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Proposed Residential Development
Land at Hemingfield Road, Hemingfield, Barnsley, S73 0PZ

Noise Impact Assessment

For:
Homes by Honey

9th July 2026

Ref: NIA-11108-26-001-v1 Hemingfield Road
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Contents

1 Introduction

1.1 Overview

Environmental Noise Solutions has been commissioned by Homes by Honey to undertake a noise impact assessment for a proposed residential development at land at Hemingfield Road, Barnsley, S73 0PZ (hereafter referred to as 'the site').

Outline planning approval for the development was granted via appeal by Barnsley Metropolitan Borough Council in August 2025, subject to conditions. Condition 19 of the planning approval relates to noise as follows:

> *19. A noise mitigation report, taking into account the proposed location of the dwellings, shall be submitted at reserved matters stage. This shall provide details of the mitigation measures to be implemented taking account of the Noise Impact Assessment produced by Environmental Noise Solutions Ltd dated 7 February 2024, ref: NIA-11108-24-11392-v4 Hemingfield Road, following the scheme of mitigation outlined in Table 4.1, section 4.3 and section 4.4. Thereafter the agreed mitigation measures shall be implemented prior to the first occupation of each dwelling in accordance with the approved scheme.*

The objectives of the noise impact assessment were therefore to:

- Assess external noise levels at the site
- Assess the potential impact of the external noise climate on the proposed residential development with reference to relevant guidelines
- Provide recommendations for a scheme of sound attenuation works, as necessary, to protect future occupants of the proposed residential development from a loss of amenity due to noise

This report details the methodology and results of the assessment and provides recommendations for the building envelope (fenestration and ventilation) and boundary treatments. It has been prepared to accompany a reserved matters application to be submitted to Barnsley Metropolitan Borough Council, and addresses Condition 19 of the outline planning approval.

The report has been prepared for Homes by Honey for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult Homes by Honey and ENS as to the extent to which the findings may be appropriate for their use.

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

1.2 Site Description and Proposed Development

The site is located to the north of the residential settlement of Hemingfield on the south-eastern fringe of Barnsley centred on grid reference: 439213,401757. The site is bounded by the A6195 Dearne Valley Parkway to the north, Hemingfield Road to the south with existing residential dwellings beyond, open farmland to the east and Hemingfield Road to the west.

The topography of the site varies from north to south, with the northern boundary of the site lying between 10 to 15m lower than the land height of the A6195. Ground heights at the southern site boundary are also approximately 10 to 15m above ground heights at the northern site boundary.

