



BRAIDEN ACOUSTICS LTD

Innovation Forum | 51 Frederick Road | Salford | Manchester | M6 6FP

NOISE IMPACT ASSESSMENT - INDUSTRIAL NOISE BREAKOUT

Prepared For : Studio Tashkeel Architecture Ltd

Date : 4 Feb 2026

Site : Sleepdown House, Ten Acres Ln, Newton Heath,
Manchester M40 2BH

Report No. : 11466

1 INTRODUCTION

Braiden Acoustics has been commissioned by Studio Tashkeel Architecture Ltd to undertake an acoustic survey at the site of Sleepdown House, Ten Acres Ln, Newton Heath, Manchester M40 2BH in order to support planning application 144271/FO/2025 which proposes “Erection of a Cash and Carry warehouse unit, relocation of the security cabin and amendment to the parking layout following the removal of existing storage containers.”

1.1 AIM

The aim of this report is to assess potential noise from the proposed warehouse unit due to operations in relation to the nearby residential dwellings.

All potential noise sources will be assessed in accordance with relevant standards and guidance and, where appropriate, mitigation measures will be recommended so that noise thresholds are not breached.

2 DESCRIPTION OF SITE

The overall site is shown in Figure 1 below and it is an area of hardstanding to the west of an old mill that used to house Sleepdown Textiles Ltd.; hence the name: Sleepdown House.



Figure 1
Site location showing monitoring location (ML)

The site is bounded by Ten Acre Lane to the west, Bower Street to the north, Sleepdown House to the east and Rochdale Canal to the south.

2.1 SITE LOCATION AND NEIGHBOURING USES

The site seems to be the car park for Sleepdown House.

There is a small, terraced row on the other side of Ten Acres Lane, to the west, and newer housing stock on the northern side of Bower Street.

South of the Rochdale Canal is large swathes of scrubland with some remnants of previous buildings.



Figure 2
Site and surrounding uses

The nearby road network is relatively quiet, although the busy arterial Oldham Road, A 62, is some 160m north.

2.2 PROPOSED USE

It is proposed to remove the storage containers on site and replace them with a purpose build warehouse, as shown in Figure 3. The car park spaces will be reallocated.



Figure 3
Proposed site layout



The warehouse will be used for storage for a Cash & Carry. There will be vehicular movements on site with possibility of fork lift truck activity.

2.2.1.1 Opening hours

The proposed hours are as follows:

Monday - Wednesday	09:00	18:00
Thursday – Friday	09:00	19:00
Saturday	closed	
Sunday	09:00	16:00

Therefore the units will only be open during daytime hours.

2.2.1.2 Construction

The warehouse will be built with a combination of brick / blockwork and Quadcore panel / plasterboard.

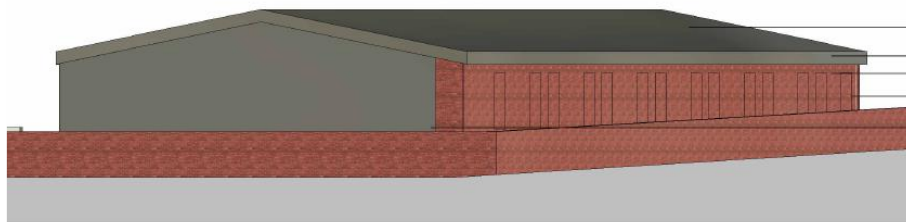


Figure 4
Proposed warehouse shown brick / block elevation facing house on Ten Acres Lane

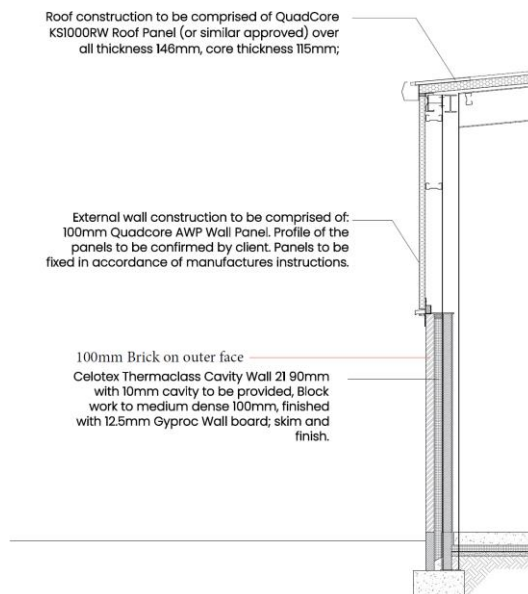


Figure 5
Section of side walls

3 ACOUSTIC CRITERIA AND METHODOLOGY

In order to assess 'industrial' noise it is common to use the British Standard Bs 4142:2014. Recommended internal noise levels in offices (for example) are given in BS 8233:2014 [3].

