

Unit 3 Arena Court Manchester

Noise Impact Assessment

21037-RP-NIA-01

10 April 2026

Rush242 Trading Limited
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London
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Document Reference	Revision	Date	Author	Comments
21037-RP-NIA-01	-	10 April 2026	Jamie Murray MIOA Director	-

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The assessment is based on the specific conditions, equipment selections, and site layouts described herein. Any changes to these may require the assessment to be reviewed and updated.

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1.0 Introduction

1.1 Overview

Murray Acoustics Ltd has been commissioned to undertake a noise impact assessment of the proposed fitness studio at Unit 3, Arena Court, Mirabel Street, Manchester, M3 1PG.

The proposed works comprise the change of use of the existing commercial unit to an indoor gym and fitness facility (Use Class E(d)), including associated internal alterations and ancillary operational arrangements.

This report sets out the assessment methodology, findings, and recommended mitigation measures where relevant, and has been prepared to support the planning application submission to Manchester City Council.

1.2 Site Description

The site comprises Unit 3, Arena Court, located on Mirabel Street beneath the active railway viaduct serving Manchester Victoria station. The existing unit is a single-storey brick-fronted railway arch of approximately 120 m² gross internal area, currently vacant and previously in commercial use.

The surrounding area is mixed in character, comprising railway infrastructure, commercial arch units, and more recent residential development. The adjacent railway arches to the east and west are in commercial use and are not considered noise sensitive.

The nearest noise sensitive receptor (NSR) is an under construction residential block located on the opposite side of Mirabel Street, approximately 30 m from the façade of the proposed fitness studio. This receptor is considered representative of the nearest noise sensitive receptor in the context of this assessment.

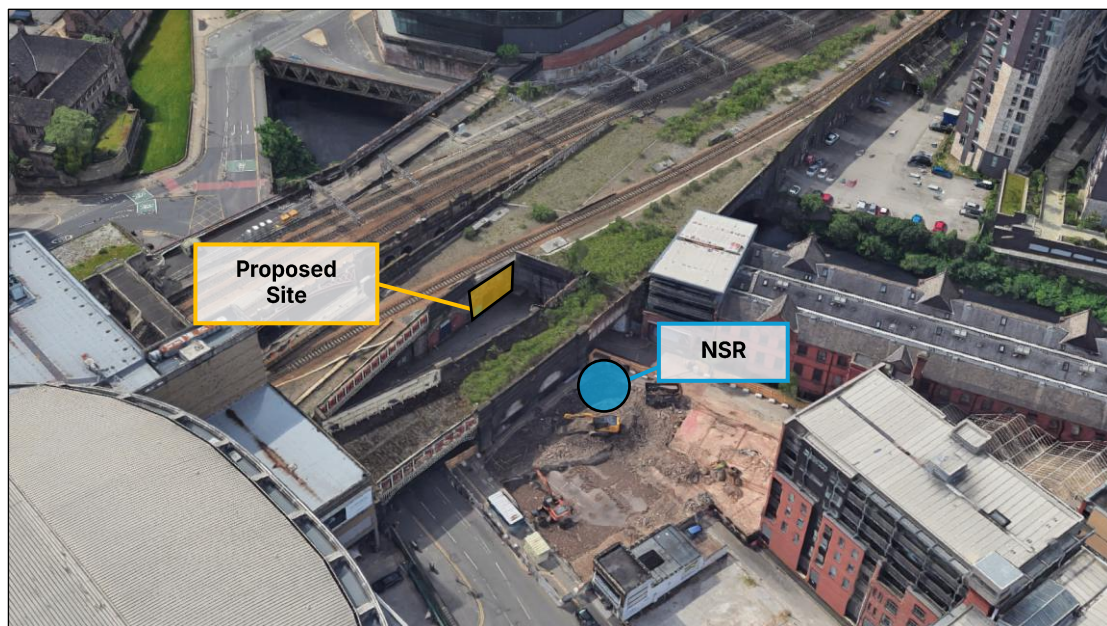


Figure 1.1 Site location plan

1.3 Development Proposals

The proposed development comprises the change of use of the existing commercial unit to an indoor functional fitness studio (Use Class E(d)), operated as Rush242 Fitness. The principal elements of the proposal are as follows:

