

Noise Impact Assessment

Brotherton House

Muse Places and Wythenshawe

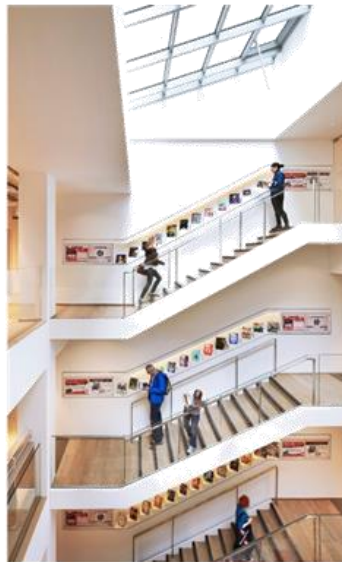
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Executive Summary

Muse and Wythenshawe Community Housing Group Limited is seeking to obtain full planning permission for the erection of extra care apartments (Use Class C2), independent/retirement living apartments, and dwellinghouses (Use Class C3), car and cycle parking, landscaping and other associated works following demolition of existing buildings at Brotherton House Wythenshawe.

Noise assessments have been undertaken in respect of internal noise levels within the habitable areas of the proposed dwellings and noise levels in outdoor amenity areas. In addition, maximum noise levels for new items building services have been derived in accordance with MCC's standard requirements.

As part of this assessment, a comprehensive baseline noise survey was undertaken between Wednesday 17th and Monday 22nd September 2025 to establish and quantify the existing noise levels at the Site and its surroundings, which has been used to calibrate a three-dimensional acoustic model.

Based on the measured and modelled noise levels affecting the Site, preliminary façade sound insulation calculations have been undertaken to establish the minimum sound reduction performance requirements of the glazing and ventilation systems to comply with the internal noise limits of BS 8233:2014, WHO:1999 and MCC guidance.

Preliminary façade calculations indicate that suitable internal noise levels can be achieved on the most exposed (noisiest) residential façade with the use of standard double glazing achieving a minimum sound reduction performance of 30 dB R_w+C_{tr} . Passive ventilation strategies with acoustically rated trickle vents (32 dB $D_{n,e,w}$) would be appropriate where natural ventilation is targeted.

A preliminary assessment of noise ingress during periods of overheating conditions indicates that, if dwellings are likely to experience overheating during summer months, the Proposed Development can utilise open windows, providing the opening size is suitably controlled as noted in this report.

The assessment of daytime noise levels indicates that the Proposed Development is considered to offer a good level of external amenity space to occupants, with no specific mitigation measures.

With regards to building services plant, suitable plant noise emission limits have been specified in accordance with MCC's planning requirements, together with preliminary advice to inform the evolving services design. All fixed plant will need to be designed so that their combined noise emissions achieve the limits. Providing careful attention is paid to plant selection, installation and noise attenuation and that the noise limits are met, there can be high confidence that noise from the operation of plant associated with the Proposed Development will have negligible impact upon the existing noise climate and amenity of nearby sensitive receptors or future occupants of the Proposed Development.

There are not expected to be any increases in road traffic flows due to the Proposed Development and impacts of changes in road traffic noise are therefore expected to be negligible. Consequently, this has not been assessed.

1. Introduction

This Noise Impact Assessment has been prepared by Hilson Moran on behalf of Muse and Wythenshawe Community Housing Group Limited to support a full planning application for the development of Brotherton House, Cornfield Dr, Wythenshawe, Manchester, M22 9QX ('the Site'). The application seeks permission for the erection of extra care apartments (Use Class C2), independent/retirement living apartments, and dwellinghouses (Use Class C3), car and cycle parking, landscaping and other associated works following demolition of existing buildings.

This assessment considers the Site's suitability for residential use in conjunction its noise constraints. Furthermore, it evaluates the potential impacts of the development upon nearby, existing Noise Sensitive Receptors (NSRs).

As part of this assessment the following works have been carried out:

- A baseline environmental noise survey was undertaken to quantify the existing noise climate affecting the Site and NSRs.
- Calculations of internal noise levels within the most noise exposed residential dwellings have been undertaken to provide early indication of the façade sound insulation requirements and identify appropriate ventilation strategies (with reference to BS 8233:2014 and WHO, 1999).
- A preliminary assessment of the noise risk has been undertaken for scenarios where windows are opened during potential overheating conditions.
- Three-dimensional modelling of noise levels in outdoor amenity spaces has been undertaken and compared against relevant guidance to determine the need for mitigation measures.
- Setting of appropriate noise emission limits for new fixed building services have been derived in line with MCC requirements.

The language in this report is necessarily technical in nature. A glossary of the acoustic terminology used in this report is presented in Appendix A to aid the reader.

2.2. Noise Sensitive Receptors

The closest NSRs to the Site are described in Table 2-1 below and illustrated on the Site plan in Figure 2-1. Where a number of receptors are located close to each other, the nearest receptor to the Site is given to represent the immediate area.

Table 2-1: Noise Sensitive Receptors

Receptor Identifier (Figure 2-1)	Name	Type of Receptor	Approximate Distance from Site Boundary
NSR A	Properties on Ribchester Drive and south of Cornfield Drive	Residential	Adjacent to the north-west
NSR B	Henfield Walk and properties north of Cornfield Drive	Residential	10m north-east
NSR C	Properties south of Longhope Road and Longlevens Road	Residential	60m south
NSR D	Manchester Enterprise Academy	Educational	80m west

2.3. Proposed Development

The description of the Proposed Development is as follows:

“Erection of extra care apartments (Use Class C2), independent/ retirement living apartments, and dwellinghouses (Use Class C3), car and cycle parking, landscaping and other associated works following demolition of existing buildings”

3. Assessment Criteria

When selecting appropriate criteria for assessment, consideration was given to relevant planning policy and regulations, as follows:

- The National Planning Policy Framework (NPPF)¹;
- The Noise Policy Statement for England (NPSE)²;
- The Noise Planning Practice Guidance³;
- Places for Everyone Joint Development Plan⁴;
- Manchester Core Strategy⁵; and
- MCC's Planning & Noise Technical Guidance document⁶.

It should be noted that no specific numerical noise criteria are detailed in these documents.

With regard to acoustic design and noise control, the NPPF provides a set of overarching aims, broadly reflecting those already contained in the NPSE. They are directed towards the avoidance of significant adverse impacts and reduction of other adverse impacts on health and quality of life; set within the context of the Government's policy on sustainable development. The Places for Everyone Joint Development Plan Document is a long-term strategic spatial plan adopted by nine Greater Manchester local authorities to guide sustainable growth, housing, employment, and infrastructure development across the region up to 2039. MCC's Core Strategy says that all developments should have regard to noise and points to more detailed guidance that is provided in supplementary planning documents. These documents are described in further detail in Appendix B.

3.1. Residential Amenity – Internal Noise Levels

Internal noise levels throughout the development shall be designed to achieve the levels given in MCC's Technical Guidance, British Standard (BS) 8233:2014 'Guidance on sound insulation and Noise Reduction for Buildings'⁷ and the World Health Organisation (WHO), 1999 'Guidelines for Community Noise'⁸.

These levels form the basis of the assessment of site suitability for residential use. A summary of the guideline noise levels relevant to the Proposed Development

¹ Department for Communities and Local Government (DCLG) (2023); 'The National Planning Policy Framework', TSO.

² Department for Environment, Food and Rural Affairs (DEFRA) (2010); 'Noise Policy Statement for England', DEFRA.

³ DCLG (2014); 'Planning Practice Guidance website', DCLG. (<http://planningguidance.planningportal.gov.uk/>).

⁴ Greater Manchester Combined Authority (GMCA) (Adopted March 2024); 'Places for Everyone Joint Development Plan Document', GMCA.

