Noise Impact Assessment

The Hive, Lever Street

Stantec

Prepared for:
Want Studios

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Table of Contents

Document control sheet ..... **i**
1 Introduction **2**
1.1 Overview 2
1.2 Site Context 2

2 Methodology **3**
2.1 Consultation with Local Authority 3
2.2 Policy and Guidance 3
2.3 Existing Sensitive Receptor 3

3 Noise Survey **5**
3.1 Overview 5
3.2 Monitoring Locations 5
3.3 Survey Weather Conditions 5
3.4 Description of Baseline Acoustic Environment 6
3.5 Summary of Measured Sound Levels 6

4 Noise Impact Assessment **7**
4.1 Identification of Potential Noise Sources 7
4.2 Identification of Background Sound Level 8
4.3 Formulation of Rating Level 8
4.3.1 Attenuation of Sound over Distance and Screening 8
4.3.2 Application of Acoustic Feature Corrections 8
4.4 BS4142 Comparison of Rating and Background Sound Levels 9

5 Mitigation **11**
5.1 Overview 11
5.2 Required Attenuation 11
5.3 Example Mitigation 11

6 Residual Impacts **13**
6.1 BS4142 Comparison of Rating and Background Sound Levels 13

7 Conclusions **15**

Table 2-1. Nearest Existing Sensitive Receptors to the Site 3
Table 3-1. Monitoring Locations 5
Table 3-2. Summary of Average Sound Levels 6
Table 4-1. Summary of Specific Sound Level 7
Table 4-2. Comparison of Rating and Background Level, Weekdays 08:00-18:00 9
Table 4-3. Comparison of Rating and Background Level, 22:00-23:00 9
Table 5-1. Required Attenuation for Each Noise Source to each ESR 11
Table 5-2. Example Mitigation Specifications 12
Table 6-1. Comparison of Residual Rating and Background Levels, Weekdays 08:00-18:00 13
Table 6-2. Comparison of Residual Rating and Background Levels, 22:00-23:00 14

Figure 1 - Monitoring Location, Existing Sensitive Receptors, and Proposed Plant Termination Points 4

Appendix A Glossary
Appendix B Policy and Guidance
Appendix C Noise Survey Results
Appendix D Kitchen Ventilation Specification
Appendix E Example Mitigation Specification

1 Introduction

1.1 Overview

Stantec have been appointed by Want Studios (hereafter the 'Applicant') to undertake an assessment of potential noise impacts arising from the installation of fixed building services plant, as part of refurbishment proposals for the former Pie & Ale premises located at the Ground Floor Unit (hereafter the ‘Proposed Development’) of The Arcade, The Hive, 47 Lever Street, Manchester, M1 1FN (hereafter the ‘Site’).

This assessment evaluates the potential noise impacts associated with the proposed kitchen ventilation system at the nearest Existing Sensitive Receptors (ESRs), in accordance with current policy and guidance.

It is understood that the kitchen will operate from 10:00 to 22:00 on weekdays, and from 09:00 to 22:30 on weekends. The extract system will be housed internally, terminating at louvres located on the northwestern and southwestern façades of the building. No other external fixed plant is proposed.

This report sets out the findings and conclusions of the assessment and provides recommended noise control measures, where applicable.

A glossary of acoustic terminology is provided as **Appendix A**.

1.2 Site Context

The Site is located within the Northern Quarter of Manchester City Centre, in a predominantly commercial area comprising office buildings, cafés, and restaurants, with some residential properties also present in the surrounding vicinity. The Proposed Development occupies a ground floor unit within The Arcade at The Hive, a mixed-use building that includes commercial office spaces on the upper floors.

To the north, the Site is bordered by Spear Street, with the Spear Building residential apartments situated beyond. To the east, it adjoins other ground floor commercial units within The Arcade. To the south, the Site is bordered by Faraday Street, with additional commercial properties and Lever Street beyond. To the west, the Site is bordered by both Faraday Street and Spear Street, with further commercial premises located nearby.

2 Methodology

This assessment considers noise impacts associated with fixed building services plant at the nearest Existing Sensitive Receptors (ESRs), in accordance with BS8233 and BS4142, during the proposed extended operating hours.

2.1 Consultation with Local Authority

The proposed environmental sound survey and assessment methodology were sent to the Environmental Health department at Manchester City Council (MCC) on the 28th of October 2025. No response has been received at the time of writing.

2.2 Policy and Guidance

Relevant policy and guidance documents considered within this assessment are listed below:

- National Planning Policy Framework, 2024 (NPPF);
- Noise Policy Statement for England, 2010 (NPSE);
- Planning Practice Guidance – Noise, 2019 (PPG);
- World Health Organisation (WHO) 1999: Guidelines for Community Noise;
- British Standard 8233: 2014 Guidance on sound insulation and noise reduction for buildings (BS8233);
- British Standard 4142:2014+A1:2019 - Methods for rating and assessing commercial and industrial sound (BS4142); and,
- Manchester City Council – Planning and Noise – Technical Guidance 2022 (MCCNG).

