



**58 GREENVALE, BAMFORD, ROCHDALE
PROPOSED RESIDENTIAL DEVELOPMENT**

DESKTOP NOISE ASSESSMENT

On behalf of:
Wainhomes (NW) Ltd



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1. INTRODUCTION

- 1.1 Hepworth Acoustics Ltd was commissioned by Wainhomes Ltd to carry out a noise assessment in connection with a proposed planning application for residential development on land south of Greenvale in Bamford near Rochdale.
- 1.2 The location of the proposed residential development, which is currently vacant land, is shown in Figure 1. The site is bounded to the north by the rear gardens of dwellings that front onto Greenvale, which is a lightly trafficked residential road. To the west and south-west are agricultural fields.
- 1.3 To the south-east and east are grass football pitches associated with Bridge Junior Football Club. The pitches closest to the proposed site consist of four full size pitches, two $\frac{3}{4}$ size pitches and three five-a-side size pitches. There are existing residential dwellings bordering the pitches on both the north and east boundaries. At the boundary with the proposed site and pitches, there is a small embankment such that the pitches are at around 1-2m lower level than that of the development land.
- 1.4 There are no other sources of significant noise on the site. As such the noise assessment has focussed on the sports pitches. It is noted that none of the pitches are floodlit, and usage will therefore be restricted to within daylight hours only and usage is likely to be predominantly at the weekend.
- 1.5 The proposed layout is shown in Figure 2 and shows proposals for the construction of 45 dwellings. The layout is designed such that most of the houses close to the eastern boundary front onto the boundary such that rear gardens are behind the houses and thus shielded by the dwellings themselves. In addition, the access roads for these plots mean that houses are set back from the boundary by around 20m reducing noise exposure from the pitches.
- 1.6 The noise assessment has included:
 - A review of the site location using aerial photograph (i.e. Google Maps etc.).
 - Preparation of a computerised noise model predicting the likely noise levels on the site from the usage of the sports pitches; and
 - Where necessary recommendations for a suitable noise mitigation scheme
- 1.7 The various acoustics indices referred to in this report are described in Appendix A.
- 1.8 All noise levels in the text have been rounded to the nearest decibel as fractions of a decibel are imperceptible.

2. ACOUSTIC CRITERIA

NPPF:2024

- 2.1 Paragraph 198 of the National Planning Policy Framework (NPPF), December 2024 states that planning policies and decisions should “*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;*”

NPSE:2010

- 2.2 Noise Policy Statement for England (NPSE) 2010, which is referred to in NPPF, includes three aims:
- Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- 2.3 1.3 No specific guidance is given in the NPPF on acoustic design criteria, therefore, the guidance discussed below has been used for acoustic design purposes.

Sport England ‘Artificial Grass Pitch (AGP) Acoustics – Planning Implications’

- 2.4 The Sport England Design Guidance Note provides guidance on the acoustics related planning implications of AGPs. The Guidance Note refers to both NPPF and NPSE documents but also draws attention to the fact that there is “*no specific noise criteria for an AGP*” or sports pitch. The guidance refers to World Health Organisation (WHO) 1999 ‘Guidelines for Community Noise’ and from this derives an appropriate daytime noise level outside a dwelling of 50 dB $L_{Aeq,1hr}$.
- 2.5 Similarly, 50 dB is also recommended to avoid moderate annoyance in outdoor living spaces/external amenity areas. The assessment period has been reduced from 16 hours to one hour reflecting a “*typical time period for a community sports session*” and a robust assessment. These noise levels are also in line with the criteria of set out in BS8233.