- Internal fit-out comprising a 6-bay freestanding functional fitness rig bolted to the existing concrete floor slab, with associated weight and barbell storage, reception area and retained WC/shower facilities
- Rubber floor tiles installed over the existing concrete slab to provide impact protection
- 18 mm OSB lining to the internal walls
- A single portable stereo / loudspeaker providing music during classes, operated by the instructor in strict accordance with the Standard Operating Procedure issued by the operator
- Retention of the existing external brick arch façade and entrance door

The fitness studio will operate on a coach-led, by-appointment-only basis with a maximum of 10 members per class. The gym is closed outside of scheduled class times, with no drop-in or unsupervised use permitted. The proposed operating hours are as follows:

- Weekdays: 06:00 – 21:00
- Saturday: 9:00am – 14:00
- Sunday: 10:00am – 14:00

Weekday classes are typically scheduled at 06:00, 07:00, 12:30, 16:30, 17:45, 19:00 and 20:15, with slight variation day-to-day.

Music is played via a single portable stereo during classes, controlled by the instructor via a tablet. The operator has issued a Standard Operating Procedure (SOP) which sets the stereo at a fixed maximum output, prohibits adjustment by members, and requires coaching instructions to remain clearly audible at all times. The SOP is reproduced in Appendix B – Music Standard Operating Procedure.

It should also be noted that the operator is relocating from a previous premises which was situated directly beneath a residential receptor. The management practices and Standard Operating Procedure described above reflect the operational experience gained at that location, where the proximity to noise sensitive uses required active and consistent management of internal noise levels. The operator is therefore considered to have a well-established, experience-led approach to the management of noise from their activities.

1.4 Assessment Scope

This assessment has been prepared in response to the Local Planning Authority's invalidation letter dated 16 March 2026 and considers the following elements:

- A baseline environmental noise survey to establish existing ambient and background sound levels at a position representative of the nearest noise sensitive receptor, covering daytime, evening, night-time and weekend periods
- Internal noise measurements within the existing unit during a typical fitness class to establish representative source sound levels

- Sound insulation testing of the existing façade to quantify the sound reduction performance between the internal space and the external environment
- Calculation of predicted noise breakout levels at the nearest noise sensitive receptor during class operation, assessed in accordance with the criteria set out in the Manchester City Council Planning and Noise Technical Guidance (October 2022)
- Recommendations for mitigation where required to achieve compliance with the above criteria

2.0 Assessment Guidance & Requirements

2.1 Local Authority Guidance

The development falls within the jurisdiction of Manchester City Council (**MCC**). MCC have published Planning and Noise Technical Guidance (October 2022) which sets out the Council's expectations for the assessment of noise within the planning process, together with specific numerical criteria for a range of development types.

The MCC guidance adopts the noise exposure hierarchy set out in the National Planning Practice Guidance, and requires that developments aim to achieve noise levels below the Lowest Observed Adverse Effect Level (LOAEL), or where this is not achievable, that mitigation is provided to reduce levels to the lowest practicable level below the Significant Observed Adverse Effect Level (SOAEL).

In its invalidation letter dated 16 March 2026, MCC requested:

"An acoustic study identifying ambient noise levels during daytime, night-time and weekends along with details of the noise levels that are currently achieved within the accommodation at various times during operating hours. The study should identify the acoustic treatment and measures necessary to limit the breakout of noise in accordance with a noise study of the premises and a scheme of acoustic treatment. The scheme proposed shall include measures such as acoustic lobbies at access and egress points of the premises, acoustic treatment of the building structure, sound limiters linked to sound amplification equipment, details of the acoustic glazing and acoustically treated ventilation you have installed/propose to use and specified maximum internal noise levels."

This assessment has been prepared to address each of the points raised in the invalidation letter, together with the applicable criteria set out in the MCC Planning and Noise Technical Guidance.

For the proposed development, the following section of the MCC guidance is considered relevant:

Section 3.7.1.2 Entertainment Venues. MCC require that noise arising from venues utilising amplified audio is controlled to prevent adverse impact at nearby noise sensitive receptors. For new uses that are structurally detached from nearby noise sensitive receptors, the applicable criterion is:

"Entertainment noise ($L_{Aeq,5min}$) should be controlled to 5 dB below the typical background noise level (L_{A90}) in each octave band at the nearest noise sensitive location."

