MARTIN
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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

Perfect Property 4 U Limited,
451 Cheetham Hill Road
Cheetham Hill
Manchester
M8 9PA.

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1. Introduction

1.1. Martin Environmental Solutions (MES) 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 9JG, planning application 136783/FO/2023.

1.2. The report has been amended following the receipt of comments from the Local Planning Authority.

Site Location and Context

1.3. 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.

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

1.5. 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 August 2026, 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, paragraph National Decision Making Policies P3 – living conditions, para 2.

2.3. The document goes further by stating planning policies and decisions should ensure that new development is appropriate for its location … in doing so they should "*mitigate and reduce to a minimum potential adverse impacts from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life*". The NPPF makes direct reference to the Government published Noise Policy Statement for England (NPSE).

2.4. The NPSE sets out the long-term vision of the government's policy on noise, 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*."

2.5. Its guiding principles include "Using Sound Science Responsibly – Ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty (through the precautionary principle) as well as public attitudes and values."

2.6. The NPSE's long-term vision is supported by three aims:

- Avoid significant adverse impacts on health and quality of life,
- Mitigate and minimise adverse impacts on health and quality of life; and,

- Where possible, contribute to the improvements of health and quality of life.

2.7. The NPSE provides further guidance on "significant adverse effects" and adverse effects" and introduces the following terms, which have been used within toxicological studies for years.

NOEL – No Observed Effect Level; this is the level of noise exposure below which no effect at all on health or quality of life can be detected.

LOAEL – Lowest Observed Adverse Effect Level; this is the level of noise exposure above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level; This is the level of noise exposure above which significant adverse effects on health and quality of life occur.

2.8. The use of the words Observed is important, a change in behaviour, e.g. closing windows, turning up TV's or physical change, e.g. being woken up must be observed, and not simply being able to hear a sound.

2.9. The NPSE recognises that it is not possible to have single objective noise-based measures which define the SOAEL, LOAEL and NOEL that are applicable to all sources of noise in all situations. The levels are likely to be different for different noise sources, receptors and at different times of the day.

2.10. The Planning Practice Guidance on Noise, July 2019 (PPG – N) provides further guidance on the consideration of noise as part of the planning process and highlights that plan-making and decision making need to take account of the acoustic environment and consider;

- 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; and
- Whether a good standard of amenity can be achieved.

The guidance used the same concepts of adverse effect level, used within the NPSE.

2.11. The PPG -N document provides the following noise exposure hierarchy;

TABLE 2.1 NOISE EXPOSURE HIERARCHY

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			
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, or having to close windows for some of the time because of the noise where there is no alternative ventilation. 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
Significant Observed Adverse Effect Level			
Noticeable and Disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion, having to keep windows closed most of the time because of the noise where there is no alternative ventilation. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant observed effect	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 definable harm (auditory and non-auditory).	Unacceptable adverse effect	Prevent

2.12. One therefore needs to determine what level represents SOAEL in a given situation, so that it can be avoided and mitigated against. While the NPSE and PPG-N identify that no single level of sound can be provided which determines an adverse impact from noise many Local Authorities have identified sound level criteria in accordance with the World Health Organisation's recommended levels, mirrored in BS8233:2014.

2.13. The World Health Organisation (WHO) "Guidelines for the prevention of Community Noise Annoyance" provides guidance on internal and external sound levels that are likely to result in community annoyance. These are mirrored within BS8233:2014. 'Guidance on sound insulation and noise reduction for buildings – Code of Practice'

2.14. The WHO recommended noise levels are based on sound scientific research principles on when observed effects are reached as required by the NPPF.

2.15. The WHO guidance identifies that for outdoor amenity areas (gardens) sound levels should not exceed 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 internal levels the WHO set 35dB(A) $L_{Aeq,16hr}$ during the day to prevent Moderate Annoyance and 30 dB(A) $L_{Aeq,8hr}$ in bedrooms at night to prevent sleep disturbance.

2.16. 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.

2.17. The hours of 07:00 – 23:00 representing day-time and 23:00 -07:00 night-time periods.

2.18. BS 8233:2014 also specifies desirable noise levels to be achieved inside dwellings. 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 $L_{Aeq,8hr}$ is recommended. Slightly higher levels are recommended for dining room areas at 40dB $L_{Aeq,16hr.}$ The criteria for external areas mirrors that within the WHO guidance.