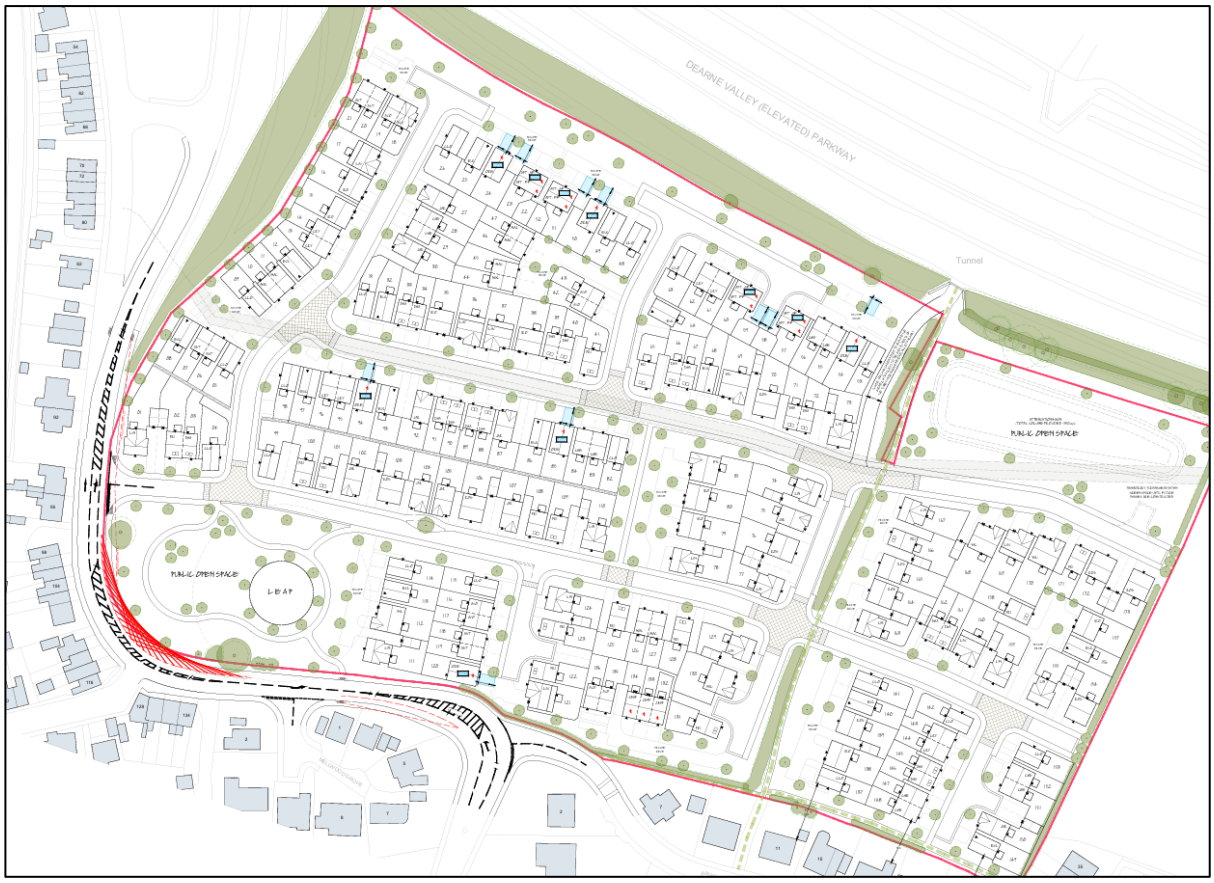
The approximate site boundary is shown in Figure 1.1 below.

Figure 1.1: Location of Proposed Development

Development proposals are for 173 no. dwellings with associated access roads and landscaping (see Figure 1.2 for the site layout).

The noise environment at the site is dominated by road traffic on the A6195 Dearne Valley Parkway.

Figure 1.2: Site Layout Plan



2 Policy Context and Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] was updated in February 2025 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 187 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of…..noise pollution'.

Paragraph 198 advises that:

'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…..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'.

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

2.2 Noise Policy Statement for England

The Noise Policy Statement for England[2] (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life
- Mitigate and minimise adverse impacts on health and quality of life
- Where possible, contribute to the improvement of health and quality of life

The NPSE describes the following levels at which noise impacts may be identified:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

'….all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.'

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)
[2] Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. March 2010.

2.3 Planning Practice Guidance on Noise

Planning Practice Guidance[3] (PPG) is an online resource which provides additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur
- Whether or not an adverse effect is occurring or likely to occur
- Whether or not a good standard of amenity can be achieved

In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL.

The PPG also provides general advice on the typical options available for mitigating noise, suggesting that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

'Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed'.

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

2.4 ProPG Planning and Noise: New Residential Development

ProPG Planning and Noise: New Residential Development (ProPG)[4] was published in 2017 by the Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health.

Stage 2: Element 2 of ProPG sets indoor ambient noise levels for residential dwellings based on the guidance contained in British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233), see Table 2.1.

Table 2.1: Indoor Ambient Noise Levels in Dwellings

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB $L_{Aeq\ (0700\text{-}2300)}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq\ (0700\text{-}2300)}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq\ (0700\text{-}2300)}$	30 dB $L_{Aeq\ (2300\text{-}0700)}$ 45 dB $L_{AFMax\ (2300\text{-}0700)}$

Note 4 to the above table states:

'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.'

