The Growth Company, 90 Gt. Bridgewater St.

Noise Impact Assessment

dBx Acoustics Ltd
Tower House
269 Walmersley Road
Bury
BL9 6NX
0161 711 0320

26027-R01A-BT

Client: The Growth Company

Date: 01/05/2026

TABLE OF CONTENTS

1 INTRODUCTION 3

2 PROJECT DESCRIPTION 4

3 ACOUSTIC DESIGN CRITERIA 5

MANCHESTER CITY COUNCIL 5
BS 4142:2014 'METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND' 5

4 ENVIRONMENTAL NOISE SURVEY 6

WEATHER CONDITIONS 7
EQUIPMENT 8

5 MEASURED NOISE LEVELS 9

6 BUILDING SERVICES NOISE IMPACT ASSESSMENT 10

CRITERION 10
PLANT ITEMS 10

7 CONCLUSION 13

APPENDIX A – GLOSSARY OF ACOUSTIC TERMINOLOGY 14

REVISION HISTORY

Revision	Date	Revision Details	Author	Checked
R01	28/04/2026	Initial issue	Ben Tomlin BSc MIOA	Susan Witterick BSc MIOA
R01A	01/05/2026	Updated to address client comments	[redacted] Ben Tomlin BSc MIOA	[redacted] Susan Witterick BSc MIOA

1 INTRODUCTION

1.1 dBx Acoustics Ltd has been appointed by Greenmount Projects, on behalf of The Growth Company, to carry out a noise survey and noise impact assessment for the proposed refurbishment of 2 floors at 90 Great Bridgewater Street, Manchester, M1 5JW.

1.2 The refurbishment comprises the provision of a Conference Space at basement level, and a number of meeting and office spaces at ground floor level.

1.3 As part of the development, a quantity of new plant is to be installed.

1.4 The Local Authority is Manchester City Council (MCC).

1.5 This report presents the results of an environmental noise survey carried out at the site and sets out a noise impact assessment of the proposed building services plant, in order to meet the requirements of MCC.

1.6 A glossary of acoustic terminology has been supplied in Appendix A to assist the reader.

2 PROJECT DESCRIPTION

2.1 The project comprises the part refurbishment of the basement and ground floor levels of Lee House, 90 Great Bridgewater Street, Manchester, M1 5JW, to form a Conference Space at basement level, and a number of meeting and office spaces at ground floor level.

2.2 The approximate location of the site is shown in Figure 1, below.

Figure 1: Approximate Development Location



2.3 There are a number of new plant items proposed for the development, detailed in Section 6, below.

2.4 There are noise sensitive receptors directly opposite the building on the far side of the canal, around 13m from the building envelope.

2.5 The operating hours of the building are not currently established, but will be until some point in the evening. To cover all eventualities, a 24-hour noise survey was undertaken.

3 ACOUSTIC DESIGN CRITERIA

Manchester City Council

3.1 The Local Authority is Manchester City Council (MCC).

3.2 MCC's document *Planning and Noise*, last updated in October 2022, requires that BS412 should be used to assess the likely impact of noise from new items of plant. Specifically, it is required that:

> *'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.'*

BS 4142:2014 + A1:2019 'Methods for Rating and Assessing Industrial and Commercial Sound'

3.3 BS 4142:2014 sets out a procedure for assessing noise impact whereby a Noise Rating Level is determined and compared with the existing local Background Sound Level.

3.4 The Rating Level ($dBL_{Ar,Tr}$) is evaluated from the Specific Noise Level by including cumulative corrections to account for factors such as distinguishable tone, impulsivity, intermittency or other readily distinguishable sound characteristics.

