auricl
acoustic consulting

Ground Floor
21 Park Parade
Havant

Noise Assessment Report

19 August 2026

For

Kingfisher Properties

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SUMMARY

It is proposed to convert part of the ground floor at 21 Park Parade in Havant to create new residential dwellings.

The site is located in a mixed urban environment with potential commercial uses within the building, therefore **auricl** has been appointed to assess the potential noise impacts of the surroundings on the proposed dwellings.

A noise survey has been carried out to assess typical noise levels affecting the development site over daytime and night-time, weekday and weekend periods.

Based on the noise survey results, calculations have been undertaken to determine the acoustic requirements of the proposed residential façades, so as to achieve internal noise levels within the residential properties that are commensurate with the proposed internal noise level standards.

Our calculations indicate that the internal noise standards should be achievable using standard non-acoustic construction elements and the required levels of sound reduction should not be difficult to achieve.

External noise levels affecting future occupants have been assessed in relation to the noise limits contained in Approved Document O of the Building Regulations. It was concluded that on all sides of the site, external noise levels are such that *"use of opening windows as a primary means of mitigating overheating is not likely to result in adverse effect".*

A preliminary assessment of internal noise transmission has been undertaken for the wall separating the commercial use and proposed residential units at ground floor level. The internal noise levels vary according to the commercial use, with the standards specified in BS 8233: 2014 being achieved by uses that have lower typical noise levels associated with them.

Worst-case noise assessments have been undertaken for external commercial uses, including deliveries and building services plant. The assessments have been undertaken in accordance with the methodology and guidance given in BS 4142: 2014+A1: 2019 and conclude that the predicted noise impact corresponds with a *"low noise impact"* during the relevant daytime operating hours.

Noise and vibration measurements were undertaken to assess the transmission of noise and vibration due to dropping of a 40kg dumbbell (as a worst-case) on the ground floor within the proposed gym demise.

Based on the measured vibration levels, calculations have been undertaken to predict noise levels within the proposed ground floor dwellings, for comparison with the G-curve criteria specified in the Professional Practice Guidance on Gym Acoustics "*ProPG: Gym Acoustics Guidance (GAG)*" March 2023, produced by the Association of Noise Consultants (ANC).

It was found that the predicted levels exceed the G-curves for both daytime and night-time periods, even with a specialist isolated acoustic jack-up floor test rig.

This indicates that a gym represents a particularly intensive use of the commercial space from an acoustic perspective and may not be the most suitable use beneath residential accommodation.

Notwithstanding this specific scenario, the wider assessment confirms that the proposed residential development is capable of achieving appropriate levels of acoustic amenity, with no significant constraints identified for typical commercial uses.

Project Number	15002	**Issue Date**	19 August 2026
Document Reference	15002/NA/2/260819	**Version**	02

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1.0 Introduction

It is proposed to convert part of the ground floor at 21 Park Parade in Havant to create new residential dwellings.

The site is located in a mixed urban environment with potential commercial uses within the building, therefore **auricl** has been appointed to assess the potential noise impacts of the surroundings on the proposed dwellings.

This report presents the methodology and results of a noise survey to determine the existing levels at the site, and subsequent assessments of internal noise levels within the proposed residential development.

The report is technical in nature therefore a description of the acoustic terminology used can be found in Appendix A.

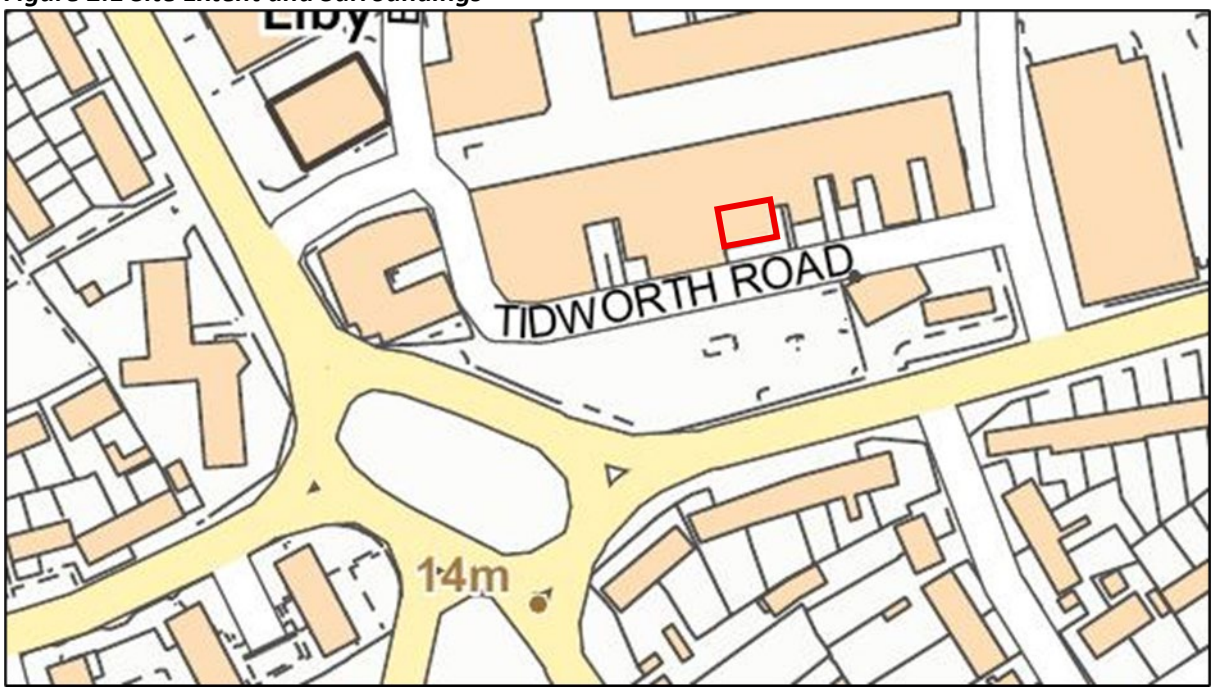
2.0 Description of Site and Proposals

The proposed development site is located at 21 Park Parade in Havant in a mixed commercial and residential area, and consists of a vacant commercial unit occupying ground and first floor level.

