

**JAMESON
ACOUSTICS**

Consultants in acoustics,
noise and vibration

Technical Note

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Author	Andrew Jameson
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The Abercromby, St Michaels, Manchester Operational Noise Assessment

1.0 Overview

As part of the wider St Michaels development, it is proposed to renovate the existing Abercromby public house which will form a link to the ground floor restaurant at No2 St Michaels. The proposal is to retain the external appearance of the public house onto Bootle St and Abercromby Sq, with a new build extension to the rear that will form a link into the main No2 podium at ground floor. The extension will also allow for a new staircase up to the public house at Level 1.

The public house itself will be renovated to provide front of house space across the three levels above ground, all operated by the tenant of the No2 St Michaels restaurant demise.

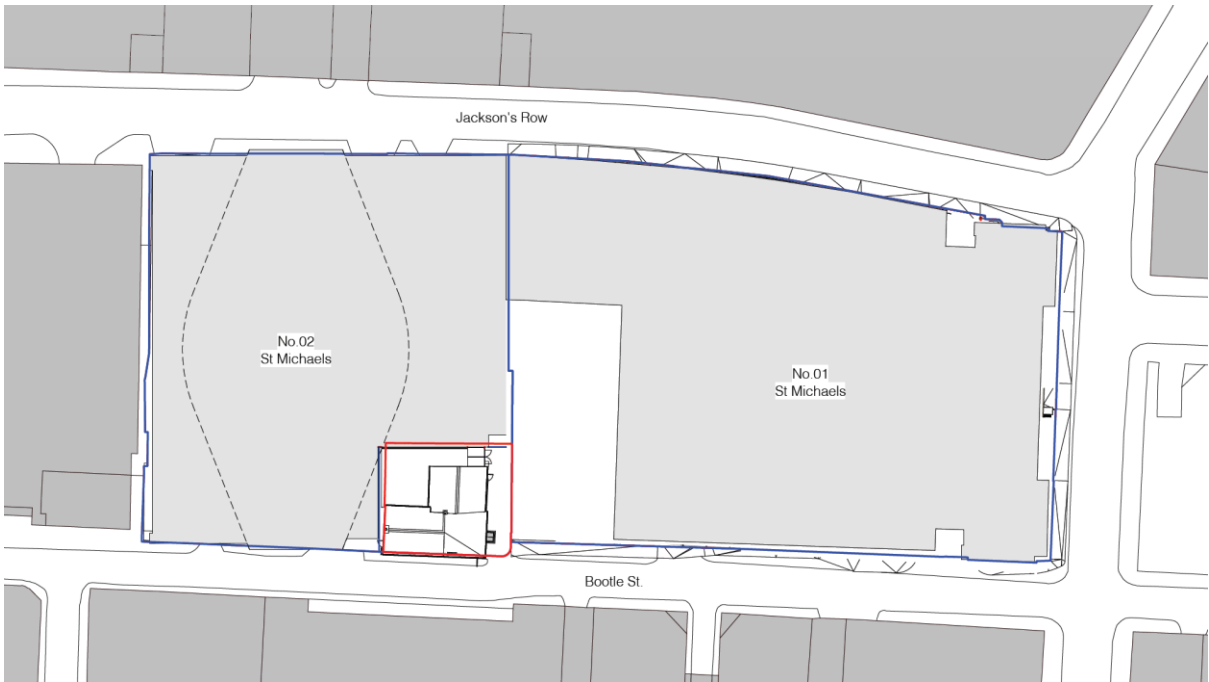
There will be no outdoor terrace seating, smoking or social areas associated with this development.

The building will require new items of building services plant (for heating, ventilation and air conditioning; HVAC). The mechanical equipment will remove any reliance on openable windows for ventilation or overheating control during operation. The outdoor plant will be sited on a plant deck to the rear of the building at Level 2.