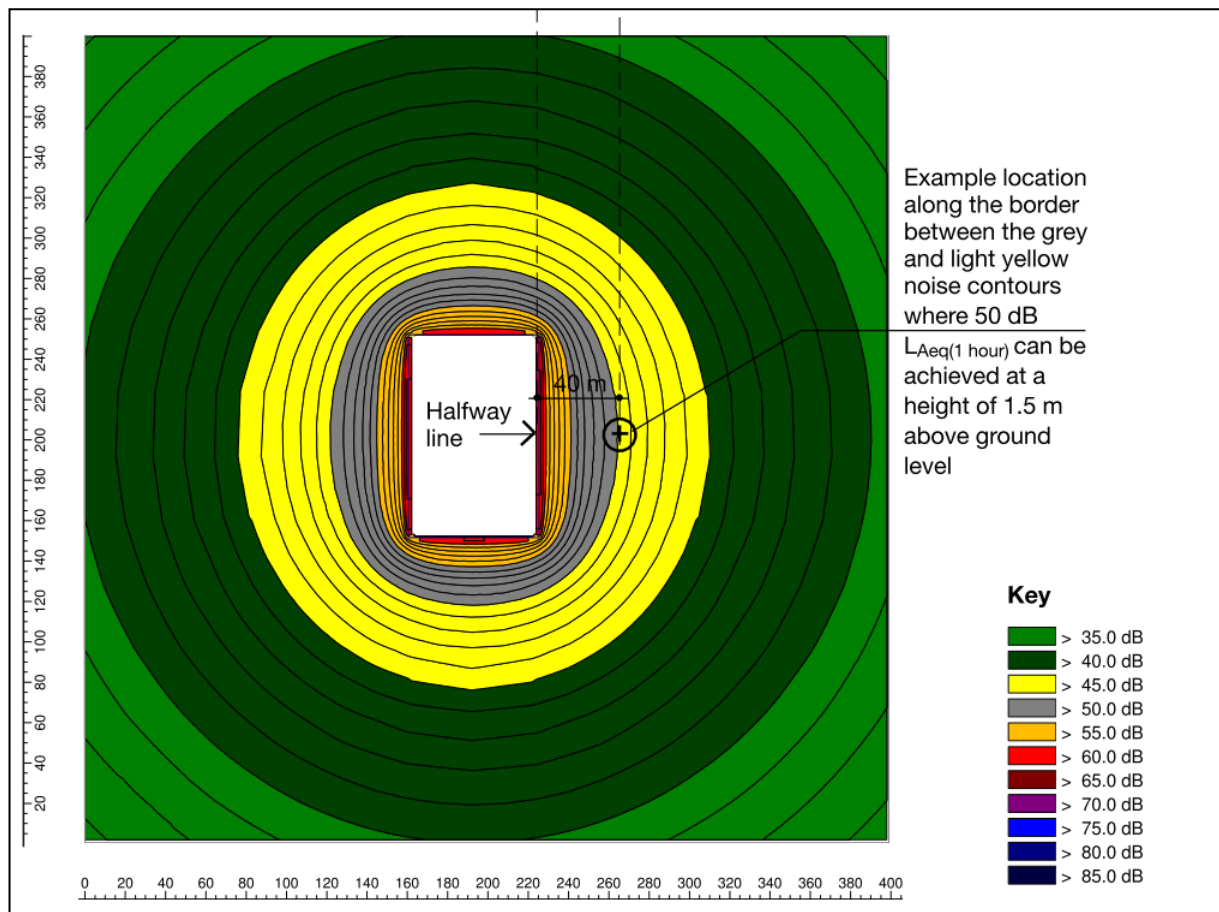
Acoustic Design Criteria

2.6 Therefore, considering the above guidance the following noise criteria has been adopted in respect of controlling noise from the adjacent sports pitches:

- Daytime noise no higher than 50 dB $L_{Aeq,1hr}$ outside dwellings.

3. NOISE ASSESSMENT

- 3.1 The likely noise levels from use of the football pitches have been calculated at the nearest proposed dwellings based on noise levels set out the Sport England guidance. As noted above, the pitches are not floodlit and therefore night-time noise levels need not be considered.
- 3.2 The Sport England Design Guidance Note describes noise level measurements that were *“undertaken during nine sports sessions on three separate AGPs. The sessions included football, hockey and rugby and participation by men, women and children. The purpose was to determine a ‘typical’ noise level generated from a ‘typical’ AGP sports session. Noise level measurements were taken at a distance of 10 metres behind the mid-way points along goal lines and sidelines. They were found to be highest behind the sideline halfway line ... From the measurement data, a typical free-field noise level of 58dB $L_{Aeq,1hr}$ at a distance of 10m from the sideline halfway marking has been determine as representative for noise from an AGP”*.
- 3.3 The relevant noise contour map from the Sport England Design Guidance Note is presented below.