The site is bounded by a pedestrian high street to the north, Tidworth Road to the south and existing commercial and residential properties to the east and west.

Figure 2.1 indicates the approximate existing site extent in **red** in relation to the surrounding area.

Figure 2.1 Site Extent and Surroundings



It is proposed to develop the site to create 2 residential units at ground floor level.

3.0 Acoustic Standards

We have based our assessment on the guidance and standards presented in the following sections.

3.1 General Permitted Development Order

Schedule 2, Part 3, Class MA, paragraph MA(1) of the GPDO (as amended) states the following:

"(1) Development under Class MA is permitted subject to the following conditions:

(2) Before beginning development under Clas MA, the developer must apply to the local planning authority for a determination as to whether the prior approval of he authority will required as to… impacts of noise from commercial premises on the intended occupiers of the development"

3.2 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's core policies and principles with respect to land use planning in England. In respect to noise, the Framework states at paragraph 180 that planning policies and decisions should aim to:

- 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 quality of life; and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

The Noise Policy Vision is to 'promote good health and good quality of life through the effective management of noise within the context of government policy on sustainable development".

Through effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development, there are the following 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 improvement of health and quality of life.

3.3 Planning Practice Guidance

The Planning Practice Guidance on Noise (PPG) ensures noise be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.

Local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so 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 or not a good standard of amenity can be achieved.

3.4 Noise Policy Statement For England

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

The Observed Effect Levels are as follows:

- Significant Observed adverse Effect Level (SOAEL): This is the level of noise exposure above which adverse effects on health and quality of life occur;
- Lowest Observed Adverse Effect Level (LOAEL): This is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
- No Observed Effect Level (NOEL): This is the level of noise exposure below which no effect at all on health or quality of life can be detected.

Table 3.1 summarises the noise exposure hierarchy, based on the likely average response.

Table 3.1 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 changes 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 measured 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; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects of 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; 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, premature awakening and difficulty 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	Unacceptable adverse effect	Prevent

Perception	Examples of Outcomes	Increasing Effect Level	Action
	effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.		

3.5 External Noise Intrusion

British Standard 8233: 2014 *"guidance on sound insulation and noise reduction for buildings"* is currently the industry standard specifying acceptable internal noise limits for residential dwellings, which are presented in Table 3.2.

Table 3.2 BS 8233: 2014 Internal Noise Limits

Activity	Location	07:00 – 23:00 hours	23:00 – 07:00 hours
Resting	Living Room	35 dB $L_{Aeq,\ 16\ hr}$	-
Sleeping / daytime resting	Bedroom	35 dB $L_{Aeq,\ 16\ hr}$	30 dB $L_{Aeq,\ 8\ hr}$

In addition, the World Health Organisation (WHO) document *"guidelines for Community Noise"* (1999) advises the following:

"For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB LAmax more than 10-15 times per night (Vallet & Vernet 1991)."

Compliance with the above standard is considered to represent appropriate mitigation of the impact of noise on health and quality of life of future residents.

3.6 Open Windows and Overheating

Where windows could be opened to control overheating, it is prudent to consider the impact on internal noise levels and residential amenity.

Approved Document O (ADO) 2021 of the Building Regulations states that following:

"In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

a. *40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).*
b. *55dB L_{AFmax}, more than 10 times a night (between 11pm and 7am).*

NOTE: *Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (2020)."*

3.7 Internal Sound Insulation

For a floor separating commercial and residential uses it is generally recommended to provide an improvement upon the standards of Approved Document E of Building Regulations, and we would therefore recommend that $D_{nT,w}$ + C_{tr} 50 dB is targeted between commercial areas and the proposed residential units.

The internal noise limits specified in BS 8233: 2014 (see Section 3.5 above) should also be considered.

3.8 Professional Practice Guidance (ProPG): Gym Acoustic Guidance (GAG)

The Professional Practice Guidance on Gym Acoustics "*ProPG: Gym Acoustics Guidance (GAG)"* March 2023, produced by the Association of Noise Consultants (ANC), the Institute of Acoustics (IOA) and the Chartered Institute of Environmental Health (CIEH), (hereafter 'ProPG: GAG') proposes guidance criteria which would be generally considered to represent the lowest observed adverse effect level (LOAEL) defined by national policy. The guidance criteria are described in the form of G Curves which are specific to typical gym noise emissions, as presented in Table 3.3.

Table 3.2 Guidance Internal Sound Target Criteria for Gym Activity – Residential & Other Areas

Receptor type	Guide Criteria (for third octave band values plots against the stated G curve - see Figure 2)	
	Airborne Sound (e.g., music) $L_{eq,\,T}$ (31.5Hz to 8kHz)	Heavy Impact Sound $L_{max,F}$ (31.5Hz to 8kHz)
Residential Areas	G15-G25 (day) G10-G20 (night)	G20-G25 (day) G15-G20 (night)

The G Curves are based on interpretations of the NR Curves. They provide single reference ratings which when one-third octave measurement data are plotted against the curves, the value which is not broken by the data represents the G-Curve rating. The full range of tabulated G Curve values can be found in Appendix G of ProPG: GAG.

The relevant G Curve values representing the upper target criteria to residential areas (shown in Table 3.3), are presented in Table 3.4.