[3] Planning Practice Guidance on Noise: http://planningguidance.planningportal.gov.uk/blog/guidance/noise/

[4] 'ProPG Planning and Noise: New Residential Development (ProPG)', 2017. Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and the Chartered Institute of Environmental Health (CIEH)

Note 5 to the above table states:

'Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7'.

This is consistent with the guidance contained within the PPG, which states that:

'... consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations'.

On the basis of the above, the following criteria (with windows closed and an alternative means of ventilation provided) are considered appropriate for the proposed residential development and considered to represent good resting and sleeping conditions:

- ≤ 35 dB $L_{Aeq\ (0700\text{-}2300)}$ during the daytime
- ≤ 30 dB $L_{Aeq\ (2300\text{-}0700)}$ and 45 dB L_{AFMax} not regularly exceeded during the night-time

With regard to external amenity, ProPG reflects the advice in BS 8233, which 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.'

3 Noise Survey

3.1 Overview

In order to establish external noise levels at the site, a baseline noise survey was undertaken on Tuesday 7th November and the early hours of Wednesday 8th November 2023. Additional monitoring was undertaken on 17th November to further quantify noise from the A6195.

The following noise monitoring positions were adopted (the approximate locations of the noise monitoring positions are shown in Appendix 2 for reference):

- MP1 - Along the western boundary at circa 5 metres from Hemingfield Road at 4 metres above ground level (AGL)
- MP2 – Approximately 10 metres from the A6195 (20 metres to centre) to the east of the site

MP2 was chosen as representative of noise from the A6195 as suitable measurement positions were inaccessible in the area immediately adjacent to the site due to the steep embankment and undergrowth.

Noise measurements were undertaken in free field conditions at 4 metres above ground level using Bruel & Kjaer 2250 and NTI XL3 Type 1 integrating sound level meters. The meters were connected to a windshield covered microphone positioned at the locations detailed above.

The measurement system calibration was verified immediately before and after the survey period using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted.

Measurements consisted of A–weighted broadband parameters including L_{Aeq}, L_{A10} L_{A90}, and L_{AFmax} together with linear octave band data.

The noted weather conditions during the surveys were dry with wind speeds < 5 m/s. Weather conditions were therefore considered appropriate for noise monitoring.

3.2 Summary

Table 3.1 presents a summary of the noise data for each measurement session, at each measurement position, rounded to the nearest decibel.

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	Comment
1	07/11/2023	12:15–13:00	66	53	72	Road traffic on Hemingfield Road (typically 73 dB L_{AFMax} during the night-time due to vehicle passes)
		13:00–14:00	66	53	73	
		14:00–15:00	66	53	73	
	08/11/2023	06:00-07:00	61	49	64	
2	17/11/2023	12:34-15:34	79	71	83	Road traffic from A6195 dominant

Noise levels across the site were controlled by road traffic noise from both the A6195 and Hemingfield Road.

For the prediction of daytime road traffic noise, the Department of Transport's Memorandum on the Calculation of Road Traffic Noise (CRTN) explains that the following shortened measurement procedure may be used. Measurements of L_{A10} are made over any three consecutive hours between 10:00 and 17:00 hours. Using $L_{A10\,(3\,hour)}$ as the arithmetic mean of the three consecutive values of hourly L_{A10}, the $L_{A10\,(18\,hour)}$ can be calculated from the equation:

$$L_{A10\,(18\,hour)} = L_{A10\,(3\,hour)} - 1\ dB$$

A study prepared by TRL Limited on behalf of the Department for Environment, Food and Rural Affairs (DEFRA) entitled 'Converting the UK Traffic Noise Index $L_{A10\,(18\,hour)}$ to EU Noise Indices for Noise Mapping' presents a methodology for calculating daytime $L_{Aeq\,(0700\text{-}2300)}$ and night time $L_{Aeq\,(2300\text{-}0700)}$ ambient noise levels based on the $L_{A10\,(18\,hour)}$ noise levels, as follows:

$$L_{Aeq\,(0700\text{-}2300)} = 10 * \log\left(\frac{[(10^{((0.95 * L_{A10\,(18\,hour)} + 1.44)/10)*12] + [10^{((0.97 * L_{A10\,(18\,hour)} - 2.87)/10)*4}]}{16}\right)$$

$$L_{Aeq\,(2300\text{-}0700)} = 0.90 * L_{A10,\,18\,hour} - 3.77$$

Based on the above formulae, the daytime and night-time ambient noise levels at MP2 are calculated at **78 dB $L_{Aeq\,(0700–2300)}$** and **70 dB $L_{Aeq\,(2300–0700)}$** respectively. Whilst noise from the A6195 was not measured during the night time, analysis of the daytime maximum noise levels indicates that typical individual events would not be expected to exceed **90 dB L_{AFMax}** more than 10 to 15 times during the night time period (23:00-07:00).

Maximum noise levels at monitoring position 1 were ≤ **81 dB L_{AFMax}** during the night-time, with levels typically ≤ **78 dB L_{AFMax}.**

4 Noise Assessment

4.1 Acoustic Modelling

Noise levels across the site have been predicted using a three-dimensional Cadna-A noise model. The model was constructed using topographical survey data and mapping from Ordnance Survey, in conjunction with drawings and information supplied by the client. Noise propagation is calculated in spectral terms according to BS EN ISO 1963: 1996, with 2nd order reflections considered. All buildings within the model have an assumed height of 8m above ground level, and are assumed to be reflective.

The following assumptions were used in the model:

- Ground absorption set to G = 0.5 for mixed ground
- Meteorological conditions: Temp. 10 °C, Relative Humidity 70%
- Foliage/woodland areas not considered to provide any reduction
- Reflections: set to two orders of reflection
- Absorption coefficient of buildings set to 0.2

Noise emission from roads in the vicinity of the site has been calculated in spectral terms (1/1 octave) based on the noise levels summarised in Section 3, including the calculated road noise levels for the A6195.

Noise levels across the site, and at the façade of the proposed residential dwellings have been calculated, based on the current masterplan (26 5828 SK04, dated July 2026).

The results are presented as façade noise level and noise contour plots presented in Appendix C.

4.2 Site Noise Levels

Due to the topography of the site, road traffic noise is not significantly reduced for properties set back from the northern site boundary by the building massing of intervening properties based on the layout shown on the indicative masterplan.

With reference to the figures in Appendix 3, the most noise affected façades are those dwellings fronting on to Hemingfield Road and Dearne Valley Parkway, with noise levels of ≤ 69 dB $L_{Aeq,16hr}$ predicted during the daytime, and up to 61 dB $L_{Aeq,8hr}$ predicted during the night time.

Noise levels at the north-eastern site boundary are predicted to be 62 to 67 dB $L_{Aeq,16hr}$. Similar noise levels are predicted for the second and third rows of properties, with levels decreasing by slightly in shielded areas.

At the eastern site boundary, whilst the first rows of dwellings shown on the indicative masterplan are set back from the northern site boundary, their northern façades are predicted to be exposed to noise levels of 64 to 67 dB $L_{Aeq,16hr}$ due to the reduction in relative height between the A6195 and the site, which results in an increase in noise exposure within this area.

4.3 Ventilation and Glazing

Calculations have been performed to determine the configuration of glazing and ventilation required to satisfy the internal noise criteria with closed windows for the most noise affected areas of the site. The calculations incorporate the measured external noise level data summarised in Section 3 in conjunction with the results of the noise model discussed in Section 4 and are based on the noise ingress calculation methodology outlined in Annex G.2 of BS8233:2014. Building footprints are based on the reserved matters masterplan (26 5828 SK04).

In addition to satisfying the requirements of BS 8233, the scheme of sound insulation presented below is expected to control individual noise events in line with the ProPG requirement to not exceed 45 dB $L_{Amax,F}$ internally more than 10 to 15 times per night, as set out in Section 2.

Minimum sound reduction values for the glazing and ventilation elements are presented in Table 4.1, based on commonly available ventilation and glazing products.