⁵ Manchester City Council (MCC) (Adopted July 2012) 'Core Strategy Development Plan Document', MCS.

⁶ Environmental Protection (2015); 'Planning & Noise Technical Guidance', MCC.

⁷ BSI (2014) 'BS 8233:2014 Guidance on sound insulation and noise reduction for buildings', BSI.

⁸ WHO (1999); 'Guidelines for Community Noise', WHO, Geneva.

are presented in Table 3-1, whilst the guideline advice is described in detail in Appendix B.

Table 3-1: Internal Ambient Noise Level Limits

Location	Noise Level (dB $L_{Aeq,T}$)	
	Daytime	Night-time
Living Rooms	35	-
Dining Rooms	40	-
Bedrooms	35	30 & 45 ¹

Notes: ¹ The MCC Technical Guidance states that individual noise events should not normally exceed 45 dB L_{AFmax} by more than 10 times at night.

3.1.1. Noise Intrusion During Overheating Controls

In residential developments, industry best practice dictates that impacts on people's health from often-elevated noise levels during the use of thermal control measures, such as open windows, should be considered in design and mitigated against. This is recognised in the UK Building Regulations (Approved Document O - ADO), which provides statutory guidance with regards to overheating in residential developments. As part of the requirements ADO specifies noise thresholds for bedrooms at night, above which windows are likely to be closed to provide suitable sleeping conditions. It can therefore be reasoned that a cooling strategy relying on open windows during the night-time would provide unsuitable living conditions in areas where these thresholds are exceeded.

The ADO noise threshold values are therefore adopted as limiting values where, if predicted to be exceeded with open windows. These limits are presented below:

- 40 dB $L_{Aeq,8hrs}$ (between 23:00 and 07:00)
- 55 dB L_{AFmax} more than 10 times a night (between 23:00 and 07:00).

The Acoustics, Ventilation and Overheating Guidance (AVO)⁹ is not a statutory document, and is in some ways superseded by ADO, however it is understood that MCC do require the AVO guidance to be followed. AVO provides a risk-based approach in establishing likely impacts on building occupants from noise during periods of overheating. AVO has been considered in the definition of control measures, but only in the assessment of daytime noise impacts as these are not covered by ADO.

⁹ ANC, IoA (2020); 'Acoustics Ventilation and Overheating - Residential Design Guide' ANC.

3.2. Building Services Plant Noise

BS 4142:2014¹⁰ provides an assessment and rating method to assess adverse effects from a range of commercial noise sources, including fixed building services plant. The measured or predicted noise level from the source in question, the 'specific noise' level ($L_{Aeq,T}$), immediately outside the NSRs is compared with the 'background noise' level ($L_{A90,T}$). Where the sound contains certain acoustic features at the assessment location (e.g. tones, impulses, intermittency etc.), then a scaled character correction is added to the specific noise level to obtain the 'rating noise' level ($L_{Ar,Tr}$). The significance of effect is dependent on the context, having consideration to pertinent factors such as the sensitivity of the receptor and the level and nature of the sound.

The significance of building services noise impacts depends upon a number of factors. These include:

- the absolute noise level;
- the nature of the noise;
- the time and duration at which the noise occurs;
- whether the noise is temporary, intermittent or permanent;
- whether the impact is as a result of a new source; and
- whether it is a change to an existing source and/or the sensitivity of the receptor.

BS 4142 states:

"b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."

BS 4142 also notes that *"Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."*

¹⁰ British Standards Institution (2019); 'BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound', BSI Standards Limited, London.

At this stage in the design of the Proposed Development, details of the building services plant are yet to be fixed and therefore, predictions to determine the significance of the likely effects of their noise emission are unlikely to be accurate. Consequently, suitable plant noise emission limits have been set to which the plant must adhere and these are based on the measured background (L_{A90}) noise levels and the plant noise requirements of MCC.

3.3. MCC Planning & Technical Guidance

MCC's plant noise requirements are set out in the Planning & Noise Technical Guidance document. The MCC plant noise requirements are provided below:

“Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.”

There is no specific reference to noise from emergency plant in the guidance, where often a relaxed noise limit may be considered acceptable. It is understood from previous schemes in the jurisdiction of MCC that a relaxed limit of 10 dB above background noise levels is considered reasonable for emergency plant.

4. Baseline Conditions

4.1. Environmental Noise Survey

In support of the planning application for the Proposed Development, a comprehensive baseline noise survey was undertaken at the Site to establish and quantify the existing noise climate at, and within the vicinity of, the Site.

Long-term unmanned environmental noise measurements were undertaken at various measurement positions around the Site between Wednesday 17th and Monday 22nd September 2025. The survey period was considered to be appropriate in capturing typical conditions noise conditions around the Site and surrounding areas. Manned short-term environmental noise measurements were undertaken at ST1 and ST2 on Friday 12th September 2025 and at ST3 on Monday 22nd September 2025.

The measurement positions are shown on Figure 2-1 and described in Table 4-1.

Table 4-1: Description of Noise Measurement Positions

Position	Description	Observations and Predominant Noise Sources
LT1	Free-field position at the northern corner of the Site next to Cornfield Drive.	Daytime noise climate noted to be dominated by intermittent traffic on Cornfield drive and distant traffic from Poundswick Lane. Occasional aircraft movements to and from Manchester Airport were audible, as well as noise from passing pedestrians and natural sounds.
LT2	Free-field position on the southern boundary of the Site next to Poundswick Lane.	Daytime noise climate noted to be dominated by traffic on Poundswick Lane and Simonsway. Occasional aircraft movements to and from Manchester Airport were audible, as well as noise from passing pedestrians and natural sounds.
ST1	Free-field position on the southern boundary of the Site next to Poundswick Lane opposite the Forum Centre Car Park.	Distant road traffic noise from the Simonsway, pedestrians and occasional aircraft movements to and from Manchester Airport were audible.

ST2	Free-field Position at the southwest corner of the Site.	Daytime noise climate noted to be dominated by road traffic noise on Simonsway. Occasional aircraft movements to and from Manchester Airport were audible, as well as noise from passing pedestrians.
ST3	Façade position at the northwest corner of the Site.	Daytime noise climate noted to be dominated by children playing on the school astroturf. Occasional aircraft movements to and from Manchester Airport were audible and distant traffic noise from local roads.

All noise measurements were taken with calibrated precision grade (Class 1) frequency (one-third- octave band) sound level meters to provide a detailed description of the prevailing environmental noise characteristics. The sound level meters were set-up to record over consecutive 15-minute periods the L_{eq} , L_{90} , L_{10} and L_{max} noise indices in the A-weighting network over a 125 ms fast response time constant interval for the duration of the survey. The indices are described in Appendix A, but roughly translated they describe in turn the average, background, road traffic and maximum noise level.

Full details of the instrumentation used for the noise measurements, including calibration certificates are available on request.

Weather conditions, whilst not actively measured during the survey period, were monitored remotely throughout. Weather conditions were ideal for the measurement of noise except for on the 20th September between 6pm-11pm, where high wind speeds (up to 10 ms⁻¹) occurred. Data from these periods was reviewed and still considered suitable for inclusion in the dataset.

4.2. Noise Survey Results

The full results of the long-term noise measurements are displayed graphically in time-history format in Appendix C, whilst a summary of the measured daytime (07:00 to 23:00 hours) and night- time (23:00 to 07:00 hours) noise levels for the survey periods is provided in Table 4-2.