Table 3.3 G20 & G25 G Curve values between 31.5Hz and 4kHz

G Curve	dB at Octave Band Centre Frequency (Hz)																					
	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k
G25	67	59	52	47	43	40	37	34	31	29	27	25	23	22	21	20	19	18	17	16	15	14
G20	64	56	49	43	39	35	32	29	27	24	22	20	18	17	16	15	14	13	12	11	10	9

It should be noted that ProPG: GAG also advises that these guidance criteria values will not be suitable in all settings, particularly where the background noise is particularly low. Equally where background levels are higher, more relaxed criteria may be appropriate.

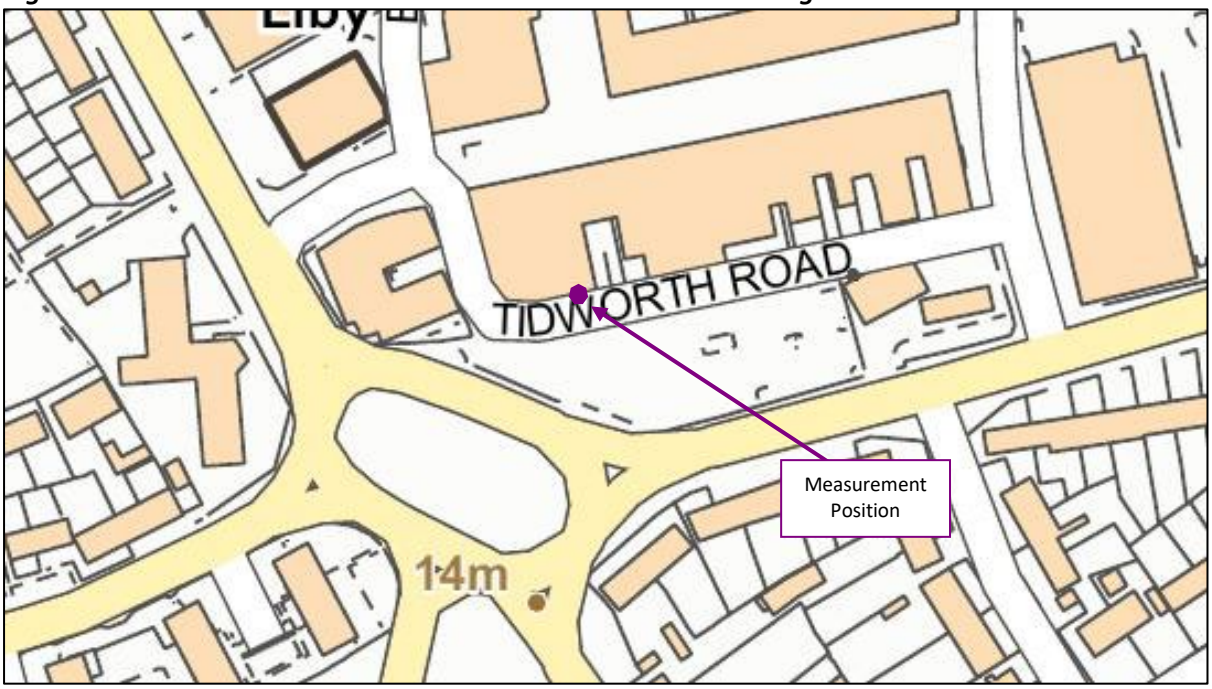
4.0 Noise Survey

4.1 Methodology

An unmanned environmental noise survey was undertaken over a 4-day period between Thursday 10 April 2025 and Monday 14 April 2025 to assess typical external noise levels over daytime and night-time periods on weekdays and a weekend.

The measurement microphone was attached to a grille approximately 3m above ground level on the south side of 37 Park Parade overlooking Tidworth Road, as indicated on Figure 4.1.

Figure 4.1 Noise Measurement Location in Relation to Surroundings



The equipment used for the noise survey is summarised in Table 4.1.

Table 4.1 Description of Equipment

Item	Make & Model	Serial Number
Type 1 automated logging sound level meter	01dB Fusion	15995
Type 1 ½" microphone	GRAS 40CE	625997
Calibrator	01dB CAL21	34375252

L_{Amax}, L_{Aeq} and L_{A90} sound pressure levels were measured throughout the noise survey over continuous 1-second intervals.

The noise monitoring equipment was calibrated before and after each noise survey period. No significant change was found to have occurred. Laboratory equipment calibration certificates can be provided upon request.

At both the beginning and end of the survey period, weather conditions were noted to be generally dry with clear skies and only light wind. Weather conditions during the survey period are not considered to have any significant effect on the measured noise levels.

4.2 Noise Survey Results

At the measurement position, the measurement microphone was located approximately 1m from the façade of the building therefore the measurements have been corrected for the façade reflection effect in accordance with the guidance in BS 8233: 2014.

Appendix B presents a time history graph showing the L_{Amax}, L_{Aeq} and L_{A90} sound pressure levels measured throughout the noise survey (displayed as 15-minute intervals).

A summary of the measured L_{Amax}, L_{Aeq} and L_{A90} noise levels is presented in Table 4.2.

Table 4.2 Summary of Noise Survey Results

Measured Noise Level (dB)		
Daytime $L_{Aeq\ (16\ hour)}$ (07:00 – 23:00 hours)	**Night-time $L_{Aeq\ (8\ hour)}$ (23:00 – 07:00 hours)**	**Night-time $L_{Amax\ (10th\ highest)}$ (23:00 – 07:00 hours)**
57	49	64

During our site visits, the ambient daytime noise climate at the measurement position was noted to be dominated by passing pedestrians and occasional vehicles along Tidworth Road.

The measured noise levels are considered to be reasonable, taking into account the location of the measurement position and dominant nearby noise sources.

5.0 External Noise Intrusion

5.1 Preliminary Recommendations

Based on the measured external noise levels, we have undertaken preliminary calculations to predict the internal noise levels in the proposed residential units. Results of the calculations show that the standards described in Section 3.1 could be achieved by using suitable external façade constructions.