3.5 The assessment of the impact depends upon the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level. An initial estimate of the impact of the specific sound is made by subtracting the Background Sound Level from the Rating Level, while considering the following points:

a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

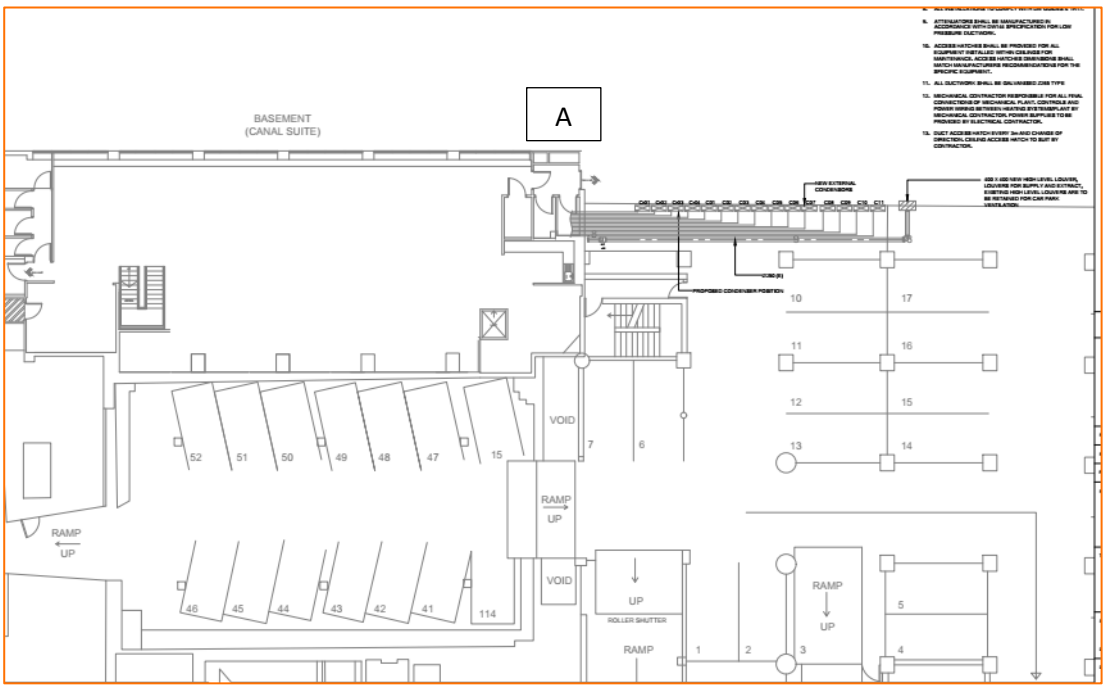
d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

4 ENVIRONMENTAL NOISE SURVEY

4.1 A 24-hour environmental noise survey was carried out from the 16th to the 17th of April 2026, between around 12:00h-12:00h.

4.2 Measurements were made at one location, on the edge of the canal, at the location indicated in Figures 2 and 3, below.

Figure 2: Noise Survey Location



4.3 Location A was at the edge of the canal, with a direct line of sight to Oxford Road, and hence noise levels at this location were equivalent to those at the flats on the opposite side of the canal.

Figure 3 – Survey Location



4.4 The noise climate was dominated by road traffic on Oxford Road and the surrounding road network, and existing plant serving Lee House.

4.5 Measurements were undertaken in accordance with BS 7445-1:2003 *Description and Measurement of Environmental Noise*, with the microphone located approximately 1.5 metres above the local ground level.

4.6 The sound level meter logged continuously in 15-minute periods.

Weather Conditions

4.7 Weather conditions during the measurement period were cool and dry.

4.8 Wind speeds were within suitable parameters for the measurement of environmental noise (i.e. generally under 5 ms^{-1}). The microphone was protected with a windshield for the duration of the survey.