Table 4-2: Summary of Baseline Noise Monitoring Results

Position	Period	Duration	$L_{Aeq,T}$ dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB	$L_{AFmax,30s}$ dB
			Ave ¹	Ave ²	10th %ile ³	10th highest ⁴
LT1	Day	16 hours	55	56	44	76
	Night	8 hours	50	48	39	71
LT2	Day	16 hours	61	63	49	86
	Night	8 hours	56	57	42	71
ST1	Day	15 minutes	67	71	53	83 ⁵
ST2	Day	15 minutes	60	63	56	66 ⁵
ST3 ⁶	Day	1 hour	51	51	44	77 ⁵

Notes: ¹ Logarithmic average over the day/night survey periods; ² Arithmetic average over the day/night survey periods; ³ 10th percentile L_{A90} noise levels considered to represent typical lowest background levels, whilst discounting absolute minima. ⁴ Highest L_{AFmax} value that occurs between 10-15 times in a single night-time period. All figures rounded to nearest whole decibel. ⁵ 95th percentile L_{AFmax} noise level provided to represent typical maximum noise from discrete events, whilst discounting absolute maxima; ⁶ Measured façade noise levels have been reduced by 2 dB in accordance with BS 8233:2014 to correct for reflections from the existing façade and provide free-field results. This is provided for information only.

5. Assessment of Site Suitability

5.1. Noise Model

Owing to the complexity of the interaction between the Proposed Development, existing building structures and existing and future noise sources, a three-dimensional noise model of the Site has been prepared using the acoustic software package CadnaA. The model has been used to predict and help illustrate the levels of noise at the different residential building façades and in the external amenity areas of the Proposed Development. The model was constructed using architectural plans, elevations and section drawings. The results of the model were calibrated by comparing modelled results with monitored noise levels to give confidence in the accuracy of the modelling results.

The model was first calibrated using the existing Site layout and baseline measured noise levels. The likely noise levels on the Proposed Development were then assessed by adding in the proposed buildings.

Modelled noise contour plots showing predicted ambient (L_{Aeq}) daytime (07:00-23:00) and night-time (23:00-07:00) noise levels across the Proposed Development are presented in Appendix D. The different coloured noise contours correspond to different levels of noise exposure, with the highest exposures relating to where the Proposed Development faces south-east towards the nearby roads.

5.2. Environmental Noise Intrusion

The degree of environmental noise intrusion to residential areas depends on the acoustic performance of all elements of the façade, but is generally determined by the components providing the least airborne sound insulation, in this case the glazing.

The glazing performance requirements are dependent on the use type, what percentage of the façade is glazed, the frequency composition of noise incident on the façade and the ventilation strategy.

Preliminary calculations have been undertaken to determine the sound insulation performance requirements of the glazing for the residential façades exposed to the highest noise levels. The calculations adopt the detailed methodology set out in BS 8233:2014 and are based on the following assumptions:

- To ensure favourable resting/sleeping conditions are provided for, assessment has been based on determined $L_{Aeq,16hr}$ daytime and $L_{Aeq,8hr}$ and L_{AFmax} night-time values. The 10th largest L_{AFmax} value (per night) has been used in the night-time assessment in bedrooms to align with the guidance in MCC's Technical Guidance and WHO,1999.

- The internal finishes of the room will affect the reverberant component of the overall noise level, with a degree of soft furnishing (carpet and curtains) assumed in the calculations. All walls and ceilings are assumed to be plastered and painted.
- It has been assumed that the external wall element constructed as a part of the development achieves an acoustic performance of not less than 40 dB R_w+C_{tr} , which can be achieved with masonry constructions or carefully designed lightweight cladding.
- The calculated noise levels are based on a 50% façade glazing area to bedrooms. Should the glazed area vary from this by +/-10% of the façade area then the performance of the proposed glazing units may need to be adjusted accordingly.

The assessment results are presented in Table 5-1 in terms of the Weighted Sound Reduction Index (R_w), a single number quantity used to characterise the airborne sound insulation performance of a system or material over the frequency range 100 to 3150 Hz, with C_{tr} adjustment factor (a negative number) used to take account of the low frequency noise spectrum characteristics from road traffic (R_w+C_{tr}) as incident at the Proposed Development.

Table 5-1: Indicative Facade Sound Insulation Performance of Glazing

Elevation	Period	Façade Noise Levels, dB	Target Criterion, dB	Min Sound Insulation of Glazing, dB R_w+C_{tr}	Example Glazing Configuration (or equal and approved)
All Residential Façades	Day, $L_{Aeq,16hr}$	59	35	30	10/12/4 mm standard thermal double glazing
	Night, $L_{Aeq,8hr}$	54	30		
	Night, L_{AFmax}	69	45		

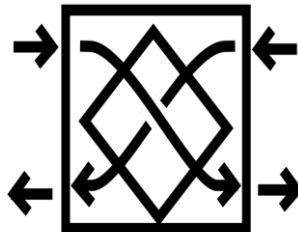
Provided that the glazing system as a whole (including framing, seals, openable lights etc.) meets or exceeds the stipulated performance specified in Table 5-1 then the noise ingress criteria are expected to be met.

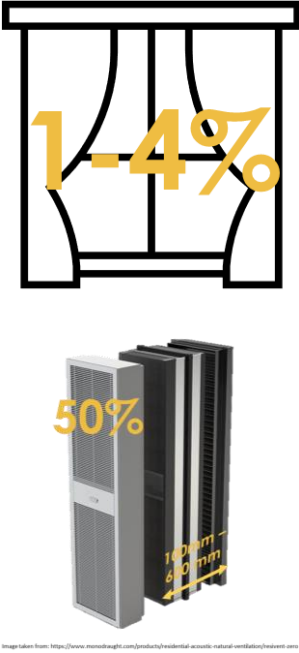
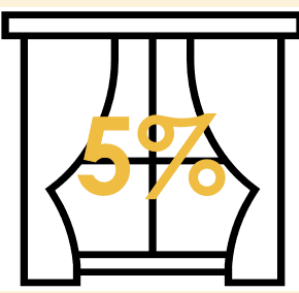
The noise levels predicted on the façades of the development would be appropriate for natural ventilation solutions such as acoustically rated trickle vents, achieving a minimum sound reduction of 32 dB $D_{n,e,w}$ (per bedroom), if desired.

5.2.1. Noise Intrusion During Overheating Controls

To assess the suitability of cooling controls with respect to their potential to control noise ingress, categories have been developed for external façade noise levels at which different overheating control options are likely to be suitable. These thresholds consider the guidance in ADO and AVO, with ADO taking precedence where appropriate. Table 5-2 presents the noise risk categories and associated recommendations. The values are based on the Site being in a 'Medium' risk of overheating location, as per the definitions in ADO.

Table 5-2: Noise Risk Categories - Periods of Overheating

HM Risk Rating	External Noise Levels (dB) ^{1 + 2}	Guidance	
High	>65 $L_{Aeq,16hr}$ Daytime >60 $L_{Aeq,8hr}$ Night-time >75 L_{AFmax} Night-time	Overheating controls will require active systems, such as ambient or comfort cooling. This is because passive ventilators are unlikely to provide sufficient noise reduction whilst allowing enough airflow to control overheating.	 MVHR + Ambient Cooling
Moderate	61 – 65 $L_{Aeq,16hr}$ Daytime 56 – 60 $L_{Aeq,8hr}$ Night-time 71 – 75 L_{AFmax} Night-time	Overheating controls likely to require high-performing acoustic vent panels with circa 25% free area with 300mm to 600mm long internal attenuator. Mechanical system should be considered. Detailed analysis recommended if passive measures are desirable.	 25% 300mm 600mm Image taken from: https://www.monobright.com/products/residential-acoustic-natural-ventilation/resident-200

Low	55 – 60 $L_{Aeq,16hr}$ Daytime 50 – 55 $L_{Aeq,8hr}$ Night-time 65 – 70 L_{AFmax} Night-time	Ventilation panels with circa 50% free area likely to be acceptable, with a 100mm to 600mm long internal attenuator. Detailed analysis recommended if passive measures are desirable. Alternatively, an open window strategy can be used if the window opening area assumed in calculation is limited to be 'slightly open'³.	 1-4% 50% 100mm 600mm Image taken from: https://www.monodraught.com/products/residential-acoustic-natural-ventilation/silvervent-2000
Negligible	<55 $L_{Aeq,16hr}$ Daytime <50 $L_{Aeq,8hr}$ Night-time <65 L_{AFmax} Night-time	No action required, noise levels with openable window strategy expected to be suitable, assuming overheating can be controlled through a window opening of no more than 5% of the floor area.	 5%

Notes: ¹ The assumptions made to give the assumed outside-to-inside level difference are: 2.4m bedroom height; 0.5s bedroom reverberation time; simple hole in the façade of area sufficient to provide the required equivalent area; no sound transmission other than via the opening. ² Where L_{AFmax} noise levels are referenced, these limits shall not be exceeded more than 10-15 times per night. ³ Slightly open is defined as an area of window opening to provide a 10-15 dB outside-to-inside reduction, typically achieved by an equivalent open area of 1-4% of the room's floor area.

