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Acoustic Survey and Assessment for Proposed residential development on land between St Marks Lane and Robin Hood Street, Cheetham Hill, Manchester, M8 9JG.

Prepared for

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1. Introduction

1.1. Martin Environmental Solutions has been commissioned to undertake an acoustic survey and assessment to support planning applications for residential apartments on land between St Marks Lane and Robin Hood Street, Cheetham Manchester M8 9GH, planning application 136783/FO/2023.

Site Location and Context

1.2. The site is located to the west of the busy A665 road with a row of commercial shops between the site and the road. To the north is St Marks Road and more commercial units. To the east a disused former church ground and to the south Robin Hood Street, with waste ground beyond.

1.3. An aerial Photograph is enclosed in Figure 1, together with a proposed layout drawing in Figure 2.

1.4. The report has been produced to clarify the potential impact on the proposed development and to identify mitigation measures if required to ensure the development is appropriate in terms of noise impact. It is the close proximity to the road and the surrounding commercial units that has raised concerns over sound levels and the request for this report.

2. Policy and Guidance

2.1. The impact of noise can be a material consideration in the determination of planning applications. The planning system has the task of guiding development to the most appropriate locations. It is recognised that on occasions it will be difficult to reconcile some land uses, such as housing, hospitals, or schools, with other activities that generate high levels of noise. However, the planning system is tasked to ensure that, wherever practicable, noise-sensitive developments are separated from major sources of noise (such as road, rail and air transport and certain types of industrial development).

2.2. The Government's publication of the National Planning Policy Framework (NPPF), updated in December 2024, states that planning policies and decisions should prevent new and existing development from contributing to or being put at unacceptable risk from, of being adversely affected by unacceptable levels of noise pollution.

2.3. The Government have also issued the Noise Policy Statement for England (NPSE). The NPSE clarifies the Government's underlying principles and aims in relation to noise and sets a vision to promote good health and a good quality of life through the effective management of noise while having regard to the Government's sustainable development strategy. The NPSE aims to mitigate and minimise adverse impacts on health and quality of life through the effective management and control of noise.

2.4. The NPSE introduces the following terms, although no sound levels are given to represent these, many authorities have identified the sound level criteria in line with the World Health Organisation, BS8233:2014 and BS4142: 2014 levels. The terms introduced by the NPSE are:

NOEL – No Observed Effect Level (<30dB(A)inside <50dB(A) outside, 10dB below background)
LOAEL – Lowest Observed Adverse Effect Level (30-35dB(A) inside 50-55dB(A) outside, background to +5dB)
SOAEL – Significant Observed Adverse Effect Level (>35dB(A) inside, >55dB(A) outside, >+10dB above background)

2.5. The sound levels within the brackets of the previous paragraph are those determined as appropriate levels to indicate the relevant effect levels represented by the NPSE.

2.6. Other commonly used examples of standards utilised by Local Planning authorities for the consideration of noise impacts include comparison of the likely noise levels to be experienced at a development, with levels that have been recommended by the World Health Organisation (WHO) as Guidelines for the prevention of Community Noise Annoyance and within BS8233: 2014.

2.7. The WHO recommended noise levels for outdoor amenity areas (gardens) that should not be exceeded are 55dB(A) $L_{Aeq,16hr}$ in order to avoid 'Serious Community Annoyance or 50dB(A) $L_{Aeq,16hr}$ to avoid 'Moderate Community Annoyance' during the day. For indoor levels WHO set 35dB(A) $L_{Aeq,16hr}$ during the day to prevent Moderate Annoyance and 30 dB(A) $L_{Aeq,8hr}$ at night to prevent sleep disturbance.

2.8. The WHO guidance also recommends that maximum sound levels at night should not regularly exceed 45dB(A) within bedrooms to prevent sleep disturbance. Regularly is considered to be more than 10 times during any 8-hour night-time period.

2.9. BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' also specifies desirable noise levels to be achieved inside dwellings.

2.10. BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of Practice' also specifies desirable noise levels to be achieved inside dwellings. BS 8233 presents two levels, the first between the hours of 07:00 – 23:00 and the second between 23:00 -07:00.

2.11. The daytime period suggests internal noise levels of 35dB $L_{Aeq,16hr}$, for resting in living rooms and bedrooms while for night-time a level of 30dB LAeq,8hr is recommended. Criteria for external areas mirrors that within the WHO guidance.

2.12. Another commonly used standard is British Standard 4142:2014 'Method for rating industrial and commercial sound' compares the sound predicted by the source in question against the background, L_{A90} sound levels.