2.19. The WHO/BS8233 guidelines therefore suggest sound levels above 55dB(A) externally would result in a significant adverse impact (SOAEL), between 50-55dB(A) as a moderate annoyance or LOAEL and therefore below 50dB(A) as NOEL.

2.20. Internally the guidance recommended levels of 35dB(A) during the daytime to avoid moderate annoyance and 30dB(A) at night-time to prevent sleep disturbance (LOAEL). Thus, levels below these would equate to NOEL.

2.21. Based on the 15dB reduction for an open window sited within both the WHO and BS8233 guidance documents and the sited external and internal recommended sound levels, LOAEL would be observed between 35-40dB $L_{Aeq,16hr}$ day and 30-35dB $L_{Aeq,8hr}$ night. While SOAEL levels would be above these values.

2.22. Councils typically use the 35dB day/30dB night as internal criteria when assessing the impact on and from developments as part of the planning process, along with the night-time maximum 45dB L_{AMax} level within bedrooms.

BS4142:2014+A1:2019

2.23. Another commonly used standard is British Standard 4142:2014+A1:2019 'Method for rating industrial and commercial sound' compares the sound predicted by the source in question against the background, L_{A90} sound levels. This standard aims at addressing the impact from industrial and commercial activities, taking into account the subjective nature of sound and potential short term activities.

2.24. The methodology requires the "residual sound", the ambient sound level when the specific sound source is suppressed or absent, expressed as an $L_{Aeq,t}$ measurement, to be then subtracted from the "ambient sound level", the overall sound level present including the specific source sound, measured as L_{Aeq} measurement, this results in a value for the specific or "problem" sound.

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

2.26. 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.

ProPG : Planning & Noise : 2017

2.27. The primary goal of this guidance is to assist the delivery of sustainable development by promoting good health and well-being through the effective management of noise.

2.28. It seeks to do that through encouraging a good acoustic design process in and around proposed new residential development having regard to national policy on planning and noise. It is applicable to noise from existing transport sources (noting that good professional practice should have regard to any reasonably foreseeable changes in existing and/or new sources of noise).

2.29. The recommended approach is also considered suitable where some industrial or commercial noise contributes to the acoustic environment provided that is "not dominant".

2.30. This ProPG advocates a systematic, proportionate, risk based, 2-stage, approach. The approach encourages early consideration of noise issues, facilitates straightforward accelerated decision making for lower risk sites, and assists proper consideration of noise issues where the acoustic environment is challenging. The two sequential stages of the overall approach are:

- Stage 1 – an initial noise risk assessment of the proposed development site; and
- Stage 2 – a systematic consideration of four key elements.

2.31. The four key elements to be undertaken in parallel during Stage 2 of the recommended approach are:

- Element 1 – demonstrating a "Good Acoustic Design Process";
- Element 2 – observing internal "Noise Level Guidelines";
- Element 3 – undertaking an "External Amenity Area Noise Assessment"; and
- Element 4 – consideration of "Other Relevant Issues".

The ProPG considers suitable guidance on internal noise levels found in "BS8233:2014: Guidance on sound insulation and noise reduction for buildings".

2.32. Based on the above guidance and given the development being considered the following criterion have been identified:

Location	07:00 to 23:00	23:00 to 07:00
External Garden Amenity Areas	50-55dB $L_{Aeq,16hr}$	-
Living rooms (e.g. Lounges)	35dB $L_{Aeq,16hr}$	-
Bedrooms	35dB $L_{Aeq,16hr}$	30dB $L_{Aeq,8hr}$
Dining rooms	40dB $L_{Aeq,16hr}$	-
Night-time L_{AMax}	-	45dB L_{AMax}
BS4142:2014 Rating Level		
External Garden Amenity Areas	Rating level < background L_{A90}	
Living rooms	35dB $L_{Aeq,16hr}$	-
Bedrooms	35dB $L_{Aeq,16hr}$	30dB $L_{Aeq,8hr}$

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 exist to the north, east and south of the site, with a disused churchyard 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 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.