5.2.1.1. Overheating Control Findings

The results of the environmental noise modelling have been used to assess the Proposed Development against the categories in Table 5-2. A risk rating markup for each façade is provided in the figure in Appendix E.

All the façades of the development are in the low (yellow) or negligible (green) categories, meaning that slightly open (1-4% of the floor area), or more widely open (5% of the floor area) windows are expected to be appropriate for the control of overheating.

5.3. External Amenity

The Proposed Development provides a mix of external amenity areas including private gardens to townhouses and a ground level communal external amenity space. The predicted ambient noise levels are shown in Appendix D.

Daytime noise levels above the 55 dB L_{Aeq} criteria defined by MCC and BS 8233 are predicted at the southern-most side of the Site, near Simonsway and Poundswick Lane, with levels up to 61 dB L_{Aeq} . Nonetheless, the daytime noise levels in the majority of remaining ground level external amenity areas and the private gardens are below the 50 dB $L_{Aeq,T}$ value for desirable external amenity spaces in BS 8233, as they are shielded from surrounding noise by the Proposed Development building. This will provide a significant area of tranquil private and communal external amenity space for occupants to use.

Daytime noise levels in the gardens of the houses nearest Poundswick Lane are slightly higher than the other gardens, but are still predicted to be below 55 dB L_{Aeq} , and will therefore align with the WHO:2019 and BS 8233:2014 recommendations for the upper limit.

The Proposed Development is consequently considered to offer a good level of external amenity space to occupants, with no specific mitigation measures.

6. Noise Impact Assessment

6.1. Building Services Plant Noise Limits

Any items of fixed plant associated with the operation of the Proposed Development would have the potential to generate noise. At this stage in the design of the Proposed Development, specific details of the type, number and configuration of building services plant have not been fixed and therefore it is not possible to accurately predict plant noise emission levels. Consequently, suitable limits to which plant should adhere have been set.

It should be noted that BS 4142 recognises that its method of assessment is not suitable when background and rating noise levels are both very low. Background noise levels below about 30 dBA and rating levels below about 35 dBA are considered to be very low (as supported by the Association of Noise Consultants (ANC) document 'BS 4142:2014+A1:2019 Technical Note'¹¹). In such circumstances, it is recommended that a minimum plant noise limit of 35 dB $L_{Ar,Tr}$ is set acknowledging that very low noise levels are less likely to cause significant disturbances, and preventing unnecessary and potentially costly noise mitigation measures that would yield negligible benefits.

Based on the results of the baseline noise survey (Section 4) and MCC's plant noise policy (Section 3), suitable noise limits to which fixed building services plant should adhere have been set and are presented in Table 6-1.

Table 6-1: Plant Noise Limits at Nearest Noise Sensitive Premises

Location	Period	10th%ile Background Noise Level (dB $L_{A90,10min}$)	Plant Noise Emission Limit at 1m from Façade (dB $L_{Ar,Tr}$)	Emergency Plant Noise Emission Limit at 1m from Façade (dB $L_{Aeq,T}$)
NSR A, B ¹	Daytime	44	39	49
	Night-time	39	35	
NSR C	Daytime	49	44	52
	Night-time	42	37	
NSR D	Daytime	49	44	54

Notes: ¹ Including sensitive uses of the Proposed Development itself (i.e. residential uses).

¹¹ ANC (2020); 'BS 4142:2014+A1:2019 Technical Note', Association of Noise Consultants, Northallerton.

The plant noise limits apply to the total contribution of noise from all new plant items associated with the Proposed Development that may run during any particular period and are to be met 1 m from the nearest habitable window of the NSRs detailed in Section 2.

For the emission limits in Table 6-1 to be met by the cumulative total level of noise generated by all building services plant, careful attention would need to be paid to plant selection, installation and noise attenuation, which would be addressed prior to installation of plant.

The plant specification is sufficiently flexible to ensure that suitably quiet, non-tonal plant can be procured and/or practical, cost-effective mitigation options incorporated into the design to ensure that guideline noise criteria are met. During the detailed design of the Proposed Development efforts will focus on optimising the layout of plant and procuring the quietest yet most efficient plant for the job before considering applying individual noise control measures (e.g. silencers, louvres), where assessed as necessary.

6.2. Outline Mitigation Recommendations

At this stage in the design of the Proposed Development, specific details of the type, number and configuration of building services plant have not been fixed and therefore it is not possible to accurately predict plant noise emission levels. However this does mean that the building services design is sufficiently flexible to enable a bespoke scheme of noise control measures to be developed during the detailed design stages to achieve the noise limits presented in Section 6.1.

To meet the noise emissions limits in Section 6.1, careful attention should be paid to the selection, location, and design of all building services plant. Some items that should be considered through following design stages are:

- Selection of low noise plant, including consideration of frequency spectrum to avoid tonal components.
- Plant shall generally be specified at the peak operating efficiency. Poorly sized plant is likely to create excessive noise and/or have tonal components.
- Utilisation of screening, using acoustically robust methods can significantly reduce noise at nearby NSRs. Airflow paths which allow efficient operation of the plant by reducing short cycling (in the case of air-source systems) may need to be acoustically treated.
- Positioning of plant to maximise separation distance, or in the case of acoustically screened plant, increase path length differences to maximise screening potential.

The operation of the plant will need to be considered collectively as multiple items of plant at or near the noise emission limits, could summate to an overall exceedance.

7. Conclusions

Noise assessments have been undertaken in respect of internal noise levels within the habitable areas of the proposed dwellings and noise levels in outdoor amenity areas. In addition, maximum noise levels for new items building services have been derived in accordance with MCC's standard requirements.

As part of this assessment, a comprehensive baseline noise survey was undertaken between Wednesday 17th and Monday 22nd September 2025 to establish and quantify the existing noise levels at the Site and its surroundings, which has been used to calibrate a three-dimensional acoustic model.

Based on the results of the environmental noise survey appropriate maximum plant noise emission limits have been set to which new fixed building services plant should adhere.

Through the achievement of the façade performances set out within section 5 of the report, the internal ambient noise criteria from BS 8233:2014 and ProPG can be met, and an appropriate internal acoustic environment achieved for residential accommodation.

The Proposed Development offers good-quality external amenity in terms of noise level, with most areas achieving desirable noise levels and only minor exceedances near site boundaries, requiring no additional mitigation.

Based on assessment findings, it is considered that with good acoustic design practice noise can be satisfactorily controlled to within recommended acoustic design standards and MCC requirements and can be controlled to an acceptable level.

Appendix A – Acoustic Terminology

The table below provides a layperson's explanation of the acoustics terms that commonly appear in reports. It is not intended to give full scientific definitions and explanations or go into detail on how and why things are as they are. Some obsolete terms and abbreviations have been included as they still appear in documents from time to time.