This criterion is applied on the assumption that residential properties have their windows open and is assessed on an octave band basis rather than as a single broadband value. In practice, the 63 Hz and 125 Hz octave bands are typically the controlling frequencies, reflecting the difficulty of containing low-frequency sound and the disproportionate annoyance associated with bass content.

The criterion is referenced to the typical background sound level, derived in accordance with Appendix A of the MCC guidance.

2.2 Assessment Periods

The proposed fitness studio will operate during daytime and early-morning periods only. The earliest scheduled class on weekdays commences at 06:00, which falls within the night-time period as defined by the MCC guidance (23:00 – 07:00). General night-time operations are not proposed, with all other weekday classes and all weekend classes falling entirely within the daytime period.

The assessment has therefore been undertaken against two separate assessment periods:

- **Daytime (07:00 – 21:00):** covering all weekday classes from 07:00 onwards and all weekend classes
- **Night-time (06:00 – 07:00):** covering the early-morning weekday class only

Each period has been assessed against its own measured typical background sound level, with the night-time period expected to represent the more onerous assessment condition on account of the lower background sound levels during this period.

For the avoidance of doubt, ambient and background sound levels have been measured across a continuous survey period covering the full daytime, evening, night-time and weekend conditions as requested by MCC in the invalidation letter, with the relevant periods extracted and presented for assessment purposes.

3.0 Environmental Noise Survey

3.1 Procedure

Continuous automated noise measurements were undertaken from 11:00 hours on 27 March 2026 until 07:00 hours on 30 March 2026 at 1No measurement position on site.

Weather conditions were generally dry with light winds and therefore suitable for the measurement of environmental noise.

The measurement procedure complied with ISO 1996-2:2017 Acoustics ‘Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels’ and BS 4142.

3.2 Noise Climate

Upon set up and collection of the survey equipment, the general noise climate was noted to be typical of an urban area and dominated by road traffic noise from Great Ducie Street and Trinity Way.

3.3 Equipment

The equipment calibration was verified before and after use and no abnormalities were observed. The equipment used is described within Table 3.1.

Table 3.1 Survey equipment information

Equipment	Serial No.	Calibration Date	Certificate Ref.
Class 1 Sound Level Meter Svantek Type 971A	173136	19 Jan 2026	1516680-1
Preamplifier Svantek SV18A	163637		
Free-field Microphone ACO 7152	96767		
Class 1 Acoustic Calibrator Svantek SV33B	182123	30 Jan 2026	C182123-1

3.4 Measurement Position

The nearest noise sensitive receptor (**NSR**) is a residential development currently under construction on the opposite side of Mirabel Street. As the receptor building is not yet complete, it was not possible to obtain representative measurements at the receptor façade itself. Any measurements taken in the vicinity of the NSR would have been unduly influenced by construction noise associated with the ongoing works, resulting in artificially elevated sound levels that would not be representative of the eventual prevailing noise climate once the development is complete and occupied.

To establish a representative and appropriately conservative baseline, the chosen measurement position **MP1** was located in a secure area to the rear of the proposed fitness studio, as highlighted on Figure 3.1 below. Whilst this position does not have direct line of sight to the NSR, it was selected on the basis that it benefits from a similar degree of screening and distance from the dominant noise sources in the area (principally the surrounding road network) as would be expected at the NSR once complete.

It should also be noted that the L_{90} parameter is predominantly driven by distant, steady noise sources such as road traffic and general urban background and is therefore unlikely to vary materially across a small local area in a broadly homogeneous acoustic environment. Furthermore, the chosen measurement position is considered, if anything, likely to be quieter than the NSR façade once complete, given its position to the rear of the unit and away from the direct influence of Mirabel Street. The measured background sound levels at MP1 are therefore considered to provide a reasonable and appropriately conservative representation of the prevailing background sound level at the NSR.

Notwithstanding the above, a degree of uncertainty associated with the measurement position has been acknowledged within the assessment and is accounted for within subsequent assessment.

The microphone was positioned approximately 1.5 m above ground level in **free-field** conditions.