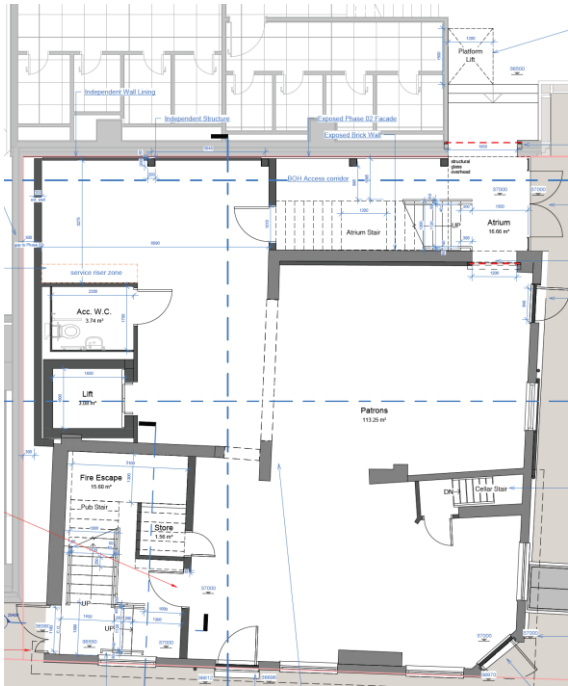
The location plan and Level 0-2 proposed floor plans are provided below.

When operational, the development will have the potential to generate noise from (a) internal activity & music noise breakout, and (b) external plant noise emissions.

This note seeks to define the acoustic requirements for the above, in line with Manchester City Council (MCC) requirements, and demonstrate that the scheme proposes suitable provisions to ensure these requirements shall be achieved.



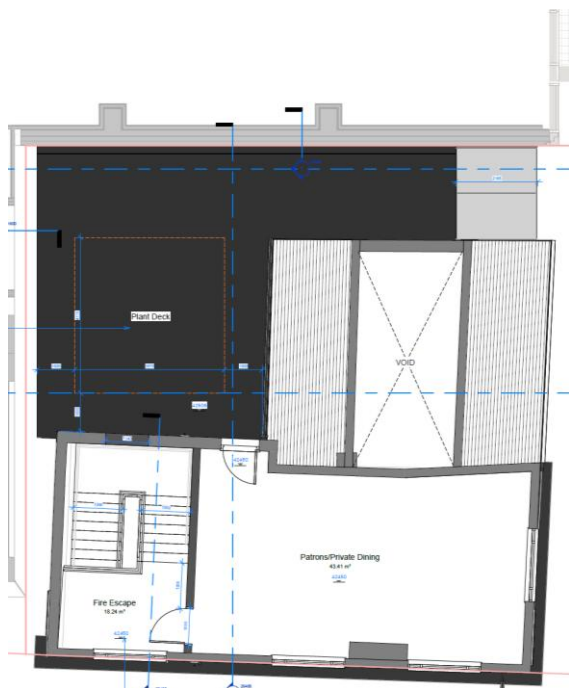
Location Plan



Level 00 (link to main restaurant in green)



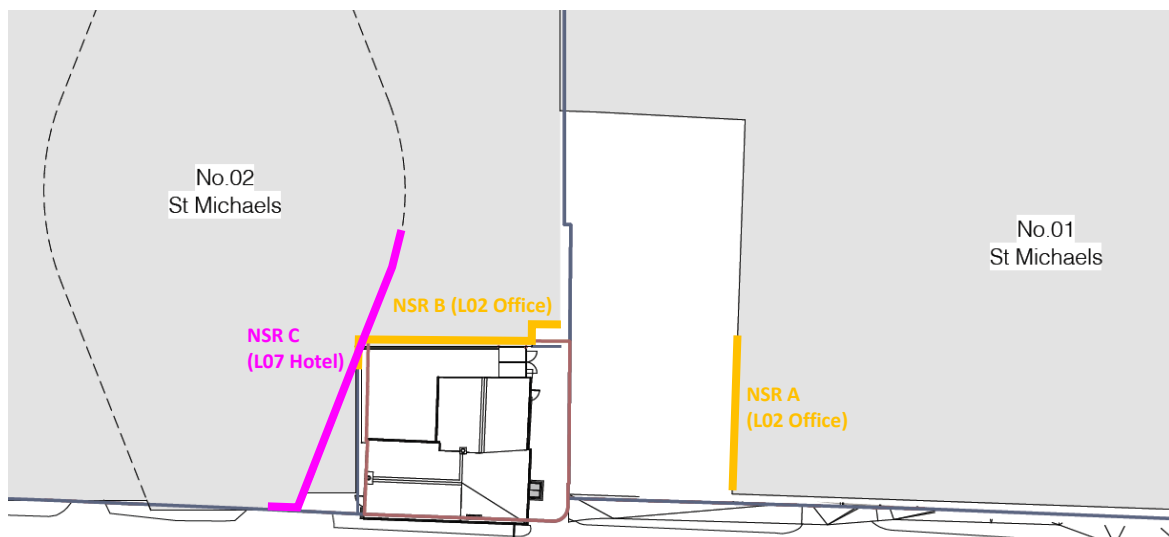
Level 01



Level 02 (with external plant deck)