2.13. The "residual" L_{Aeq} measurement is then subtracted from the "ambient" L_{Aeq} measurement (with the sound source) to calculate the sound level created by the "problem" sound alone -termed the "specific" sound level.

2.14. If the "problem" sound is tonal, such as whine or hum, or if it is impulsive such as bangs or clatters or if it is irregular enough to attract attention a correction is added to the "specific level" to produce the "rating level". The "background" L_{A90} measurement is then compared against the "rating level".

2.15. If the "rating level" exceeds the "background" by around 10dB(A) or more this "indicates a significant adverse impact". A difference of around 5dB(A) 'indicates an adverse impact. The lower the commercial noise level is, the lower the likely impact.

2.16. In addition, the 'ProPG Planning & Noise, Professional Practice Guidance on Planning & Noise, New Residential Development' provides a 4-staged approach to undertaking a risk assessment in relation to anticipated sound levels at new residential development and the provision of mitigation measures. The guidance is principally aimed at sites exposed predominantly to noise from transportation sources.

2.17. The first stage consists of an initial noise risk assessment, based on indicative day and night-time *noise* levels. Simply put, the higher the ambient noise in an area the greater the impact. The levels given are shown below although it should be noted that these are in excess of both the WHO and BS 8233: 2014 guidance.

Noise Risk Category*	Potential Effect if Unmitigated	Pre-Planning Application Guidance
0 – Negligible $L_{Aeq,16hr}$ **<50dB** $L_{Aeq,8hr}$ **<40dB**	May be noticeable but no adverse effect on health and quality of life	In this category the development is likely to be acceptable from a noise perspective, nevertheless a good acoustic design process is encouraged to improve the existing environment and/or safeguard against possible future deterioration and to protect any designated tranquil areas. A noise assessment may be requested to demonstrate no adverse impact from noise. Application need not normally be delayed on noise grounds.
1 – Low $L_{Aeq,16hr}$ **50-63dB** $L_{Aeq,8hr}$ **40-55dB**	Adverse effect on health and quality of life	In this category the development may be refused unless a good acoustic design process is followed and is demonstrated via a Level 1 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised and that a significant adverse impact will not arise in the finished development. Planning conditions and other measures to control noise may be required.
2 – Medium $L_{Aeq,16hr}$ **63-69dB** $L_{Aeq,8hr}$ **55-60dB** L_{AFmax} **>80dB****	Significant adverse effect on health and quality of life	In this category the development is likely to be refused unless good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised, and clearly demonstrates that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise will normally be required.
3 – High $L_{Aeq,16hr}$ **>69dB** $L_{Aeq,8hr}$ **>60dB** L_{AFmax} **>80dB****	Unacceptable adverse effect of health and quality of life	In this category the development is very likely to be refused on noise grounds, even if a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement. Applicants are advised to seek expert advice on possible mitigation measures. Advice on the circumstances when the refusal of a new housing on noise grounds should normally be anticipated is included in the ProPG.

2.18. Stage 2, consists of a full assessment of the prevailing ambient noise and requires 4 elements to be considered:

I. Element 1 – Good Acoustic Design
II. Element 2 – Internal Noise Level Guidelines
III. Element 3 – External Amenity Area Noise Assessment
IV. Element 4 – Assessment of Other Relevant Issues

2.19. A good acoustic design is implicit in meeting the requirements of the NPPF and can help to resolve many potential acoustic issues.

2.20. Details of the criteria considered suitable are provided above for both internal and external sound levels. Element 4 includes such issues as local and national policy, likely occupants, wider planning objectives.

3. The Assessment

The development

3.1 The proposed development consists of the erection of a block of nine apartments with associated parking on the development site. Commercial/retail units existing to the north, east and south of the site, with a discussed church yard to the west and residential properties beyond and to the northwest.

3.2 Figure 2 below provides an overview of the proposed development.

Existing Situation

3.3 On-site monitoring was undertaken in order to obtain representative background sound levels for the area.

3.4 A Cirrus Optimus Green sound level meter was utilised for the monitoring. The meter was field calibrated at the start and end of the monitoring period with no significant variation and full laboratory calibration certificates are available on request.

3.5 The weather during the monitoring was dry with little to no wind <5m/s.

3.6 Ideally monitoring would be undertaken for an extended period of time of at least 24hours to obtain representative sound levels over the periods 07:00 to 23:00 hours for daytime and/or 23:00 to 07:00 hours for night-time, and the overall figures then compared with the relevant guidance documents.