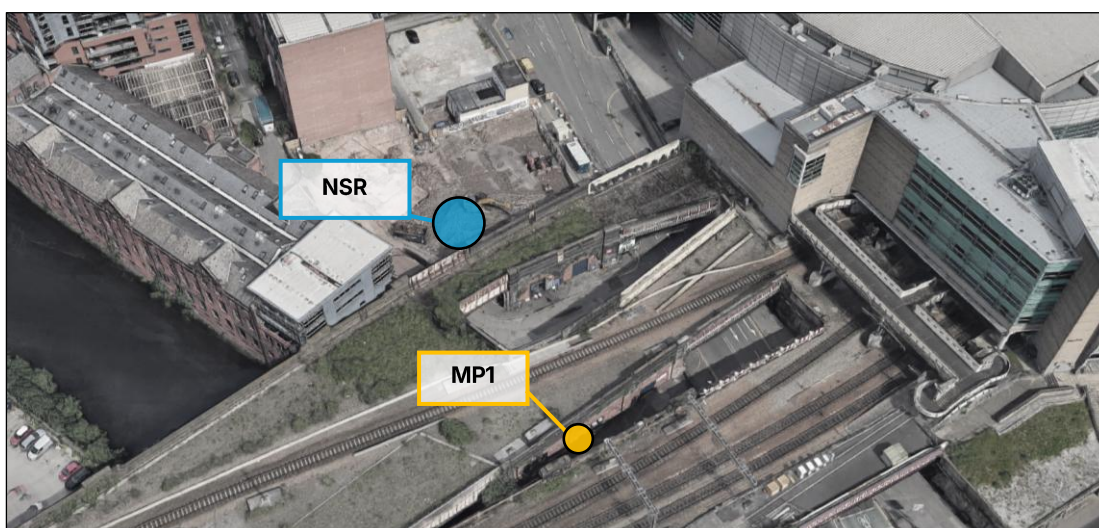


Figure 3.1 Survey measurement position

3.5 Results

The full measured sound levels throughout the survey duration are presented as a time history graph in Appendix A – Environmental Noise Survey Results. A summary of the sound levels, as used in all subsequent assessment, are presented below.

Note that these are **free-field** sound levels, with background sound levels derived in accordance with Appendix A of the MCC Planning and Noise Technical Guidance.

Table 3.2 Summary of noise survey results (octave band)

Period	Typical Background Sound Level (dB L_{90}) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Weekday Daytime 07:00 – 21:00	60	53	46	44	45	39	31
Weekend Daytime 09:00 – 14:00	57	51	46	44	46	41	34
Weekday Night-time 06:00 – 07:00	61	53	46	45	46	40	31

4.0 Source Noise & Façade Sound Insulation Testing

4.1 Overview

In addition to the environmental noise survey, the following measurements were undertaken at the site to characterise the source noise levels and the sound insulation performance of the existing façade:

- Façade sound insulation testing using a broadband pink noise source played internally, with simultaneous measurements of the internal source level and the resulting external level at a reference position 3 m from the façade
- Activity noise measurements undertaken inside the unit during a representative fitness class to establish realistic internal source sound levels during typical operation

Both sets of measurements were undertaken by Murray Acoustics Ltd on 27 March 2026 using the instrumentation described in Table 3.1.

4.2 Façade Sound Insulation Testing

4.2.1 Procedure

Broadband pink noise was generated within the unit using a loudspeaker positioned within the main gym space and oriented to provide a diffuse internal sound field. The internal sound pressure level was measured at multiple positions within the unit to establish a representative spatially-averaged internal level.

External measurements were undertaken at a reference position 3 m from the main entrance door, which represents the dominant breakout path from the unit. Measurements were also attempted at the façade of the nearest noise sensitive receptor (the residential development under construction on the opposite side of Mirabel Street); however, the pink noise level at this position was not sufficiently above the prevailing background sound level to obtain a reliable signal-to-noise ratio. This finding in itself is considered a positive qualitative indicator of the performance of the existing façade, demonstrating that even at elevated internal source levels the resultant external level at the nearest receptor is below the ambient noise climate of the area.

The level difference between the internal and external measurements was calculated on an octave band basis to derive the effective sound reduction performance of the façade.

4.3 Results

The measured level difference between the internal and external measurement positions is presented below.