Equipment

4.9 The equipment used during the environmental noise survey is detailed in Table 1, below.

Table 1: Equipment Used During Environmental Noise Survey

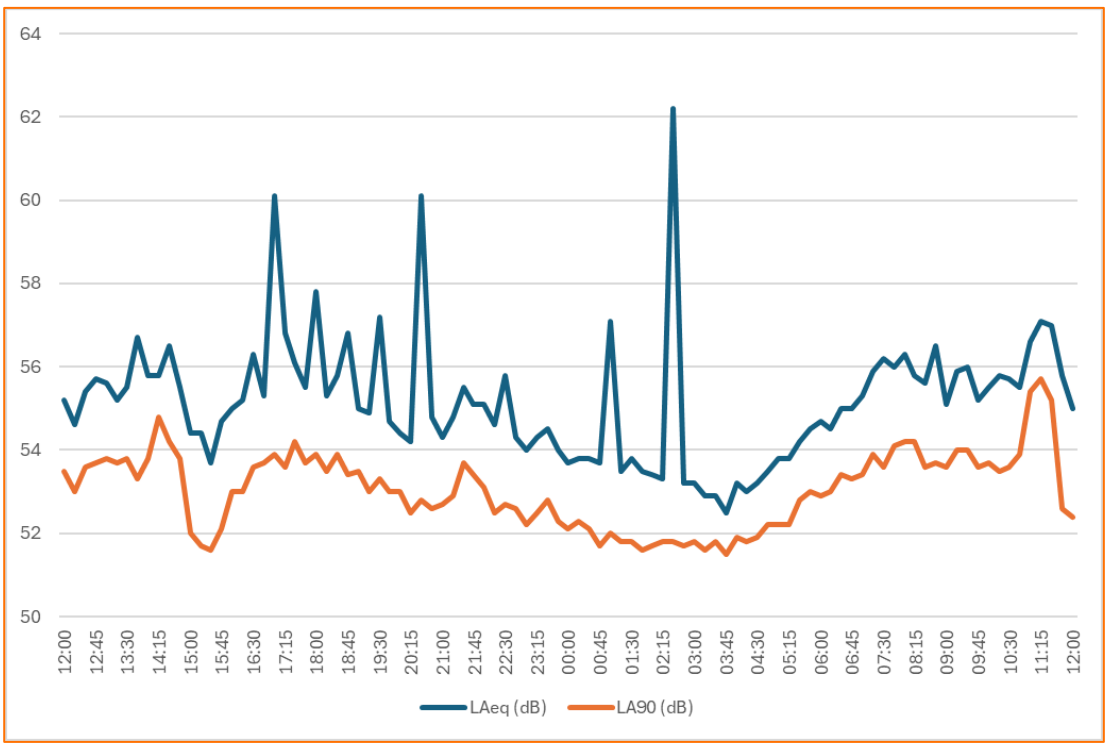
Kit Reference	Equipment	Manufacturer & Part No.	Serial Number	Calibration Date	Certificate Number
Kit 3 - Cirrus	Meter	CR:171B	G300741	06/06/2025	220417/419/420
	Pre-Amp	MV:200F	9082F		
	Microphone	MK:224	211753D		
	Calibrator	CR:515	87160	05/06/2025	242106

4.10 The sound level meter was calibrated before and after measurements, with no significant drift recorded. An accredited laboratory calibrated the equipment not more than two years prior to the measurements being made, with the exception of the calibrator, which had been calibrated not more than one year prior to the survey.

5 MEASURED NOISE LEVELS

5.1 The noise levels measured during the environmental noise survey are summarised in Figure 3, below.

Figure 3: Noise Levels



5.2 As can be seen, background noise levels were very consistent at this location, at all times of day and night, due to continuous plant and regular traffic.

5.3 Using the statistical analysis methodology described in BS 4142:2014 '*Methods for Rating and Assessing Industrial and Commercial Sound*' (BS4142), the typical daytime and night-time background noise levels have been determined to be 53dB$L_{A90,T}$ and 52dB$L_{A90,T}$, respectively.

6 BUILDING SERVICES NOISE IMPACT ASSESSMENT

Criterion

6.1 MCC requires that the rated plant noise level ($dBL_{Ar,Tr}$), assessed in accordance with BS4142:2014 is controlled to 5dB below the background noise level $dBL_{A90,T}$ at the nearest noise sensitive location during the periods in which the plant operates.

6.1 The nearest noise sensitive receptors (NSRs) are identified as the apartments on the other side of the canal, at a distance of around 13m from the plant outlets/louvres.

Plant Items

6.2 The proposed plant comprises 15 condenser units, to be located within the car park at basement level, with a weather louvre facing the NSRs; and 3 heat recovery units and 6 extract fans, with the outlets also discharging towards the NSRs.

