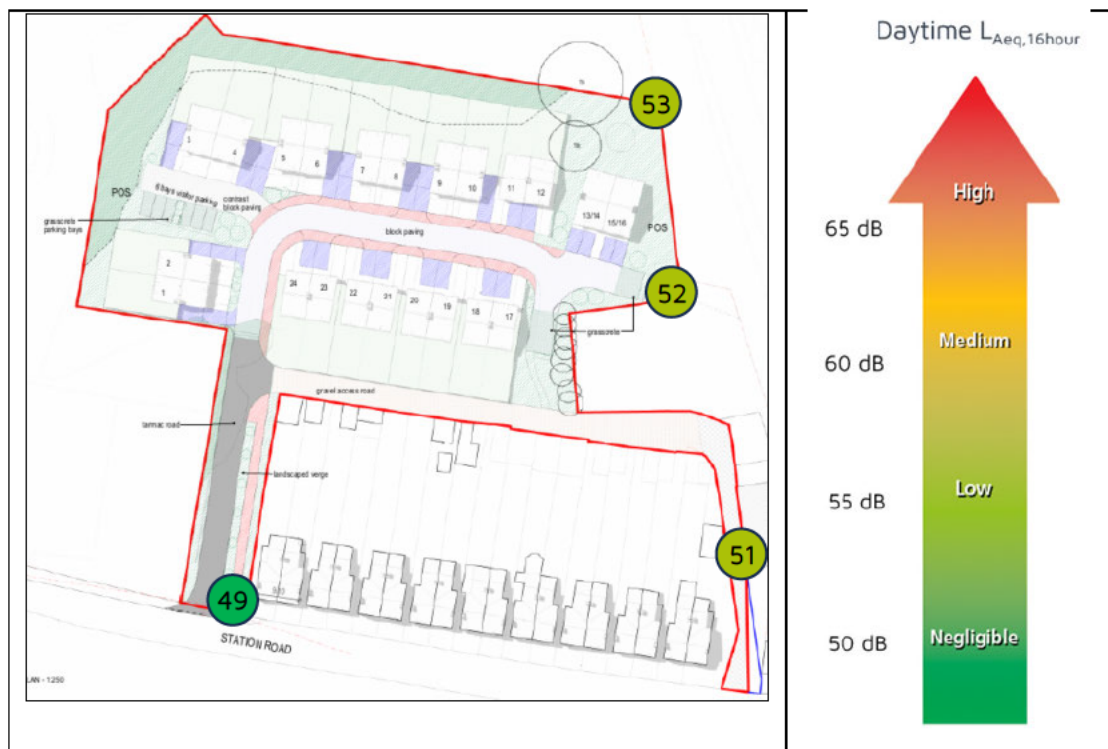
Purge Ventilation

- 8.10 Approved Document F1 of the Building Regulations 2010 (with amendments) mandates that residential properties must offer adequate "purge" ventilation. Purge ventilation is the process of removing high concentrations of pollutants and water vapour released from occasional activities (such as painting and decorating) or accidental releases (such as smoke from burnt food or spillage of water).
- 8.11 Since the need for purge ventilation is, by its definition "occasional" and of limited duration, this is normally achieved by giving residents the ability to open windows. Whilst noise intrusion may increase as a result of windows being open, any increase in noise levels will arise as a result of occupant choice and it is therefore concluded that any temporary increase in noise levels to deliver purge ventilation in accordance with Approved Document F1 is acceptable and compatible with the guidance of ProPG, BS 8233:2014 and ADF.