Table 4.1 Measured level difference (internal to external at 3 m from façade)

Description	Measured Level Difference (dB D) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Internal SPL to 3 m from façade	19	21	17	27	25	27	26

4.4 Activity Noise Measurements

4.4.1 Procedure

Internal sound pressure level measurements were undertaken during a representative fitness class operating under normal conditions. The class was conducted in accordance with the operator's standard procedures, with the portable stereo set to the fixed operating level specified in the Standard Operating Procedure issued by the operator. The measurement captured the full range of class activities, including the main workout phase during which music levels are at their highest per the SOP.

4.4.2 Results

The measured internal sound pressure level during the class is presented below.

Table 4.2 Measured internal sound pressure level during representative fitness class

Description	Measured Activity Sound Level (dB L _{eq}) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Typical fitness class (76 dB L _{Aeq})	75	80	63	64	75	64	56

5.0 Operational Noise Assessment

5.1 Criteria

The MCC Planning and Noise Technical Guidance (Section 3.7.1.2) sets specific criteria for the assessment of noise from venues utilising amplified audio. For new uses that are structurally detached from nearby noise sensitive receptors, the applicable criterion is:

"Entertainment noise ($L_{Aeq,5min}$) should be controlled to 5 dB below the typical background noise level (L_{A90}) in each octave band at the nearest noise sensitive location."

This criterion is applied on the assumption that residential properties have their windows open and is assessed on an octave-band basis rather than as a single broadband value. In practice, the 63 Hz and 125 Hz octave bands are typically the controlling frequencies, reflecting the difficulty of containing low-frequency sound and the disproportionate annoyance associated with bass content.

Based on the measured background sound levels, the applicable octave band limits at the nearest NSR are as set out below (based on the lowest measured levels across the operational period).

Table 5.1 Octave band noise limits at NSR from music noise

Period	Operational Noise Level Limit at NSR (dB L_{eq}) At Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Operational Period	52	46	41	39	40	34	26

5.2 Methodology and Assessment Parameters

The assessment of noise breakout from the proposed fitness studio has been undertaken by combining the measured internal activity sound levels during a representative fitness class with the measured façade level difference and applying a distance correction from the 3 m measurement reference position to the nearest noise sensitive receptor.

The following assessment parameters apply:

- Internal source sound levels are taken from the measurements undertaken during a representative fitness class, as presented in Table 4.2 , and are considered representative of the worst-case "main workout" phase of a class during which music levels are at their highest per the operator's Standard Operating Procedure
- Façade sound reduction performance is taken from the measured level difference between the internal and external reference positions, as presented in Table 4.1

5.3 Assessment

On the basis of the above, the predicted sound level at the nearest NSR arising from the operation of the proposed fitness studio has been calculated for each octave band. The assessment is presented in Table 5.2 below.

Table 5.2 Predicted noise breakout at NSR and compliance assessment

Description	Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Internal SPL during class (dB L _{eq})	75	80	63	64	75	64	56
Façade Level Difference (dB)	19	21	17	27	25	27	26
External SPL at 3 m from façade (dB L _{eq})	56	59	46	37	50	37	30
Distance Correction (30 m, dB)	-20	-20	-20	-20	-20	-20	-20
Predicted SPL at NSR (dB L_{eq})	36	39	26	17	30	17	10
MCC Limit	52	46	41	39	40	34	26
Margin vs Limit	-16	-8	-15	-22	-9	-16	-16
Compliance	✓	✓	✓	✓	✓	✓	✓

As shown above, the predicted octave band sound pressure level at the nearest NSR arising from the operation of the proposed fitness studio falls comfortably below the MCC operational noise limit in all octave bands, with margins ranging from -8 dB to -22 dB. The tightest margin occurs at 125 Hz, reflecting the bass content of the music played during classes and the typical challenges associated with containing low-frequency sound through a façade.

This quantitative assessment is further supported by the qualitative finding presented in Section 4.2, whereby pink noise generated internally at elevated source levels could not be reliably measured above the prevailing background sound level at the nearest noise sensitive receptor. This provides an additional indication that noise breakout from the unit during normal operation would not give rise to adverse impact at the nearest residential receptor.

It is considered that any uncertainty arising from the elements described in Section 3.4 would have a negligible effect on the outcome of this assessment, when considering the high margin to the noise limit.

The proposed fitness studio is therefore considered to comply with the requirements of Section 3.7.1.2 of the MCC Planning and Noise Technical Guidance, and no additional acoustic mitigation is required beyond the operational controls set out in the operator's Standard Operating Procedure.