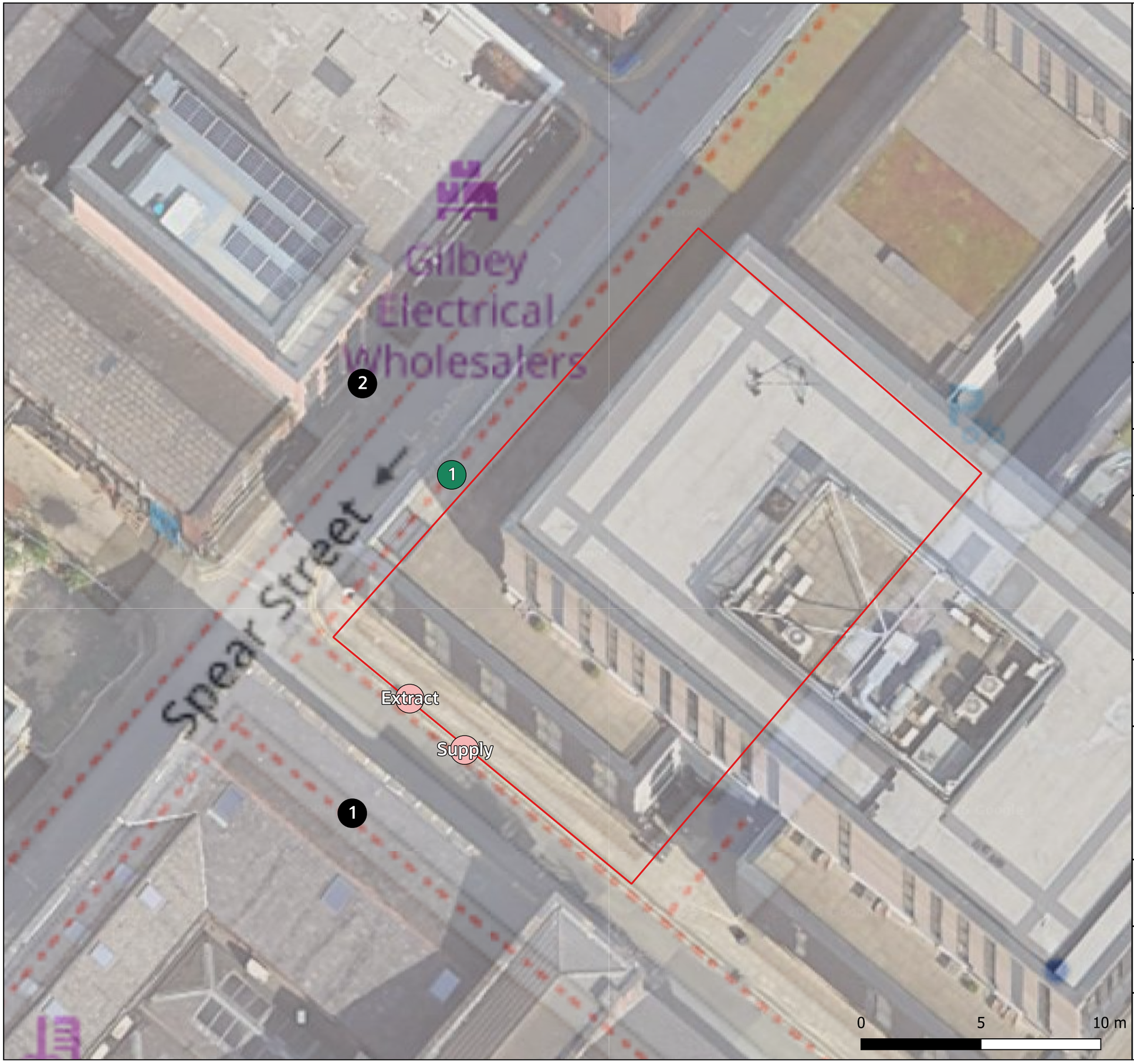
A summary of policy and guidance is provided in **Appendix B**.

2.3 Existing Sensitive Receptor

Based on a review of aerial imagery and observations whilst attending the Site, the nearest ESR has been identified as presented in **Figure 1** and described in **Table 2-1**.

Table 2-1. Nearest Existing Sensitive Receptors to the Site

Reference	Description / Address	Approximate Co-ordinates		Approx. Distance and Bearing from Site
		X (Easting)	Y (Northing)	
ESR1	Residential dwelling situated on first floor Spear Building	384586	398517	Approximately 5 m, Northwest
ESR2	Commercial Premises dwellings situated around Faraday Street	384586	398535	Approximately 5 m, Southwest



Key

- Monitoring Locations
- Existing Sensitive Receptor
- Proposed Plant Termination Points
- Approximate Site Boundary

Notes

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3 Noise Survey

3.1 Overview

An environmental sound survey was carried out between 28th and 29th April 2025. The sound survey comprised unattended monitoring at on Monitoring Locations (ML) as presented on **Figure 1**.

The sound level meter was set up to continuously record A-weighted, time-equivalent, one-third octave band sound pressure levels – together with the L_{min}, L_{Fmax}, L_{10} and L_{90} indices sound levels – for the duration of the measurement period. The measurements were carried out with a Class 1 integrating sound level meter; the microphone was placed out of a first-floor window of a vacant office space, approximately 1 m away from the façade. The meter was calibrated pre and post measurement, with no significant calibration drift (<0.5 dB).

All sound monitoring was carried out in general accordance with British Standard 7445-2 - *Description and measurement of environmental noise. Guide to the acquisition of data pertinent to land use*.

3.2 Monitoring Locations

MLs are illustrated on **Figure 1** and described in **Table 3-1**.

Table 3-1. Monitoring Locations

Monitoring Location (see Figure 1)	Description	Time Period	
		Start	End
ML1	Unattended sound monitoring out of first-floor window facing onto Spear Street, above the Proposed Development at The Hive, opposite ESR2. Microphone was located approximately 6.5 m above ground level, approximately 4 m from the façade of the ESR2. The purpose of this monitoring location was to establish typical ambient and background sound levels at a location representative of both ESRs.	10/04/2025 18:00	14/04/2025 08:00

The results of the baseline sound survey are presented in full in **Appendix C**.

3.3 Survey Weather Conditions

Historical weather data has been reviewed from publicly available online resources recorded at a weather station in Salford, which is the closest available to the site in central Manchester.

The data indicates slight precipitation during the following periods: 20:00–21:30 on 28th October 2025, 01:00–04:00, and 07:00–08:00 on 29th October 2025. A parallel review of survey data and audio recordings has been undertaken, and it's considered that the weather conditions had no significant effect on the results.

3.4 Description of Baseline Acoustic Environment

The existing acoustic environment at and in the vicinity of the Site was evaluated during the survey. In addition, measurements were supplemented with audio recording to allow analysis of the data. The following sound sources were identified during the survey.

Transportation Sources: Road traffic on Lever Street (A576) and the surrounding local road network was audible at ML1 during the daytime and night-time periods. Occasional van movements, with reverse beepers on Spear Street and Faraday Street were audible at ML1 also.

Industrial Sources: External Fixed Plant from the façade of a building approximately 30 m to the southeast, on Spear Street, was clearly audible at ML1.

Entertainment Sources: Through audio analysis, music from nearby premises was audible at ML1 during the evening.

Other Sources: Sound from pedestrians on Spear Street and Faraday Street, as well as trolley and bin movements also contributed to the acoustic environment at ML1.

3.5 Summary of Measured Sound Levels

The results of the survey at ML1 are summarised in **Table 3-2** as measured average ($L_{Aeq,T}$) sound levels and measured 90th percentile sound levels ($L_{A90,T}$).

Table 3-2. Summary of Average Sound Levels

Monitoring Location (see Figure 1)	Time Period	Measured Average Sound Level, dB $L_{Aeq,T}$	Measured 90th Percentile Sound Level, dB $L_{A90,T}$
ML1	0700 – 2300	59	52
	2300 - 0700	58	49

4 Noise Impact Assessment

This Noise Impact Assessment (NIA) has been carried out in order to determine the significance of impacts of potential sound at the nearest ESRs from externally terminating fixed building services plant associated with the refurbishment of the former Pie & Ale venue, located at a ground floor unit of The Arcade, The Hive, 47 Lever Street.