2.0 Nearest Noise Sensitive Receptors

The nearest noise sensitive receptors will be office and residential windows within the St Michaels development itself. The nearest (and most exposed) office windows to the Abercromby will be at Level 2 in both Phase 1 & 2 demises, as highlighted below (NSR A & B). The nearest residential windows will within the Phase 2 tower at Level 07; hotel guestrooms (NSR C).



The nearest off-site noise sensitive residential receptors will be B&B guestrooms above the Old Nag's Head public house to the north, and the Radisson Blu Hotel to the south-east, as indicated below. Office windows serving 201 Deansgate to the west could also be considered. However, all off-site receptors are at a significant distance from the development, with significant screening provided by intervening buildings. Noise control to the St Michaels own receptors highlighted above are expected to represent the 'worst case' scenario.

3.0 Baseline Noise Survey

The noise requirements set herein are determined in relation to the prevailing background noise levels in the area. It is not feasible to establish these levels on-site now, nor has it for the past 3 years, whilst the St Michaels development has been under construction.

Noise requirements shall therefore be set in relation to the original baseline noise survey readings taken in 2019 and used to inform the design of the complete St Michaels masterplan scheme. This survey was conducted by Hoare Lea Acoustics as presented in their Stage 2 Acoustics Report (Rev 1 dated 5 July 2019).

The results of their survey were used to set site wide noise limits in relation to activity/music (referred to hereon as 'entertainment') and plant. These same limits have continued to be adopted for the Phase 2 development, albeit with some adjustments agreed with MCC (as discussed below), and shall be adopted for the Abercromby development also.

4.0 Operational Noise Criteria

Entertainment Noise Limits

The Hoare Lea Report confirmed entertainment noise limits that applied at the worst affected facades of the sensitive receptors and were set based on MCC's requirements at the time which stated:

Where entertainment noise is proposed the LAeq (entertainment noise) should be controlled to 10dB below the LA90 (without entertainment noise) at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63Hz and 125Hz octave frequency bands should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB, respectively.

It has since been agreed, via email with Graeme Souter (email of 27/11/24) that the requirement can be relaxed to 5dB below the LA90. Hence, the limits presented in the Hoare Lea report have been increased by 5dB and are presented below. NB: equivalent limits have been set at residential/hotel facades within the St Michaels scheme. Technically these could be considered overly stringent for the hotel rooms as they have sealed façades (non openable windows). It could be considered reasonably to apply a further 5 dB relaxation of the limits to the hotel rooms, but this won't be at this stage of the design.

Receptor (Time Period)	'Entertainment' Noise Level, $L_{eq,5min}$ (dB) Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Radisson Blu Hotel (0700-2300)	53	53	50	47	45	40	33
Radisson Blu Hotel (2300-0700)	53	53	49	46	44	38	31
Old Nag's Head (0700-2300)	55	51	49	47	46	40	31
Old Nag's Head (2300-0700)	52	49	48	45	43	37	29
St Michaels Residential/Hotel (0700-2300)	55	51	49	47	46	40	31
St Michaels Residential/Hotel (2300-0700)	52	49	48	45	43	37	29

The above residential/hotel limits can also be applied to St Michaels office facades during the daytime only.

Plant Noise Limits

The following table presents the site wide plant noise limits, as stipulated in the Hoare Lea report and set in accordance with MCC's requirement of 5 dB below the prevailing background noise levels. Limits have been applied to St Michaels facades in the same fashion as the entertainment noise limits.

Receptor	Site Wide Plant Noise Rating Level, $L_{A,T,r}$ (dB)	
	Daytime (07:00-23:00)	Night-time (23:00-07:00)
Radisson Blu Hotel	55	54
Old Nag's Head	55	53
201 Deansgate (Offices)	55	-
St Michaels Residential/Hotel Facades	55	53

The above residential/hotel limits can also be applied to St Michaels office facades during the daytime only.