3.4 However, the site in question risks the security of the monitoring equipment if left unattended; as such shorter attended monitoring periods have been undertaken.

3.5 MES has now undertaken attended on-site monitoring in the same location on four separate occasions. Once in 2018 covering a period between 09:47-13:19 & 21:50-00:22, once in June 2025, where unfortunately due to a temporary data loss issue a repeated measurement was undertaken in July 2025 between 08:45-13:00 & 21:43-00:30. Finally following the comments received a further monitoring period was undertaken in September 2026 covering the time 16:00-19:10.

3.6 During these visits it can be confirmed that the nature of the background sound levels has not changed, the primary source of background sound is road traffic, with some extraction equipment associated with nearby businesses in the late afternoon and into the evening. This becomes more dominant as the evening progresses and traffic volumes reduce. Traffic is still however clearly audible and regular.

3.7 A Cirrus Optimus Green sound level meter has been used for each monitoring visit. The meters have been field calibrated at the start and end of the monitoring period without any significant variation and full laboratory calibration certificates are available for each period on request.

3.8 The weather during each monitoring period has been dry with little wind <5m/s.

3.9 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 is also influenced by vehicles using Robin Hood Street, particularly in the evening. This would result in sound levels being slightly higher than on the development site itself.

3.10 The results from the monitoring periods, along with the most recent September 2026 rush hour monitoring area included within Appendix A.

3.11 Sound levels during each of the monitoring sessions are similar, particularly the background L_{A90} and L_{A10} levels, with L_{Aeq} levels influenced more by cars along Robin Hood Street and people talking next to the microphone.

3.12 Sound levels have increased slightly since 2018, with the latest rush hour sound levels being the highest by ~3dB.

Potential Impact

3.13 As long term on-site measurements are not feasible the shorter attended monitoring periods have been used to provide an understanding of the current sound levels experienced on site.

3.14 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, and for insecure sites.

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

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

3.15 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.

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

3.16 The previous rounds of monitoring, (2018/2025) covered the period 10:00 – 13:00. In addition, further monitoring was undertaken in the late evening /early night-time period to obtain representative sound levels for the area and in particular the nearby commercial extraction equipment.

3.17 These were previously used to determine the representative day ($L_{Aeq,16hr}$) and night-time ($L_{Aeq,8hr}$) sound levels in accordance with the above methodology. 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

3.18 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.

3.19 While the above methodology was developed to provide a suitable average sound level over the day/night-time periods the council have raised concerns over the methodology used and have suggested monitoring be undertaken over the rush hour periods as a minimum. There is no methodology for equating a rush sound level to that of a 16-hour daily or 8-hour night-time period, and the identified rush hour sound levels were slightly higher than those previously obtained.

3.20 It has therefore been determined that to ensure a worst-case scenario is considered the highest of the measured values has been used within the assessment.

3.21 As such daytime sound levels have been assumed to be 55.8dB(A), obtained during the latest round of monitoring and for night-time levels 56.4dB(A) obtained in July 2025 at :15-00:30.

3.22 Given a 15dB attenuation[1] for an open window the sound levels to be experienced by the future occupants are above those identified within section 2 of the report. Therefore, further mitigation measures are required.

3.23 It is acknowledged that the council consider the 15dB reduction optimistic, although as further mitigation measures are required at this level, they would still be required at a reduced level of attenuation.

3.24 A standard 6/12/6 double glazing unit will, when closed, provide a sound reduction, $R_w(C;C_{tr})$, of 36(-2;-5). Thus, for this project a reduction of 31dB when closed. It is. therefore, adequate to protect the future occupants of the accommodation from the prevailing environmental sound levels.

3.25 Internal levels will be;

24.8dB(A) during the daytime
25.8dB(A) during the night
36.9dB(A) night-time maximum

3.26 Therefore, to ensure that suitable internal sound levels are maintained it is recommended that all habitable rooms are fitted with the 6/12/6 standard double glazing units.

3.27 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.

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

Ventilation

3.28 To ensure suitable internal sound levels are maintained windows will need to be kept closed. Building Regulations Approved Documents F (ADF) – Ventilation and O (ADO) – Overheating provide a requirement for adequate ventilation of buildings.