3.7 However, site in question risks the security of the monitoring equipment if left unattended as such shorter attended monitoring periods were undertaken.

3.8 For road traffic, it has been found by experience that a suitable representative sound level can be obtained by an alternative method of daytime averaging, as detailed in the '*Department for Transport- Welsh Office; Estimating Road Traffic Noise 1988'*. This method involves measuring the L_{A10} of the traffic noise between 10:00 and 17:00 hours in three separate 1-hour periods. From this data, an estimate can be made of both the 18-hour L_{A10} and then the 16-hour L_{Aeq}. This method is very useful in combating variable weather conditions since consistent conditions for 16-hours are fairly rare in the UK.

The formula are: $L_{A10(18hr)} = \sum 3x\ L_{A10(1hr)}/3 - 1dB$

$PPG24\ L_{Aeq(16hr)} = L_{A10(18hr)} - 2dB$

3.3 For night-time sound levels, the Transport Research Laboratory provides a method for converting the LA10,$_{18hr}$ level to the L_{night} level using the following formula.

$$L_{night} = 0.90 \times L_{A10(18hr)} - 3.77dB$$

3.4 Monitoring was undertaken on the 25th June 2025, however due to data temporary data loss a further period of monitoring was undertaken on the 28th July 2025. In addition, Martin Environmental Solutions have previously undertaken monitoring at the site in July 2018.

3.5 The monitoring location was along the rear of the site on Robin Hood Street itself at a height of ~1.3m and away from reflective surfaces. Unlike the site this position has a clear view of the main road to the east and was influenced by vehicles using Robin Hood Street. This would result in a slightly elevated sound level being recorded.

3.6 In each case the monitoring was undertaken between 10:00 – 13:00. In addition, further monitoring was undertaken in the late evening /early night-time period on each day. To obtain representative sound levels for the area and in particular the commercial extraction equipment at one of the units along the main road.

3.7 The full results are provided within Appendix A, and the above calculation has been used to determine the representative day ($L_{Aeq,16hr}$) and night-time ($L_{Aeq,8hr}$) sound levels. The table below provides the results for each session.

Date	Daytime $L_{Aeq,16hr}$	Night-time $L_{Aeq,8hr}$
18/07/2018	48.1dB	41.3dB
25/06/2025	52.9dB	45.6dB
28/07/2025	50.4dB	43.4dB

3.8 Maximum sound levels identified during the night-time monitoring period were due to vehicle movements and people talking next to the microphone position. The maximum sound level not regularly exceeded was identified as 66.8dB(A) in July 2018, 67.5dB(A) in June 2025 and 67.9dB(A) in July 2025.

3.9 Given a 15dB attenuation[1] for an open window the sound levels to be experienced by the future occupants are slightly above those identified within the guidance documents detailed in section 2 of the report for the night-time maximum sound levels. Therefore, further mitigation measures are required.

3.10 A standard 6/12/6 double glazing unit will, when closed, provide a sound reduction, $R_w(C;C_{tr})$, of 33(-2;-5). Thus, for this project a reduction of 30dB when closed. Therefore, adequate to protect the future occupants of the accommodation from the prevailing environmental sound levels.

3.11 In order to be able to keep windows closed additional ventilation provision must be made for the property. As such it is recommended that a ventilation system is used incorporating acoustic trickle ventilators for all windows to habitable rooms to the proposed properties. The ventilators must achieve a similar of better performance to the windows when open and a number of suitable models are available from suppliers including the Greenwood DN Vent providing 34dB (C_{tr}) attenuation or the Titon, Trimvent Select S13 Ventilator providing 33dB (C_{tr}) attenuation. Other models and manufacturers area available.

3.14 Care must be taken to ensure that windows are well fitted and gaps between the window frame and the brick work are minimised. Where gaps do occur, these should be filled with a suitable acoustic material, not expandable foam. The window frame should be sealed across the full depth of the frame and not just around the edges. This will ensure that sound does not 'leak' around the edge of the frame.

3.15 It is worth noting that the above provision does not prohibit the short opening of windows for purge ventilation of the property. The recommended trickle ventilation is design to achieve the required background ventilation for the property.

3.16 A consideration of the Building Regulations, and Approved Document O requirements around overheating is essential given the need for closed windows. The Regulations require adequate provision to be made for the removal of heat from the building and to limit solar gain.