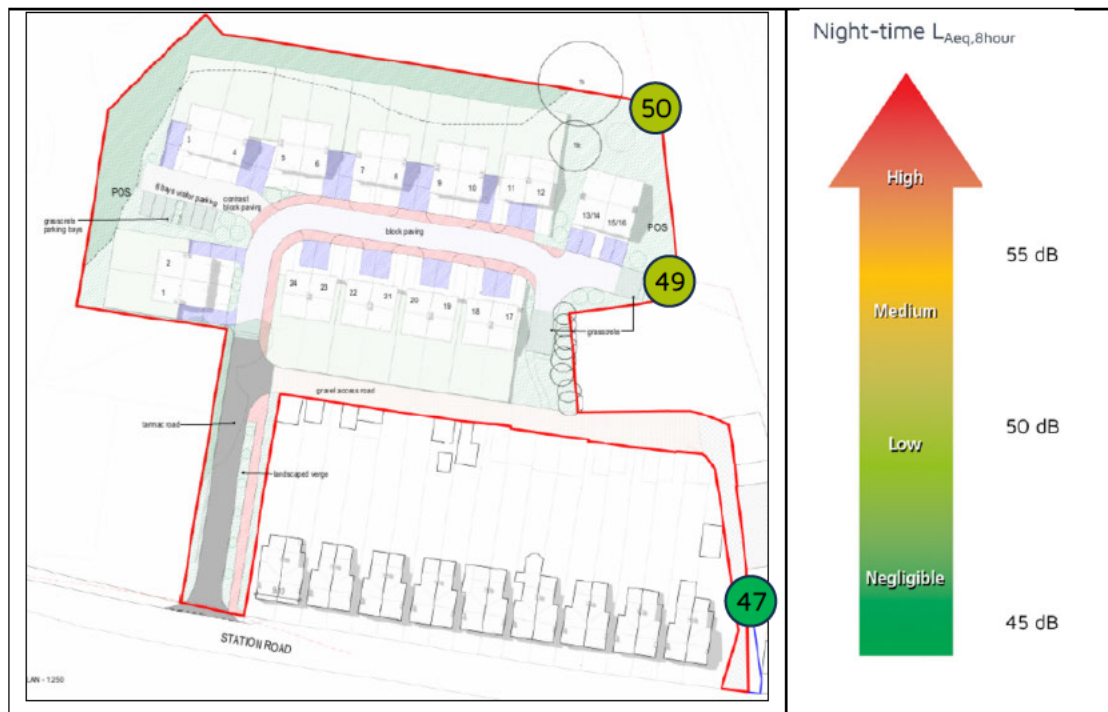
Thermal Comfort

- 8.12 The proposed dwellings will also need to implement appropriate strategies to address any potential for habitable rooms overheating during the summer. From a sustainability point of view, the preferred means of providing thermal control of the properties is through the use of openable windows to provide passive, ventilative cooling. It is, however, simple to appreciate that future occupants will experience increased noise intrusion when windows are open.
- 8.13 An initial "Level 1" assessment in accordance with the IOA/ANC's AVOG guidance is presented in the figures overleaf.

Daytime Initial AVOG Noise Risk Assessment



Night-time Initial AVOG Noise Risk Assessment



- 8.14 This initial Stage 1 assessment generally indicates a "low" to "negligible" noise risk for both the daytime and night-time periods throughout the site. As such, it is unlikely that any specific mitigation will be required to minimise the risk of overheating for the dwellings – most dwellings should be able to rely on a natural ventilation strategy for providing ventilative cooling to assist with the thermal control of their properties.
- 8.15 The most appropriate solution will depend on the specific overheating risk and the detailed architectural design of the development, e.g. the design of the external fabric could be developed to intrinsically assist in reducing heat gains, orientation of buildings, etc. It is considered possible that the dwellings could continue to rely on natural, ventilative cooling, with windows having restrictors to minimise the openable area. Given that the control of overheating in bedrooms is also a matter now statutorily controlled by Approved Document O of the Building Regulations and therefore controls outside of the planning system exist to ensure that the potentially conflicting requirements of acoustics and overheating are fully addressed.
- 8.16 As such, it is recommended that an overheating assessment is undertaken in accordance with the Chartered Institute of Building Services Engineer (CIBSE) "*Design Methodology for the Assessment of Overheating Risk in Homes*" (TM59:2017) during the detailed design phase of any proposed development to determine what additional strategy for controlling

overheating may be required. The findings of this assessment could then form part of a holistic ventilation strategy for the development where dwellings are constrained by noise. As noted earlier, the LPA could retain control over the sound insulation implications of the overheating strategy by means of either an operative planning condition, or a condition requiring the submission and approval of the sound insulation scheme details.