Term	Description
Decibel, dB	The decibel is a logarithmic unit of measurement used for quantifying sound. It is derived from the logarithm to base 10 of the ratio of two quantities. Use of a logarithmic scale has the advantage that it compresses the very wide range of sound pressures to which the ear may typically be exposed to a more manageable range of numbers.
Frequency, Hz	In sound, the number of cycles per second of a pressure fluctuation and frequency in sound is proportional to its pitch. Different frequencies are divided into octave and one third octave bands.
Sound Pressure Level, L_p	This is the unweighted or linear level which is measured prior to any weightings being applied. The sound pressure level is 20 times the logarithm to base 10 of the ratio of the reference sound pressure (2×10^{-5}) and the measured sound pressure.
Sound Power Level, L_w	This is the total sound energy radiated from a given source. The sound power level is 10 times the logarithm to base 10 of the ratio of the reference sound power level (1×10^{-12}) and the measured power.
Frequency Weightings	Weightings can be applied to a spectrum of sound and act as a filter to account for different sensitivities and conditions.
Time Weightings	A time weighting to denote the response of the sound level meter. For most measurements the Fast time weighting is selected (F) however, a slow time weighting (S) is often used to for the measurement train noise and vibration.
A-weighted sound pressure level, L_{pA}	The sound pressure level with the A-weighting applied. The A-weighting is used for most environmental noise measurements and is used to weight a spectrum of sound to match the sensitivity of the human ear.
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	The L_{Aeq} is an energy average and defined as the level of sound which, over a given period of time, would equate to the same A-weighted sound energy as the actual fluctuating sound.
Octave Bands	A band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.
Maximum noise Level, L_{AFmax}	The maximum instantaneous noise level measured during a given period of time. The time weighting to which the meter is set for this measurement parameter is always indicated by either an F or S.
Minimum Noise level, L_{AFmin}	The minimum instantaneous noise level measured during a given period of time. The time weighting to which the meter is set for this measurement parameter is always indicated by either an F or S.
Percentile level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting F, which is exceeded for N% of a specified time interval. An example of this is background noise which is quantified with the L_{A90} descriptor, which is the A-weighted level which is exceeded for 90% of the measurement period.
Sound exposure level L_{AE}	A level of a sound, of 1 s duration, that has the same sound energy as the actual noise event considered.

Term	Description
Rating Level, $L_{Ar,Tr}$	The equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise.
Ambient Noise Level	The noise level in a given environment whilst it is subject to all of its normal sources of noise.
Background Sound / Noise Level, L_{A90}	These are amongst the lowest noise levels measured over a given period of time and exclude short term, intermittent noise sources. The background noise level is quantified by the L_{A90} descriptor and is therefore the level which is exceeded for 90% of a given period of time.
Reverberation Time, T	The time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped. The descriptor T , often includes other nomenclature to describe the type of reverberation time measurement or if the reverberation time is an average taken for specific frequencies. For example a T_{mf} is the mid-frequency reverberation time.
Absorption Coefficient, α	The fraction of reverberant sound energy absorbed by a material. It is expressed as a value between 1.0 which equates to perfect absorption and 0 which equates to zero absorption.
Absorption, A	The acoustic absorption derived from the multiplication of the absorption coefficient by the surface area of a given material.
Acoustic Class, A - E	Classification of sound absorbers into Sound Absorption Classes A-E, according to BS EN ISO 11654, including frequencies 200-5000 Hz
NRC	A single-number rating system used to compare the sound-absorbing characteristics of building materials. A measurement of the acoustical absorption performance of a material, calculated by averaging its Sound Absorption Coefficients at 250, 500, 1000 and 2000 Hz
Sound Reduction Index, R	The laboratory measured sound insulation properties of a material or building element in octave or third octave bands.
Weighted Sound Reduction Index, R_w	A single number which represents the sound reduction of a material. It is derived by plotting the sound reduction index against a set of reference curves. The curves are shifted until a best-fit is established and the curve which best fits the sound reduction spectrum is used to represent the single figure value.
Weighted Level Difference, D_w	The weighted level difference between a pair of rooms, stated as a single figure.
Standardized Weighted Level Difference, $D_{nT,w}$	The standardized, weighted difference in sound level between a pair of rooms, stated as a single figure. The level difference in octave bands is first normalized to a reference reverberation time and then plotted against a set of reference curves to establish a single figure value.
Weighted, Normalised Flanking Level Difference, D_{nFw}	The normalised, weighted difference in sound level between a pair of rooms via a flanking element, such as mullion or ceiling detail. The level difference in octave bands is first normalized to a reference amount of absorption and then plotted against a set of reference curves to establish a single figure value.
Normalised Element Level Difference D_{ne}	The normalised difference in sound level between a pair of rooms via a small element such as a trickle ventilator. The level difference in octave bands is normalized to a reference amount of absorption.
Weighted, Normalised Element Level Difference, D_{new}	The normalised, weighted difference in sound level between a pair of rooms via a small element such as a trickle ventilator, stated as a single figure. The level difference in octave bands is normalized to a reference amount of absorption and then plotted against a set of reference curves to establish a single figure value.
C_{tr}	A correction term applied to the sound insulation single-number values (R_w , D_w , and $D_{nT,w}$). Applying the C_{tr} penalises a construction's performance if its low

Term	Description
	frequency performance is poor in relation its performance at higher frequencies.
Impact Sound	The noise generated by an impact on a structure. This is normally used to describe the noise created by people walking on a floor structure.
Weighted standardized impact sound pressure level, $L_{nT,w}$	A single-number quantity used to characterize the impact sound insulation of floors over a range of frequencies.
Cross-talk	Noise transmission between one room and another room or space via a duct or other path.
Insertion Loss, IL	The reduction of noise level due to the presence of a noise control device such as an attenuator, excluding any regeneration noise created by its presence.
Dynamic Insertion Loss, DIL	The reduction of noise level due to the presence of a noise control device such as an attenuator, including any regeneration noise created by its presence.
NR	The Noise Rating level. This is a single figure value derived by plotting a noise spectrum against a set of curves. The curve under which the spectrum fits is the resulting NR level.
Vibration	The vibratory motion of a surface can be characterised by: (a) displacement (m), (b) velocity (m/s), or (c) acceleration (m/s^2). The magnitude of the vibration can be quantified in several ways: Peak to Peak - The total excursion of the oscillation about the zero datum. Peak - This value gives the maximum excursion of the oscillation above or below the zero datum. r.m.s. - This value gives the root mean square of the time history over a specific time interval (time constant). dB - Vibration levels can be expressed in dB. A reference level of $10^{-6} m/s^2$ r.m.s. is usually used for acceleration.
Ground borne noise	Audible noise caused by the vibration of elements of a structure, for which the vibration propagation path from the source is partially or wholly through the ground
Structure borne noise	Audible noise caused by the vibration of elements of a structure, the source of which is within a building or structure with common elements.
V.D.V,	The VDV is the Vibration Dose a person is expected to be exposed to over the course of the day or night. The VDV is given by the fourth root of the time integral of the fourth power of the acceleration after it has been frequency-weighted.
eVDV	The estimated vibration dose value based on short duration measurements of transients with known durations and occurrences

Appendix B – Planning Policy and Noise Guidance

The various policies and guidelines which have been consulted in this report are summarised below. These have been used for the purposes of establishing the impact of the Site on the existing environment and amenity of residents in the local area.

Control of Pollution Act 1974

The Control of Pollution Act 1974¹² gives local authorities special powers for controlling noise and vibration arising from construction and demolition works. These powers may be exercised either before or after works have been started.