[1] BS8233: 2014; Guidance on sound insulation and noise reduction for buildings

3.17 For the external area BS8233:2014 and the World Health Organisation recommend a lower level of 50dB $L_{Aeq,16hr,}$ with an upper level of 55dB $L_{Aeq,16hr}$. This is already being achieved and further mitigation measures are not required.

3.18 While the amenity area will be protected from the prevailing traffic sound by the surrounding buildings and boundary fence lowering this level further. No additional measures are therefore required to protect the garden amenity areas.

Impact from Nearby Extraction System

3.19 Night-time monit0rnin has been undertaken during each monitoring period to identify the sound level from the nearby extraction systems on the site. In each case the extraction system has been identified at 48dB(A), with average background sound levels being higher due to passing traffic.

3.20 The extraction system was operating continuously, with no tonal components detected from the monitoring. The system is however distinctive.

3.21 Given the nature of the extraction system, it is appropriate to undertake a BS4142:2014+A1:2019 assessment of the sound emissions. This is detailed below

	Day	Night (23:15)	
Measured Ambient sound level	51.4	51.8	Lowest representative figure obtained in 2025
Residual Sound level	L_{Aeq} = 51.4-48.0=48.7dB	L_{Aeq} = 51.3-48.0=49.5dB	Taken from Night-time sound level on site with extraction off.
Background Sound Level	L_{A90} = 43.9dB	L_{A90} = 48.3dB	Lowest representative background from monitoring
Reference period	60mins	15mins	Normal ref period,
Specific sound Level	L_{Aeq} = 48.0dB	L_{Aeq} = 48.0dB	From 2025 monitoring data, when other

			noises are suppressed
Acoustic feature	+3dB	+3dB	Distinctive
Rating level	(48+3) = 51dB	(48+3) = 51dB	
Background sound level	L_{A90} = 43.9dB	L_{A90} = 48.3dB	Lowest measured
Excess of Rating level over background level	(51-43.9) dB = **+7.1dB** indicates an adverse impact	(51.0-48.3) dB = **+2.7dB** indicates adverse impact	
Uncertainty	Extraction system calculated from lowest monitoring point with other sound sources suppressed, and maybe quieter. Lowest background figures used for representative periods, averages are higher.		

3.22 This assessment indicates that an adverse impact will be experienced by the extraction systems. However, this represents the external sound level without any mitigating. The proposed mitigation measures for the general road traffic sound will protect the internal environment from the extraction noise, reducing it to ~ 18dB(A) internal, and will only affect the apartments to the southeast corner of the development, the façade facing the extraction system is also blank with the exception of windows into communal stairwells the occupiers will not experience any adverse impact once the mitigation measures are taken into consideration.

4 Conclusions

4.1 On-site monitoring over a number of days has been undertaken to identify the current prevailing background sound levels during the day and night-time periods. This has identified that the background is dominated by traffic along the nearby A665, Cheetham Road. The monitoring has also identified that during the evening and just into the normally recognised night-time period the extraction system at the nearby takeaway can be clearly identified.

4.2 The results of the monitoring indicating that the current sound levels will result in a slight adverse impact on the development as such additional mitigation measures are required.

4.3 The proposed development has been designed to minimise the impact of this noise sources with a blank façade being built against the commercial units and the extraction system.

4.4 Combined with the use of standard double-glazing 6/12/6 units the development will ensure that internal and external sound levels are acceptable and will result in a No Observe Effect on the future residents in line with the Noise Policy Statement for England.

4.5 As such the development will meet the objectives of the National Planning Policy Framework in ensuring that no significant adverse impact is experienced by the future residents. The development is therefore considered to be acceptable in terms of noise.

Figure 1 – Aerial Photograph



Appendix A – Monitoring Results & Calculations

June 2025

Time	Duration	L_{Aeq} (dB)	L_{AMax} (dB)	L_{A10} (dB)	L_{A90} (dB)
25/06/2025 10:00	01:00:00	52.5	78.0	54.9	44.9
25/06/2025 11:00	01:00:00	52.8	77.5	54.8	45.9
25/06/2025 12:00	01:00:00	55.6	81.8	57.9	47.6

