

Land East of Sandcliffe Road, Swadlincote

Noise Impact Assessment

794-ENV-EM-ACO-23711

V2

25th June 2026

REPORT

Document status					
Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
V1	Draft Report	Peter Kowalczuk BEng (Hons) MIOA Principal Acoustic Consultant	Simon Urquhart MIOA Director – Acoustics	Simon Urquhart MIOA Director – Acoustics	20/05/2026
V2	Final Report	Peter Kowalczuk BEng (Hons) MIOA Principal Acoustic Consultant	Peter Kowalczuk BEng (Hons) MIOA Principal Acoustic Consultant	Peter Kowalczuk BEng (Hons) MIOA Principal Acoustic Consultant	25/06/2026

Approval for issue

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1 Introduction

- 1.1.1 The Tetra Tech Consulting Limited's acoustics team (TT) has been instructed by Bellway Strategic Land to undertake a noise impact assessment (NIA) to accompany an outline planning application for a proposed residential development on land east of Sandcliffe Road, Swadlincote.
- 1.1.2 An environmental sound survey has been undertaken at the site to quantify the existing noise climate. As the predominant sound source affecting the site is vehicular movement, a noise impact assessment has been undertaken in accordance with the guidance contained in 'Professional Practice Guidance on Planning and Noise – New Residential Development' (ProPG).
- 1.1.3 TT is a member of the Association of Noise Consultants (ANC), the representative body for acoustics consultancies, having demonstrated the necessary professional and technical competence. This report has been prepared with integrity, objectivity, and honesty in accordance with the Code of Conduct of the Institute of Acoustics (IOA) and ethically, professionally, and lawfully in accordance with the Code of Ethics of the ANC.
- 1.1.4 The technical content of this NIA has been provided by TT personnel, all of whom are members of the IOA, the UK's professional body for those working in acoustics, noise, and vibration, at various grades. Personnel and individual qualifications are provided within the Quality Management table at the start of this report. This report has been peer reviewed within the TT team to ensure that it is technically robust and meets the requirements of our Integrated Management System.

2 Policy, Guidance and Local Authority Correspondence

2.1 National Planning Policy Framework

- 2.1.1 The National Planning Policy Framework (NPPF), December 2024, sets out the Government's planning policies for England and how these are expected to be applied. The emphasis of the Framework is to allow development to proceed where it can be demonstrated to be sustainable. In relation to noise, Paragraph 187, 198 and 200 of the Framework states:

- Paragraph 187:

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

[...] e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability..."

- 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 life⁶⁵ [See Explanatory Note to the Noise Policy Statement for England];

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"

- 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 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. "

2.2 Noise Policy Statement for England (NPSE)

- 2.2.1 The Noise Policy Statement for England (NPSE) published in March 2010 by Defra, aims to provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion.

- 2.2.2 Paragraph 1.6 of the NPSE sets out the long-term vision and aims of Government noise policy:

"Noise Policy Vision

Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.”

“Noise Policy Aims

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

avoid significant adverse impacts on health and quality of life;

mitigate and minimise adverse impacts on health and quality of life; and

where possible, contribute to the improvement of health and quality of life.”

- 2.2.3 The aims require that all reasonable steps should be taken to avoid, mitigate and minimise adverse effects on health and quality of life whilst also taking into account the guiding principles of sustainable development, which include social, economic, environmental and health considerations.

- 2.2.4 With regard to the terms ‘significant adverse’ and ‘adverse’ included in the ‘Noise Policy Aims’, these are explained further in the ‘Explanatory Note’ as relating to established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation which 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 human health and quality of life due to noise.

LOAEL – Lowest Observed Adverse Effect Level

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

- 2.2.5 DEFRA has then extended these concepts for the purpose of the NPSE to introduce the concept of:

“SOAEL – Significant Observed Adverse Effect Level

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

- 2.2.6 The accompanying explanation states:

“It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.”

2.3 Planning Practice Guidance on Noise

- 2.3.1 The National Planning Practice Guidance – Noise (NPPG) reiterates general guidance on noise policy and assessment methods provided in the NPPF, NPSE, relevant guidance and British Standards, and contains examples of acoustic environments commensurate with

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various effect levels. A summary of the guidance from the NPSE and NPPG is set out in Table 2.1 below.

Table 2.1: Summary of Guidance from NPSE and NPPG

Perception	Example Of Outcomes	Increasing Effect Level	Action
Not present	No effect	No observed effect	
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
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
Significant Observed Adverse Effect Level - SOAEL			
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, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

2.4 ProPG: Planning and Noise

2.4.1 The ProPG provides practitioners with guidance on a recommended approach to the management of noise within the planning system in England for new residential development. The guidance has been produced by the ANC, IOA and Chartered Institute of Environmental Health (CIEH) and is expected to be widely adopted by planning authorities as best practice when considering noise affecting new residential development.

2.4.2 This ProPG advocates a systematic, proportionate, risk based, two stage, approach, namely:

- Stage 1: an initial noise risk assessment of the proposed development site; and
- Stage 2: a systematic consideration of four key elements.

2.4.3 The four key elements to be undertaken in parallel during Stage 2 are listed below, with further details in the following sections:

- Element 1: Good Acoustic Design Process;

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- Element 2: Internal Noise Level Guidelines;
- Element 3: External Amenity Area Noise Assessment; and
- Element 4: Other Relevant Issues.

2.4.4 The approach is underpinned by the preparation and delivery of an Acoustic Design Statement (ADS). An ADS for a site assessed as high risk should be more detailed than for a site assessed as low risk. An ADS should not be necessary for a site assessed as negligible risk.

2.4.5 Figure 1 of ProPG summarises the ‘Stage 1 Initial Site Noise Risk Assessment’, which is based on indicative noise levels derived from current guidance and experience. This is provided below for reference.