5.0 Entertainment Noise Assessment

In this section we shall determine maximum internal operational noise limits for the restaurant areas within the Abercromby development. These limits shall be based on ensuring operational noise output does not exceed the entertainment noise limits presented in Section 4.0 at the key receptors highlighted in Section 2.0.

The building is constructed from existing masonry walls with punched in windows with a traditional tiled roof.

It is our proposal that the windows to the Abercromby can be a conventional double-glazed type. No sound reduction performance specification need necessarily apply – conventional double glazing or existing single glazing in traditional timber (or any other) frame type can be expected to achieve not less than 25 dB $R_w + C_{tr}$.

It is also our proposal that at Level 2, the roof construction shall be underdrawn with a ceiling comprising a double layer of dense plasterboard (e.g. 2 x 15 mm SoundBloc) and at least 50 mm cavity mineral wool. The plasterboard should be hung on channels below the roof's main timber truss structural elements.

If we consider the typical anticipated sound reduction performance of each of the building's external elements, we can determine the sound reduction afforded by each of the building's main "radiating surfaces" (i.e. facade and roof) by means of composite area calculations. The following table lists typical published or predicted sound reduction performance figures for each element (with sensible limitations applied for sound flanking). The calculated composite sound reduction performance of the façades and the roof are also summarised. Note, we shall consider entrance doors to be open for 1min of the 5min period, to account for people entering/exiting the facility.

Element	Apparent sound reduction, R' (dB) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
External wall (e.g. 3 layers brick)	40	43	48	54	58	63	65
Existing/replacement single/double glazing	20	20	22	25	28	30	33
Thermal timber door (closed)	20	23	26	30	34	36	38
Thermal timber door (open)	0	0	0	0	1	2	3
Tiled roof (acoustic ceiling as above)	25	35	40	45	50	55	55

Radiating Surface	Composite apparent sound reduction (composite area calculation), R' (dB) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Façade (equivalent 5-min R' , door open 1min/5min assess period)	18	18	19	19	20	21	22
Roof (incl. flanking via windows & door onto plant deck, door closed at all times)	24	28	30	35	41	41	44

The calculations to determine maximum operational noise limit use the industry standard equation for calculating noise breakout:

$$SPL_{out} = SPL_{in} - SRI + 10 \log_{10} \left(\frac{S}{r^2} \right) - 14$$

, where SPL_{out} is the resultant noise level outside, SPL_{in} is the reverberant noise level inside the venue, SRI is the composite sound reduction of the façade, S is the area of the façade (m^2), and r is the distance.

The following table presents our calculations to each of the three key noise sensitive receptors (NSR A-C). Note, a 3 dB 'safety' has been applied to account for potential noise from other nearby restaurant and leisure unit within the St Michaels scheme.

Receptor: NSR A (St Michaels offices, Ph1)							
Desc.	63	125	250	500	1k	2k	4k
SPLout (criteria), dB Leq,5min	55	51	49	47	46	40	31
SRI (façade), dB R'	18	18	19	19	20	21	22
$10 \log(S/r^2)$, $S = 30m^2$, $r=12m$, dB	-7	-7	-7	-7	-7	-7	-7
-14, dB	-14	-14	-14	-14	-14	-14	-14
3 dB overhead for 'other tenant noise'	3	3	3	3	3	3	3
SPLin (internal noise limits), dB Leq,5min	91	87	86	84	84	79	71
Receptor: NSR B (St Michaels offices, Ph2)							
Desc.	63	125	250	500	1k	2k	4k
SPLout (criteria), dB Leq,5min	55	51	49	47	46	40	31
SRI (roof), dB R'	24	28	30	35	41	41	44
$10 \log(S/r^2)$, $S = 50m^2$, $r=5m$, dB	3	3	3	3	3	3	3
-14, dB	-14	-14	-14	-14	-14	-14	-14
3 dB overhead for 'other tenant noise'	3	3	3	3	3	3	3
SPLin (internal noise limits), dB Leq,5min	87	87	87	90	95	89	83
Receptor: NSR C (St Michaels hotel, Ph2)							
Desc.	63	125	250	500	1k	2k	4k
SPLout (criteria), dB Leq,5min	52	49	48	45	43	37	29
SRI (roof), dB R'	24	28	30	35	41	41	44
$10 \log(S/r^2)$, $S = 50m^2$, $r=15m$, dB	-7	-7	-7	-7	-7	-7	-7
-14, dB	-14	-14	-14	-14	-14	-14	-14
3 dB overhead for 'other tenant noise'	3	3	3	3	3	3	3
SPLin (internal noise limits), dB Leq,5min	94	95	96	98	102	96	91

If we take the lowest SPL_{in} per octave band at any of the three receptors, we determine the following theoretical maximum internal noise limits within the Abercromby as below.