- 3.4 Likely noise levels from use of the football pitches have been modelled using the DataKustik CadnaA 3D noise modelling software.
- 3.5 The noise propagation model was calculated using the ISO 9613 'Acoustics - Attenuation of sound during propagation outdoors' procedure.

3.6 The following relevant CadnaA settings and standards were used in the noise model:

- Software Version: 2017 MR 1 (build: 159.4707).
- Standards: ISO 9613.
- Orders of reflection: 2.
- Search radius: 2km.
- Ground absorption: Varies between 0 and 1 with land type. (i.e. 0 = reflective for hard surface areas and 1 = absorptive for tree/grass covered areas).
- Temperature: 10°C.
- Humidity: 70%.

3.7 Geographical data for the site and surroundings (including ground height data) was obtained from Ordnance Survey digital data.

3.8 The calculations in the model have been based upon the source noise levels previously measured at similar facilities by Hepworth Acoustics. Noise levels of 64 dB $L_{Aeq,5min}$ at a distance of 3 metres away from the side of each pitch have been adopted for the purposes of this assessment. These noise levels were due mainly to the voices of spectators, coaches, players and referee whistles and tally broadly with Sports England Guidance.

3.9 The noise model calculates the propagation of noise taking into account the attenuation of sound over distance, ground reflections and reflections off buildings (calculated up to two orders of reflections).

3.10 The results of the noise model are shown in Figure 3 for all pitches in use simultaneously as a worst case scenario and the calculated noise levels at the boundary of the site are summarised in Table 1 below. The calculation locations are identified in Figure 1.

Table 1: Calculated Boundary Noise Levels

Location	Calculated Noise Levels(dB) $L_{Aeq,1hr}$
A – Plot 12	47
B – Plot 17	41
C - Plot 14	42
D - Plot 18	42
E - Plot 16	43
F - Plot 20	49
G – Plot 21	46
H- Plot 23	45