6.0 Conclusion

Murray Acoustics Ltd has undertaken a noise impact assessment of the proposed fitness studio at Unit 3, Arena Court, Mirabel Street, Manchester, in accordance with the Manchester City Council Planning and Noise Technical Guidance (October 2022). This report has been prepared in response to the Local Planning Authority's invalidation letter dated 16 March 2026 and addresses each of the points raised therein.

A continuous environmental noise survey was undertaken between 27 March 2026 and 30 March 2026 at a position representative of the nearest noise sensitive receptor, comprising a residential development currently under construction on the opposite side of Mirabel Street. Typical background sound levels were derived in accordance with Appendix A of the MCC guidance across weekday daytime, weekday night-time and weekend daytime assessment periods.

In addition to the environmental noise survey, sound insulation testing of the existing façade was undertaken using a broadband pink noise source, together with internal sound pressure level measurements during a representative fitness class operating under normal conditions. The measured internal source levels reflect the worst-case "main workout" phase of a class during which music levels are at their highest per the operator's Standard Operating Procedure.

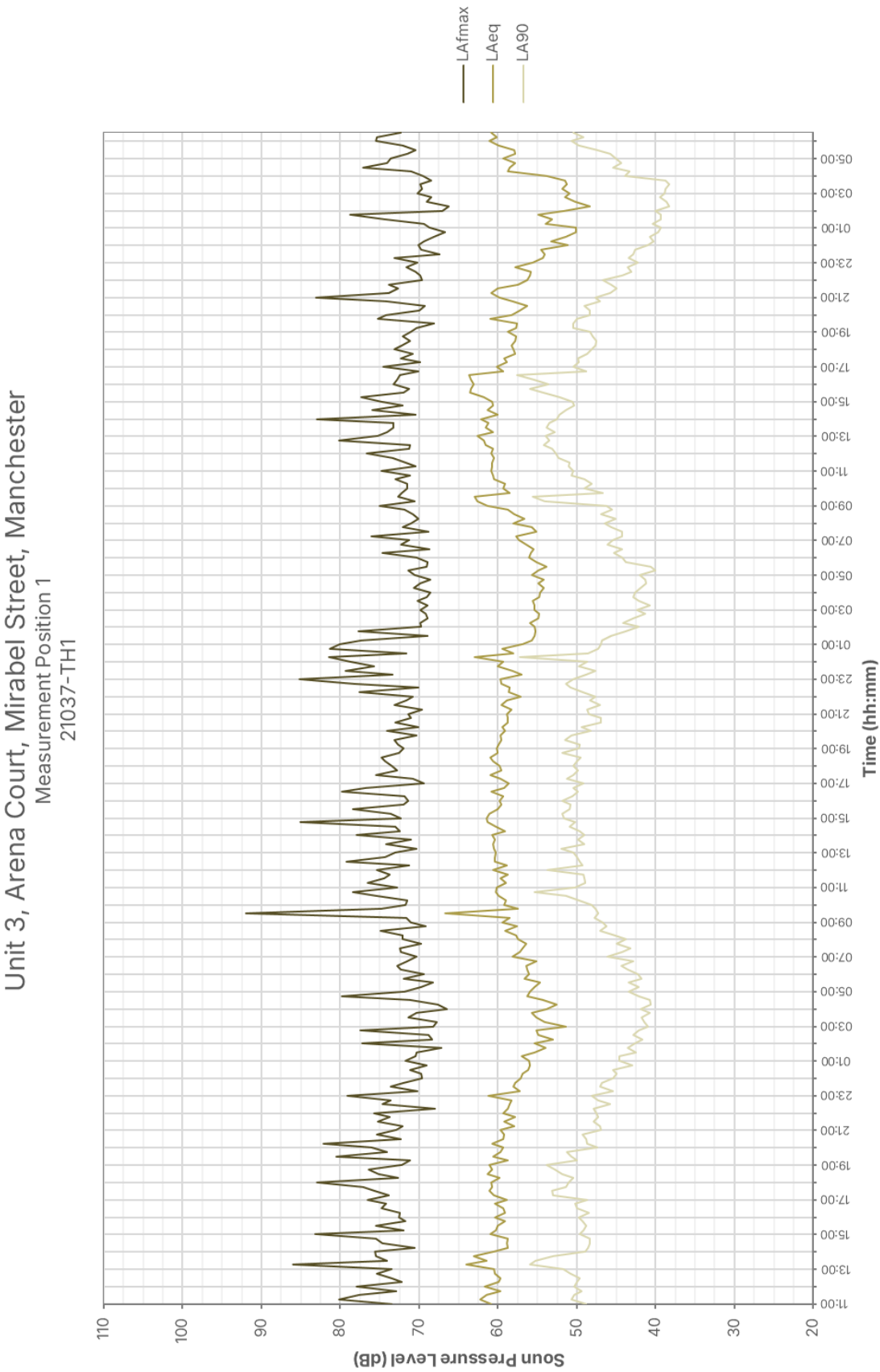
The assessment has been undertaken against the criteria set out in Section 3.7.1.2 of the MCC Planning and Noise Technical Guidance, which requires entertainment noise to be controlled to 5 dB below the typical background sound level in each octave band at the nearest noise sensitive receptor. The assessment demonstrates that the predicted octave band sound pressure level at the nearest receptor arising from the operation of the proposed fitness studio falls comfortably below the applicable limits in all octave bands and across all assessment periods, with compliance margins ranging from 8 dB to 22 dB.