Section 60 enables the local authority of an area in which works are scheduled or currently underway, to serve a notice of its requirements for the control of construction site noise/vibration on the person who appears to the local authority to be undertaking the works.

Section 61 provides a mechanism for the contractor or developer to take the initiative in approaching the local authority to ascertain its noise/vibration requirements before construction work starts.

The Act also covers Noise Abatement Zones, Codes of Practice and Best Practicable Means (BPM) regarding noise pollution.

Environmental Protection Act 1990, Part III

Section 79 of the Environmental Protection Act 1990¹³ defines statutory nuisances and the requirement for local authorities to inspect their area for statutory nuisances, taking such steps as are reasonably practicable to investigate any complaint of a statutory nuisance.

Section 80 of the act gives local authorities the right, where a statutory nuisance exists or is likely to be caused, to serve an abatement notice requiring the abatement, prohibition or restriction of the nuisance.

Section 82 of the act allows a person aggrieved by a statutory nuisance to make a complaint to a Magistrates Court in an attempt to seek an abatement notice served on the person responsible for the nuisance.

Planning Policy

Planning policy at the national, regional, county and local level relevant to the Proposed Development is discussed below.

National Policy

National Planning Policy Framework

The National Planning Policy Framework (NPPF) seeks to contribute to and enhance the natural and local environment, including preventing new and existing developments from

¹² Her Majesty's Stationery Office (1974); 'Control of Pollution Act 1974', HMSO, London.

¹³ DEFRA (1990); 'Environmental Protection Act Part III', DEFRA, 1990.

contributing to, and/or, being put at an unacceptable risk from noise pollution. In support of this, paragraph 191 of the NPPF states 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:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason”.*

Noise Policy Statement for England, March

The Noise Policy Statement for England (NPSE) was published in March 2010 by the Department for Environment, Food and Rural Affairs (DEFRA) and forms the overarching statement of noise policy for England. It sets out the long-term vision of Government noise policy, which is to:

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

The policy aims, through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development, to:

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

The NPSE sets out three terms with regard to noise effects:

- No Observed Effect Level (NOEL) – the level below which no effect can be detected and below which no detectable effect on health and quality of life due to noise can be established;
- Lowest Observed Adverse Effect Level (LOAEL) – the level above which adverse effects on health and quality of life can be detected; and
- Significant Observed Adverse Effect Level (SOAEL) – the level above which significant adverse effects on health and quality of life occur.

The above terms are not defined numerically in terms of absolute levels within the NPSE which acknowledges that these will change depending on, but not limited to, the noise source, the receiver type and the time of day/day of week.

Local Policy

Planning Consultation Guidance Note

MCC provide the Planning Consultation Guidance Note – Noise and Vibration document, which provides guidance to MCC environmental control and protection officers on what to consider when reviewing planning applications and making recommendations related to noise and vibration. This includes specific criteria relevant to the Proposed Development, which is referenced in this Report.

Guidance

Where detailed guidance is not contained in the documents described above, the most appropriate Standards and guidance have been adopted in the prediction and assessment of noise and vibration impacts.

The following documents are appropriate to the measurement of baseline noise levels and assessing noise of an industrial nature emanating from existing, new or proposed commercial premises:

- BS 7445-1:2003 ‘Description and Measurement of Environmental Noise’¹⁴, defines parameters, procedures and instrumentation required for noise measurement and analysis.
- British Standard 4142:2014 ‘Methods for Rating and Assessing Industrial and Commercial Sound’ describes methods for rating and assessing sound of an industrial and/or commercial nature for the purposes of: (a) investigating complaints, (b) assessing sound from proposed, new, modified or additional sources of sound of an industrial/commercial nature, and, (c) assessing sound at proposed new residential premises, with a view to determining the likelihood and degree of adverse impact, having regard to the context in which the sound occurs.

The following documents are appropriate when assessing noise affecting proposed new and existing development:

- National Planning Practice Guidance (NPPG) was released in March 2014 by the Department for Communities and Local Government (DCLG) and is a web-based resource to support the NPPF. NPPG ‘Noise’ outlines qualitatively when noise could be a concern, stating: *“Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment...”*.

¹⁴ British Standards Institution (2003); ‘BS 7445-1:2003 Description and Measurement of Environmental Noise’, BSI Standards Limited, London.

Advice is provided concerning noise exposure and its effects and puts into context the advice stated within the NPSE. Table B.1 presents the qualitative guidance concerning the Noise Exposure Hierarchy, based on the likely average response, as set out in NPPG and with reference to the NPSE.

Table B.1: Noise Exposure Hierarchy Based on the Likely Average Response

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level (LOAEL)	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television, speaking more loudly; where there is no alternative, 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 perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during noticeable 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; disruptive/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 (SOAEL)	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically	Unacceptable Adverse Effect	Prevent

Perception	Examples of Outcomes	Increasing Effect Level	Action
	definable harm, e.g. auditory and non-auditory.		

- The Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Noise Assessment' 2014¹⁵ addresses the key principles of assessing noise effects and are applicable to all development proposals where noise effects may occur.
- The guidance provides advice with regards to the collection of baseline noise data, prediction of noise levels and how noise should be assessed. The guidance recognises that the effect associated with a particular noise source will be dependent on a number of factors including, but not limited to, the sensitivity of the receptor, frequency and duration of the noise source and time of day. However, it stops short of providing specific assessment criteria which developments should achieve but instead suggests that the methodology adopted should be selected on a site by site basis with reference to relevant national and local standards.
- World Health Organisation (1999) 'Guidelines for Community Noise' provides guidance on desirable levels of noise structured according to specific environments to ensure the critical effects of noise on sleep, annoyance and speech interference are guarded against. One of the tenets of the WHO guidelines is the protection of the most vulnerable and sensitive of the population, with the WHO guideline values for environmental noise set at the level of the lowest adverse health effect below which the occurrence rates of particular 'effects' can be assumed to be negligible.
- The WHO recommends specific internal noise levels that will provide an acoustic environment that is conducive to uninterrupted speech and sleep, whilst daytime external noise limits aim to prevent the majority of the population being moderately or seriously annoyed by noise. Table B.2 presents a summary of the WHO guideline values.

Table B.2: Summary of WHO Recommended Environmental Noise Levels

Environment	Critical Health Effects	dB LAeq	Time Base (hours)	dB LAfmax
Outdoor living area	Serious annoyance (daytime and evening)	55	16	n/a
	Moderate annoyance (daytime and evening)	50	16	n/a

¹⁵ Institute of Environmental Management & Assessment (2014); 'Guidelines for Environmental Noise Impact Assessment', IEMA.

Environment	Critical Health Effects	dB LAeq	Time Base (hours)	dB LAfmax
Dwelling, indoors	Speech intelligibility and moderate annoyance (daytime and evening)	35	16	n/a
Inside bedrooms	Sleep disturbance, night-time	30	8	45 ¹
Outside bedrooms	Sleep disturbance, window open	45	8	60

Notes: ¹ For a reasonable standard in bedrooms at night, the WHO,1999 guidelines recommend that individual noise events (measured with F time-weighting) should not normally exceed 45 dB LAfmax. The WHO guidelines refer to research that identifies that 10-15 occurrences per night of the limiting maximum noise level may be considered acceptable.

- British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' builds on the WHO guidelines, providing guidance for the control of noise in and around both new and refurbished buildings. The guidelines recommend internal ambient noise criteria for a range of indoor spaces including residential land uses. The indoor ambient noise levels for unoccupied spaces relevant to this assessment are presented in Table B.3.