Day

$L_{A10(18hr)} = \sum 3x\ L_{A10(1hr)}/3 - 1dB$

PPG24 $L_{Aeq(16hr)} = L_{A10(18hr)} - 2dB$

$$L_{A10(18hr)} = \sum 3 * \frac{L_{A10,1hr}}{3} - 1$$

$$L_{A10(18hr)} = 55.9 - 1$$

$$L_{A10(18hr)} = 54.9$$

$$L_{Aeq(16hr)} = L_{A10(18hr)} - 2$$

$$L_{Aeq(16hr)} = 54.9 - 2$$

$$L_{Aeq(16hr)} = 52.9dB$$

Night

$L_{night} = 0.90\ x\ L_{A10(18hr)} - 3.77dB$

$L_{Aeq,8hr)} = 0.9x\ 54.9 - 3.77dB$

$L_{Aeq,8hr)} = 45.6dB$

Start Time	Duration	L_{Aeq}	L_{AMax}	L_{A90}
25/06/2025 22:11	00:03:26	52.4	69.0	50.6
25/06/2025 22:15	00:15:00	53.5	69.8	51.0
25/06/2025 22:30	00:15:00	51.9	65.0	50.3
25/06/2025 22:45	00:15:00	52.0	61.3	50.5
25/06/2025 23:00	00:15:00	53.5	70.9	50.7
25/06/2025 23:15	00:15:00	54.0	70.0	51.1
25/06/2025 23:30	00:15:00	52.7	69.4	51.0
25/06/2025 23:45	00:15:00	52.7	64.8	51.2
26/06/2025 00:00	00:15:00	52.9	73.2	51.2
26/06/2025 00:15	00:15:00	53.8	73.5	51.0
26/06/2025 00:30	00:15:00	52.1	57.9	50.7
26/06/2025 00:45	00:15:00	51.9	58.9	50.6

July 2025

Time	Duration	LAeq (dB)	LAMax (dB)	LA10 (dB)	LA90 (dB)
28/07/2025 09:00	01:00:00	53.4	85.1	53.3	45.1
28/07/2025 10:00	01:00:00	52.2	77.9	53.6	45.2
28/07/2025 11:00	01:00:00	51.4	73.8	53.4	47.4
28/07/2025 12:00	01:00:00	51.6	74.5	53.3	47.9

Day

$L_{A10(18hr)}$ = ∑ 3x $L_{A10(1hr)}$/3 – 1dB
PPG24 $L_{Aeq(16hr)}$ = $L_{A10(18hr)}$ – 2dB

$$L_{A10(18hr)} = \sum 3 * \frac{L_{A10,1hr}}{3} - 1$$
$$L_{A10(18hr)} = 53.4 - 1$$
$$L_{A10(18hr)} = 52.4$$

$$L_{Aeq(16hr)} = L_{A10(18hr)} - 2$$

$$L_{Aeq(16hr)} = 52.4 - 2$$
$$L_{Aeq(16hr)} = 50.4dB$$

Night

L_{night} = 0.90 x $L_{A10(18hr)}$ – 3.77dB

$L_{Aeq,8hr)}$ = 0.9x 52.4 – 3.77dB
$L_{Aeq,8hr)}$ = 43.4dB

Time	Duration	L_{Aeq} (dB)	L_{AMax} (dB)	L_{A90} (dB)
28/07/2025 21:45	00:15:00	53.1	66.0	51.0
28/07/2025 22:00	00:15:00	51.8	68.5	47.6
28/07/2025 22:15	00:15:00	52.7	74.9	48.3
28/07/2025 22:30	00:15:00	53.1	74.5	50.6
28/07/2025 22:45	00:15:00	54.7	69.1	50.7
28/07/2025 23:00	00:15:00	52.3	64.2	50.3
28/07/2025 23:15	00:15:00	56.0	82.4	48.8
28/07/2025 23:30	00:15:00	53.5	73.8	48.8
28/07/2025 23:45	00:15:00	52.3	77.9	48.8
29/07/2025 00:00	00:15:00	53.2	70.0	49.1
29/07/2025 00:15	00:15:00	56.4	90.8	48.7

Appendix B – Report Author Details

This report has been produced by Neil Martin, BSc (Hons), PGDip, CEnvH MCIEH, MIOA.

Neil is the principal acoustic consultant at Martin Environmental Solutions Ltd, a consultancy company specialising in Environmental Health disciplines including environmental noise assessment and control. He holds a Bachler's degree in Environmental Health and Diploma in Acoustics. He is a Chartered Member of the Chartered Institute of Environmental Health and a Full member of the Institute of Acoustics.

Neil has over 20year's experience working within a Local Authority Environmental Health setting, principally in the Environmental Protection and Public Health areas and has been working as an acoustic consultant since 2011.

Since its formation, Martin Environmental Solutions has advised and assisted many groups including residents, developers and local authorities about the problems of noise and vibration in the environment and the possible solutions. Neil also acts as an expert witness in the area of acoustics.