Conclusion

- 8.17 It is concluded that the proposed development can be designed to deliver acceptable indoor noise levels for future residents, for all modes of ventilation and thermal control and that the LPA could retain planning control over such matters through the use of an appropriate planning condition.

9.0 ELEMENT 3: EXTERNAL AMENITY AREA NOISE LEVELS

- 9.1 As set out in Section 4 of this report a noise level of 50 dB $L_{Aeq,16hour}$ is a desirable target for noise in external amenity areas, with 55 dB $L_{Aeq,16hour}$ suggested as an upper target in ProPG/8233:2014.
- 9.2 The proposed development provides an external amenity space for each dwelling in the form of gardens. Noise levels across the site are below the upper target level even at the noisiest part of the site (the eastern boundary with the railway line). Given the screening provided by the massing of the buildings and standard close boarded timber boundary fences, noise levels in amenity spaces should comply fully with the aspirational sound level outlined in ProPG/BS 8233 and likely be below the desirable target in all amenity areas.

Conclusion

- 9.3 It is therefore concluded that the Proposed Development embeds appropriate design strategies for providing access to good quality external amenity space for future residents.

10.0 ELEMENT 4: OTHER CONSIDERATIONS

Planning Policy Compliance

- 10.1 The conclusions of Elements 1 to 3 show that the development *implements "good acoustic design"* and both internal and external noise levels can be readily controlled in line with ProPG guidance.
- 10.2 The mitigation embedded within the site layout and any residual mitigation that will be developed at detailed design should not create a risk of any unintended adverse consequences for future residents the proposed development is therefore considered to comply fully with relevant national and local planning policy.

Compatibility With Neighbouring Land

- 10.3 As noted in earlier sections, noise associated with the industrial estate to the north-east of the site is present (i.e. audible at times) but is not "dominant" (and therefore is not assessed to have a significant effect requiring mitigation in context of para 200).
- 10.4 Accordingly, it is concluded that noise from the operation of the nearby commercial units does not currently have any significant adverse impact on the site. Therefore, the "agent of change" obligation created by paragraph 200 of the NPPF has been addressed and is not considered to be an obstacle to this Proposed Development.

Recommendation to Decision Maker

- 10.5 Section 3 of ProPG identifies that following the Stage 1 and 2 guidance will lead to one of four possible recommendations from the noise practitioner to the decision maker:
- A. Planning consent may be granted without any need for noise conditions;
 - B. Planning consent may be granted subject to the inclusion of suitable noise conditions;
 - C. Planning consent should be refused on noise grounds in order to avoid significant adverse effects ("avoid"); or
 - D. Planning consent should be refused on noise grounds in order to prevent unacceptable adverse effects ("prevent").
- 10.6 The ProPG Stage 1 assessment demonstrates that the Site has a "negligible" to "low" to noise risk. The Stage 2 assessments confirm that good acoustic design is implemented within

the outline scheme proposals and that additional mitigation can be developed at during the detailed design stage of the development. As such, the appropriate recommendation to the decision maker is that:

"Planning consent may be granted subject to the inclusion of suitable noise conditions"

11.0 OPERATIONAL TRAFFIC ASSESSMENT

- 11.1 The potential change in traffic noise levels for each road link has been assessed in accordance with the procedures set out in the Department for Transport (Welsh Office) Publication "*Calculation of Road Traffic Noise*" (1988). In essence, this procedure enables the "*Basic Noise Level*" (BNL) for each road link to be established and the long-term change in noise level to be assessed by comparing the existing baseline traffic flows with those advised for the future opening year of the development. This assessment takes account of both the change in the total number of vehicle movements and any change in the composition of the traffic flows (e.g. a change in the percentage of HGV's).
- 11.2 Whilst the CRTN calculation procedures are the accepted methodology for calculating road traffic noise in the UK, the procedures become less robust when the volume of traffic being assessed is "*low*". CRTN indicates that "*low*" traffic flows are considered to be an hourly vehicle flow rate of less than 50 vehicle/hour or lower than an 18-hour flow of less than 1000 vehicles. Where flow rates are "*low*", CRTN recommends that traffic noise is established through measurement.