4.1 Identification of Potential Noise Sources

The following potential noise sources associated with the Proposed Development have been identified as follows:

- Kitchen Extract Fan Outlet – System Air MUB 062 560D4 Multibox
- Kitchen Extract Fan Inlet – System Air MUB 062 560D4 Multibox

A diagram of the kitchen ventilation system (drawing no. “0176-00”) produced by APL Mechanical Services, along with specification sheets for the equipment shown, have been provided by the client – these are shown in **Appendix D**. In-duct attenuation calculations have been carried out, based on these specifications, which have in turn been used to predict the sound power levels at the termination points of the kitchen supply and extract fans (inlet and outlet) on each building façade.

The venue operator has confirmed that the proposed kitchen will operate until 22:00 on weekdays and 22:30 on weekends and will not be operational during any night-time hours.

Table 4-1 shows the manufacturer specified sound power level, as well as the calculated sound power level at the termination point for both the supply and extract fans of the kitchen ventilation system.

Table 4-1. Summary of Specific Sound Level

Source	Source Sound Level Power Level L_{WA} dB	Sound Power Level at External Termination L_{WA}, dB
Supply Fan Inlet	84	77
Extract Fan Outlet	85	84

4.2 Identification of Background Sound Level

Two separate assessment periods have been selected for this assessment based on the nature and sensitivities of ESRs.

ESR1 is an office space, which is considered to be sensitive during typical daytime working hours, between the hours of 08:00 and 18:00.

ESR2 is a residential dwelling, therefore the period between 22:00 and 23:00 forms the basis of this assessment, at which time kitchen extracts have the highest potential for noise impacts at nearby residential ESRs, because background noise levels are typically lower.

Furthermore, weekday background levels are considered to provide a robust assessment of impacts because levels are typically lower than during the weekend in central Manchester due to the Site's proximity to other evening entertainment establishments.

Therefore, the average measured L_{A90} sound levels between 08:00-18:00 and 22:00- 23:00 have been selected as representative background levels, in order to provide a robust assessment of potential impacts. These levels are 52 $L_{A90,\ 1hour}$ and 51 dB $L_{A90,\ 1hour}$ respectively.

4.3 Formulation of Rating Level

4.3.1 Attenuation of Sound over Distance and Screening

In order to establish noise rating levels at both ESRs, in accordance with BS4142, a calculation for attenuation of sound over distance has been carried out between the external termination points and ESRs, to obtain the specific level at the assessment location.

The distance from the supply inlet and extract outlet to the closest window of ESR1 is approximately 5 m in both cases, which results in a combined specific level from fixed plant at ESR1 of 63 dB.

The supply and extract inlet and outlet termination points are on Faraday Street with a direct line of sight to ESR1. No screening attenuation is therefore necessary.

ESR2, on Spear Street, is off axis and screened from the noise emitted from the inlet and outlet termination, therefore a conservative 5 dB of screening attenuation has been applied. The distance from the supply inlet and extract outlet to the nearest window of ESR2 is approximately 15 m and 12 m, respectively; distance corrections have been applied accordingly.

4.3.2 Application of Acoustic Feature Corrections

In accordance with BS4142, a correction should be applied to the specific level of noise where it is perceived as tonal, intermittent, impulsive, or otherwise readily distinctive against the existing acoustic environment, at the receptor location.

The specific sound associated with the operation of the fixed plant is not considered to be impulsive, intermittent or tonal and the existing noise environment in the vicinity of ESRs is currently dominated by existing plant associated with the neighbouring buildings. Therefore, noise from the proposed plant is not considered to be readily distinctive above the residual environment and no specific feature correction is required.

4.4 BS4142 Comparison of Rating and Background Sound Levels

ESR1 – Nearby Offices

Table 4-2 sets out the comparison of rating level and background level at ESR1 during a typical working daytime period.

Table 4-2. Comparison of Rating and Background Level, Weekdays 08:00-18:00

Description	ESR1
Specific Sound Level at ESR, dB $L_{Aeq,\,T}$	63
Acoustic Feature Correction, dB	0
Rating Level at ESR, dB $L_{Ar,T}$	63
Representative Measured Background Sound Level, dB $L_{A90,\,T}$	52
Exceedance of Rating Level over Background, dB	+11

Table 4-2 demonstrates that the rating level exceeds the background sound level by up to 11 dB at ESR1. This provides an initial indication of a significant adverse impact, depending on the context, in accordance with BS4142.

Furthermore, this exceedance is 16 dB above the target rating level of 5 dB below background at ESRs recommended by MCC noise guidance. Therefore, mitigation measures are required to reduce the level of noise from the proposed development.

ESR2 – Nearby Residential

Table 4-3 sets out the comparison of rating level and background level at ESR2 during a typical evening period.

Table 4-3. Comparison of Rating and Background Level, 22:00-23:00

Description	ESR2
Specific Sound Level at ESR, dB $L_{Aeq,\,T}$	51
Acoustic Feature Correction, dB	0
Rating Level at ESR, dB $L_{Ar,T}$	51
Representative Measured Background Sound Level, dB $L_{A90,\,T}$	51

Description	ESR2
Exceedance of Rating Level over Background, dB	+0

Table 4-3 demonstrates that the rating level matches the background sound level. This provides an initial indication of an adverse impact, depending on the context.

Additionally, a 0 dB exceedance is 5 dB above the target rating level at the ESRs recommended by MCC noise guidance, which sets out that the rating level should be 5 dB below the background sound level. Therefore, mitigation measures are required to reduce the level of noise from the proposed development.

5 Mitigation

5.1 Overview

This assessment indicates that the proposed fixed building services plant is considered likely to result in significant adverse impacts at the identified ESRs, and that the rating level at the worst affected ESR is 11 dB above the target level, as set out in MCC guidance. Therefore, mitigation measures are required to reduce sound levels resulting from the operation of the kitchen ventilation system at the Proposed Development.

Based on the assessment, to suitably reduce noise in order to satisfy MCC guidance, the rating level of noise associated with fixed building services plant should not exceed 47 dB $L_{Ar,Tr}$ at ESR1 and 46 dB $L_{Ar,Tr}$ at ESR2. Potential outline mitigation options are detailed below:

- Use of acoustic silencers within extract ductwork prior to both the supply intake and extract exhaust terminations.
- Use of acoustically rated louvres at the external termination points of the kitchen ventilation system

5.2 Required Attenuation

Calculations have been carried out in order to determine the minimum required attenuation in each octave band to achieve a rating level below 47 dB $L_{Ar,Tr}$ at ESR1, the worst affected ESR, as summarised in **Table 5.1**.