Room	Internal Operational Noise Limit, $L_{eq,5min}$ (dB) Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Any room within Abercromby	87	87	86	84	84	79	71

The above noise levels are deemed more than adequate to facilitate a modern bustling restaurant/bar playing ambient levels of amplified music. For context, the following table compares the calculated operational noise limits against typical noise levels measured in various busy restaurants in Manchester City Centre (unless otherwise stated). In each case, the surveyed facility was more than 70% full and measurements were taken as a spatial average across the restaurant floor (incl open kitchen where applicable).

Desc.	Measured Reverberant L_{eq} Noise Level (dB) at Octave Band Centre Frequency (Hz)							Overall (dBA)
	63	125	250	500	1k	2k	4k	
Calculated noise limits	87	87	86	84	84	79	71	87
Zizzi's restaurant, background music	61	63	63	66	62	59	58	68
Wagamama's, no music, open kitchen	64	65	69	72	69	69	63	75
Pizza Hut, background music	63	63	65	65	64	61	57	68
San Carlos, busy restaurant, background music	60	67	69	71	70	66	60	74
Altrincham food market (Sat lunchtime, high ambient amplified music)	82	77	75	75	73	71	68	78

Ultimately, it shall be the responsibility of the Abercromby tenant to ensure their operation adheres to the noise requirements presented herein. The above is simply to demonstrate that the renovated building is expected to be suitable to accommodate the anticipated use.

Requirements for the tenant will be assigned by means of a tenant specification. A suitable form of words for inclusion in this tenant specification is attached in Appendix A, which applies to the complete demise (i.e. including the new-build sector within the Ph2 podium).

6.0 Plant Noise Assessment

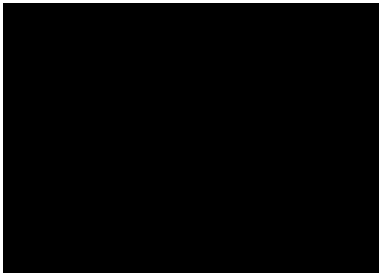
External plant will be housed on the Level 2 plant deck (roof) and will most likely comprise kitchen extract fans, general ventilation air handling plant and heat rejection (A/C) condenser units.

At this stage, plant has not been selected so we cannot perform the associated noise emission calculations. However, it is envisaged that the risk of excessive building services noise can be mitigated by design and this could be secured by the introduction of an appropriately worded condition of planning.

See attached form of words for inclusion in this tenant specification, which would set the responsibility to the tenant for designing and acoustically mitigating their plant installations, and for ensuring plant continues to operate within the plant noise limits through the life of the development.

We trust the above is clear and of assistance. However, should you have any queries, please do not hesitate to contact the undersigned.

For and on behalf of
Jameson Acoustics Limited



JA: 22024-SPEC-1-R0 (L00 Restaurant)

St Michaels, Manchester

Revision 0, Feb 2026

Tenants Specification – L00 Restaurant Acoustic Requirements

B.0 Acoustics

All designs, works, materials, installations and tolerances are to be fully in accordance with the following:

- Building Regulations.
- British Standard BS 8233: 2014.
- British Standard BS 4142: 2014.
- CIBSE Guides by Chartered Institution of Building Services Engineers.
- Planning Conditions and other requirements of the Local Authority.
- Statutory noise nuisance legislation.
- Manufacturer's installation instructions on acoustic matters.
- Other relevant British Standards and Codes of Practice.

Where more than one standard is applicable, the more onerous shall be achieved. Any relaxation of the acoustic criteria described herein must be agreed in writing by the Landlord or his Acoustic Consultant.

Tenants are warned that in some cases the acoustic criteria contained herein will be difficult to achieve. Tenants are advised to engage an acoustic consultant at an early stage to identify and address the implications of these acoustic criteria.