Noise Criteria

- 11.3 In order to establish whether the effects from such activity have an adverse or significant adverse effect, it will be appropriate to assess the noise by considering both:
- (a) "*Noise change*", i.e. how the proposed development may affect the future ambient noise climate experienced by existing dwellings, compared with existing ambient noise levels; and
 - (b) The "*absolute*" level of environmental, neighbour and neighbourhood noise, i.e. whether the magnitude of future ambient noise levels experienced by existing receptors could have adverse or significant adverse impacts on existing dwellings in their own right.

Noise Change

- 11.4 Based on the DMRB guidance, it is proposed to align the potential significance of changes in sound level with noise related national and local planning policy and the government's accompanying Planning Practice Guidance relating to noise.

Table 11.1: Proposed Assessment of Noise Change Significance in the Long Term – Operational

Impact Descriptor	Change in sound level	Effect
Major	A ≥ 10 dB L_{Aeq} change in sound level	Significant Adverse Effect
Moderate	A 5 to <10 dB L_{Aeq} change in sound level.	
Significant Observed Adverse Effect Level (SOEAL)		
Minor	A 3 to <5 dB L_{Aeq} change in sound level	Adverse Effect
Lowest Observed Adverse Effect Level ((LOAEL)		
Negligible	Less than 3 dB L_{Aeq} change in sound level	No Observed Adverse Effect
No Observed Adverse Effect		
None	No change in sound level	No Adverse Effect

Absolute Sound Levels

- 11.5 As noted earlier, the WHO's "Guidelines for Community Noise" and BS 8233 identify guideline values to assess typical annoyance, with a daytime value of 50-55 dB $L_{Aeq,16hour}$ (outdoors), representing daytime levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed. It is therefore considered appropriate to take a value of 50dB as a "No Observed Adverse Effect Level" and a value of 55 dB as a "Lowest Observed Adverse Effect Level".
- 11.6 With regard to significant adverse effects during the daytime, the UK's "Noise Insulation Regulations 1975" (as amended) prescribes a specified level of 68 dB $L_{A10,18hour}$ as a trigger for entitlement to sound insulation from new or modified road schemes. This specified value is therefore routinely taken as an indicator of a "Significant Observed Adverse Effect Level" for the assessment of road traffic noise. The value can be converted to a daytime $L_{Aeq,16hour}$ noise metric based on guidance given in section 6.2.2 of BS 8233: 2014; this would give an equivalent $L_{Aeq,16hour}$ value of 66 dB. Given that the specified value is a "façade" value, a further correction should be applied to convert to an equivalent free field value. Paragraph 3.1.10 of BS 8233: 2014 states:

"Façade level measurements of L_{PA} are typically 1 to 2 dB higher than corresponding free-field measurements because of the reflection from the façade."

- 11.7 Applying a correction of 2 dB to the equivalent $L_{Aeq,16hour}$ specified level would therefore give a value of 64 dB $L_{Aeq,16hour}$. This is therefore taken to a "Significant Observed Adverse Effect Level" for traffic noise.
- 11.8 With regard to night-time noise, the WHO's World Health Organisation's "Night Noise Guidelines for Europe" explicitly state that an external night-time sound level of 40 dB $L_{Aeq,8hour}$ represents a "Lowest Observed Adverse Effect Level".
- 11.9 The night-noise guidelines also set an "Interim Target" for night-time sound levels of 55 dB $L_{Aeq,8hour}$. This value is therefore taken as a "Significant Observed Adverse Effect Level" for night-time noise.
- 11.10 Reconciling the above leads to the following categorisation of the potential impact and effects of absolute levels of road traffic noise:

Table 11.2: Proposed Assessment of Absolute Noise Level Significance

Impact Descriptor	Absolute Sound Level, dB		Effect
	Daytime (07.00 to 23.00 hours)	Night-time (23.00 to 07.00 hours)	
Major	>69	> 60	Significant Adverse Effect
Moderate	64 to 68.9	55 to 59.9	
Significant Observed Adverse Effect Level (SOEAL)			
Minor	55 to 63.9	45 to 54.9	Adverse Effect
Lowest Observed Adverse Effect Level ((LOAEL)			
Negligible	50 to 54.9	40 to 44.9	No Observed Adverse Effect
No Observed Adverse Effect			
None	<50	<40	No Adverse Effect

- 11.11 Vehicular activity during the night-time period could also theoretically create a risk of potential sleep disturbance. As noted earlier, the World Health Organisation's "Guidelines for Community Noise" recommend that night-time external sound levels do not exceed a value of 60 dB $L_{Amax,fast}$ to minimise the risk of sleep disturbance whilst allowing residents to open their windows. A value of 60 dB $L_{Amax,fast}$ is therefore taken to represent a "Lowest Observed Adverse Effect Level" (LOAEL).
- 11.12 The previously referenced ProPG guidance cautions that:

"A site should be regarded as high risk if the $L_{Amax,F}$ exceeds or is likely to exceed 80 dB more than 20 times a night".

- 11.13 As such, a value of 80 dB $L_{Amax,fast}$ has been taken to represent a "Significant Observed Adverse Effect Level" for potential night-time sleep disturbance.

Table 11.3: Proposed Assessment of Absolute Night-time Noise Maxima ($L_{Amax,fast}$)

Impact Descriptor	Absolute Sound Level, dB	Effect
	Night-time (23.00 to 07.00 hours)	
Major	>85	Significant Adverse Effect
Moderate	80 to 84.9	
Significant Observed Adverse Effect Level (SOEAL)		
Minor	60 to 79.9	Adverse Effect
Lowest Observed Adverse Effect Level ((LOAEL)		
Negligible	<60	No Observed Adverse Effect

Source Noise Data

- 11.14 Quantum Acoustics in-house database includes the results of source noise measurements for a variety of noise sources and activities, including vehicular pass-by events.
- 11.15 Given the limited length of the access, it is assumed that vehicles would use the access roads at a low speed, therefore data has been extracted from the database assuming a vehicle speed of 20mph. Assumed source data is presented in Table 8.2 below.

Table 11.4: Assumed Source Data for Vehicle Movements on Access Roads

Source	Distance (m)	L_{AE} dB	$L_{Amax,fast}$ dB
Car	5	68	65
LGV	5	71	68
OGV1	5	80	77

Assessment Methodology

- 11.16 In line with the above guidance, the noise impacts associated with the access road have been assessed adopting the following approach:

- (a) The component sound level of future road traffic using the site access link has been calculated based on measured data for vehicle pass-by events (extracted from Quantum Acoustics in-house database as per Table 11.4 above) and the development traffic flow data for the daytime and night-time periods provided by the transport consultant. The relevant $L_{Aeq,T}$ sound level for the assessment period is then calculated from:

$$L_{Aeq,T} = L_{AE} + 10 \cdot \log(N) - 10 \cdot \log(T)$$

where:

$L_{Aeq,T}$ = the equivalent continuous sound level for the assessment period, T

L_{AE} = the "A-weighted" sound exposure level of a single pass-by event

N = the number of events in the measurement period

T = the assessment period T (in seconds)

Since different classifications of vehicle generate different noise levels, separate $L_{Aeq,T}$ values for each type of vehicle (cars, LGV's and OGV1's) have been calculated and are then logarithmically summed to give a total $L_{Aeq,T}$ for the total traffic composition. The distribution of LGV's and OGV1's has been assigned by Quantum Acoustics personnel using our experience of typical projects.