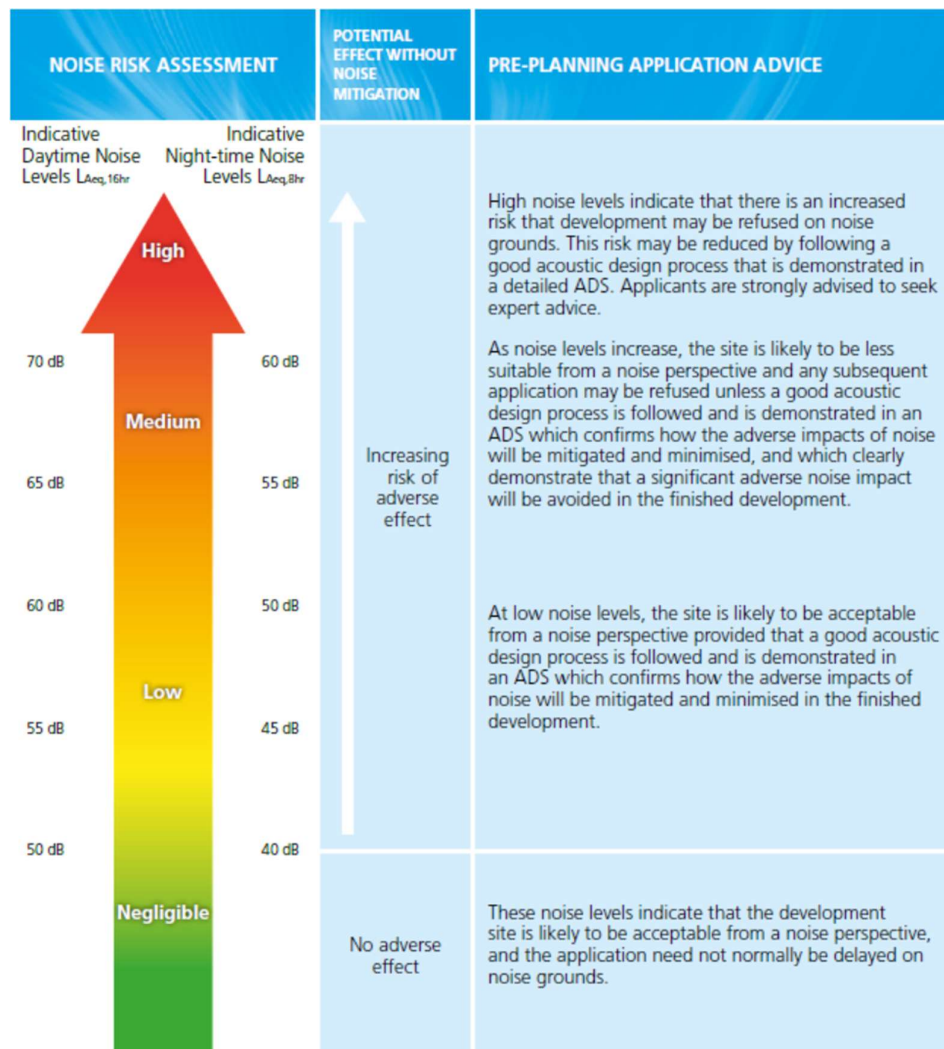


Figure 1 Notes:

- Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
- Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is “not dominant”.
- $L_{Aeq,16hr}$ is for daytime 0700 – 2300, $L_{Aeq,8hr}$ is for night-time 2300 – 0700.
- An indication that there may be more than 10 noise events at night (2300 – 0700) with $L_{Amax,F} > 60$ dB means the site should not be regarded as negligible risk.

2.4.2 Stage 2 Element 1: Good Acoustic Design Process

2.4.1 The ProPG states that planning applications for new residential development should include evidence that the following have been properly considered:

- The feasibility of relocating or reducing noise levels from relevant sources.
- Options for planning the site or building layout.
- Orientation of proposed building(s).
- Select construction types and methods for meeting building performance requirements.
- Examine the effects of noise control measures on ventilation, fire regulation, health and safety, cost, 'construction, design and management' (CDM) etc.
- The viability of alternative solutions.
- External amenity area noise.

2.4.3 Stage 2 Element 2: Internal Noise Level Guidelines

2.4.1 The internal noise level guidelines provided under within Figure 2 of ProPG are provided in Table 2.2 below. These are based upon the guidance in British Standard (BS) 8233:2014: 'Guidance on sound insulation and noise reduction for buildings'.

Table 2.2: Internal Noise Level Guidelines

Activity	Location	07:00 – 23:00 hrs	23:00 – 07:00 hrs
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room / area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ 45 dB $L_{Amax,F}$ (Note 4)

NOTE 4 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 45 dB $L_{Amax,F}$ 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

2.4.4 Stage 2 Element 3: External Amenity Area Noise Assessment

2.4.1 The ProPG refers to the design ranges in BS 8233:2014 with respect to the assessment of external amenity, as well as guidance in the PPGN. Based on these two documents the following guidance is provided with respect to the assessment of noise in external amenity areas:

"The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hour}$."

2.4.2 The ProPG goes on to acknowledge that:

"These guideline values may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces."

2.4.3 Further guidance is provided regarding design, stating that the need to provide access to a quiet (or relatively quiet), external amenity space forms part of a good acoustic design process. A 'hierarchy' of alternative options is provided for instances when external noise

levels within private external amenity areas would be potentially significant. This ranges from providing access to a relatively quiet private façade, through to a publicly accessible external amenity space (e.g. a public park).

2.4.5 Stage 2 Element 4: Other Relevant Issues

2.4.1 The ProPG states that the following other relevant issues should be considered, where appropriate, including:

- compliance with relevant national and local policy;
- the magnitude and extent of compliance with the ProPG criteria;
- the likely occupants of the development;
- the acoustic design compared to unintended adverse consequences of the acoustic design (such as roadside barriers that remove views or prevent crossing roads etc.); and
- acoustic design against wider planning considerations.

2.4.6 Planning Recommendations

2.4.1 Having followed this approach, it is envisaged that noise practitioners will then have a choice of one of four possible recommendations to present to the decision maker. In simple terms, the choice of recommendations are as follows:

- grant without conditions;
- grant with conditions;
- “avoid” significant adverse effects (corresponding to SOAEL within national planning policy); or
- “prevent” unacceptable adverse effects (corresponding to the UAEL within national planning policy).