It should be noted that, despite a lower necessary rating level of 46 dB $L_{Ar,Tr}$ at ESR2, this ESR is further away from the plant sources and is also slightly screened. So, if the target rating level of 47 dB $L_{Ar,Tr}$ is achieved at ESR1, by reducing the sound from the termination points, the 46 dB $L_{Ar,Tr}$ at ESR2 will also be achieved.

Table 5-1. Required Attenuation for Each Noise Source to each ESR

Acoustic Path	Required Attenuation, dB						
	63 Hz	125 Hz	250 Hz	500Hz	1000 Hz	2000 Hz	4000 Hz
Supply Point to ESR1	0	0	1	8	18	9	19
Extract Point to ESR1	0	0	8	18	23	24	23

It should be noted that, even if the chosen mitigation does not achieve the required insertion loss in each octave band, that the overall broadband level may still be achieved.

5.3 Example Mitigation

Numerous example products would provide sufficient attenuation of noise at ESRs to reduce the overall rating level to at least 5 dB below the background. A review of example products and noise prediction

calculations have been undertaken. Two example mitigation options that meet the requirements have been identified as follows:

- Acoustic silencers located internally between each fan unit and its façade termination point, or
- Acoustically-rated louvres at each façade termination point.

Example products for both options can achieve the target reduction; the insertion losses for example products are shown in **Table 5.2** and the product data sheets are shown in **Appendix E**.

Table 5-2. Example Mitigation Specifications

Example Product	Insertion Loss, dB						
	63 Hz	**125 Hz**	**250 Hz**	**500Hz**	**1000 Hz**	**2000 Hz**	**4000 Hz**
Systemair LDK 70 Silencer	0	5	7	19	24	23	15
Caice SH300 Acoustic Louvre	6	7	10	18	31	28	26

To accommodate silencers between the fans and termination points, the fans would likely need to be relocated to provide sufficient space between the unit and the façade termination, requiring reconfiguration of the ductwork.

Acoustically rated louvres emit noise depending on the face velocity of airflow. For the purposes of this assessment, we have based our calculations on the highest specified face velocity of 2 m/s provided in the product datasheet. If the actual face velocity exceeds this value, the level of regenerated noise may increase. This requires confirmation by an MEP engineer.

6 Residual Impacts

The residual noise impacts associated with the proposed development, with the inclusion of mitigation measures, have been predicted and assessed in accordance with BS4142 and MCC guidance in order to demonstrate that suitable noise levels can be achieved.

For the purposes of this assessment, the attenuation provided by the Systemair LDK 70 in duct silencer has been adopted, because it provides a robust assessment i.e. less insertion loss than the louvre option presented in **Section 5**.

6.1 BS4142 Comparison of Rating and Background Sound Levels

ESR1 – Nearby Offices

Table 6-1 sets out the comparison of rating level and background level at ESR1 during a typical working daytime period with the proposed mitigation.

Table 6-1. Comparison of Residual Rating and Background Levels, Weekdays 08:00-18:00

Description	ESR1
Specific Sound Level at ESR, dB $L_{Aeq,\,T}$	63
Acoustic Feature Correction, dB	0
Attenuation Provided by Example Silencers, dB	-19
Rating Level at ESR, dB $L_{Ar,T}$	44
Representative Measured Background Sound Level, dB $L_{A90,\,T}$	52
Exceedance of Rating Level over Background, dB	-8

Table 6-1 demonstrates that the rating level is predicted to be at least 8 dB below the typical background level at nearby ESRs. This provides an initial indication of low impact, in accordance with BS4142, depending on context.

Furthermore, this demonstrates that a rating level of 5 dB below the typical background level recommended by MCC guidance will be achieved, with the implementation of an appropriate mitigation scheme.

ESR2 – Nearby Residential

Table 6-2 sets out the comparison of rating level and background level at ESR2 during a typical evening period with the proposed mitigation.

Table 6-2. Comparison of Residual Rating and Background Levels, 22:00-23:00

Description	ESR2
Specific Sound Level at ESR, dB $L_{Aeq, T}$	51
Acoustic Feature Correction, dB	0
Attenuation Provided by Example Silencers, dB	-19
Rating Level at ESR, dB $L_{Ar,T}$	32
Representative Measured Background Sound Level, dB $L_{A90, T}$	51
Exceedance of Rating Level over Background, dB	-19

Table 6-2 demonstrates that the rating level is predicted to be at least 19 dB below the typical background level at nearby ESRs. This provides an initial indication of low impact, in accordance with BS4142, depending on context.

Furthermore, this demonstrates that a rating level of 5 dB below the typical background level recommended by MCC guidance will be achieved, with the implementation of an appropriate mitigation scheme.

The context in which the proposed plant noise occurs has been considered as part of this assessment. Overall, no additional factors are expected to adversely influence the significance of the impact.

Therefore, providing a suitable mitigation scheme is implemented, there are no noise grounds for refusal of the application.

7 Conclusions

Stantec have been appointed to undertake an assessment of potential noise impacts arising from the installation of fixed building services plant, as part of refurbishment proposals for the former Pie & Ale premises located at a ground floor unit of The Arcade, The Hive, 47 Lever Street, Manchester, M1 1FN. The primary sound emitting sources are the supply and extract fans which are part of the proposed kitchen ventilation system.

An environmental sound survey was conducted to establish the existing acoustic environment at the site during relevant periods, in accordance with current guidance. Observations identified that existing mechanical plant noise was the dominant source in the vicinity of the Site and nearby existing sensitive receptors.

The assessment demonstrates that, with the inclusion of a suitable mitigation scheme, noise from the proposed development is considered to result in a low impact, in accordance with BS4142, and will achieve the plant noise levels recommended by MCC guidance.

The minimum attenuation requirements and example products for the scheme of noise mitigation is provided in this report. The findings of this report should be adopted bey the MEP consultant appointed for this development and final plant selections should be reviewed by a suitably qualified acoustician to confirm compliance with this report.

With the inclusion of an appropriate mitigation scheme, as set out herein, it’s considered there are no noise ground for refusal of the planning application.