6.3 The noise levels of the proposed units are detailed in Table 2, below, based on the datasheets provided by Greenmount.

Table 2: Noise Data

Ref	Model	Noise Level, dB	Type
Outdoor Units			
C-01	MUZ-HR25VF	63	Sound Power Level
C-02	PUZ-SM140VKA2	73	Sound Power Level
C-03	PUZ-SM140VKA2	73	Sound Power Level
C-04	PUZ-ZM50VKA2	65	Sound Power Level
C01	MUZ-HR25VF	63	Sound Power Level
C02	PUZ-SM71VA	66	Sound Power Level
C03	PUZ-SM71VA	66	Sound Power Level
C04	PUZ-SM71VA	66	Sound Power Level
C05	PUZ-SM71VA	66	Sound Power Level
C06	MUZ-HR25VF	63	Sound Power Level
C07	MUZ-HR25VF	63	Sound Power Level
C08	SUZ-M50VAR2	64	Sound Power Level
C09	SUZ-M50VAR2	64	Sound Power Level
C10	MUZ-HR25VF	63	Sound Power Level
C11	PUZ-ZM50VKA2	65	Sound Power Level

Ref	Model	Noise Level, dB	Type
Heat Recovery Units			
HRU-01	LGH-35RVX3-E	31	Sound Pressure Level @ 1.5m
HRU-02	LGH-100RVX3-E	40	Sound Pressure Level @ 1.5m
HRU-03	LGH-50RVX3-E	35	Sound Pressure Level @ 1.5m
Extract Fans			
EF0-01	DE1-ES	57	Sound Power Level
EF0-02	ES-OPUSDC60-M	61	Sound Power Level
EF0-03	ES-OPUSDC60-M	52	Sound Power Level
EF-01	ES-OPUSDC60-M	52	Sound Power Level
EF-02	ES-OPUSDC60-M	50	Sound Power Level
EF-03	DE2-ES	54	Sound Power Level

6.4 The predicted noise level at the NSRs is shown as Table 3, below. NB the different distance corrections are due to the condensers being located in an enclosed space (i.e a full room breakout calculation via a weather louvre of sound insulation performance of 0dBR_w), and the Heat Recovery Units being sound pressure levels (dB$L_{Aeq,T}$) rather than sound power levels (dBL_{WA}). Octave band data has been used where available. Full calculations can be provided on request.

Table 3: Noise Levels at NSR

Units	Total Noise Level	Distance Correction, dB	Total SPL at NSR, dB
Outdoor	79dBL_{WA}	-36	43
HRUs	42dB$L_{Aeq,T}$ @ 1.5m	-20	22
EFs	64dBL_{WA}	-32	32
TOTAL			**44**

6.5 It can therefore be seen that the predicted noise level at the nearest NSR is around 9dB lower than the background noise level in the day, and 8dB lower than the background noise level at night.

6.6 A BS4142 assessment for this is shown as Table 4, below. Although there is no indication of tonality, and with the quantity of plant, no intermittency is expected, a nominal +3dB character correction has been made as a worst case. The background noise level is based on the night-time noise levels, again as a worst case.

Table 4: BS4142 Assessment

Item	Calculation	Relevant Clause	Comments
Measured background sound level – night-time	52dB$L_{A90,\ 1hr}$	8.3	The typical background sound level measured during the night-time period.
Specific sound level	44dB$L_{Aeq,\ T}$	7.3.3	A prediction made using the methodology outlined above, includes all sources, screening and distance corrections.
Assessment made during the night time period, so reference period is 15 minutes.		7.2	-
Acoustic Feature Correction	+3 dB	9.2	No acoustic features are anticipated. However, 3dB allowed for contingency
Rating Level	47dB$L_{Ar,\ Tr}$	9.2	The predicted Rating Level during the night-time period.
Excess of Rating Level over background sound level - daytime	- 5 dB	11	-
Assessment indicates low likelihood of adverse impact		11	Predicted Rating Level does not exceed the measured typical background level. This is an indication of the development having a low impact.
Uncertainty of the assessment	Minor	10	The predicted Rating Level is based on established prediction methodologies.