2.4.2 Full details of where/when the above recommendations apply are provided in Section 3 of the ProPG.

2.5 British Standard 8233:2014

2.5.1 British Standard 8233:2014 – ‘Guidance on sound insulation and noise reduction for buildings’ provides guidance for the control of noise in and around buildings. The guidance suggests criteria for suitable sleeping/resting conditions and proposes noise levels that normally satisfy these criteria for most people.

Suggested internal noise guideline levels as provided within BS 8233 have been replicated in Section 2.4.3

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2.5.2 above.

2.5.3 In regard to external areas for amenity space, BS 8233 states the following:

“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.

2.5.4 Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space.”

2.6 Local Guidance

2.6.1 Policy SD1 of the South Derbyshire Draft Local Plan 2022 – 2039, published in October 2024 states that:

“The Council will support development that does not lead to adverse impacts on the environment or amenity of existing and future occupiers within or around proposed developments.

The Council will take into consideration the following:

- i. The potential for development to affect surface and ground water quality and its potential to affect the long term delivery of water quality standards set out in the Water Framework Directive or Habitats Directive;*
- ii. The potential for development to affect designated Air Quality Management Areas (AQMAs).*
- iii. The need for a strategic buffer between conflicting land uses such that they do not disadvantage each other in respect of amenity issues, such as odours, fumes, or dust and other disturbance such as noise, vibration, light or shadow flicker.”*

2.6.2 Consultation

2.6.1 The noise survey and assessment methodology were agreed with Ms. Leah Roberts via email dated 17th March 2026.

3 Baseline Sound Survey

3.1 Methodology and Instrumentation

- 3.1.1 An unattended environmental sound survey was undertaken at the site during over a 7 day period from 15:00 hours on 19th March 2026 to 15:00 hours on 26th March 2026.
- 3.1.2 Measurements were undertaken at two locations as presented in Figure 1 and described below:
- ML1– Free-field measurement at approximately 1.5 m above local ground level, in the west part of the site, approximately 3m away from Sandcliffe Road.
 - ML2 – Free-field measurement at approximately 1.5 m above local ground level, in the northern part of the site, approximately 2m away from Dunsmoor Lane.
- 3.1.3 Measurements of the L_{Aeq} , L_{Amax} , and L_{A90} were undertaken at 100 ms intervals and temporally averaged over 15-minute periods for the duration of the survey. The equipment listed in Table 3.1 below was used to undertake the survey:

Table 3.1: Equipment Used During the Unattended Sound Survey

Measurement Location	Make/Model	Serial Number	Calibration Start (dB) (Ref: 94.0 dB)	Calibration End (dB) (Ref: 94.0 dB)
Calibrator	Rion NC-74	00110118	-	-
ML1	SVAN 307A	386735	93.8	93.9
ML2	SVAN 307A	164424	93.9	94.0

- 3.1.4 Measurements were undertaken in accordance with BS 4142:2014+A1:2019 and British Standard 7445-2:1991 – ‘Description and measurement of environmental noise – Part 2: Guide to the acquisition of data’.
- 3.1.5 All sound level meters used meet the ‘Class 1’ criteria defined within BS EN 61672-2:2013+A1:2017 – ‘Electroacoustics. Sound level meters – Pattern evaluation tests’. All calibrators used meet the ‘Class 1’ criteria defined within BS EN IEC 60942 – ‘Electroacoustics. Sound calibrators’.
- 3.1.6 During the survey, wind conditions were calm (below 5 m/s) and no precipitation occurred. The noise climate was dominated by road traffic at both locations.
- 3.1.7 A desktop review of the site has indicated that ‘Waggy Tail Meadow’, a secure dog field, is located approximately 200m to the east of the proposed dwellings. Site walkovers were carried out on the 19th and 26th March to identify whether any noise from the dog field was audible on the site. While some dog barking was faintly audible from the surrounding area, no clearly distinctive noise from the dog field was identified on the proposed development site, therefore this has not been assessed further.

3.2 Results

- 3.2.1 The results of the unattended sound surveys are presented graphically in Appendix A, with a summary shown in Table 3.2.

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- 3.2.2 The road traffic noise levels measured during the noise survey have been divided into the daytime (07:00 - 23:00) and night-time (23:00 - 07:00). The night-time $L_{AF,max}$ level has been determined based on the 10th highest noise level in accordance with methodology set out in ProPG. 1-minute $L_{AF,max}$ measurements have been analysed to establish the representative 10th highest individual event level, which represents an event which can occur more than 10 times on any given night.

Table 3.2: Measured Baseline Sound Survey Results

Position	Measured Sound Levels (dB)			
	Average Daytime Sound Level, $L_{Aeq,16h}$	Average Night-time Level, $L_{Aeq,8h}$	10 th Highest Night-time Level, $L_{AFmax,1min}$	Highest Night-time Level, $L_{AFmax,1min}$
ML1	62	57	75	-
ML2	61	55	-	82

- 3.2.3 Due to an error in the equipment 1 minute $L_{AF,max}$ measurements were not carried out at ML2, therefore the highest measured $L_{AF,max}$ levels were used to inform the noise assessment.

4 Noise Modelling

4.1 Introduction

- 4.1.1 Computer noise modelling in SoundPLAN version 9.1 has been used to calculate the propagation of noise from the two roads across the proposed development site.
- 4.1.2 SoundPLAN model uses the noise prediction methodology set out in ISO 9613-2:2024 'Acoustics — Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors'. The noise modelling has been used to produce noise contour plans demonstrating how sound propagates across the site.
- 4.1.3 The model has an assumed temperature of 10°C, 70% humidity, and 1013.3mbar air pressure. The intervening ground between the local road network and the site is a mixture of hard and soft ground, hence the use of 0.6 as the term to represent ground absorption (where 0 = completely reflective and 1 = completely absorbent).
- 4.1.4 The placement of road sources was based on the imported Ordnance Survey (OS) OpenMap Local data. Roads have been modelled using the 'road' source in SoundPLAN, Night-time L_{AFmax} events have been modelled as moving point sources.
- 4.1.5 The noise model has been calibrated based on the results of the noise survey. The results of the calibration exercise are summarised below.