Appendices

Appendix A Glossary

Term	Description
dB	Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the sound being assessed to a standard reference level.
dB(A)	The human ear is more susceptible to mid-frequency sound than the high and low frequencies. To take account of this when measuring sound, the 'A' weighting scale is used so that the measured sound corresponds roughly to the overall level of sound that is discerned by the average human. It is also possible to calculate the 'A' weighted sound level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted sound level is known as the dB(A) level. Because of being a logarithmic scale sound levels in dB(A) do not have a linear relationship to each other. For similar sounds, a change in sound level of 10dB(A) represents a doubling or halving of subjective loudness. A change of 3dB(A) is just perceptible.
L_{Aeq}	The concept of L_{Aeq} (equivalent continuous sound level) has until recently been primarily used in assessing sound in industry but seems now to be finding use in defining many other types of sound, such as aircraft sound, environmental sound and construction sound. L_{Aeq} is defined as the (A-weighted) notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 30 minutes).
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure
Sound Pressure Level (Sound Level)	The sound level is the sound pressure relative to a standard reference pressure of 20μPa (20x10-6 Pascals) on a decibel scale.
Sound Level Indices	Sound levels usually fluctuate over time, so it is often necessary to consider an average or statistical sound level. This can be done in several ways, so a number of different sound indices have been defined, according to how the averaging or statistics are carried out.
$L_{A90,T}$ or Background Sound Level	A sound level index defined as the A-weighted sound level exceeded for 90% of the time over the time period T. L_{90} can be considered to be the "average minimum" sound level and is often used to describe the background sound.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5 metres
Fast Time Weighting	An averaging time used in sound level meters. Defined in BS5969.
Rating Level ($L_{Ar,Tr}$)	To BS 4142:2014+A1:2019, the rating level is defined as the equivalent continuous A-weighted sound pressure level produced by the specific sound source over a given reference time interval, Tr plus any adjustment for the characteristic features of the sound (tonality, impulsivity, etc).

Appendix B Policy and Guidance

B.1 National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF), sets out overarching government policy aims relating to new developments and material planning considerations / decisions. Set within the context of the UK Government's policy on sustainable development, the NPPF seeks to avoid significant adverse impacts as a result of noise and to minimise or reduce adverse impacts on health and quality of life.

Whilst this typically applies to the potential impacts of new developments on existing sensitive uses, it also recognises that existing businesses should not be prejudiced by changes to nearby land uses ('agent of change' principle) which introduce new sensitive receptors.

B.2 Noise Policy Statement for England (NPSE)

Published in March 2010, the Noise Policy Statement for England (NPSE) sets out the long-term vision of Government noise policy as follows:

> **"Promote good health and good quality of life through the effective management of noise within the context of Government policy on sustainable development."**

The NPSE identifies three observed effect levels, names "No Observed Effect Level" (NOEL), "Lowest Observed Adverse Effect Level" (LOAEL) and "Significant Observed Adverse Effect Level" (SOAEL). The NPSE contains little detail on assessment methodologies and specific parameters at which the varying observed effect levels would occur in the context of a residential development.

B.3 Planning Practice Guidance (PPG)

PPG is provided by the government as supplementary guidance to the NPSE and national policies. It provides detail on how the 'adverse' and 'significant adverse' effect levels described by NPPF and the NOEL, LOAEL and SOAEL described by the NPSE can be recognised, as follows:

- Noise levels above the NOEL become noticeable, however they have no adverse effect as they do not result in any change in behaviour or attitude.
- Noise levels above the LOAEL (adverse) begin to have an adverse effect and therefore consideration needs to be given to mitigating and minimising associated effects, taking account of the economic and social benefits being derived from the activity causing the noise.
- Noise levels above the SOAEL (significant adverse) should be avoided. The planning process should be used to avoid the effect occurring by use of appropriate mitigation such as by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the noise source and associated development, but it is undesirable for such exposure to be caused.
- Should noise exposure increase further, at the highest extreme, the situation should be prevented from occurring regardless of the associated economic and social benefits.

B.4 World Health Organisation (WHO): Guidelines for Community Noise

The WHO 'Guidelines for Community Noise' sets out health-based guidelines for external and internal noise levels at residential dwellings. The purpose of the guidance is to aid in minimising adverse health

effects which may occur due to high environmental noise levels associated with sources such as road traffic, rail, and community uses.

Regarding the potential noise impacts of the development proposals on the surrounding residential dwellings, the guidelines state that to avoid 'moderate annoyance' during the daytime and evening, noise levels at dwelling façades should not exceed 50 dB $L_{Aeq,T}$.

The guidelines also state that for a good sleep, indoor sound pressures levels should not exceed approximately 45 dB L_{AFmax} more than 10-15 times per night.

B.5 British Standard 8233:2014 – Guidance on sound insulation and noise reduction for buildings (BS8233)

BS8233:2014 provides guidance on the design of buildings to achieve acceptable internal acoustic environments. It is primarily concerned with the control of noise from external sources (e.g. road traffic, railways, aircraft) and internal sources (e.g. building services, adjacent spaces) to ensure suitable acoustic conditions for occupants.

The standard sets out recommended internal noise level criteria for various building types and uses, including dwellings, offices, schools, and healthcare premises. For residential dwellings, the guidance recommends that:

- Living rooms should not exceed 35 dB $L_{Aeq,16hr}$ during the daytime (07:00–23:00).
- Bedrooms should not exceed 30 dB $L_{Aeq,8hr}$ during the night-time (23:00–07:00).

BS8233 also provides advice on the use of building envelope design, layout, and ventilation strategies to achieve these internal noise levels.

B.6 British Standard 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound (BS4142)

BS4142:2014+A1:2019 sets out a methodology for assessing the impact of industrial and commercial sound sources on nearby residential receptors. It is typically used in planning and environmental noise assessments for sources such as factories, warehouses, air conditioning units, and loading bays.

The assessment involves comparing the rating level of the sound (which includes acoustic features such as tonality, impulsiveness, and intermittency) with the background sound level at the receptor location. The difference between these levels indicates the likely impact:

- A difference of +10 dB or more is likely to be an indication of significant adverse impact.
- A difference of +5 dB is likely to be an indication of adverse impact.
- A difference of 0 dB or less is likely to be an indication of low impact.

The standard emphasises the importance of context, including the absolute level of sound, the character and level of residual and specific sound, and the sensitivity of the receptors. It also provides