Table 4.1: Required Sound Reduction of Façade Elements

Element	Required Sound Reduction (dB)	Indicative Specification
	Weighted R_w ($R_w + C_{tr}$) / $D_{n,e,w}$ ($D_{n,e,w} + C_{tr}$)	
Specification 1		
Glazing	**35 (30)**	10/12/4 Thermal double glazing
Ventilation	**48 (44)** (*open position*)	Duco Silenzio SR AK wall ventilator
Specification 2		
Glazing	**32 (28)**	6/12/4 Thermal double glazing
Ventilation	**48 (44)** (*open position*)	Duco Silenzio SR AK wall ventilator
Specification 3		
Glazing	**32 (28)**	6/12/4 Thermal double glazing
Ventilation	**40 (37)**	Titon SF X V75 / C75 acoustic trickle vent
Specification 4		
Glazing	**32 (28)**	6/12/4 Thermal double glazing
Ventilation	**32 (31)** (*open position*)	Standard Trickle Ventilator Titon Trimvent Select Xtra S13 & XC13 Canopy

Alternative solutions to the indicative specifications shown in Table 4.1 may be considered if sound reduction performances are equivalent to (or greater than) those stipulated.

General Points

See Appendix 3 for scheme of sound attenuation.

The following points should be noted:

- The glazing recommendations apply to the window within a sealed unit. It is the responsibility of the window supplier to ensure that the window frame does not compromise the performance of the glazing.
- When selecting a glazing system to satisfy the requirements outlined above, it is important to ensure that the R_w+C_{tr} value is achieved (rather than simply the R_w value). Published R_w values tend to be higher than corresponding R_w+C_{tr} values; therefore, incorrect selection could result in an overestimation of sound reduction performance which in turn could result in higher internal noise levels.

- The opening and free area of the ventilation units should be checked by a mechanical service engineer before designs are finalised. Should the equivalent open area be insufficient to meet the minimum requirements of ADF, it may be necessary to increase the number of units per habitable room. Where this applies, the required sound reduction of the ventilation units may need to be increased accordingly.

4.4 External Amenity

With reference to the ProPG guidance summarised in Section 2, where external noise levels are predicted to exceed 50 dB $L_{Aeq,16hr}$, mitigation is recommended to reduce noise levels as far as practicable. On this basis, all gardens should be provided with solid garden fences to a minimum height of 1.8m above ground level. Fences should be imperforate with a minimum superficial mass per unit area of 10 kg/m2.

An effective barrier can be composed of a solid masonry wall, close boarded fencing or a combination of types. Where timber fencing is used, a concrete gravel board is recommended to ensure that there are no gaps underneath the barrier. Alternatively, a proprietary specialist barrier may be used. Provision of localised screening is a typical and effective means of reducing noise levels in gardens and can be considered to represent the best practicable means for mitigation.

5 Summary and Conclusions

A noise impact assessment has been undertaken for the proposed residential development at the land at Hemingfield Road, Barnsley, S73 0PZ.

The noise environment at the site was observed to be dominated by road traffic on Dearne Valley Parkway and Hemingfield Road, with no other significant noise sources noted.

A scheme of sound attenuation works (enhanced glazing/ventilation) and boundary treatments has been developed to protect the proposed residential development from the ambient noise climate.

Appendix 1 – Abbreviations and Definitions

Sound Pressure Level (L_p)
The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 µPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$L_p = 20 \log_{10}(p/p_o)$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_o = reference sound pressure (20 µPa).

A-weighting
A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$
The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night-time noise levels.