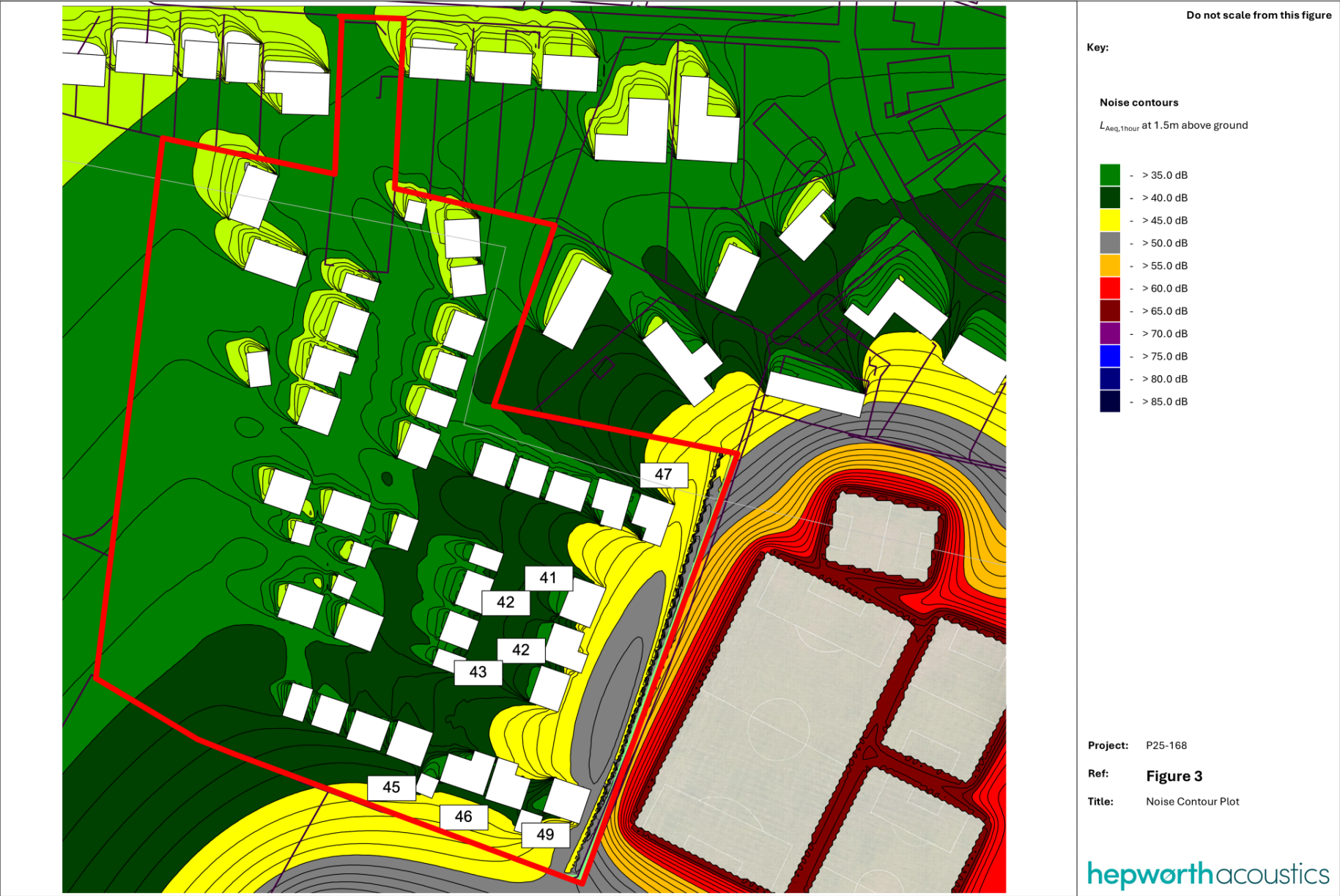
- 3.11 Table 1 shows that the that predicted activity noise levels from the pitches are below the advisory threshold of 50 dB $L_{Aeq,1hr}$ as set out in the *Sport England Design Guidance Note* at all locations close to the boundary with the pitches.
- 3.12 Given that the predicted noise levels from the sports pitches are below the threshold of 50 dB $L_{Aeq,1hr}$ at all assessment locations close to the boundary with the pitches, no specific noise mitigation measures such as acoustic barriers are considered necessary at this stage.
- 3.13 This is further supported by the fact that activity noise will be limited to daytime hours only, with use occurring for restricted periods during the day and confined to weekends. Accordingly, the overall noise impact on nearby receptors is expected to be minimal and does not warrant additional mitigation.

4. SUMMARY

- 4.1 The impact of noise from adjacent football pitches has been assessed for the proposed residential development at Greenvale in Bamford near Rochdale.
- 4.2 The potential noise impact associated with use of the pitches on the proposed development has been assessed.
- 4.3 As the predicted noise levels across the development are below the relevant advisory threshold of 50 dB $L_{Aeq,1hr}$, no specific noise mitigation measures—such as acoustic fencing—are considered necessary.
- 4.4 The layout, including the orientation of dwellings and set-back distances from the boundary, is sufficient to ensure that acceptable external amenity sound levels will be achieved without the need for additional screening.







APPENDIX A: ACOUSTICS UNITS & INDICES

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise

climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. There are also a number of ways to describe sound insulation performance.

The indices used in this report are described below:

$L_{Aeq,T}$ **A-weighted Equivalent Continuous Sound Level:** An average of the total sound pressure measured over a specified time period (T). In other words, $L_{Aeq,T}$ is the level of a steady sound which has the same total A-weighted sound pressure as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for most forms of environmental noise.

L_{Amax} **Maximum A-weighted Sound Level with Fast Time-weighting:** The maximum A-weighted sound pressure level during the measurement period, using the Fast time-weighting of 125ms. L_{Amax} used in this report refers throughout to L_{AFmax} with the Fast time weighting, denoted L_{AFmax} or $L_{Amax,f}$ in other documents but L_{Amax} in BS 8233:2014 standard notation.

$L_{A90,T}$ **A-weighted 90 Percentile Level:** The A-weighted sound level exceeded for 90% of a measurement time period (T). $L_{A90,T}$ is generally used as a measure of Background Sound Level