Our calculations indicate that the internal noise level criteria proposed in Section 3.1 should be achievable throughout the site using the following standard non-acoustic construction elements:

- Thermal double glazing achieving sound insulation of at least R_w 30 dB (e.g. 4mm glass / 16mm cavity / 4mm glass)
- Standard non-acoustic trickle ventilators achieving sound insulation of at least $D_{ne,w}$ 37 dB
- Lightweight timber frame external wall construction, achieving sound insulation of at least R_w 45 dB

The strategy above is to demonstrate viability for preliminary guidance only. Further modelling and assessment should be undertaken during the detailed project design stage to determine detailed acoustic specification for the external façade elements.

5.2 Open Windows

It is commonly considered that a façade with an open window can achieve attenuation of external noise levels of between 10-15 dB (13 dB on average).

On this basis, we have predicted internal noise levels in the scenario where windows are open, based on the measured external noise levels, and in comparison with the Approved Document O night-time noise limits (presented in Section 3.6) as shown in Table 5.1.

Table 5.1 Open Window Noise Risk Assessment

Parameter	Measured External Noise Level (dB)	Predicted Internal Noise Level with Windows Open (dB)	ADO Comparison
$L_{Aeq, T}$	49	39	**Does Not Exceed ADO Limit**
$L_{Amax\ (10th\ highest)}$	64	54	**Does Not Exceed ADO Limit**

It is therefore predicted that noise levels are not likely to exceed the Approved Document O noise limits, and therefore *"use of opening windows as primary means of mitigating overheating is not likely to result in adverse effect".*

6.0 Internal Noise Transmission

The future tenant of the commercial unit at ground floor level is yet to be confirmed, however noise break-out from the unit will be controlled to achieve the acoustic requirements described in Section 3.

Control of noise transmission will be achieved via a combination of the following :

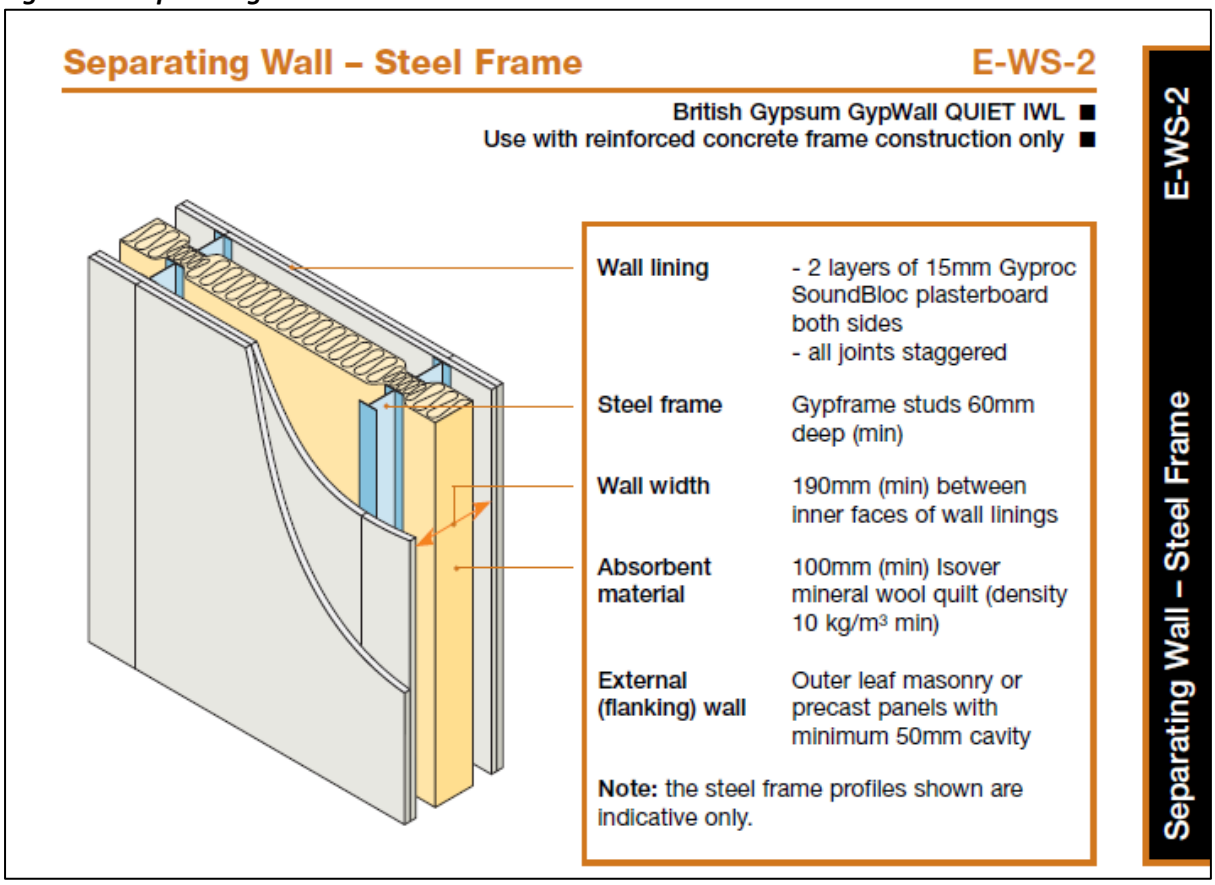
(a) Provision of a reasonable level of sound insulation in the base-build construction and
(b) Operational noise limitations via the tenancy agreement for each food & beverage unit

This is discussed in the following sections.

6.1 Internal Sound Insulation

Detailed design of the separating wall construction between the ground floor commercial units and the proposed residential units is yet to be undertaken, however it is likely to involve a twin frame party wall construction, similar to that presented in Figure 6.1 below.

Figure 6.1 Separating Wall Construction



The wall construction above is taken from the Robust Details Handbook and is therefore expected to achieve the internal airborne sound insulation standard proposed in Section 3.7 above, in conjunction with suitable flanking construction details and good workmanship on-site.

