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Proposed Residential Development Land off Barnsley Road, Denby Dale

Noise Impact Assessment

For:
Newett Homes

26th January 2026

Ref: NIA-12262-25-12598-v2 Denby Dale
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Contents

1 Introduction

1.1 Overview

Environmental Noise Solutions has been commissioned by Newett Homes to carry out a noise impact assessment for a proposed residential development at land off Barnsley Road, Denby Dale, HD8 8XA (hereafter referred to as 'the site').

The objectives of the noise impact assessment were to:

- Determine 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 planning application to be submitted to Kirklees Council.

Planning consent for up to 30 residential dwellings on the site was granted by Kirklees Council in August 2025 (planning ref: 2023/62/91564/E). As such, the principle of residential development at the site has been established.

The report has been prepared for Newett Homes 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 Newett Homes 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 within the village of Denby Dale in West Yorkshire, and is bound by:

- The A635 Barnsley Road to the south
- Residential properties on Inkerman Way to the north
- Residential properties on Inkerman Court, and open land, to the west
- Woodland / farmland to the east

The site boundary is shown in Figure 1.1 below.

Figure 1.1: Location of Proposed Development

Development proposals are for 42 no. dwellings with associated access roads and landscaping (see Appendix 2 for site layout plan). The site layout plan indicates that the residential development footprint is set back circa **8 metres** from the nearside kerb of the A635 Barnsley Road.

The noise environment at the site is dominated by road traffic on the A635 Barnsley Road.

2 Policy Context and Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] was updated in December 2024 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 Thursday 26th May through to Friday 27th May 2022.

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

- MP1 was located along the southern boundary of the site at circa 8 metres from the nearside kerb of the A635 Barnsley Road and at 4 metres above ground level (AGL)
- MP1A was located along the southern boundary of the site at circa 8 metres from the nearside kerb of the A635 Barnsley Road and at 1.5 metres AGL (to assess attenuation due to height)
- MP2 was located along the southern boundary of the site at circa 40 metres from the nearside kerb of the A635 Barnsley Road and at 4 metres AGL
- MP3 was located in the north-western corner of the site at 1.5 metres AGL

Noise measurements were made in a free field environment using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. A windshield was fitted for all measurements. The calibration of each measurement system was verified immediately before and after the survey using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted.

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

Measurements consisted of A–weighted broadband parameters, together with linear octave band L_{eq} levels.

3.2 Summary

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

The noise environment at the site was observed to be dominated by road traffic on the A635 Barnsley Road. No other significant noise sources were noted.

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	Comment
MP1	26/05/22	1033-1133	58	43	63	Dominated by road traffic on A635
MP1	26/05/22	1133-1200	58	43	63	
MP1	26/05/22	1200-1233	59	42	63	
MP1	26/05/22	1319-1419	59	45	64	
MP1	27/05/22	0000-0045	42	29	37	
MP1	27/05/22	0114-0200	41	31	38	
Daytime noise level 60 dB $L_{Aeq\ (0700\text{-}2300)}$ based on CRTN methodology Night time noise level circa 52 dB $L_{Aeq\ (2300\text{-}0700)}$ based on TRL methodology Maximum noise levels up to 73 dB L_{AFMax}						
MP1A	26/06/22	1420-1435	56	45	61	Dominated by road traffic on A635
Daytime noise level circa 56 dB $L_{Aeq,T}$ Comparison of MP1 (4mAGL) and MP1A (1.5mAGL) indicates circa 2 dB difference due to height						
MP2	26/05/22	1013-1028	50	43	53	Dominated by road traffic on A635
MP2	26/05/22	1237-1252	52	44	56	
Daytime noise level circa 50-52 dB $L_{Aeq,T}$						
MP3	26/05/22	0952-1007	47	44	50	Distant road traffic on A635
MP3	26/05/22	1257-1312	49	44	51	
MP3	26/05/22	1503-1518	50	45	52	
MP3	26/05/22	2336-2351	40	30	44	
Daytime noise level circa 47-50 dB $L_{Aeq,T}$ Night time noise level circa 40 dB $L_{Aeq,T}$						

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:

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

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

Based on the above formulae, the daytime and night time ambient noise levels at MP1 are measured / calculated at **60 dB $L_{Aeq\ (0700–2300)}$** and **52 dB $L_{Aeq\ (2300–0700)}$** respectively. Maximum noise levels from passing vehicles were measured at up to **73 dB L_{AFMax}** during the night-time.