B.1 Atmospheric Noise Emissions

Tenants shall control noise from all of their sources (including mechanical services, amplified speech/music and activities) such that the total atmospheric noise emissions from the development:

- a) Do not cause a statutory noise nuisance.
- b) Comply with the planning conditions and other requirements of the Local Authority, including:
 - Non-emergency plant noise emissions to be assessed in accordance with BS 4142:2014+A1:2019 and achieve a noise rating level, $L_{A_{r,Tr}}$, not higher than 5 dB below the prevailing background noise level, L_{90} , at 1m from nearby noise sensitive receptors (site cumulative, i.e. with consideration for landlord & other tenant plant). – *See Table B1 below.*
 - Amplified speech/music and activities ['Entertainment'] noise emissions, expressed as $L_{eq,5min}$, to achieve a level not higher than 5 dB below the prevailing background noise level, L_{90} , in each octave band (63 Hz-4 kHz) at 1m from nearby noise sensitive receptors (site cumulative, i.e. with consideration for landlord and other tenant amplified speech/music and activities). – *See Table B2 below.*
- c) Noise from plant, amplified speech/music and activities to be controlled to a level not exceeding 55 dB L_{Aeq} or a level not higher than 5 dB above the prevailing background noise level, L_{A90} , on public pavements around the site (measured between 1-2 metres from building façade and 1.5-1.8 metres above ground).

All of the above criteria relate to the total noise levels from all sources within the development. Tenants shall therefore make appropriate allowances for contributing noise from other sources within the development.

Table B1 – Site Wide (Cumulative) Plant Noise Limits

Receptor	Site Wide Plant Noise Rating Level, $L_{A,T,r}$ (dB)	
	Daytime (07:00-23:00)	Night-time (23:00-07:00)
Radisson Blu Hotel	55	54
Old Nag's Head	55	53
201 Deansgate (Offices)	55	-
St Michaels Office Facades	55	-
St Michaels Residential/Hotel Facades	55	53

Table B2 – Site Wide (Cumulative) Entertainment Noise Limits

Receptor (Time Period)	Amplified 'Entertainment' Noise Level (dB) Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Radisson Blu Hotel (0700-2300)	53	53	50	47	45	40	33
Radisson Blu Hotel (2300-0700)	53	53	49	46	44	38	31
Old Nag's Head (0700-2300)	55	51	49	47	46	40	31
Old Nag's Head (2300-0700)	52	49	48	45	43	37	29
St Michaels Residential/Hotel (0700-2300)	55	51	49	47	46	40	31
St Michaels Residential/Hotel (2300-0700)	52	49	48	45	43	37	29

B.2 Noise and Vibration Transfer to Internal Areas

Tenants shall control noise and vibration transfer from all of their sources (including mechanical services, amplified speech/music and activities) to internal areas beyond their demise such that:

- (a) It does not cause a nuisance, disturbance or annoyance.
- (b) It does not exceed any acoustic criteria specifically agreed between the Landlord and other Tenants.
- (c) It does not exceed the criteria stipulate in Table B3 below.

Table B3 – Internal Noise Transfer Criteria

Adjacent Area	Criteria for Mechanical Services	Criteria for Music & Activities
Office, Ballroom	NR 30 L_{eq}	NR 30 $L_{eq,5min}$, <i>with absolute low frequency noise limits, $L_{eq,5min}$, of 52 dB at 63 Hz & 46 dB at 125 Hz</i>
Retail Units, Restaurants, Bars, Circulation Areas, Landlord's Areas and Other Occupied Areas	NR 35 L_{eq}	NR 35 $L_{eq,5min}$
Car Park, Service Yards/Loading bays	NR 50 L_{eq}	NR 50 $L_{eq,5min}$

NB: Peak maximum noise levels, $L_{max,f}$, not to exceed a level 5 NR curves higher than those stipulated above.

- (d) It does not give rise to audible tones or rattles.
- (e) Vibration transfer from M&E services to internal occupied areas shall not exceed $0.01m.s^{-2}$ peak based on the W_b weighting as defined within BS 6841-1: 2008 'Guide to Evaluation of Human Exposure to Vibration in Buildings'.

Criterion (a) is ultimately the overriding requirement. Provided (a) is complied with in full, some relaxation of (b) (c) (d) and (e) may be permissible, but only at the Landlord's discretion. Compliance with (b) (c) (d) and (e) would however, in most cases, be considered as evidence tending to demonstrate compliance with (a).