6.7 This therefore meets MCC's criterion, even as an absolute worst case.

7 CONCLUSION

7.1 dBx Acoustics Ltd has been appointed by Greenmount Projects, on behalf of The Growth Company, to carry out a noise survey and noise impact assessment for the proposed refurbishment of 2 floors at 90 Great Bridgewater Street, Manchester, M1 5JW.

7.2 The refurbishment comprises the provision of a Conference Space at ground floor level, and a number of meeting and office spaces at basement level.

7.3 As part of the development, a quantity of new plant is to be installed.

7.4 The Local Authority is Manchester City Council (MCC).

7.5 This report presents the results of an environmental noise survey carried out at the site and sets out a noise impact assessment of the proposed building services plant, in order to meet the requirements of MCC.

7.6 As a worst case, assuming all plant operates simultaneously, and a 3dB correction for any potential acoustic character, it is demonstrated that MCC's standard plant noise criterion is met at all times.

7.7 On this basis, noise should not be considered a limiting factor in granting planning permission for the proposed development.

APPENDIX A – GLOSSARY OF ACOUSTIC TERMINOLOGY

Decibel, dB	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. For sound pressure level (Lp) the reference quantity is 2x10-5 N/m2. The sound pressure level existing when microphone measured pressure is 2x10-5 N/m2 is 0 dB, the threshold of hearing.
L	Instantaneous value of Sound Pressure Level (L_p) or Sound Power Level (L_w).
Frequency	Number of cycles per second, measured in hertz (Hz), related to sound pitch.
A-weighting	Arithmetic corrections applied to values of L_p according to frequency. When logarithmically summed for all frequencies, the resulting single "A weighted value" becomes comparable with other such values from which a comparative loudness judgement can be made, then, without knowledge of frequency content of the source.
$L_{eq,T}$	Equivalent continuous level of sound pressure which, if it actually existed for the integration time period T of the measurement, would possess the same energy as the constantly varying values of L_p actually measured.
$L_{Aeq,T}$	Equivalent continuous level of A weighted sound pressure which, if it actually existed for the integration time period, T, of the measurement would possess the same energy as the constantly varying values of L_p actually measured.
$L_{n,T}$	L_p which was exceeded for n% of time, T.
$L_{An,T}$	Level in dBA which was exceeded for n% of time, T.
L_{Fmax}	The instantaneous maximum sound pressure level which occurred during the measurement. F indicates that the fast time-weighting is used.
L_{AFmax}	The instantaneous maximum A weighted sound pressure level which occurred during the measurement. F indicates that the fast time-weighting is used.
$L_{Ar,Tr}$	The rating level: the equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise.
Reverberation Time, T	The time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped. The descriptor *T,* often includes other nomenclature to describe the type of reverberation time measurement or if the reverberation time is an average taken for specific frequencies. For example, a T_{mf} is the mid-frequency reverberation time.
Absorption Coefficient, α	The fraction of reverberant sound energy absorbed by a material. It is expressed as a value between 1.0 which equates to perfect absorption and 0 which equates to zero absorption.
Acoustic Class, A - E	Classification of sound absorbers into Sound Absorption Classes A-E, according to BS EN ISO 11654, including frequencies 200-5000 Hz
NRC	A single-number rating system used to compare the sound-absorbing characteristics of building materials. A measurement of the acoustical absorption performance of a material, calculated by averaging its Sound Absorption Coefficients at 250, 500, 1000 and 2000 Hz
STI	**Speech Transmission Index**, Metric ranging between 0 and 1 representing the transmission quality of speech with respect to intelligibility by a speech transmission channel
R	**Sound Reduction Index,** the laboratory measured sound insulation properties of a material or building element in octave or third octave bands.
R_w	**Weighted Sound Reduction Index**, a single number which represents the sound reduction of a material. It is derived by plotting the sound reduction index against a set of reference curves. The curves are shifted until a best-fit is established and the curve which best fits the sound reduction spectrum is used to represent the single figure value.
D_w	**Weighted Level Difference**, the weighted level difference between a pair of rooms, stated as a single figure.