The predicted sound reduction performance of the above wall construction (based on laboratory test data from a partition manufacturer) is presented in Table 6.1 below.

Table 6.1 Predicted Sound Insulation Performance of the Separating Wall

Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)						
63	125	250	500	1k	2k	4k
31	41	52	60	60	65	65

The ground floor commercial unit is currently vacant, with the potential to be occupied by various types of commercial use. Therefore, we have undertaken noise transmission calculations for several potential commercial uses, which are shown in Tables 6.2 to 6.7.

Table 6.2 Noise Transmission Calculation – Restaurant with No Music

Element	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	
Typical Restaurant (No Music) Noise Level (L_{eq}, dB)	61	63	63	66	62	59	58	
Sound Reduction of Existing Separating Floor Construction (dB)	-31	-41	-52	-60	-60	-65	-65	
Correction for Floor Area and Receive Room Absorption (dB)	-2	-3	-2	-2	-4	-5	-5	L_{Aeq}
Predicted Noise Break-Out Level (dB)	**28**	**19**	**9**	**4**	**<0**	**<0**	**<0**	**11**

Table 6.3 Noise Transmission Calculation – Bar with Music

Element	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	
Typical Bar Noise Level (L_{eq}, dB)	89	88	81	80	77	72	70	
Sound Reduction of Existing Separating Floor Construction (dB)	-31	-41	-52	-60	-60	-65	-65	
Correction for Floor Area and Receive Room Absorption (dB)	-2	-3	-2	-2	-4	-5	-5	L_{Aeq}
Predicted Noise Break-Out Level (dB)	**56**	**44**	**27**	**18**	**14**	**3**	**0**	**35**

Table 6.4 Noise Transmission Calculation – Retail Shop with Quiet Music

Element	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	
Typical Retail Shop with Quiet Music Noise Level (L_{eq}, dB)	55	66	61	59	60	59	62	
Sound Reduction of Existing Separating Floor Construction (dB)	-31	-41	-52	-60	-60	-65	-65	
Correction for Floor Area and Receive Room Absorption (dB)	-2	-3	-2	-2	-4	-5	-5	L_{Aeq}
Predicted Noise Break-Out Level (dB)	**22**	**23**	**7**	**<0**	**<0**	**<0**	**<0**	**11**

Table 6.5 Noise Transmission Calculation – Retail Shop with Loud Music

Element	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	
Typical Retail Shop with Loud Music Noise Level (L_{eq}, dB)	88	86	79	77	78	76	68	
Sound Reduction of Existing Separating Floor Construction (dB)	-31	-41	-52	-60	-60	-65	-65	
Correction for Floor Area and Receive Room Absorption (dB)	-2	-3	-2	-2	-4	-5	-5	L_{Aeq}
Predicted Noise Break-Out Level (dB)	**55**	**43**	**26**	**15**	**14**	**7**	**<0**	**34**

Table 6.6 Noise Transmission Calculation – Pharmacy

Element	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	
Typical Pharmacy Noise Level (L_{eq}, dB)	58	60	63	58	52	47	43	
Sound Reduction of Existing Separating Floor Construction (dB)	-31	-41	-52	-60	-60	-65	-65	
Correction for Floor Area and Receive Room Absorption (dB)	-2	-3	-2	-2	-4	-5	-5	L_{Aeq}
Predicted Noise Break-Out Level (dB)	**25**	**16**	**9**	**<0**	**<0**	**<0**	**<0**	**7**

Table 6.7 Noise Transmission Calculation – Gym

Element	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	
Typical Gym Noise Level (L_{eq}, dB)	69	76	77	76	75	72	64	
Sound Reduction of Existing Separating Floor Construction (dB)	-31	-41	-52	-60	-60	-65	-65	
Correction for Floor Area and Receive Room Absorption (dB)	-2	-3	-2	-2	-4	-5	-5	L_{Aeq}
Predicted Noise Break-Out Level (dB)	**36**	**43**	**44**	**43**	**42**	**39**	**31**	**46**

It can be seen that the level of noise transmission to the proposed residential dwellings varies according to the commercial use, with uses involving loud music exceeding the internal noise level criteria provided in Table 3.2.

Prospective commercial tenants will therefore be subject to operational noise and vibration limits specified in a tenancy agreement, which is discussed further below.

6.2 Tenancy Agreement

Appendix C presents typical wording that could be included in a tenancy agreement, which we have used successfully on numerous developments in the past.

Typically, the tenant would be required to produce a technical assessment of their likely operational noise levels (e.g. based on similar operational site) and undertaken calculations, based on the proposed site conditions, to predict noise break-out levels. If the predicted levels exceed the proposed limits, then the tenant would be required to include noise mitigation measures in their design (e.g. upgraded acoustic ceiling, noise limiters on music, etc.), and present these measures to the landlord for review and approval.

7.0 Commercial Noise Assessment

To the rear of the site, it was noted that four twin fan condenser units are located at ground level at the rear of 17 Park Parade. In addition, a delivery entrance for Top Spot Snooker Hall is located to the west of the site located at 37b Park Parade.

We have therefore undertaken assessments of the potential noise impacts of these commercial noise sources on the proposed dwellings facing the rear/south of the site, in accordance with BS 4142: 2014+A1: 2019.

7.1 Building Services Plant

It is understood that 17 Park Parade is currently used for storage at ground floor level. Based on other commercial units nearby, it is assumed that the operating hours for this site, and the associated condenser units, are 09:00 – 17:30 hours Monday – Saturday.

Attempts have been made to determine the make and model of the condenser units during various site visits, however it has not been possible to access the specification plates, and details of the units could not be found on the Havant Borough Council planning portal.

In addition, it should be noted that that on all of our various site visits, the condenser units were not noted to be operating.