Ambient noise levels reduced with increasing distance and reduced line-of-sight to the A635, with a circa 10 dB reduction between MP1 (8 metres to the nearside kerb) and MP2 (40 metres to the nearside kerb).

4 Noise Assessment

4.1 Ventilation and Glazing

Design noise levels at the southern façade of Plots 1 and 42 (fronting onto Barnsley Road) are as follows:

- **60 dB $L_{Aeq\ (0700\text{-}2300)}$** during the daytime
- **52 dB $L_{Aeq\ (2300\text{-}0700)}$** and **73 dB L_{AFMax}** during the night-time

Noise levels throughout the remainder of the site (set back from Barnsley Road) are lower due to increased distance to the road, and will reduce further once the scheme is built out due to screening afforded by the dwellings themselves.

In order to calculate the sound insulation requirements of the building envelope for habitable rooms throughout the development, the Building Research Establishment (BRE) building envelope insulation calculation spreadsheet was used. This spreadsheet is based on the calculation methodology advocated in BS 8233. The spreadsheet allows input of external noise levels, typical room dimensions and reverberation time together with parameters for the various elements of the building envelope and calculates the internal noise level in terms of the external noise level metric (L_{Aeq} and L_{AFMax} in this case).

Plots 1 and 42

It is recommended that the plots adjacent to/fronting onto Barnsley Road (Plots 1 and 42) are provided with a fully ducted mechanical ventilation system with heat recovery (MVHR).

Habitable rooms with line-of-sight to Barnsley Road should be fitted with enhanced laminated glazing rated at least **36 dB R_w+C** (such as 4 mm glass / 16 mm Argon / 8.8 Pilkington Optiphon).

Plots 2, 3 and 41

Whilst Plots 2, 3 and 41 are set back from Barnsley Road, the dwellings are oriented such that habitable rooms will have line-of-sight to the road.

Habitable rooms of Plots 2, 3 and 41 should be fitted with enhanced glazing rated at least **32 dB R_w+C** (such as 8 mm glass / 12 mm cavity / 4 mm glass) in conjunction with acoustic wall vents rated at least **41 dB $D_{n,e,w}$+C_{tr}** per 8000 mm² EA (vent open), such as the Ryton AAC125HP, or equivalent.

Habitable rooms on the northern elevation of Plot 3, which do not have line of sight to the road, may be fitted with double glazing rated at least **28 dB R_w+C** in conjunction with standard wall vents.

Remaining Plots

Remaining habitable rooms throughout the site may be fitted with double glazing rated at least **28 dB R_w+C** in conjunction with standard wall vents.

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 value is achieved (rather than simply the R_w value). Published R_w values tend to be higher than corresponding R_w+C 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.
- Internal noise levels due to mechanical ventilation plant should not exceed 26 dB(A) in bedrooms and 30 dB(A) in living rooms

4.2 External Amenity

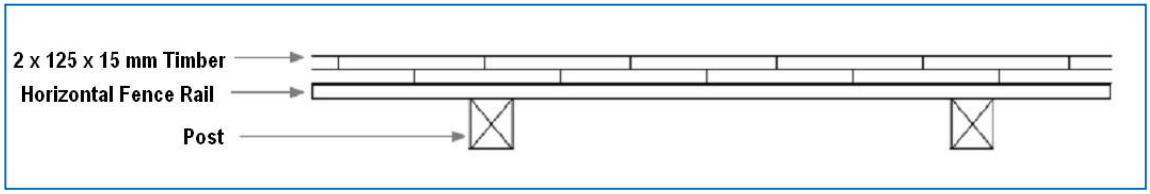
Daytime ambient noise levels at MP1A (1.5 metres above ground level) have been measured/calculated at **58 dB $L_{Aeq\ (0700–2300)}$** before any screening is taken into account.

In order to reduce garden levels as low as practicable, it is recommended that the gardens are Plots 1 and 3 are provided with circa 1.8-metre-high solid timber fences or brick walls (see Appendix 3 for barrier locations).

A brick wall of any construction is appropriate, providing there are no gaps in the construction.

If a solid timber fence is installed, then it should be ensured that it has a mass per unit area of ≥ 10 kg/m^2. The fence should have no gaps or holes and should be fully sealed at the ground (i.e. include a gravel board).