$L_{A10, T}$
The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$
The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$
The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})
The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

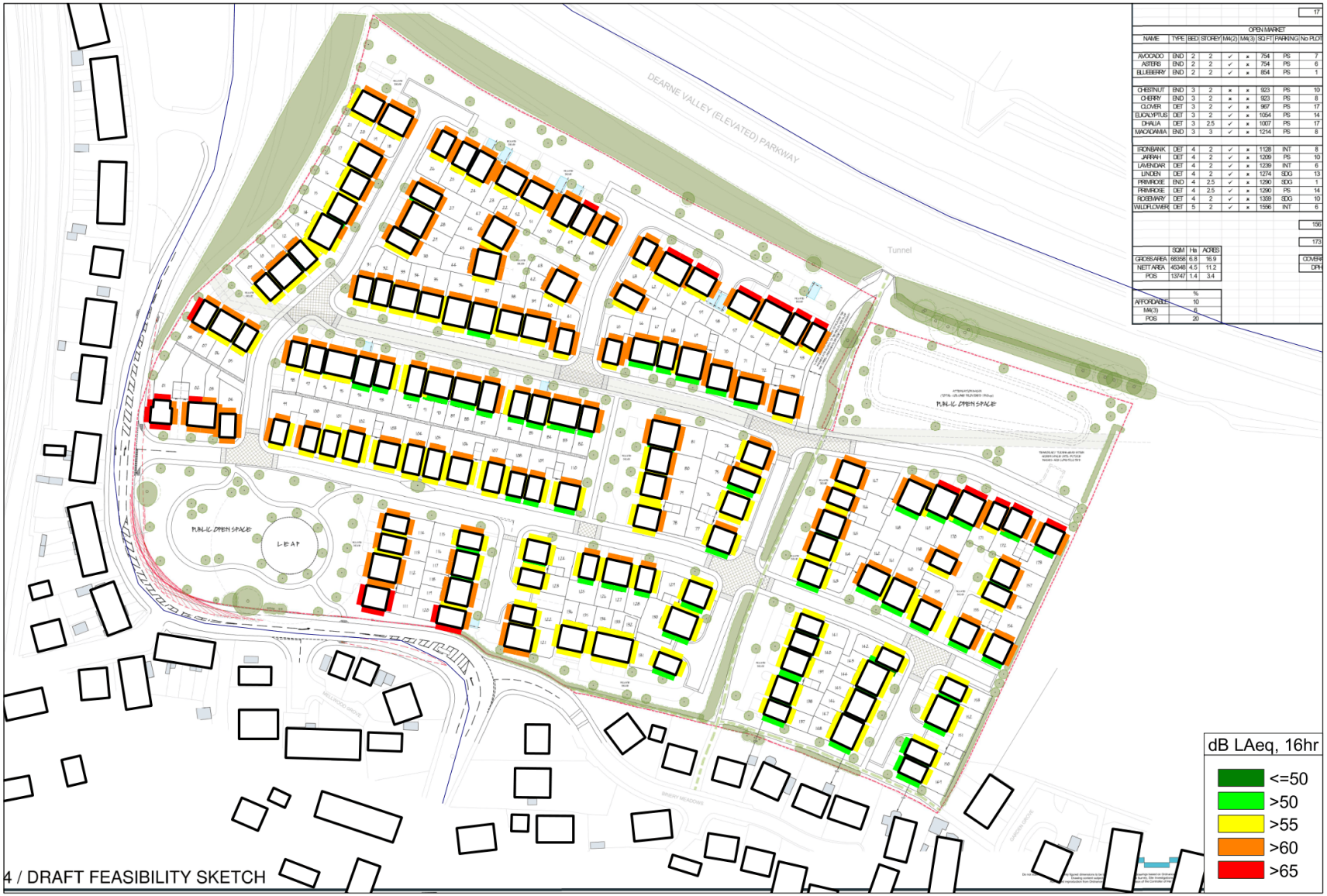
Weighted Sound Reduction Index (R_W)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_W is used to characterise the insulation of a material or product that has been measured in a laboratory).