The condenser units are all noted to be single-fan Toshiba units. From reviewing the Toshiba product range, the worst-case sound power level for a single-fan condenser unit (Toshiba MCY-MHP0506HT-E*) was noted to be 74 dB L_{wA}.

These types of units do not usually generate tonal characteristics but they can operate intermittently, therefore a suitable correction has been considered in our calculation.

From the noise survey results, the typical background noise level during 09:00 – 17:30 hours Monday – Saturday was 52 dB $L_{A90\ (1\ hour)}$.

Our worst-case calculations to assess the noise impact of the condenser units, in accordance with BS 4142: 2014+A1: 2019, are shown in Table 7.1 below.

Table 7.1 BS 4142 Noise Impact Calculation – Building Services Plant

Element	Level (dB)	
	Unit 1	Unit 2
Condenser Unit Typical Sound Power Level L_{wA}	74	74
Quantity Correction	+6	+6
Acoustic Reflections	+3	+3
Screening Attenuation	-8	-8
Distance Attenuation	-32	-26
Intermittency Correction	+3	+3
Predicted Rating Level $L_{Ar,Tr}$ at Nearest Proposed Residential Window	**46**	**52**
Typical Existing Background Noise Level $L_{A90\ (1\ hour)}$	**52**	**52**
Difference	**-6**	**0**

It can be seen that the predicted rating level corresponds with a *"low noise impact"* in accordance with BS 4142: 2014+A1: 2019 guidance.

7.2 Delivery Vehicles

The commercial activities associated with Top Spot Snooker Club are likely to include deliveries via vans along Tidworth Road. The published opening hours are 16:00 – 23:00 hours Monday – Thursday and 12:00 – 23:00 hours Friday to Sunday. As the opening hours are during the daytime period, it is assumed that one delivery van could arrive, idle and depart during a typical daytime hour.

Typical source noise levels for van movements are as follows:

Van Arrival 77 dB L_{AE} at 5m

Van Unloading 62 dB L_{Aeq} at 5m

Van Departure 72 dB L_{AE} at 5m

Note: L_{AE} = Sound Exposure Level of complete event = $L_{Aeq\ (1\ sec)}$

It should be noted that the noise levels are presented as sound exposure levels for all activities apart from the general loading/unloading activities which is provided as an L_{Aeq} value. The time corrections within the assessments below take this difference into account.

Our calculations to assess the noise impact of the delivery noise, in accordance with BS 4142: 2014+A1: 2019, are shown in Table 7.2 below.

Table 7.2 BS 4142 Noise Impact Calculation – Delivery Noise

Element	Level (dB)		
	Van Arrival	Van Unloading	Van Depart
Source Noise Level	77	62	72
Distance Attenuation	-19	-19	-19
Time Correction	-36	-6	-36
Predicted Rating Level at Nearest Proposed Residential Window	22	37	17
Total Predicted Rating Level at Nearest Proposed Residential Window	**37**		
Typical Existing Background Noise Level $L_{A90\ (1\ hour)}$	**52**		
Difference	**-15**		

It can be seen that the predicted rating level corresponds with a *"low noise impact"* in accordance with BS 4142: 2014+A1: 2019 guidance.

8.0 Gym Vibration Assessment

8.1 Assessment Methodology

Dropping of weights onto the floor has the potential to generate vibration which can be transmitted to sensitive areas of the building, manifesting itself in the form of vibration and re-radiated noise.

Noise and vibration measurements were undertaken between 12:00 and 14:00 hours on Thursday 6 August 2026 to assess the transmission of noise and vibration due to dropping of a 40kg dumbbell (as a worst-case) on the ground floor within the proposed gym demise.

Noise and vibration measurements were undertaken within the ground floor area (where residential flats are proposed) during a series of dumbbell drops on the ground floor.

A selection of gym floor treatments were used for the measurements, as follows:

- Bare floor
- Basic rubber gym floor finish
- Basic rubber gym floor finish on 40mm Regupol 40/80 intermediary layer
- Specialist isolated acoustic jack-up floor test rig

Vibration measurements were carried out using a 01dB ORION vibration meter, mounted in the ground area where the dwellings are proposed.

The dumbbell was dropped from knee height 6-7 times onto each of the above floor treatments.

The building was unoccupied at the time of the measurements.

8.2 Results

Based on the measured vibration levels, calculations have been undertaken to predict noise levels ($L_{max,f}$) within the proposed ground floor dwellings, for comparison with the G-curve criteria specified in the Professional Practice Guidance on Gym Acoustics "*ProPG: Gym Acoustics Guidance (GAG)*" March 2023, produced by the Association of Noise Consultants (ANC) – described further in Section 3.8 above.

The predicted sound pressured levels are presented in Table 8.1, in comparison to the relevant G-curves (up to 800Hz) applicable to daytime and night-time periods.

Table 8.1 Predicted Sound Pressure Levels

Spectrum	Level (dB $L_{max,f}$) at Octave Band Centre Frequency (Hz)														
	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800
Bare Floor	71	71	62	51	66	66	57	56	73	66	64	61	59	42	27
Basic Rubber Gym Floor Finish	72	73	73	67	69	74	81	85	74	70	76	67	54	42	48
Basic Rubber Gym Floor Finish on 40mm Regupol 40/80 Intermediary Layer	62	60	66	52	55	42	49	50	49	44	53	46	43	28	26
Specialist Isolated Acoustic Jack-Up Floor Test Rig	49	46	57	50	50	36	39	46	54	50	50	48	46	38	23
G15 (night)	**61**	**52**	**45**	**39**	**35**	**31**	**28**	**25**	**22**	**20**	**17**	**15**	**14**	**12**	**11**
G20 (day)	**64**	**56**	**49**	**43**	**39**	**35**	**32**	**29**	**27**	**24**	**22**	**20**	**18**	**17**	**16**

It can be seen that all of the predicted levels exceed the G-curves for both daytime and night-time periods, even with the specialist isolated acoustic jack-up floor test rig.