This quantitative assessment is supported by two independent qualitative findings:

- Firstly, during the façade sound insulation testing, it was not possible to obtain a reliable measurement of the pink noise source at the façade of the nearest noise sensitive receptor, as the external level was not sufficiently above the prevailing background sound level of the area. This finding in itself demonstrates that even at elevated internal source levels the resultant external level at the nearest receptor remains below the ambient noise climate of the area.
- Secondly, the operator is relocating to Unit 3 Arena Court from a previous premises situated directly beneath a residential receptor. The management practices and Standard Operating Procedure reflect the operational experience gained at that location, where the proximity to noise sensitive uses required active and consistent management of internal noise levels. The operator is therefore considered to have a well-established, experience-led approach to the management of noise from their activities.

The proposed fitness studio is considered to comply with the requirements of Section 3.7.1.2 of the MCC Planning and Noise Technical Guidance and is not expected to give rise to adverse impact at the nearest noise sensitive receptor. No additional acoustic mitigation is required beyond the operational controls set out in the operator's Standard Operating Procedure.

Appendix A – Environmental Noise Survey Results



Appendix B – Music Standard Operating Procedure

SOP: Music Volume Control – Rush242 Fitness

Purpose

To maintain a coaching-first environment where instructions are always clear, sessions run smoothly, and music enhances rather than disrupts the experience.

Standard

Music supports the session, not the other way around. Coaches must always be clearly heard without needing to shout excessively.

Equipment Setup

- Main portable stereo: fixed at volume 38
- Music controlled via: tablet only
- Stereo volume is never adjusted during sessions

Non-Negotiables

- Stereo volume must remain at 38 at all times
- Clients do not adjust music or volume under any circumstances
- Only coaches control music via the tablet
- Only pre-approved playlists are to be used
- If volume feels off, adjust via the tablet, not the speaker

Session Guidelines

1. Before Class

- Check stereo is set to 38
- Select a pre-approved playlist only
- Test music briefly to ensure clear output
- Set initial music level low enough for easy conversation

2. During Warm-Up / Briefing

- Keep music at a low level
- Coaching cues, explanations, and demos must be heard clearly without raising your voice

3. During Skill / Strength Work

- Maintain moderate volume
- Members should be able to hear individual feedback and corrections easily

4. During Main Workout

- Music can be increased to high via the tablet only

- Energy up, but coaching still audible
- If you need to shout to be heard, the music is too loud

5. Post-Workout / Cool Down

- Reduce music back to low
- Allow for conversation, coaching recap, and community interaction

Coaching Responsibility

- You control the room, not the playlist
- Prioritise clarity of coaching over atmosphere
- Use only approved playlists that fit the brand and environment
- Adjust music proactively based on what the session needs
- Step in immediately if a member attempts to adjust music

Member Communication (If Needed)

"Leave the music to me, I've got it set so everyone can hear coaching."

Accountability

Failure to follow this SOP affects session quality and member experience. All coaches are expected to apply this standard consistently across every class.