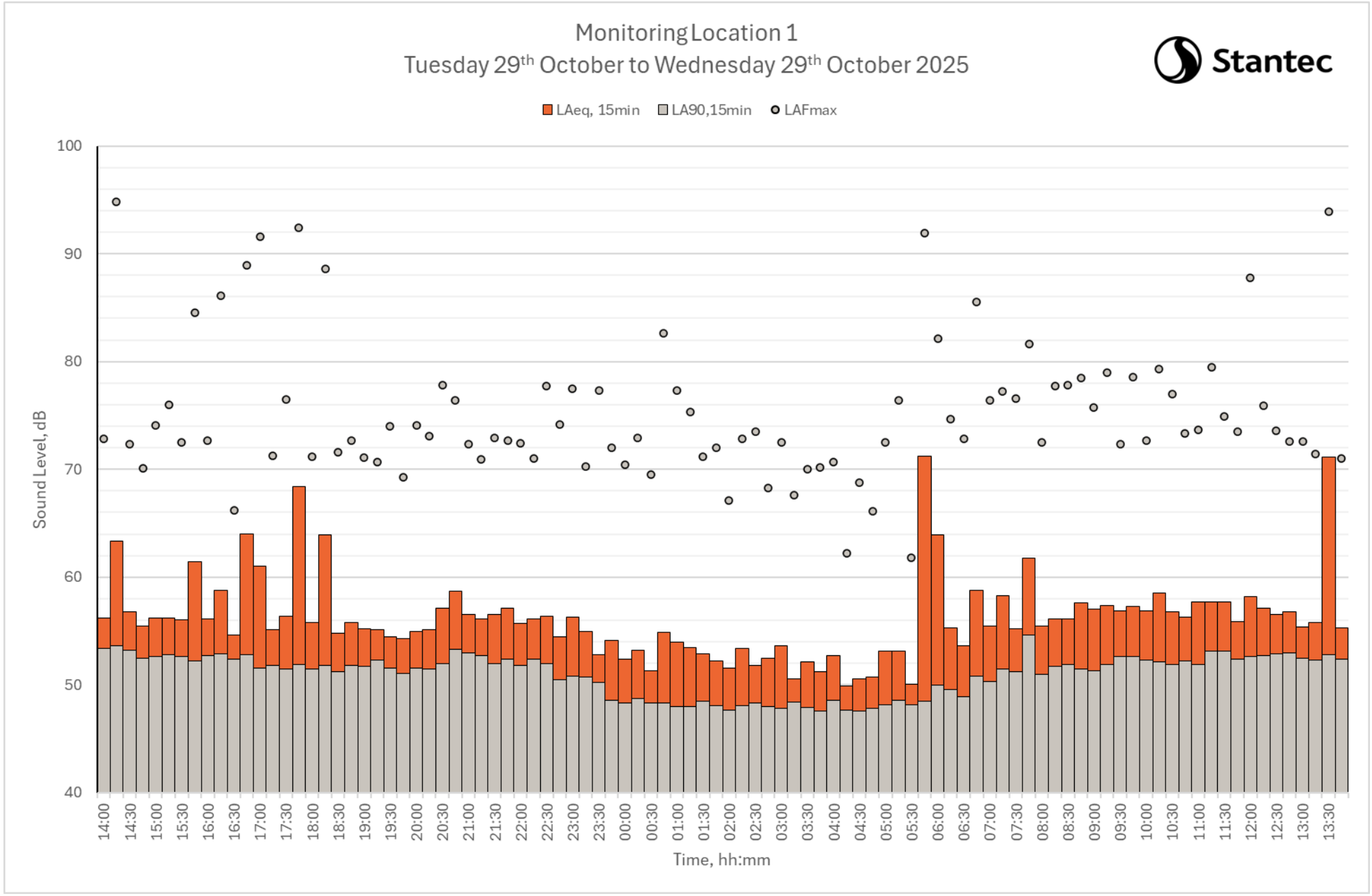
guidance on measurement procedures, corrections for acoustic features, and uncertainty in assessments.

B.7 Manchester City Council – Planning and Noise – Technical Guidance 2022 (MCCNG)

MCC requires noise assessments based on BS 4142, addressing both overall noise levels and any distinct characteristics. Applications for such installations must show that external plant achieves a rating level at least 5 dB below the typical background noise ($L_{A90,T}$) at the nearest noise-sensitive location to ensure negligible impact.

Achieving this standard typically prevents noise complaints. Specifications for proposed equipment should be included with acoustic reports, allowing consultants to assess potential impact and propose mitigation if levels exceed the 5 dB criterion.

Appendix C Noise Survey Results


Monitoring Location 1
Tuesday 29th October to Wednesday 29th October 2025
Stantec
LAeq, 15min
LA90,15min
LAFmax
Sound Level, dB
100
90
80
70
60
50
40
14:00
14:30
15:00
15:30
16:00
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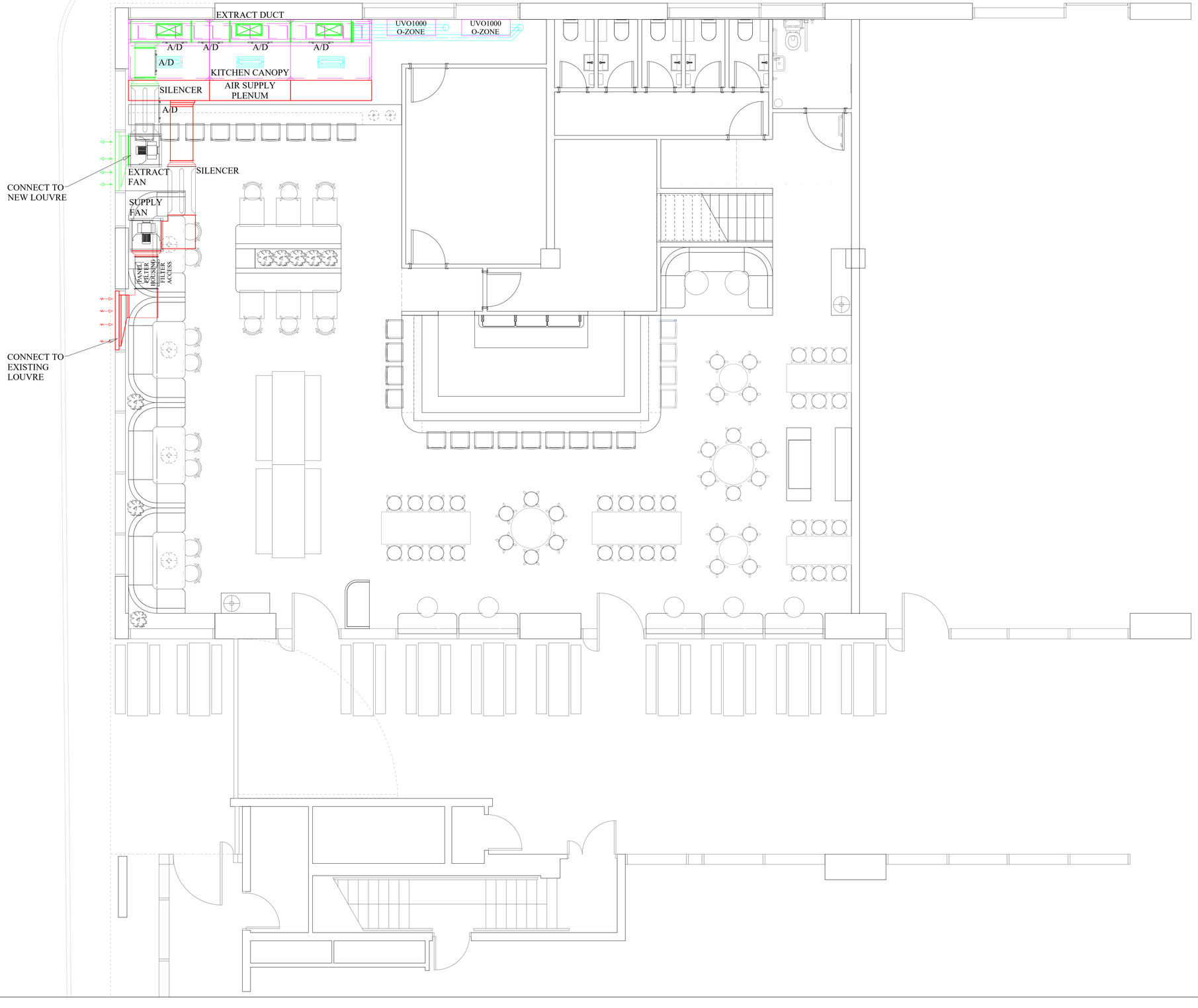
13:30
Time, hh:mm