This scenario is considered to represent the limit of what is feasible, therefore it could be concluded that the ground floor demise is not acoustically suitable for a gym use.

9.0 Conclusion

It is proposed to convert part of the ground floor at 21 Park Parade in Havant to create new residential dwellings.

The site is located in a mixed urban environment with potential commercial uses within the building, therefore **auricl** has been appointed to assess the potential noise impacts of the surroundings on the proposed dwellings.

A noise survey has been carried out to assess typical noise levels affecting the development site over daytime and night-time, weekday and weekend periods.

Based on the noise survey results, calculations have been undertaken to determine the acoustic requirements of the proposed residential façades, so as to achieve internal noise levels within the residential properties that are commensurate with the proposed internal noise level standards.

Our calculations indicate that the internal noise standards should be achievable using standard non-acoustic construction elements and the required levels of sound reduction should not be difficult to achieve.

External noise levels affecting future occupants have been assessed in relation to the noise limits contained in Approved Document O of the Building Regulations. It was concluded that on all sides of the site, external noise levels are such that *"use of opening windows as a primary means of mitigating overheating is not likely to result in adverse effect".*

A preliminary assessment of internal noise transmission has been undertaken for the wall separating the commercial use and proposed residential units at ground floor level. The internal noise levels vary according to the commercial use, with the standards specified in BS 8233: 2014 being achieved by uses that have lower typical noise levels associated with them.

Worst-case noise assessments have been undertaken for external commercial uses, including deliveries and building services plant. The assessments have been undertaken in accordance with the methodology and guidance given in BS 4142: 2014+A1: 2019 and conclude that the predicted noise impact corresponds with a *"low noise impact"* during the relevant daytime operating hours.

Noise and vibration measurements were undertaken to assess the transmission of noise and vibration due to dropping of a 40kg dumbbell (as a worst-case) on the ground floor within the proposed gym demise.

Based on the measured vibration levels, calculations have been undertaken to predict noise levels within the proposed ground floor dwellings, for comparison with the G-curve criteria specified in the Professional Practice Guidance on Gym Acoustics "*ProPG: Gym Acoustics Guidance (GAG)*" March 2023, produced by the Association of Noise Consultants (ANC).

It was found that the predicted levels exceed the G-curves for both daytime and night-time periods, even with a specialist isolated acoustic jack-up floor test rig.

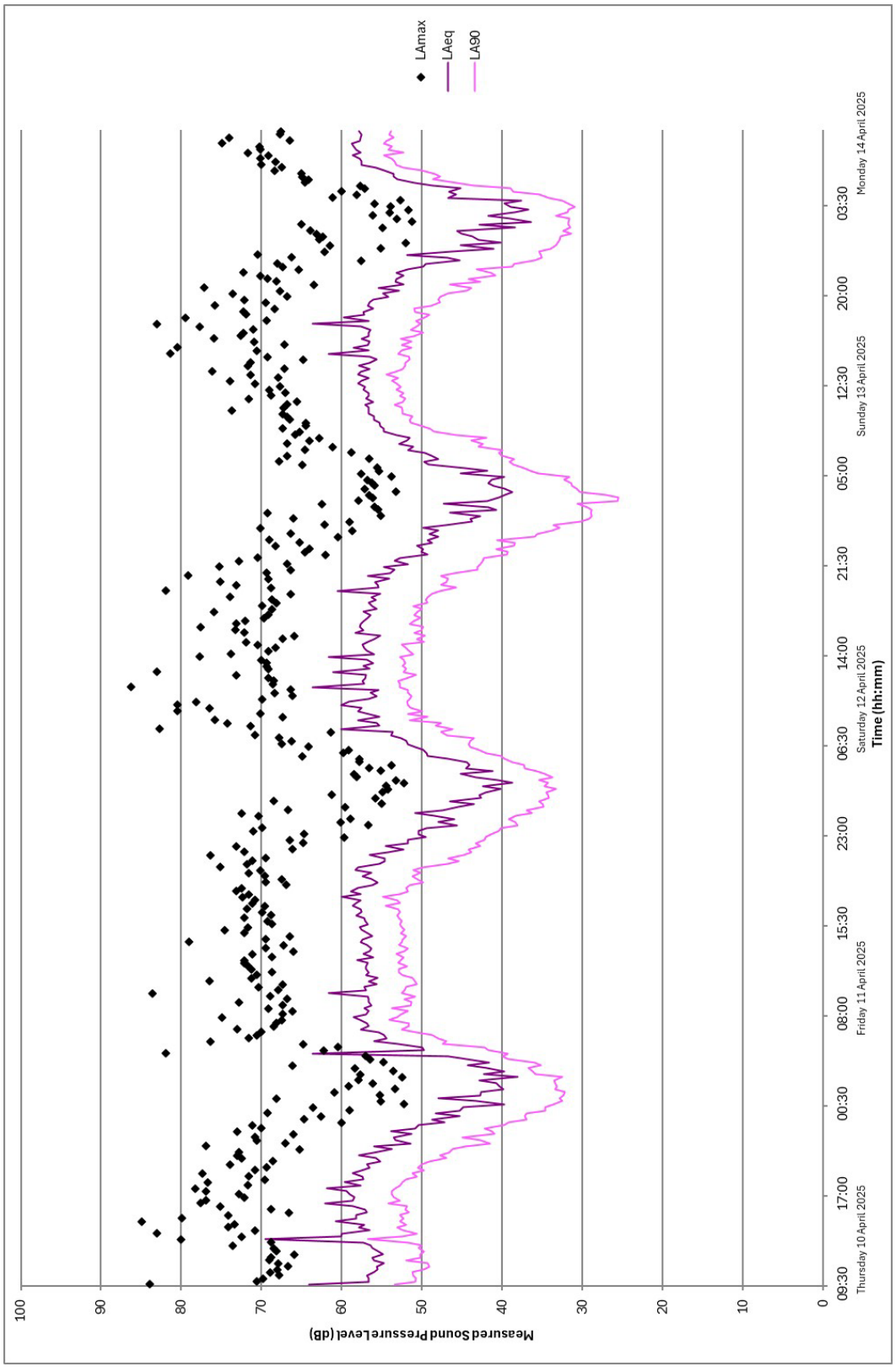
This indicates that a gym represents a particularly intensive use of the commercial space from an acoustic perspective and may not be the most suitable use beneath residential accommodation.