- (b) The component traffic level has then been combined with the existing baseline daytime and night-time sound levels determined from the noise monitoring to determine the future cumulative future sound level;
- (c) The change between the existing baseline noise levels and future cumulative sound level has then been assessed in accordance with the effect indicative given in Table 11.1 above; and
- (d) The potential significance of the future cumulative sound level has then been further assessed in line with the categorisation of the "absolute" noise magnitude and effect indicators given in Tables 11.2 and 11.3 above.

Receptors

- 11.17 The assessment has been undertaken for one receptor location, 18 Station Road, adjacent to the proposed access road as shown in Figure 11.1 below. The front of the receptor, affected primarily by noise from Station Road, and the side/rear of the receptor, affected

primarily by noise from the access road, have been treated as separate receptors. Vehicles passing on both Station Road and the access road have been considered to be at a closest distance of 5m as a worst-case.

Figure 11.1: Receptor Locations Used for Assessment



Existing and Proposed Traffic Flows

- 11.18 The existing and proposed traffic flows have been provided by Mode Transport Planning as follows:

Table 11.5: Existing and Proposed Traffic Flows

Road	Traffic Flows			
	Daytime (07:00 – 23:00)		Night-time (23:00 – 07:00)	
	Number of Vehicles	% HGV	Number of Vehicles	% HGV
Station Road - Existing	187	2%	9	1%
Access Road – Proposed	149	0%	15	0%

Assessment of Significance of Noise Change

- 11.19 Tables 11.6 and 11.7 below assess the noise change associated with the operational road traffic, i.e. comparing how additional traffic on the access roads would change existing ambient noise levels.

Table 11.6: Assessment of Noise Change at 18 Station Road: Daytime

Receptor	Predicted Sound Level for Access Road Activity, $L_{Aeq,16hour}$ dB	Existing Baseline Sound Level, $L_{Aeq,16hour}$ dB	Future Predicted Sound Level, $L_{Aeq,16hour}$	Noise Change, dB	Significance of Noise Change
R1	46.9	49.0	51.1	+2.1	Negligible
R2	42.3	49.0	59.8	+0.8	Negligible

Table 11.7: Assessment of Noise Change at 18 Station Road: Night-time

Receptor	Predicted Sound Level for Access Road Activity, $L_{Aeq,16hour}$ dB	Existing Baseline Sound Level, $L_{Aeq,16hour}$ dB	Future Predicted Sound Level, $L_{Aeq,16hour}$	Noise Change, dB	Significance of Noise Change
R1	34.5	47.0	47.2	+0.2	Negligible
R2	32.4	47.0	47.1	+0.1	Negligible

Assessment of Significance of Absolute Sound Level of Future Road Traffic

- 11.20 The potential significance of the predicted average cumulative sound levels that would have been generated by vehicular activity from the proposed development is assessed in Tables 11.8 and 11.9 below for daytime and night-times respectively.

Table 11.8: Assessment of Significance of Absolute Sound Level from Road Traffic Noise at 18 Station Road: Daytime

Receptor	Predicted Sound Level, $L_{Aeq,16hour}$ dB	Significance of Absolute Sound Level
R1	47	None
R2	42	None

Table 11.9: Assessment of Significance of Absolute Sound Level from Road Traffic Noise at 18 Station Road: Night-time

Receptor	Predicted Sound Level, $L_{Aeq,8hour}$ dB	Significance of Absolute Sound Level
R1	42	Negligible
R2	32	None

11.21 The above tables indicate that the absolute level of noise associated with the use of the access roads is below 50 dB $L_{Aeq,16hour}$ and around or below 40 dB $L_{Aeq,8hour}$ and this below a "Lowest Observed Effect Level" during the daytime and below a "No Observed Adverse Effect Level" at night-time.