3.29 ADF identifies three types of ventilation which must be present in a dwelling,

Background **whole dwelling** ventilation – continuous ventilation at a low rate to dilute and remove pollutants, water vapour and stale air,

Extraction ventilation from rooms where water vapour or pollutants are likely to be released (e.g. bathrooms and kitchens), to minimise their spread to the rest of the building

Purge ventilation – short duration relatively high rates to rapidly remove/dilute pollutants and/or water vapour.

3.30 As windows must remain closed additional provision for whole dwelling ventilation is required. This is likely to consist of some form of mechanical ventilation. Where this includes direct openings between habitable rooms and the external environment, e.g. wall fans, the chosen system must ensure a suitable level of attenuation is provided equal to or greater than the glazing specification (Note vents are described in terms of dB $D_{ne.w}+C_{Tr}$[2]).

3.31 Extract Ventilation is typically provided with kitchen and bathroom areas and the above recommendations would not impact on the standard provision of extract ventilation.

3.32 Purge Ventilation is only required for short periods and the above recommendations do not prohibit the short opening of windows for purge ventilation of the property, but would still ensure adequate internal sound levels are achieved.

3.33 ADO requires adequate means to remove heat from the indoor environment. In standard properties where windows can be left open and cross ventilation of the whole dwelling is possible this is usually sufficient, however where restrictions are present on the opening of windows e.g. high crime areas or for acoustic reasons alternative

[2] See Appendix C – Definitions

provision must be made. This is likely to be consist of some form of mechanical ventilation.

Impact from Nearby Extraction System

3.34 Night-time monitoring has been undertaken during the previous rounds of 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.

3.35 Given the nature of the extraction system a BS4142:2014+A1:2019 assessment of the sound emissions is typically requested/expected by local authorities.

3.36 The extraction system operates continuously when the businesses are open and no tonal components were detected from the monitoring. The system is however distinctive. As such in accordance with the BS4142 methodology a correction for "other sound characteristics" of +3dB has been applied.

	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} = 44.9dB (June 2025)	L_{A90} = 48.7dB (July 2025)	Lowest representative background from recent 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} = 48.7dB	Lowest measured
Excess of Rating level over background level	(51-44.9) dB = **+6.1dB** indicates an adverse impact	(51.0-48.7) dB = **+2.3dB** indicates adverse impact	
Uncertainty	Extraction system calculated from lowest representative monitoring results with other sound sources suppressed, and maybe quieter. Lowest background figures used for representative periods, averages are higher, thus reducing the impact from the systems.		

3.37 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 environmental sound, including traffic and extraction sound have already been identified as standard double glazing, with alternative ventilation to allow windows to remain closed. This will result in internal rating levels of ~ 20dB(A), below the recommended night-time internal sound levels of 30dB $L_{A90,8hr.}$

3.38 The proposed mitigation will protect the internal environment from the extraction noise, 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.

External Amenity Areas

3.39 For the external area the identified criterion in section 2 above recommends a lower level of 50dB $L_{Aeq,16hr,}$ with an upper level of 55dB $L_{Aeq,16hr}$.

3.40 The monitoring location was such that a clear view of the main road was available resulting in slightly elevated sound levels than that experienced, with the current buildings along the main road acting as a substantial barrier. Close boarded boundary fencing will also be provided as part of the development providing further attenuation.

3.41 Sound level within the amenity area are therefore already likely to be below the 50dB(A) recommended level. There are however already below the upper recommended level of 55dB(A). Further mitigation measures are not required.

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 into the normally recognised night-time period the extraction system at the nearby takeaway can be clearly identified.

4.2 Further to concerns raised by the Council additional monitoring has been undertaken to cover a rush hour period and the highest sound levels observed over all monitoring periods have been used as a basis of the assessment to understand the likely impact on the future occupants and to identify suitable mitigation.

4.3 The reality being that sound levels over the relevant averaging period are lower than those used within the assessment.

4.4 The results of the monitoring indicating that the current sound levels will result in an adverse impact on the development. Additional mitigation measures are therefore required.

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

4.6 Combined with the use of standard double-glazing 6/12/6 units and an alternative ventilation system to provide background ventilation the development will ensure that internal and external sound levels are acceptable and will result in a No Observed Effect Level (NOEL) on the future residents in line with the Noise Policy Statement for England. Thus, the development will achieve the aims of the NPSE by avoiding any significant adverse or adverse impacts on health or quality of life.