Table 4.1: Noise Model Calibration Results

Measurement Period	ML1			ML2		
	Measured Levels	Modelled Levels	Difference	Measured	Modelled	Difference
Daytime Ambient Noise Levels (dB $L_{Aeq, 16hrs}$)	62.0	61.9	-0.1	57.0	56.9	-0.1
Night-time Ambient Noise Levels (dB $L_{Aeq, 8hrs}$)	57.0	56.9	-0.1	55.0	54.5	-0.5
Night-time Individual Event Levels (dB $L_{AF, max}$)	75.0	74.8	-0.2	82.0	82.4	+0.4

4.2 Assumptions

- 4.2.1 The following assumptions have been incorporated into the noise model:
- The topography of the site and the surrounding area has been obtained from the Department for Environment, Food and Rural Affairs (Defra) as 1 m LiDAR data;
 - The effect of screening from solid structures (buildings) has been incorporated into the modelling process by importing OS Open Data 'Buildings' shapefile data into the model; and
 - The ground type in the model has been set to mixed ground ($G = 0.6$).
 - Garden boundary fencing will have a minimum height of 1.8m. The fencing will have a minimum mass of 15 kg/m².
 - Baseline sound levels measured by TT are considered representative of the current and future conditions at the site.

- Development traffic will not increase the road traffic noise in the nearby area.
- Open windows provide approximately 13 dB(A) of acoustic attenuation.

4.3 Uncertainty

- 4.3.1 To reduce uncertainty in the assessment, the following steps have been taken.
- The noise measurement locations used to ascertain the representative noise levels at the site, are representative of the dominant nearby noise sources.
 - Noise measurements were taken over a period of one week to reduce uncertainty associated with variations in noise sources over time.
 - All measurements were undertaken in accordance with relevant good practice guidance and weather conditions were monitored and assessed to reduce uncertainty associated with meteorological conditions

5 Noise Impact Assessment

5.1 Introduction

- 5.1.1 This section of the assessment considers the potential impact of existing sources of sound on the proposed development in terms of ProPG and BS8233. In terms of BS8233, this assessment considers external noise levels in gardens during the daytime, and internal noise levels in living rooms and bedrooms during the daytime and night-time, as appropriate.
- 5.1.2 The assessment relies upon the measured levels, as well as the results of the computer noise model.
- 5.1.3 This assessment report has been prepared to accompany an outline planning application, therefore the layout of the proposed development has not yet been finalised. Thus, good acoustic design principles have been followed to establish an appropriate indicative dwelling layout used to inform this noise assessment. The final design of the development may vary from that considered as part of the assessment, but this will be confirmed at a later design stage.

5.2 Noise Risk Assessment

- 5.2.1 In accordance with ProPG, an Initial Site Noise Risk Assessment (ISNRA) has been carried out to establish the likelihood of an adverse effect from existing transportation noise. The ISNRA assesses the initial risk of noise from transportation sources having an adverse impact on a proposed development, based on the existing site conditions, with no mitigation in place.
- 5.2.2 The ISNRA is based on noise levels modelled at ML1 and ML2, shown in Table 5.1. These sound levels have been compared in Table 5.1 to guidance provided on Figure 1 (*Stage 1 - Initial Site Noise Risk Assessment*) of ProPG:2017, to assess the risk of an adverse impact.

Table 5.1: Initial Site Noise Risk Assessment

Risk Assessment Location	Daytime Noise Level (dB L _{Aeq,16hr})	Daytime Risk of Adverse Effect	Night-time Noise Level (dB L _{Aeq,8hr})	Night-time Risk of Adverse Effect
ML1	54	Low	49	Low
ML2	53	Low	48	Low

- 5.2.3 Table 5.1 shows that areas of the site closest to the local road network have a "Low" risk of adverse noise impact from road traffic during the daytime and night-time periods. These initial risk assessments are based on modelling undertaken at the noisiest parts of the site adjacent to the roads. Thus, locations further away from the roads, particularly in the southern portion of the site, are likely to experience a lower noise risk. It is important to note that these findings reflect current site conditions without considering any future design or mitigation measures, and with appropriate good acoustic design in place it is likely that noise can be sufficiently controlled at receptors.
- 5.2.4 Given that individual event levels exceed 60 dB at key monitoring locations more than ten times per night, the site cannot be considered at negligible noise risk, prompting a full Stage 2 assessment. The Site Noise Risk Assessment (SNRA) concludes the proposed development has a "medium" to "high" risk of adverse noise effects. Consequently, effective acoustic design will be essential to minimize noise impacts and meet recommended internal and external noise level guidelines for the development.

5.3 External Noise Levels in Gardens

5.3.1 BS 8233:2014 sets out daytime noise criteria for garden areas associated with dwellings and states that:

“the acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$ ”

5.3.2 Figure 2 shows that the existing noise levels across the site are below the 55 dB $L_{Aeq,16hr}$ guideline noise level set out in BS 8233:2014. Therefore, specific mitigation measures are not required to control noise in external amenity areas across the proposed development site.

5.3.3 Mitigation measures are discussed in Section 6 of this report.

5.4 Internal Noise Levels in Living Rooms and Bedrooms

5.4.1 The daytime and night-time noise levels in noise sensitive rooms of the proposed development have been assessed against the guidance criteria in BS 8233:2014 for living room and bedroom areas. The daytime and night-time noise criteria (for noise without character, such as transportation noise) for living rooms and bedrooms are 35 dB $L_{Aeq,16hr}$ during the day, and 30 dB $L_{Aeq,8\text{ hour}}$, and 45 dB $L_{AF,max}$ ¹ at night.

5.4.2 Computer noise modelling in SoundPLAN v9.1 modelling software (based on the noise survey data) has been used to establish the noise levels likely to be incident on facades of dwellings throughout the proposed development site.