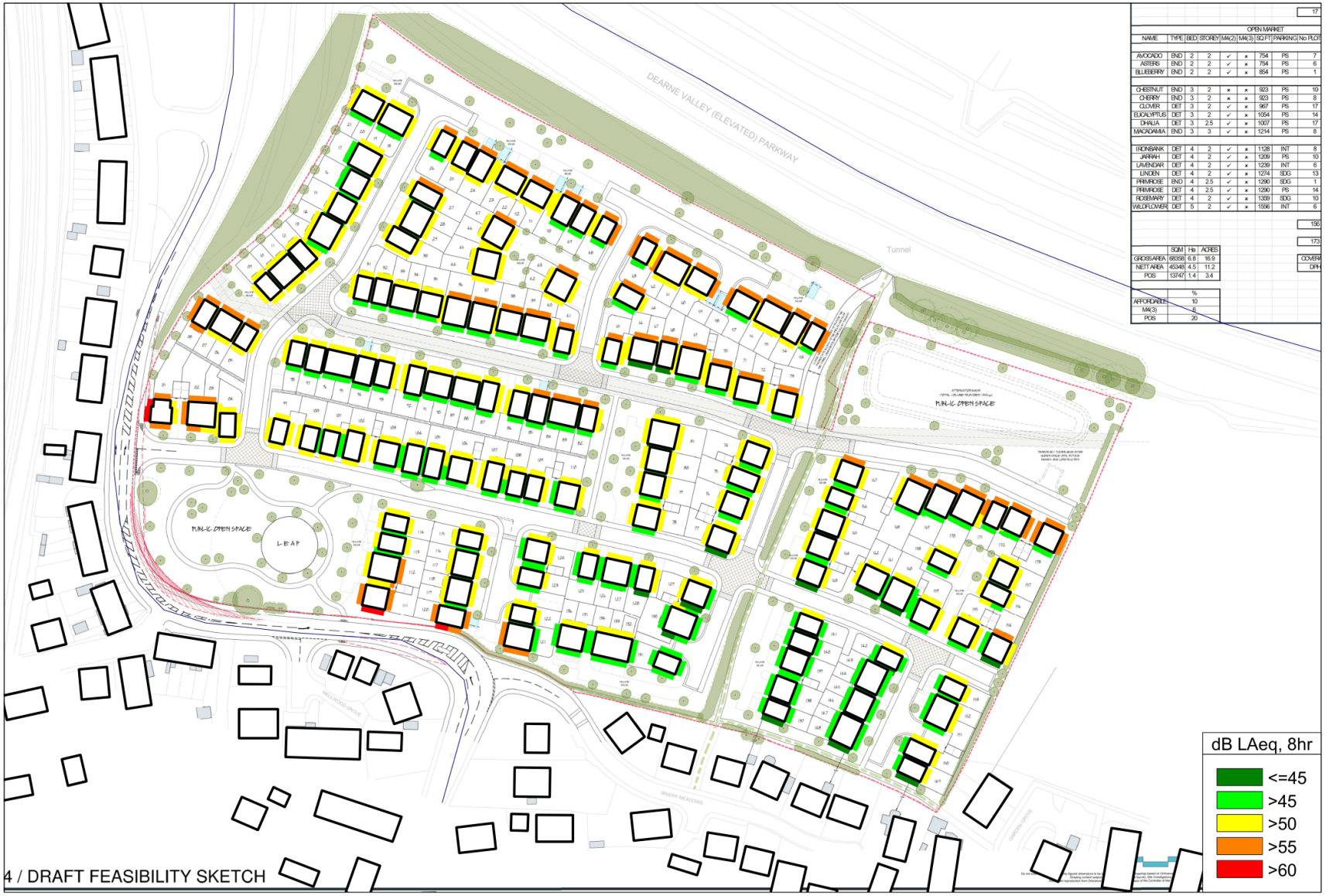
Appendix 2 – Site Plan and Noise Measurement Positions

Appendix 3 – Noise Modelling Results

Daytime Façade Levels, dB $L_{Aeq,16hr}$



Night-time Façade Levels, dB $L_{Aeq,8hr}$



Appendix 4 – Scheme of Sound Attenuation

Element	Required Sound Reduction (dB) Weighted R_w ($R_w + C_{tr}$) / $D_{n,e,w}$ ($D_{n,e,w} + C_{tr}$)	Indicative Specification
Specification 1		
Glazing	**35 (30)**	10/12/4 Thermal double glazing
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