11.22 The potential significance of the absolute sound level of pass-by events is assessed in Table 11.10 below.

Table 11.10: Assessment of Significance of Absolute Sound Level at 18 Station Road: Night-time

Receptor	Predicted Sound Level, $L_{Amax,fast}$ dB	Significance of Absolute Sound Level
R1	65-68	Minor
R2	65-68	Minor

11.23 $L_{Amax,fast}$ sound levels above 60 dB and below 80 dB at all receptor locations and therefore the absolute magnitude of car pass by events, when considered in isolation, would be assessed to be of "minor" significance only (i.e. above LOAEL but below SOAEL).

11.24 It is, however, also important to consider how these absolute sound levels compare with the existing baseline noise levels. For 18 Station Road positions it is clear that the predicted $L_{Amax,fast}$ noise levels are just below the measured $L_{Amax,fast}$ noise levels. The measured $L_{Amax,fast}$ noise levels are likely to be from similar noise sources as the predicted noise levels (i.e.

passing road traffic) and would also fall into the *minor* significance category. It is also noted that the transport consultants did not predict any additional LGV movements at night, however these have been considered by QA as worst-case scenario type of assessment.

- 11.25 Accordingly, it would be safe to conclude that maximum noise levels from operational traffic would, at worst, be of minor significance.

Assessment Conclusions

- 11.26 Based on the above assessments, it can be concluded that predicted noise levels from the proposed increase in road traffic on Station Road and the proposed access road should:

- (a) Avoid any significant adverse impact (i.e. be below SOAEL) at existing residential receptors (for both daytime and night-time noise);
- (b) Be below a LOAEL at those receptors (for both daytime and night-time noise) for average noise levels; and
- (c) Not increase any potential impact from maximum noise levels associated with passing road traffic.

- 11.27 Whilst additional traffic on Station Road and on the new access road would (inevitably) have some degree of noise impact, such impacts are concluded to be of negligible or minor significance only when the context of the site is taken into account.

- 11.28 It is also important to note that the above assessment assumes that all vehicles are powered by internal combustion engines (petrol and diesel). The Government has set ambitious targets in terms of the future prohibition of new petrol and diesel cars from 2030 to encourage a switch to electric vehicles. At lower speeds, electric vehicles are significantly quieter than petrol and diesel cars. As such, the assessment presented above is considered to be a "worst case" and noise impacts would further reduce as the composition of cars moves towards electric vehicles.

12.0 CONCLUSIONS

- 12.1 Quantum Acoustics has undertaken an environmental noise survey to establish the existing noise levels characterising the proposed development site. The noise survey work concludes that the site is dominant by
- 12.2 The potential risk of the site has been assessed in line ProPG Stage 1 and Stage 2 assessments.
- 12.3 The Stage 1 assessment concludes that the site has a "*negligible*" to "*low*" risk in terms of noise during the daytime and a "*low*" to "*medium*" risk in terms of noise at night.
- 12.4 The Stage 2 assessment concludes:
- The scheme proposals embed a good acoustic design process to mitigate noise levels;
 - The proposed development can be designed to deliver appropriate internal noise levels for all modes of ventilation;
 - The proposed development embeds appropriate design strategies for providing access to good quality external amenity space; and
 - The required mitigation strategies should not create any unintended adverse consequences for future residents the proposed development is therefore considered to comply fully with relevant national and local planning policy;
- 12.5 The impact of future road traffic on Station Road and on the proposed access road to the site have been assessed and it has been identified that no significant adverse impacts would be expected.
- 12.6 It is concluded that the Proposed Development should not raise any residual significant adverse impacts on health and/or quality of life for future occupiers of the Proposed Development or existing neighbouring dwellings, and that the Proposed Development follows an intelligent, design led approach to reduce and minimise noise.
- 12.7 It is also concluded that the Proposed Development can be satisfactorily integrated with existing commercial and community uses.
- 12.8 In light of the above, it is concluded that the proposed development complies fully with noise related national and local planning policies.



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