5.4.3 The computer modelling results have been used to establish the noise mitigation requirements to achieve BS 8233:2014 daytime and night-time internal ambient noise level criteria. The noise modelling results are shown on Figure 2 for the daytime $L_{Aeq,16hr}$, and Figures 3 and 4 for the night-time $L_{Aeq,8hr}$ and $L_{AF,max}$. The façade noise levels and level of attenuation required are summarised in Table 5.2.

Table 5.2: Level of Attenuation Required to Achieve Internal Ambient Noise Level Requirements

Risk Assessment Location	Daytime Noise Level at Facades of Proposed Dwellings (dB $L_{Aeq,16hr}$)	Daytime Level of Attenuation Required (dB(A))	Night-time Noise Level at Facades of Proposed Dwellings (dB $L_{Aeq,8hr}$)	Maximum Individual Noise Level at the Facades of the Proposed Development (dB $L_{AF,max}$)	Night-time Level of Attenuation Required (dB(A))
Dwellings closest to the western site boundary	54	19	49	61	19
Dwellings closest to the northern site boundary	53	18	48	60	18

5.4.4 Noise sensitive rooms of dwellings located further into the development and screened from nearby roads by intervening buildings will experience lower noise levels than those shown in Table 5.2 above, and therefore a lower level of noise attenuation will be required.

5.4.5 Mitigation is discussed in Section 6 of this report.

¹ This value should not be 'regularly' exceeded.

6 Noise Mitigation Measures

6.1 Introduction

- 6.1.1 This section identifies the noise mitigation measures required to achieve internal and external noise guideline levels during the daytime and night-time.

6.2 External Noise Mitigation (Garden Areas)

- 6.2.1 The assessment has shown that noise levels in garden areas will achieve the external amenity guideline noise levels with no mitigation measures in place.
- 6.2.2 Therefore, no specific mitigation measures to reduce noise further are considered to be required.

6.3 Mitigation for Living Rooms and Bedrooms

- 6.3.1 This section of the report examines how the internal noise level guidelines (INLGs) of ProPG can be met. The ProPG INLGs are based on BS 8233:2014 and by meeting these criteria it is generally agreed that adverse noise effects will be avoided.
- 6.3.2 To achieve the ProPG INLGs, the building facade can be designed to provide the level of attenuation required. Section 5.4 has identified that the building façades in the most exposed sections of site need to achieve acoustic attenuation of 19 dB (outside to inside) to meet the ProPG / BS 8233:2014 INLGs.
- 6.3.3 As a development layout is not yet available, proposed dwellings are assumed to be located up to the site boundary. This is considered a worst-case assumption, and the final design is likely to incorporate a stand off from the site boundary, therefore the acoustic attenuation required is expected to be lower than that considered as part of this assessment.
- 6.3.4 The following equation, based on the guidance in BS 8233:2014, can be used to estimate internal ambient noise levels within typical residential rooms:

$$L_{in} = L_{ex} - R + 3$$

Where:

L_{in} = Predicted internal noise level;

L_{ex} = External free-field noise level incident on building façade; and

R = Sound insulation of the façade, in this case assumed as the performance in terms of $R_w + C_{tr}$.

- 6.3.5 Based on the above it can be calculated that the building façade needs to provide up to 22 dB $R_w + C_{tr}$ sound insulation to meet the Internal Noise Guideline Levels.
- 6.3.6 In the absence of design details for the building facades, it has been assumed that the glazing to noise sensitive rooms would comprise approximately 25% of the facade area. To calculate the overall attenuation provided by this percentage of glazing in a brick or block facade, a non-uniform partition calculation can be used at a later design stage.
- 6.3.7 The calculation combines the different degrees of attenuation of the wall element and the window element. A facade element comprising a standard modern solid brick or block work construction will typically attenuate by 50 - 55 dB (BS 8233: Table E1.A) whereas standard double glazing will attenuate road traffic noise by 26 - 29 dB(A) (BRE Digest 379 'Double glazing for heat and sound insulation'). The overall attenuation for road traffic noise provided by this combination is therefore likely to be between 32 and 35 dB.

- 6.3.8 It can therefore be concluded that, using a standard masonry façade and double-glazing systems, the INLGs are likely to be met in habitable rooms across the proposed development site.

6.4 Ventilation and Overheating

- 6.4.1 It is a requirement of Building Regulations Part F that the following types of ventilation are provided, where windows should not be opened for ventilation:

- Whole dwelling ventilation (previously referred to as ‘background’ ventilation);
- Extract ventilation (in kitchens and bathrooms)
- Purge ventilation.

- 6.4.2 The likely acoustic impact of each type of ventilation is discussed in the following sections.

6.4.2 Whole Dwelling Ventilation

- 6.4.1 If façade openings (such as trickle ventilators) are used to provide the minimum ‘whole dwelling’ ventilation rates under Building Regulations Part F, they should not increase internal noise levels above the INLG values when in their open position. In the most exposed sections of the development, by using ventilation openings that provide approximately 35 dB $D_{n,e,w}$ ² the ProPG internal noise criteria are likely to be met. This level of performance can be achieved using an acoustically attenuated trickle ventilator.

- 6.4.2 Further into the site where noise levels are lower due to intervening buildings, it is likely that standard trickle ventilators will provide an appropriate level of attenuation.

6.4.3 Extract Ventilation

- 6.4.1 Extract ventilation is required in rooms where most pollutants or water vapour are generally found, i.e., kitchens (cooker hoods, etc.) and bathrooms (bathroom fans). These spaces are not considered habitable rooms and the method used to provide ventilation is unlikely to reduce the sound insulation of the façade. Therefore, it is unlikely that providing extract ventilation in these spaces will result in adverse noise impacts.

- 6.4.2 Extract fans should be selected such that the internal guideline sound levels are not exceeded.

6.4.4 Purge Ventilation

- 6.4.1 Purge ventilation is required to allow rapid removal of pollutants released from occasional activities (e.g., burning toast or when painting) and is normally provided by open windows. It is generally accepted that, as purge ventilation is only required occasionally and for short periods, increases in noise level during the purge ventilation condition (e.g., when windows are opened) will not result in adverse impacts.