D_{nT}	**Standardised Level Difference,** a frequency-dependent measurement of airborne sound insulation, calculated using the following formula: $D_{nT} = L_1 - L_2 + 10\log(T/T0)$ dB Where: L_1 is the energy-averaged sound pressure level due to the pink noise source measured in the source room using a sweep technique. L_2 is the energy-averaged sound pressure level measured in the receiving room using a sweep technique. T is the mean receiving room reverberation time (derived from T_{30} measured in seconds). T_0 is the reference reverberation time (= 0.5s for dwellings).
$D_{nT,w}$	**Weighted Standardised Level Difference,** a single-figure value of airborne sound insulation performance, derived according to procedures in BS EN ISO 717-1, based on the D_{nT} values at different frequencies (100-3150 Hz third octave bands).
$D_{n,F,w}$	**Weighted, Normalised Flanking Level Difference,** the normalised, weighted difference in sound level between a pair of rooms via a flanking element, such as mullion or ceiling detail. The level difference in octave bands is first normalized to a reference amount of absorption and then plotted against a set of reference curves to establish a single figure value.
D_{ne}	**Normalised Element Level Difference**. The normalised difference in sound level between a pair of rooms via a small element such as a trickle ventilator. The level difference in octave bands is normalized to a reference amount of absorption.
$D_{n,e,w}$	**Weighted, Normalised Element Level Difference**. The normalised, weighted difference in sound level between a pair of rooms via a small element such as a trickle ventilator, stated as a single figure. The level difference in octave bands is normalized to a reference amount of absorption and then plotted against a set of reference curves to establish a single figure value.
C_{tr}	**Spectrum Adaptation Term** , a correction term applied to the sound insulation single-number values (R_w, D_w, and $D_{nT,w}$) in accordance with BS EN ISO 717-1. Applying the C_{tr} penalises a construction's performance if its low frequency performance is poor in relation its performance at higher frequencies.
Impact Sound	The noise generated by an impact on a structure. This is normally used to describe the noise created by people walking or moving furniture on a floor structure.
L_{nT}	**Standardised Impact Sound Pressure Level,** a frequency dependent measurement of impact sound insulation, calculated using the following formula: $L_{nT} = L_1 + 10\log(T/T0)$ dB Where: L1 is the mean sound pressure level due to the tapping machine measured in the receiving room using a sweep technique. T is the mean receiving room reverberation time (derived from T30 measured in seconds). T_o is the reference reverberation time (0.5s for dwellings)
$L'_{nT,w}$	**Weighted Standardised Impact Sound Pressure Level,** a single-figure value (@ 500 Hz) of impact sound insulation, performance, derived according to BS EN ISO 717-2, based on the L_{nT} values at different frequencies (100Hz- 3150 Hz third octave bands).
Insertion Loss, IL	The reduction of noise level due to the presence of a noise control device such as an attenuator, excluding any regeneration noise created by its presence.
NR	The **Noise Rating level**. This is a single figure value derived by plotting a noise spectrum against a set of curves. The curve under which the spectrum fits is the resulting NR level.

This report (including any enclosures and attachments) has been prepared by dBx Acoustics with reasonable skill and care in accordance with generally accepted acoustic principles and the terms agreed between dBx Acoustics and our Client. Any information provided by third parties and referred to herein may not have been checked or verified by dBx Acoustics unless expressly stated otherwise. This document contains confidential information, and no part of this report should be reproduced, distributed or communicated to any third party without express prior written consent from dBx Acoustics. We do not accept any liability if this report is used for an alternative purpose from that for which it is intended, nor to any third party in respect of this report. Where a noise survey has been undertaken, this report is based on the noise climate at the site at the time of the survey and no warranty is given as to the possibility of changes at differing times.

Registered Office: Tower House, 269 Walmersley Road, Bury BL9 6NX

Registered in England and Wales, Company Number 08371474