4.7 In terms of the PPG-N guidance the development achieves the aims of ensuring no significant adverse or adverse effect will occur at the development and a good standard of amenity is achieved.

4.8 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

July 2018

Time	Duration	L_{Aeq} (dB)	L_{AMax} (dB)	L_{A10} (dB)	L_{A90} (dB)
26/07/2018 21:50	00:09:54	55.9	78.0	56.9	48.4
26/07/2018 22:00	00:15:00	52.2	69.8	55.0	47.6
26/07/2018 22:15	00:15:00	54.2	72.2	56.3	47.9
26/07/2018 22:30	00:15:00	54.0	75.7	56.3	47.8
26/07/2018 22:45	00:15:00	51.9	64.8	55.1	47.1
26/07/2018 23:00	00:15:00	53.8	74.5	56.1	47.2
26/07/2018 23:15	00:15:00	52.5	75.2	55.3	42.4
26/07/2018 23:30	00:15:00	51.3	75.3	55.0	41.5
26/07/2018 23:45	00:15:00	51.2	68.1	55.4	41.0
27/07/2018 00:00	00:15:00	50.7	64.0	54.6	41.1
27/07/2018 00:15	00:07:51	52.8	69.8	56.2	41.0
18/07/2018 09:47	00:12:42	49.6	78.7	49.2	42.8
18/07/2018 10:00	01:00:00	49.7	76.7	49.8	42.3
18/07/2018 11:00	01:00:00	52.7	81.8	54.5	43.1
18/07/2018 12:00	01:00:00	48.0	76.4	49.0	42.5
18/07/2018 13:00	00:19:48	46.0	57.4	47.9	42.2

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

September 2026

Start Time	End Time	Duration	L_{Aeq}	L_{A90}	L_{AMax}	L_{A10}
03/09/2026 16:03	03/09/2026 17:00	00:56:39	54.1	50.7	73.4	55.9
03/09/2026 17:00	03/09/2026 18:00	01:00:00	55.8	51.2	87.8	56.6
03/09/2026 18:00	03/09/2026 19:00	01:00:00	54.8	51.3	81.9	55.8
03/09/2026 19:00	03/09/2026 19:11	00:11:00	54.7	50.7	74.1	56.2

Appendix B – Standard 6/12/6 Double Glazing Unit Attenuation

Sound Insulation Prediction (v10.0.6)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within Rw ±3 dB

Date: 14/09/2025

Job Name:

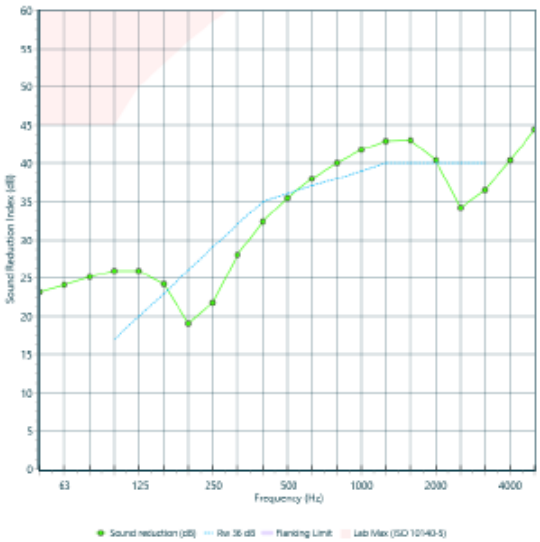


Rw 36 dB
C -2 dB
Ctr -5 dB

System description

Pane 1	1 x 6 mm Glass
Cavity	: 12 mm
Pane 2	1 x 6 mm Glass
Details	Energy-based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = : 200 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	23	
63	24	24
80	25	
100	26	
125	26	25
160	24	
200	19	
250	22	22
315	28	
400	32	
500	35	35
630	38	
800	40	
1000	42	41
1250	43	
1600	43	
2000	40	38
2500	34	
3150	36	
4000	40	39
5000	44	



Appendix C– 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 Bachelor'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 20 years' 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.