An indicative acoustic fence detail is illustrated below. The double-thickness solid timber construction is considered robust and appropriate.



5 Summary and Conclusions

A noise impact assessment has been undertaken for the proposed residential development off the A635 Barnsley Road, Denby Dale.

The noise environment at the site was observed to be dominated by road traffic on the A635, 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.

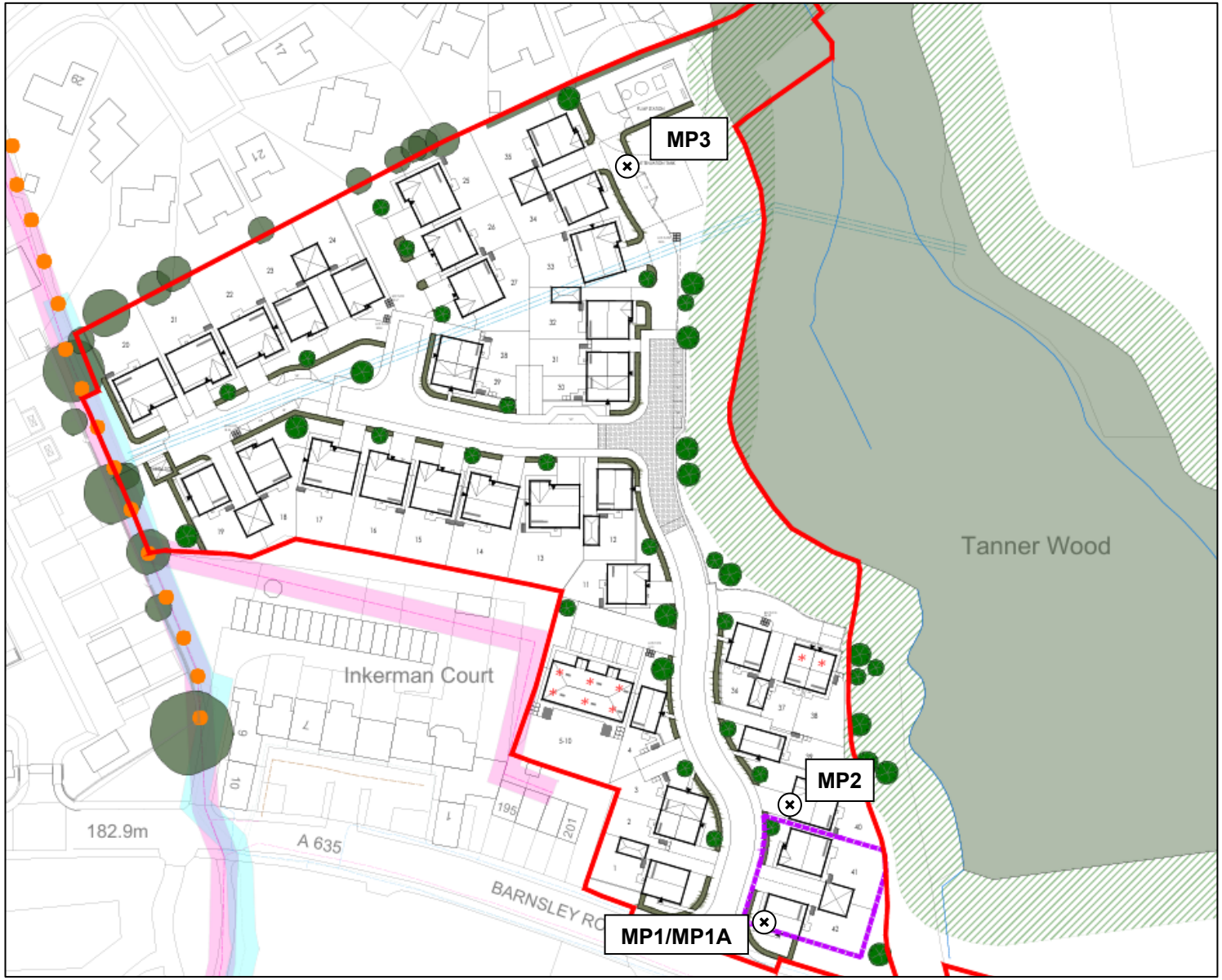
$L_{AF\ max}$
The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

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 – Scheme of Sound Attenuation