² The above performance specification assumes that only one ventilation opening is required. Should more than one ventilation opening be required in a space to meet the requirements of Approved Document F (equivalent area requirements), the required acoustic performance in terms of $D_{n,e,w}$ will need to be increased by + 10 log N, where N is the number of vents required. For example, if two vents are required to provide sufficient equivalent area the performance of each vent will need to be increased by 3 dB.

6.4.5 Overheating

- 6.4.1 The normal method of providing relief from overheating is to open windows. When windows are open to provide thermal comfort, it is likely that internal noise levels will increase. The impact that any increased internal noise levels will have depends on two factors:
- The level of noise inside the dwelling / habitable rooms; and
 - How often windows need to be opened (i.e., how often or long occupants are exposed to increased noise levels).
- 6.4.2 To reduce any adverse noise impacts the development, where possible, should be designed to reduce the duration and frequency of occurrence of overheating when windows are shut. This will in turn reduce adverse noise effects as occupants will be exposed to increased noise levels for a shorter period of time.
- 6.4.3 At this stage of the design, information relating to whether and how often the proposed dwellings are likely to overheat is not available. It is therefore not possible at this stage to identify potential noise impacts as a result of windows being opened to provide relief from overheating.
- 6.4.4 However, based on the assumption that a partly open window provides 13 dB of noise attenuation, it is likely that internal noise levels in habitable rooms across the majority of the development will exceed the INLGs. While the noise levels may still achieve the + 5 dB 'reasonable internal conditions' criteria outlined in the ProPG on facades which are screened and located away from the nearby roads, the extent of this cannot be determined at this design stage, without a finalised development design in place. Therefore, overheating should be considered in more detail at a later design stage.
- 6.4.5 On the most exposed facades of the development, close to and overlooking the roads, internal noise levels are likely to exceed the ProPG 'reasonable internal conditions' criteria. Therefore, alternative means of providing relief from overheating may be required in these spaces, depending on how often windows need to be opened. This should be examined in more detail as the design of the development progresses based on the guidance provided in the IOA / ANC 'Acoustics, Ventilation and Overheating guide'.
- 6.4.6 Overheating is now covered by the Building Regulations Approved Document O (ADO). This includes a requirement for occupants to be able to reasonably enjoy their property whilst excess heat is removed and includes noise thresholds for bedrooms at night. By meeting the requirements of the Building Regulations, it is considered unlikely that occupants will be subject to significant adverse noise impacts (although this will partly depend on how often windows need to be opened). This may result in dwellings in more exposed sections of the site being required to rely on other means of removing excess heat than open windows. The Building Regulations ADO does not cover the noise levels during the daytime for living rooms.

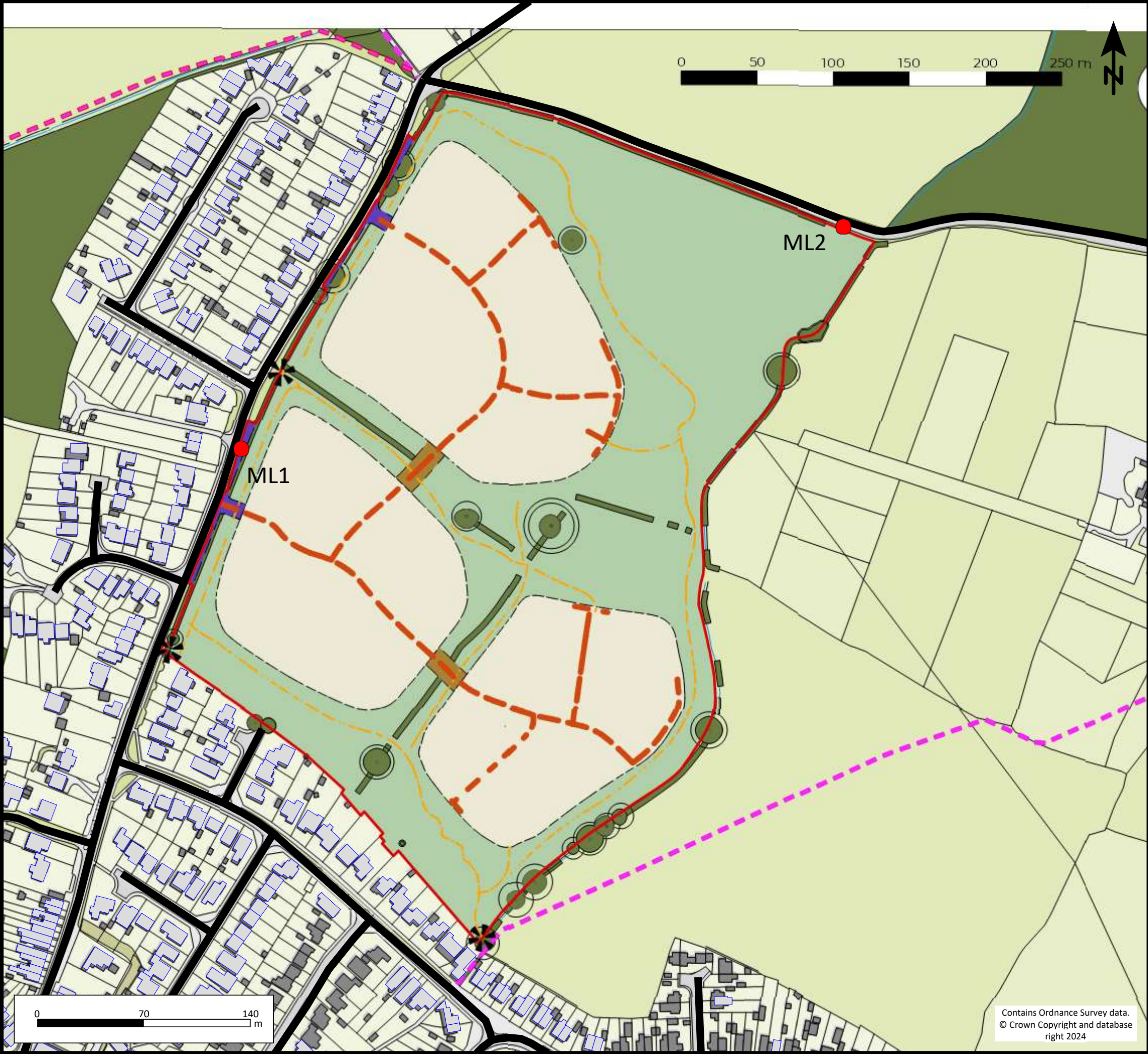
6.5 Compliance with National and Local Policy