Appendix D Kitchen Ventilation Specification



Rev	Date	Description
A	19-11-25	KITCHEN SUPPLY / EXTRACT DUCT WORK ROUTE REVISED. (DB)

Client: WANT STUDIOS

Job Title:
THE HIVE
51 LEVER STREET
MANCHESTER,M1 1FN

Dwg Title:
KITCHEN VENTILATION SYSTEMS

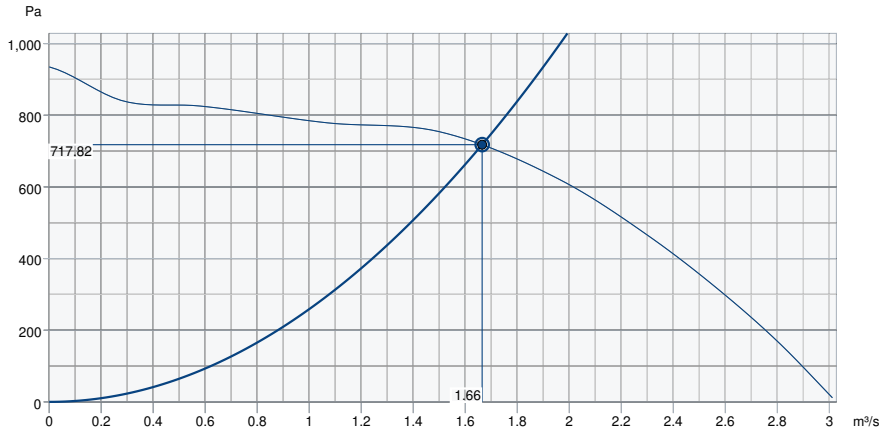
Date:	Drawn By:
15/09/2025	CJA
Scale: 1:50 @ A1	Checked By:

Dwg No:	Rev:
0176-00	A

APL mechanical services
Abbey Plumbing Ltd
3 Whitehills Drive
Whitehills Business Park
Blackpool. FY4 5LW
Tel: 01253 698 159
Email: admin@aplmechanical.co.uk

Performance

Performance curve



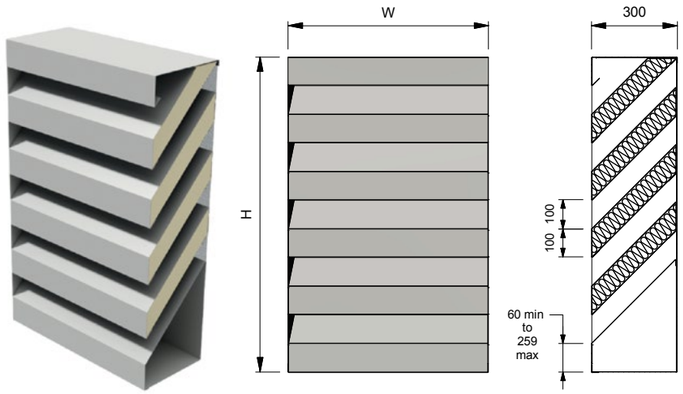
Hydraulic data	
Required air flow	1.66 m³/s
Required static pressure	718 Pa
Working air flow	1.66 m³/s
Working static pressure	718 Pa
Air density	1.204 kg/m³
Power	2,392.5 W
Fan control - RPM	1,460 rpm
Current	4.35 A
SFP	1.437 kW/m³/s
Control voltage	400.0 V
Supply voltage	400 V

Sound power level		63	125	250	500	1k	2k	4k	8k	Total
Inlet	dB(A)	53	70	74	77	79	76	74	66	84
Outlet	dB(A)	55	71	75	79	80	78	75	68	85
Surrounding	dB(A)	33	53	47	45	49	48	41	31	57
Sound pressure level at 3m (20m² Sabine)	dB(A)	-	-	-	-	-	-	-	-	50
Sound pressure level at 3m free field	dB(A)	-	-	-	-	-	-	-	-	36

Appendix E Example Mitigation Specification

SS300 Acoustic Louvre Technical Data

Single Bank Acoustic Louvre, Standard Performance Profile, 300mm Deep



Typical weight 43kg/m²

Generally louvres above 50kg will be supplied in modules for assembly on site. Joining brackets and fixings will be provided for assembly.

Installation services, support steelwork, flashings, fixings to the structure and mastic will not be provided unless stated.

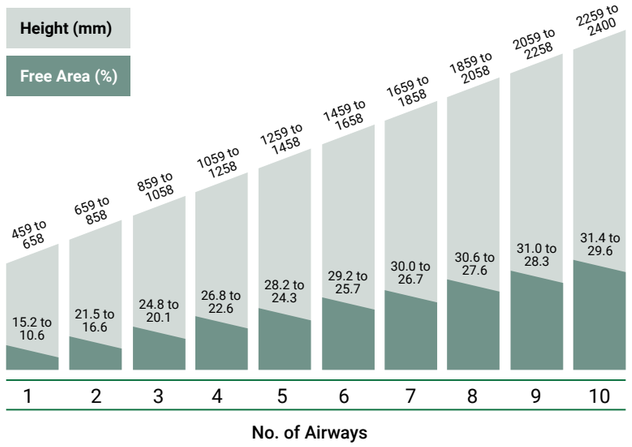
Refer to the Acoustic Louvre Schedule and Product Code Definitions for the size and specification of each Acoustic Louvre.

A minimum of 10mm clearance should be allowed between the structure and the Acoustic Louvre sizes shown.