Table B.3: BS 8233 Guideline Noise Levels for Residential Spaces

Activity	Location	Daytime dB LAeq,16hr (07:00 to 23:00)	Night-time dB LAeq,8hr (23:00 to 07:00)
Resting	Living room	35	n/a
Dining	Dining room	40	n/a
Sleeping (daytime resting)	Bedroom	35	30

Unlike the previous version, BS 8233:2014 does not provide recommendations in relation to maximum noise levels in residential bedrooms at night from individual noise events such as vehicle or aircraft movements. Instead, it advises:

“Regular individual noise events...can cause sleep disturbance. A guideline value may be set in terms of SEL (Sound Exposure Level) or LAmax,F depending on the character and number of events per night. Sporadic noise events could require separate values.”

When considering external amenity spaces such as gardens, balconies and terraces, the guidance provided in BS 8233 states:

“For traditional external areas that are used for amenity space, such as gardens or patios it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments. However, it is also recognised 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.”

It goes on to state:

“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.”

- ProPG: Planning & Noise – New Residential Development, May 2017 provides guidance on a recommended approach to the management of noise within the planning system in England. The aim of ProPG is to ensure good acoustic design forms part of a holistic design process that creates places that are both comfortable and attractive to live in, where acoustics is considered integral to the living environment.
- The Acoustics, Ventilation and Overheating guide (AVO) aims to help better co-ordinate the design of acoustics and ventilation within residential development. It is a common occurrence that modern buildings overheat, due to a focus on thermal efficiency in the past decade. During mitigation against overheating, people may be subjected to high noise levels for long periods of time, for example from noise ingress via opened windows or other façade openings. The guide provides a method of assessing risk of adverse noise impact during periods of overheating, when cooling measures are relied upon. The document does not provide design solutions that could be adopted to mitigate noise impact where required.
- Building Regulations Approved Document O gives requirements for mitigating overheating in residential buildings. It also requires consideration of the impact of controlling overheating in terms of night-time noise ingress and gives limits to achieve during periods of overheating control.

Appendix C – Baseline Noise Levels

Figure C.1: Noise Level Time History at Position LT1

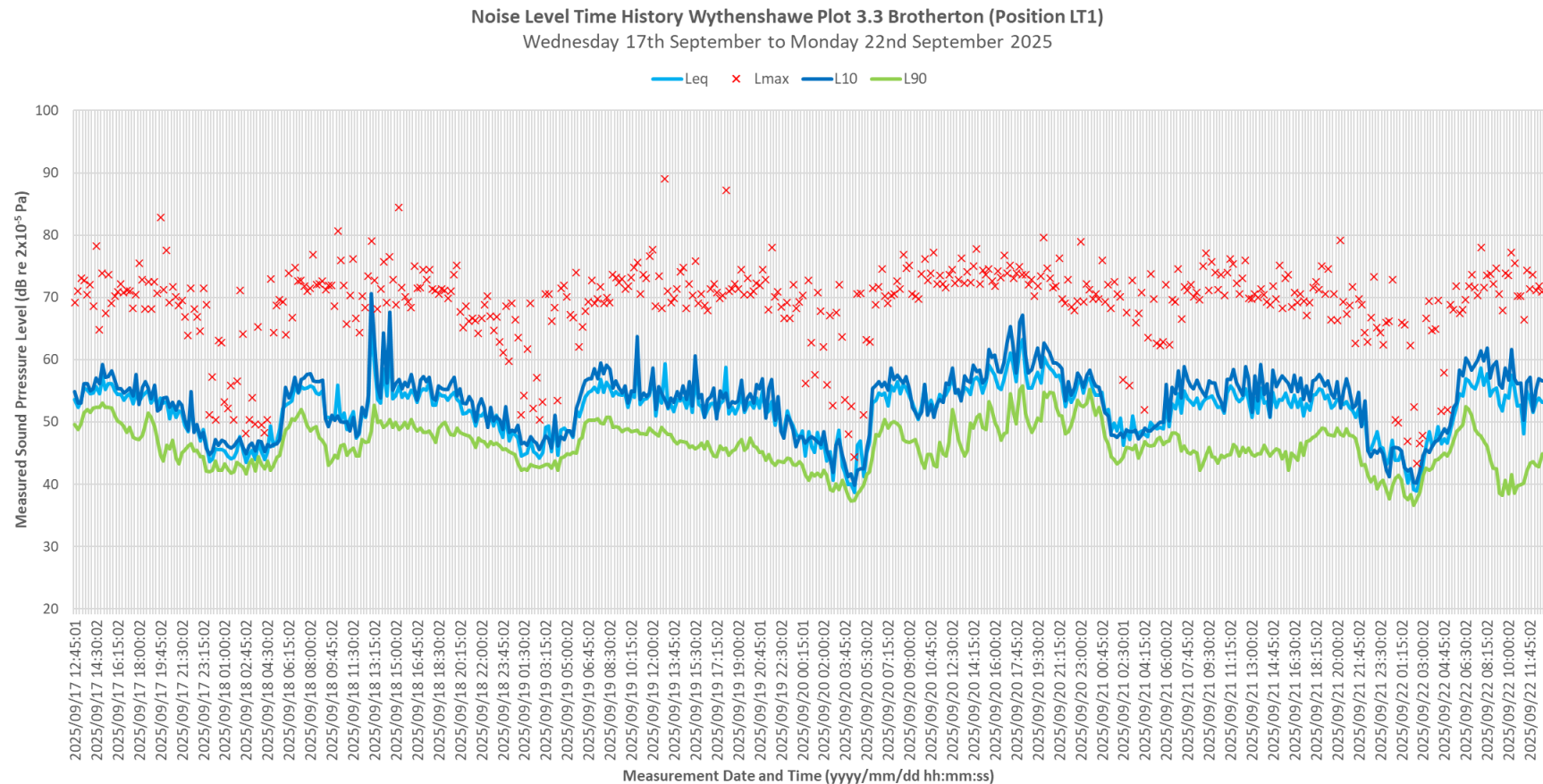
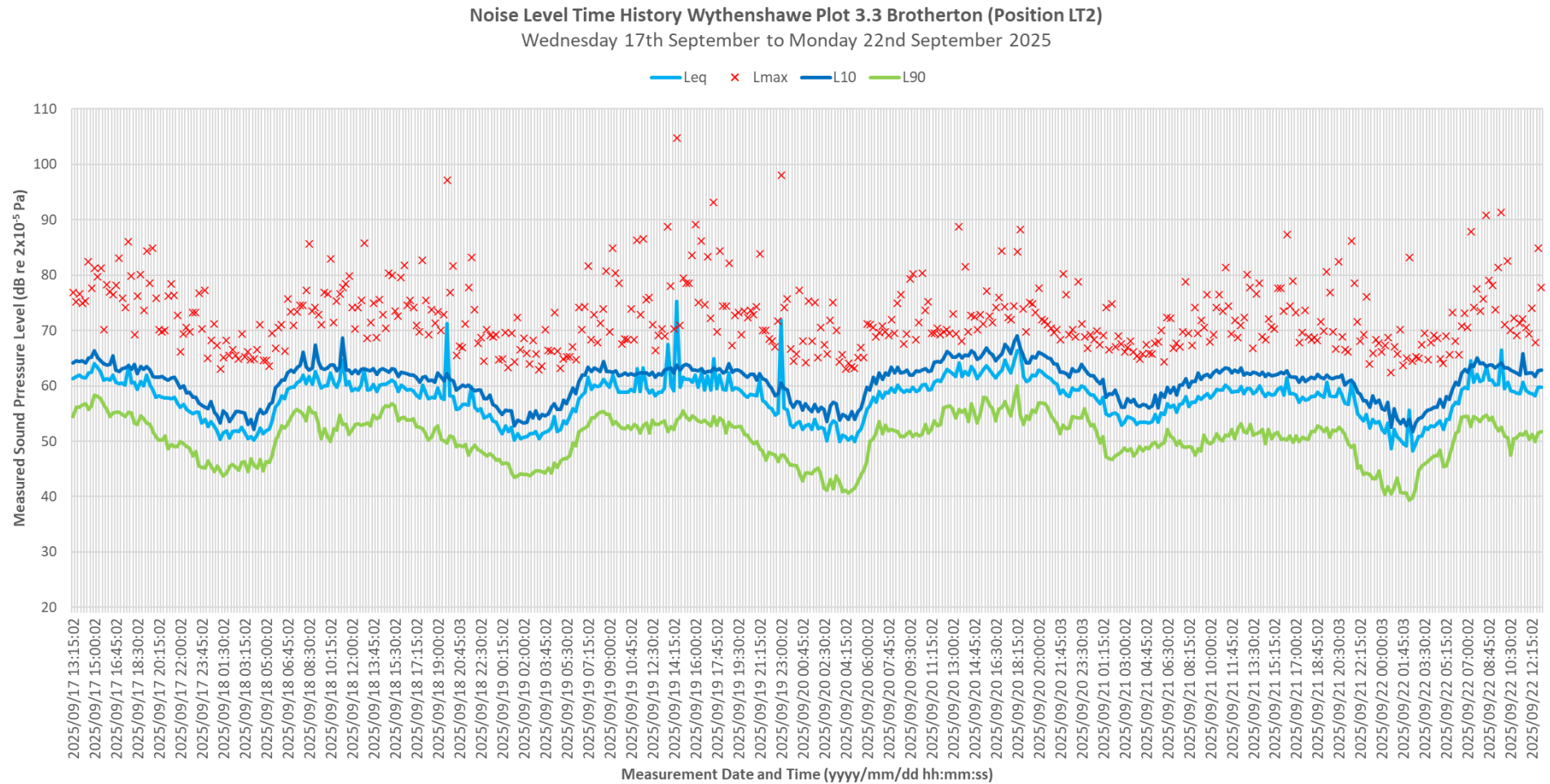
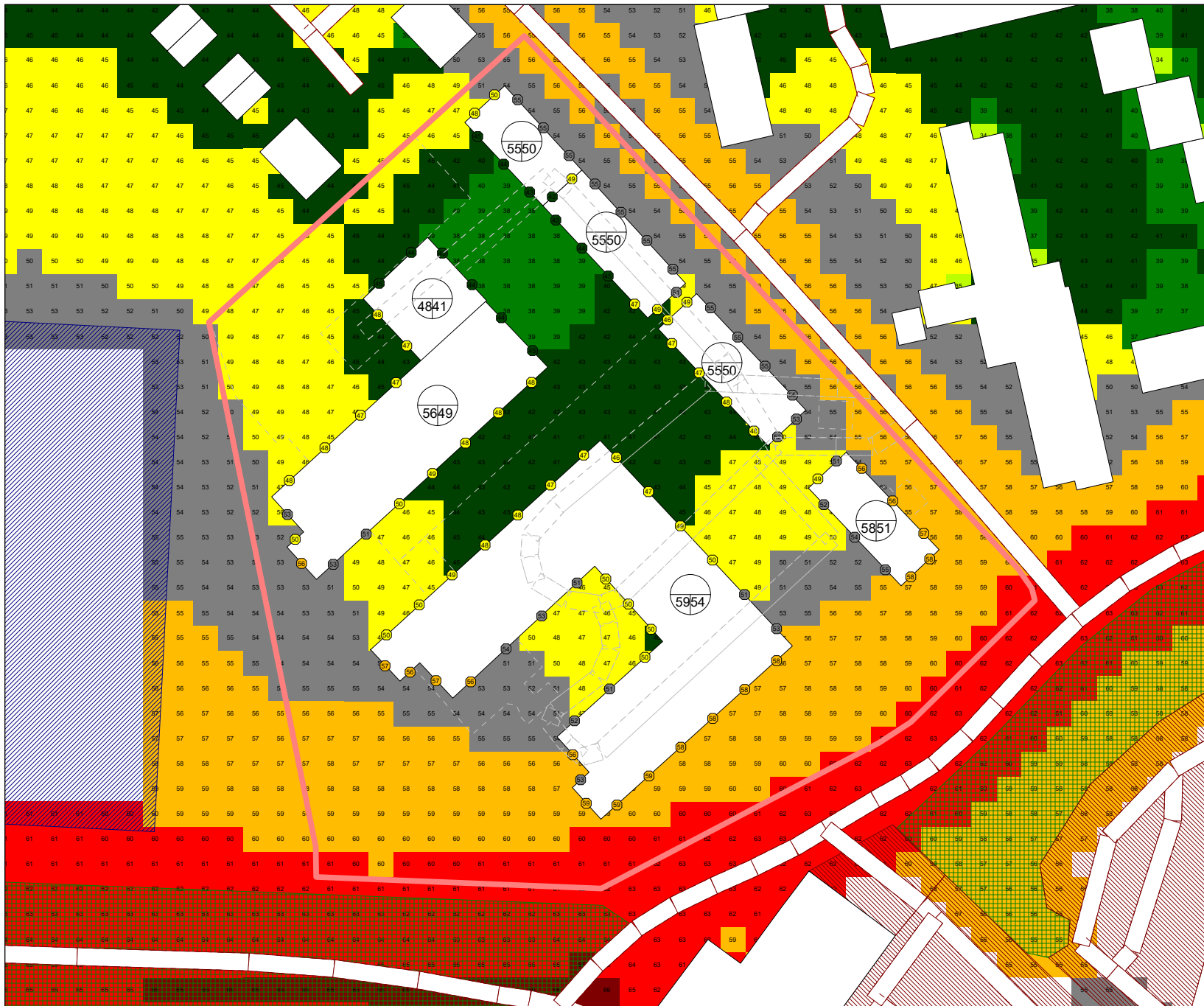