- 6.5.1 On the basis of the preceding assessments and advice, internal and external sound levels are likely to comply with the guideline values contained within ProPG and BS 8233:2014. Therefore, the assessment has found that significant adverse effects are unlikely to occur as a result of noise. Adverse effects have been mitigated, where practicable, through good acoustic design and the use of standard building materials. Therefore, noise does not generate a conflict with NPPF paragraphs 187 and 198, and there would be no unacceptable noise impacts from the development.

7 Conclusion

- 7.1.1 Tetra Tech Acoustics (TT) has carried out a noise impact assessment to support an outline planning application for a proposed residential development on land east of Sandcliffe Road, Swadlincote. The assessment has been prepared in accordance with the ProPG:2017 Residential Design Guide, relevant national guidance (NPPF, NPSE, PPG-N), and British Standard BS 8233:2014.
- 7.1.2 The dominant noise source affecting the proposed development is road traffic on the local road network.
- 7.1.3 Noise monitoring and computer noise modelling has been used to establish the existing acoustic environment across the site and the level of noise likely to be incident on the proposed new dwellings and gardens.
- 7.1.4 It has been found that using standard facade and glazing systems, the internal ambient noise guideline values in BS 8233:2014 and the ProPG can be met. It has also been found that external noise levels in gardens will meet the guidance criteria of BS 8233 / ProPG. In addition, this assessment has discussed the proposed ventilation / overheating strategy for the new developments and where necessary provided design and mitigation advice.
- 7.1.5 The assessment has concluded, that with appropriate design and mitigation measures, significant adverse noise impacts as a result of the development will be avoided and adverse impacts can be mitigated and minimised. Therefore, while noise within proposed dwellings is expected to be above the Lowest Observed Adverse Effect Level (LOAEL) set out in PPG-N, it is expected to be acceptable in planning terms. Therefore, noise does not generate a conflict with NPPF paragraphs 187 and 198, and there would no unacceptable noise impacts from the development.

Figures



Key

- Existing Buildings
- Line source
- Road
- Noise Monitoring Location

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2. If received electronically it is the recipient's responsibility to print to correct scale. Only written dimensions should be used.



CLIENT:			Bellway Strategic Land		
PROJECT:			Sandcliffe Rd, Swadlincote		
TITLE:			Noise Monitoring Location Plan		
DRG NO:		Figure 1		REV:	
				A	
DRG SIZE:		SCALE:		DATE:	
A3		1:2500		29/06/2026	
DRAWN BY		CHECKED BY		APPROVED BY	
PK		SU		SU	



Key

- Existing Buildings
- Line source
- Road

Daytime LAeq 16hour dB

	<=	45.0
	45.0 -	50.0
	50.0 -	55.0
	55.0 -	57.5
	57.5 -	60.0
	>	60.0

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CLIENT: Bellway Strategic Land

PROJECT: Sandcliffe Rd, Swadlincote

TITLE: Daytime Noise Contour Plan

DRG NO: Figure 2

REV: A

DRG SIZE: A3

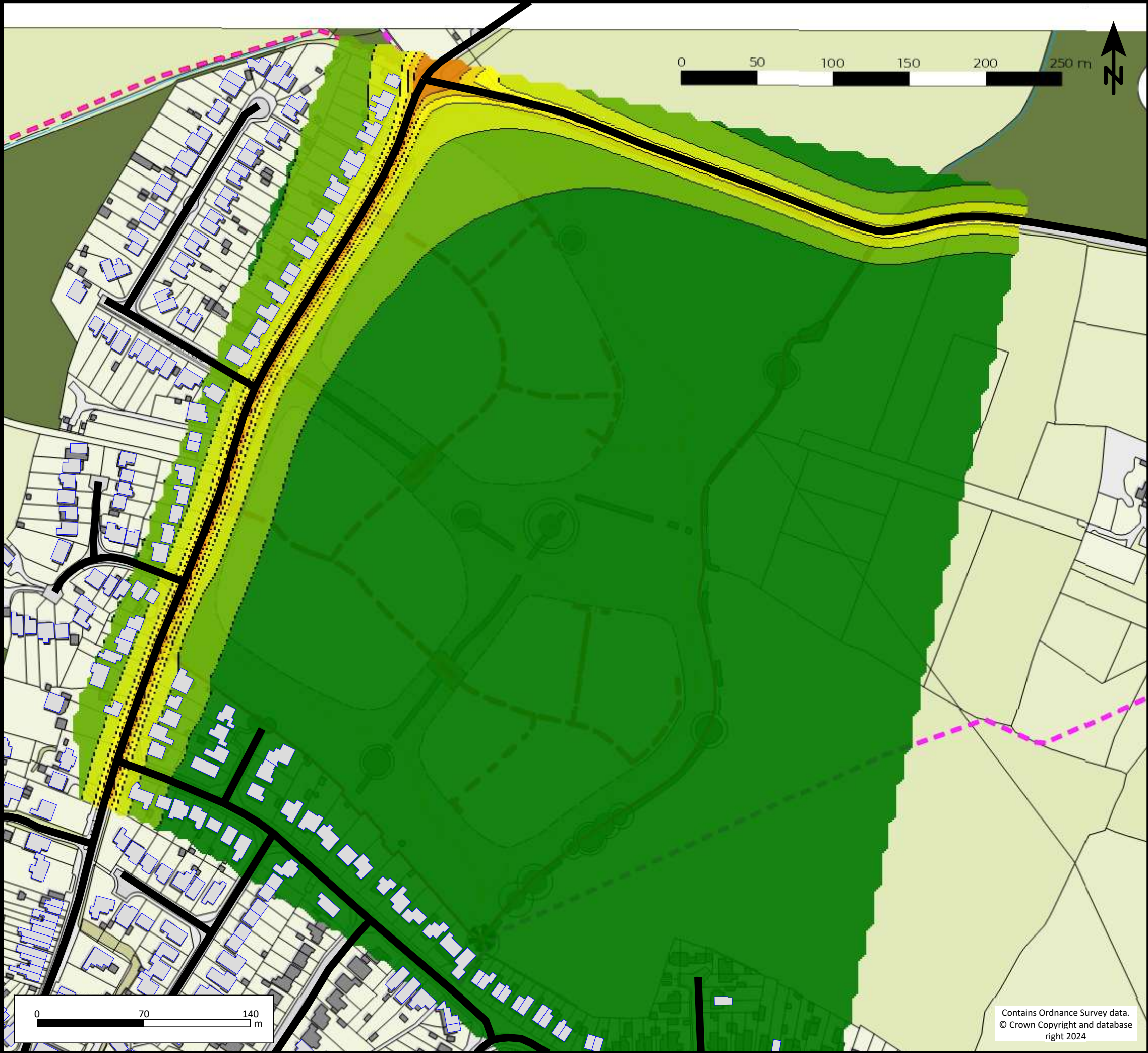
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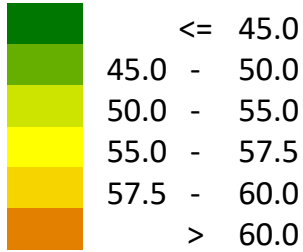
APPROVED BY: SU