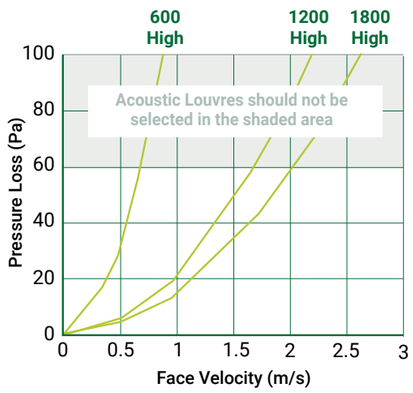
Performance

Acoustic Data	dB in each Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Sound reduction index	6	6	9	13	21	20	16	13
Weighted sound reduction index (Rw)	17							
Static insertion loss	5	6	9	14	20	20	20	20
Regenerated sound power level at 1m/s face velocity	48	41	34	30	25	20	13	12
Regenerated sound power level at 2m/s face velocity	66	58	51	47	45	43	39	28

Airpath Free Area and Height range

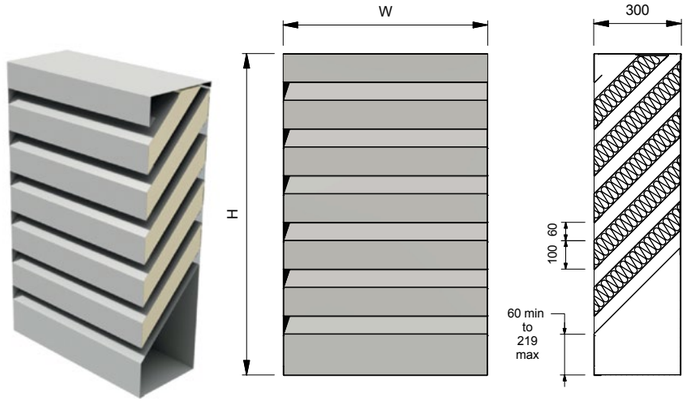


Free area and pressure drop shown is based on a 1150mm wide single piece louvre fitted with bird mesh and will vary slightly for different widths and larger heights. Pressure losses for Class A rated louvres and/or Insect mesh are available upon request.



SH300 Acoustic Louvre Technical Data

Single Bank Acoustic Louvre, Higher Performance Profile, 300mm Deep



Typical weight 53kg/m²

Generally louvres above 50kg will be supplied in modules for assembly on site. Joining brackets and fixings will be provided for assembly.

Installation services, support steelwork, flashings, fixings to the structure and mastic will not be provided unless stated.

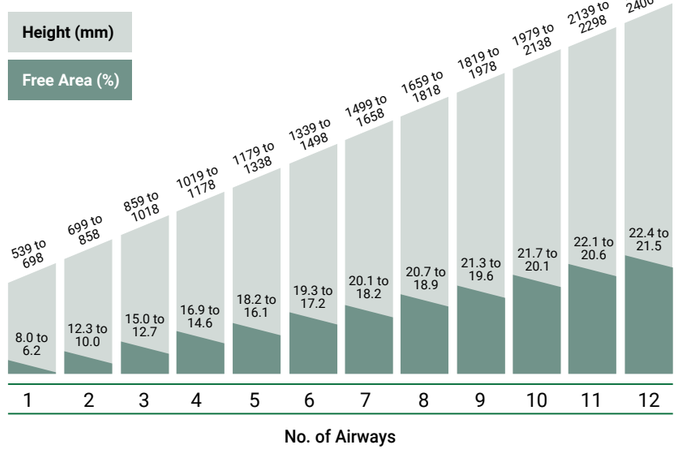
Refer to the Acoustic Louvre Schedule and Product Code Definitions for the size and specification of each Acoustic Louvre.

A minimum of 10mm clearance should be allowed between the structure and the Acoustic Louvre sizes shown.

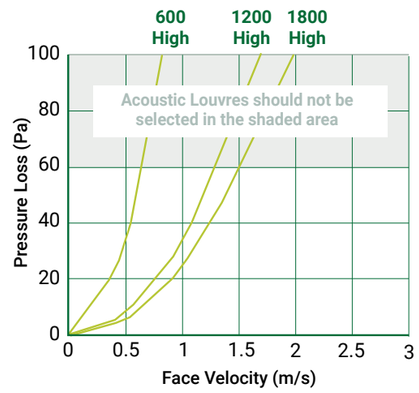
Performance

Acoustic Data	dB in each Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Sound reduction index	7	7	10	17	29	30	27	21
Weighted sound reduction index (Rw)	21							
Static insertion loss	6	7	10	18	31	28	26	25
Regenerated sound power level at 1m/s face velocity	50	44	39	34	30	26	17	12
Regenerated sound power level at 2m/s face velocity	70	60	55	52	49	49	43	35

Airpath Free Area and Height range



Free area and pressure drop shown is based on a 1150mm wide single piece louvre fitted with bird mesh and will vary slightly for different widths and larger heights. Pressure losses for Class A rated louvres and/or Insect mesh are available upon request.



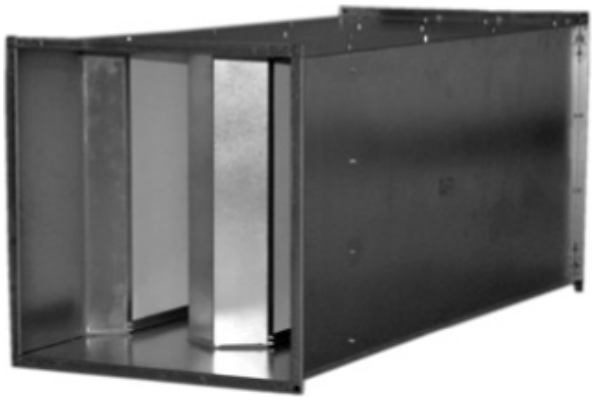
LDK 70 Silencer

Item number 5118

Description

Silencer for square ducts

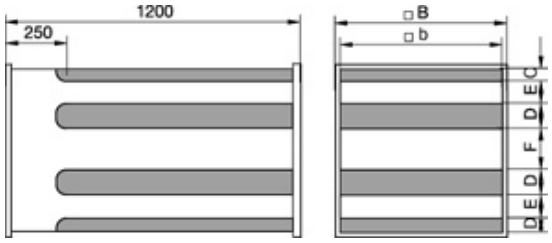
LDK is easily connected to our square duct fans type KDRE and KDRD. Noise suppression can be decided with use of the diagram.



Diagram

	Noise suppression dB frequency band Hz						
	125	250	500	1k	2k	4k	8k
LDK 45	5	8	13	12	8	7	7
LDK 50	7	8	13	12	9	8	7
LDK 55	9	9	13	12	10	9	8
LDK 65	6	7	14	13	9	8	7
LDK 70	5	7	19	24	23	15	10

Dimensions



	□b	□B	C	D	E	F
LDK 65	661	703	50	100	93	175
LDK 70	696	740	50	100	110	176

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