Figure C.1: Noise Level Time History at Position LT2



Appendix D – Modelled Noise Levels



**Wythenshawe
Brotherton House**

37880

**Modelled Noise Contours
and Facade Noise Levels -
Daytime**

Version	Date	Name
01	20/10/2025	MB

H M

L_{Aeq} in dB
Facade Noise Levels at Maximum

 Approximate Site Boundary

-  > -99.0 dB
-  > 35.0 dB
-  > 40.0 dB
-  > 45.0 dB
-  > 50.0 dB
-  > 55.0 dB
-  > 60.0 dB
-  > 65.0 dB
-  > 70.0 dB
-  > 75.0 dB
-  > 80.0 dB
-  > 85.0 dB



**Wythenshawe
Brotherton House**

37880

**Modelled Noise Contours
and Facade Noise Levels -
Night-time**

Version	Date	Name
01	20/10/2025	MB

H M

L_{Aeq} in dB
Facade Noise Levels at Maximum

 Approximate Site Boundary

-  > 39.0 dB
-  > 40.0 dB
-  > 45.0 dB
-  > 50.0 dB
-  > 55.0 dB
-  > 60.0 dB
-  > 65.0 dB
-  > 70.0 dB
-  > 75.0 dB
-  > 80.0 dB
-  > 85.0 dB

Appendix E – Overheating Control Façade Categories



Do not scale from this drawing.
Verify dimensions by site measurement.
Read this drawing in conjunction with the latest architectural and structural drawings.

This drawing is based on the following information:-

Symbol	Overheating Risk Rating
	High
	Moderate
	Low
	Negligible

Rev	Date	Description	Checked	Approved
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Client
Muse Places and Wythenshawe
Community Housing Group Limited

Project
Wythenshawe
Brotherton House

Drawing Title
Acoustics
Overheating Noise Categories

Scale	Sheet Size	Designed	Checked
NTS	A1	MB	JKR
Project Status	Suitability	HM Project No.	
FOR INFORMATION	S0	37880	
Drawing No.			Rev



People. Places. Planet.