Key

- Existing Buildings
- Line source
- Road

Night-time LAeq 8hour dB



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CLIENT: Bellway Strategic Land

PROJECT: Sandcliffe Rd, Swadlincote

TITLE: Night-time LAeq,8hr Noise Contour Plan

DRG NO: Figure 3

REV: A

DRG SIZE: A3

SCALE: 1:2500

DATE: 29/06/2026

DRAWN BY: PK

CHECKED BY: SU

APPROVED BY: SU

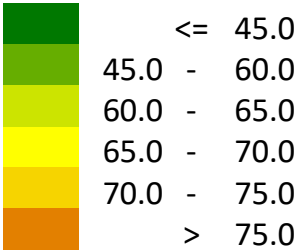
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Key

- Existing Buildings
- Line source
- Road

Night-time $L_{AF,max}$ dB



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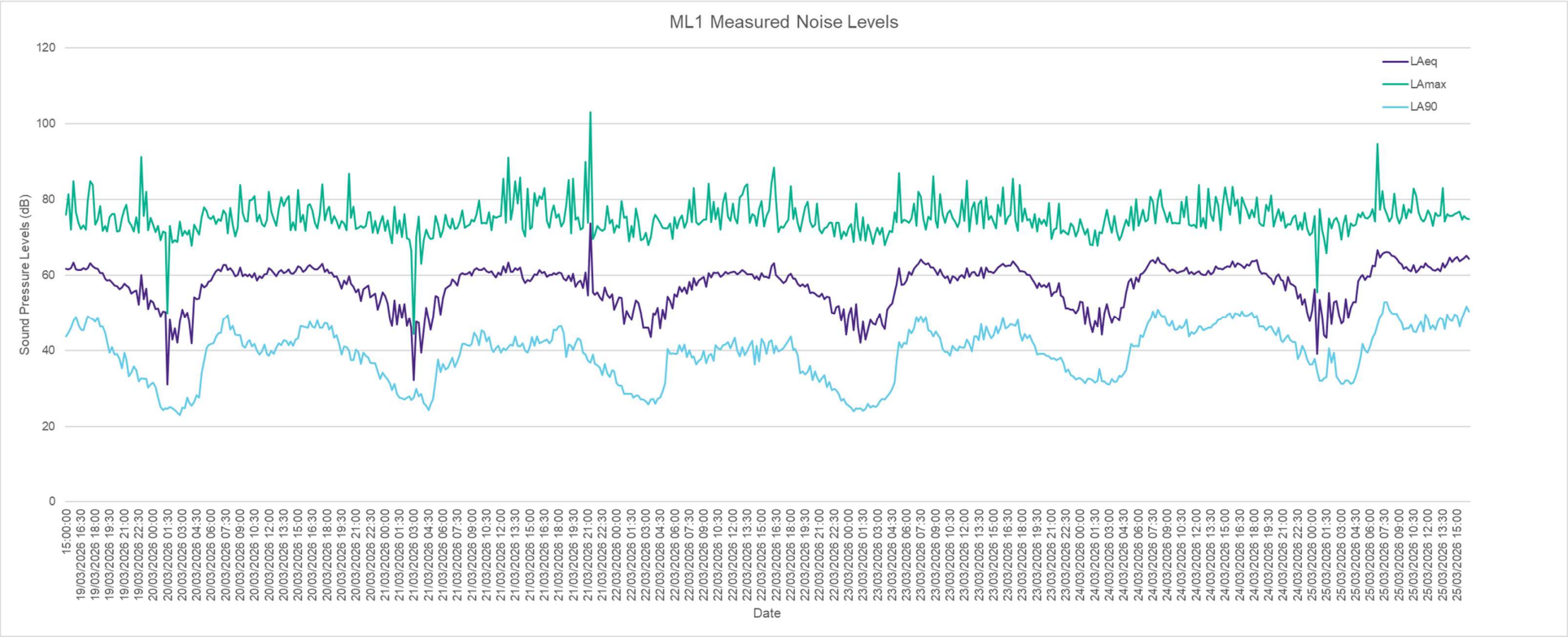
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PROJECT:		Sandcliffe Rd, Swadlincote	
TITLE:		Night-time $L_{AF,max}$ Noise Contour Plan	
DRG NO:		Figure 4	REV: A
DRG SIZE:	A3	SCALE:	1:2500
DATE:		29/06/2026	
DRAWN BY:		CHECKED BY:	APPROVED BY:
PK		SU	SU

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Appendices

Noise Measurement Results

REPORT



REPORT