Notwithstanding this specific scenario, the wider assessment confirms that the proposed residential development is capable of achieving appropriate levels of acoustic amenity, with no significant constraints identified for typical commercial uses.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing ($20x10^{-6}$ Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
L_{Amax}	The A-weighted maximum noise level measured during the measurement period.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
$L_{A90\ (15\ min)}$	The noise level exceeded for 90% of the time (also referred to as the background noise level), measured over a 15 minute period
R_w	The weighted (w) sound reduction index (R), a single figure rating of the laboratory airborne sound insulation performance of a construction, usually measured across the frequency range 100-3150 Hz. The higher the value, the greater the sound insulation, and the more onerous the requirement.
$D_{n,e,w}$	The weighted (w) element (e) normalised (n) level difference (D), a single figure indicator of the ability of a small building element (such as a trickle ventilator) to reduce sound. The higher the value, the greater the sound reduction, and vice versa.

Appendix B – Time History Graph



Appendix C – Typical Tenancy Agreement Wording

1.0 General

Noise and vibration due to the Tenant's operations, activities and building services plant shall be designed, installed and maintained such that:

(a) it does not cause constitute a noise nuisance

and

(b) it achieves any Local Authority planning/Environmental Health/Building Control requirements

and

(c) noise break-out to the first floor dwellings does not exceed 25 dB L_{Aeq}

2.0 Noise due to Operations

Noise due to operations is expected to include activity noise within the demise, as well as noise due to any building services plant or plant rooms within the Tenant's demise.

2.1 Internal

So as to comply with the general requirements given in Section 1.0, it is suggested that the Tenant limits noise levels in this demise to those shown in Table 1.

Table 1. Suggested Noise Limits in Demise

Parameter	Maximum Sound Pressure Level (dB re 2 x 10^{-5} Pa) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
$L_{eq\ (1\ hour)}$	83	77	71	67	67	68	69

Should the Tenant wish to operate at greater noise levels than those shown in Table 1, additional sound insulation measured may be necessary as part of the Tenant's fit-out. As a minimum, this would be expected to include a plasterboard ceiling throughout the Tenant's demise.

Any additional measured shall be proposed by the Tenant to the Landlord. The design proposal shall include, as appropriate, calculations and manufacturer's sound insulation test results for any proprietary systems.

The base-build floor construction separating the ground floor and first floor levels can be assumed to provide the sound reduction indices given in Table 2, in the absence of any additional measures (e.g. suspended ceiling) in the ground floor demise.

Table 2. Sound Reduction Indices for Floor Construction Separating Ground and First Floor Levels

Sound Reduction Index (dB) @ Octave Band Centre Frequency (Hz)						
63	125	250	500	1k	2k	4k
30	34	38	41	43	46	48

Additionally, measures may be required in order to minimise the transfer of structure-borne sound e.g. resilient mounting of loudspeakers in the ground floor demise.

2.2 External

Noise break-out from the ground floor demise to external areas shall be limited so as to comply with the requirements of the Local Authority (this may require an environmental noise survey to be undertaken to establish background noise levels).

In addition, noise break-out to public circulation areas shall be limited to a maximum of 55 dB $L_{Aeq\ (1\ hour)}$ during daytime periods (07:00 – 23:00 hours), when measured at any position 2m from the external façade of the demise and at least 1.5m above ground level.

3.0 Building Services Plant Noise and Vibration

3.1 Internal

Noise due to any internal plant within or serving the Tenant's demise shall be limited so as to comply with the general requirements given in Section 1. For ant plant rooms within the Tenant's demise, noise levels therein should not exceed the suggested noise limits given in Table 2.

Should the Tenant wish to operate at greater noise levels than those shown in Table 1, additional sound insulation and noise control measures may be necessary as part of the Tenant's fit-out.

Vibration emitted by any internal plant within or serving the Tenant's demise shall not exceed 0.01m/s^2 peak acceleration within any other demises of the building, as defined in Clause 3.3 of BS 6472-1: 2008.

3.2 External

External noise emissions from building services plant shall be limited so as to comply with the requirements of the Local Authority.

3.3 General

Noise from the Tenant's plant should not exhibit any tonal content. Where any tonal content is apparent, the noise limits shall be reduced by 5 dB.

All Tenant plant shall be appropriately vibration isolated.

The Tenant shall be responsible for maintaining the plant to ensure that worn or damaged components do not increase the noise or vibration output.

The Tenant shall submit to the Landlord details of plant noise and vibration emissions and a scheme for attenuation/control thereof so as to comply with the specified limits, prior to commencing ant installation.

The plant is likely to be subject to manufacturer's tolerances. The Tenant team should allow for this in their proposals.

4.0 Submission of Proposals

The Tenant's proposals to control noise and vibration to within the specified limits shall be submitted to the Landlord and shall include:

- Description of likely activities within the Tenant's demise
- Predicted operational noise levels within the Tenant's demise
- Details of any additional sound insulation measures that are deemed necessary

- Manufacturer's noise emission data for any building services plant
- Manufactuer's noise reduction data for any plant noise attenuation (attenuators, etc.)
- Predicted noise levels within any plant rooms in the Tenant's demise
- Predicted external noise emissions from the Tenant's building services plant
- Details of the Tenant's proposed vibration isolation measures