As well as the British Standards, Council's usually have their own guidelines but they will invariably be based on the above Standards or their equivalents.



3.1 BS 4142

BS 4142:1999 “Method for rating industrial noise affecting mixed residential and industrial areas” [1] assesses industrial noise with regards to nearby residential dwellings. The guidance is commonly used to compare the equivalent noise from an industrial source only (specific noise level), L_{Aeq} , to the background noise level, L_{A90} , at the nearest sensitive receptor (NSR).

This Standard has been recently updated, BS 4142:2014 “Methods for rating and assessing industrial and commercial sound” [2]. Whereas the old standard added 5dB ‘penalty’ to the Specific Noise Level (SNL) if the noise source has a ‘character’ that can draw attention that may be described as tonal, intermittent or impulsive, the new standard gives clearer guidance on noise ‘character’. Furthermore, the previous Standard gave only one 5 dB penalty whereas the new Standard may not. When added to the specific noise level it forms the rating level. The new Standard gives the guidance for the following types of noise character:

Where appropriate, establish a rating penalty for sound based on a subjective assessment of its characteristics. This would also be appropriate where a new source cannot be measured because it is only proposed at that time, but the characteristics of similar sources can subjectively be assessed.

Correct the specific sound level if a tone, impulse or other characteristic occurs, or is expected to be present, for new or modified sound sources.

NOTE 1 The prominence of tonal or impulsive sound from a source can be masked by residual sound. In many cases the amount of masking varies as the residual sound changes in level and possibly character. The source’s tonal and/or impulsive characteristics could also vary with time.

Consider the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention.

Tonality

For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible.

Impulsivity

A correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible and 9 dB where it is highly perceptible.

Other sound characteristics

Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

NOTE 2 Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant then it might be appropriate to apply a single correction. Where both features are likely to affect perception and response, the corrections ought normally to be added in a linear fashion.

Intermittency

When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.



Once a penalty for noise character is added to the Specific Noise Level then this is termed the *Rating Level*.

The background level is then compared to the rating level. It is usual that the rating level due to the source should be below the background noise level at the nearest sensitive receptor; indeed BS 4142 states:

“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 MEASUREMENT DETAILS

In order to assess the internal noise levels at the proposed unit, internal noise levels have been taken at a similar location, Howden's in Manchester, that represent the noise level within the proposed unit.

4.1 INTERNAL NOISE LEVELS

4.1.1 Overview

Personnel: John Braiden, BSc & MSc Acoustics, MIOA.

Equipment: NTi XL2 integrated real time analyser & B&K 4231 calibrator.

Weather: n/a

Date: Fri 6th June 2023.

The microphone was left unmanned but with audio recorded.

The microphone was calibrated before and after the noise monitoring with negligible drift (<0.1 dB).

4.1.2 Monitoring location

The monitoring location was within an existing Howden unit (Howdens - Hollinwood) that is very similar to the proposed unit.

The microphone was placed on an upper shelf in the middle of the warehouse section of the store, as this is the area that has the most potential for noise.

The microphone was, at least, 2m from any reflecting surface.

4.1.3 Monitoring results

In order to determine a typical upper noise level due to operational activities, the 15-minute 'average' noise level has also been shown in the results.



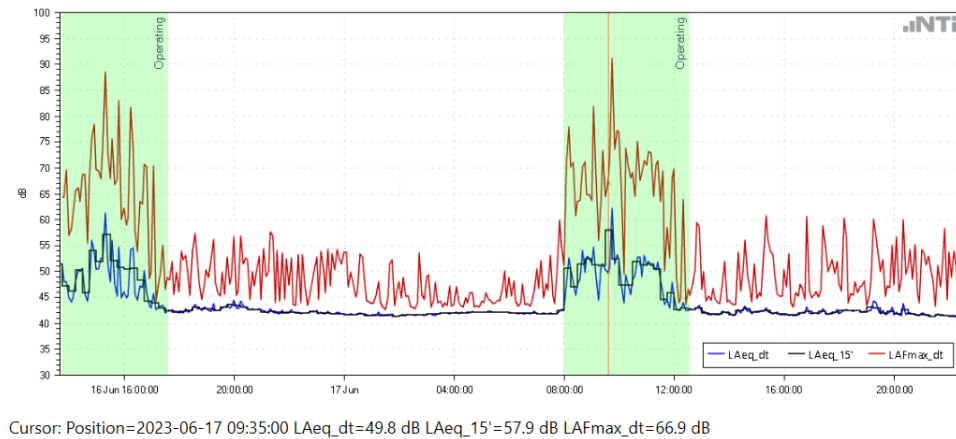


Figure 6
Measured internal noise levels

The noise levels in Figure 6 are continuous, so there are sections where Howdens were closed. However, noise levels have been highlighted when there was activity in the warehouse. It is clear from the above figure that Saturday 17th June was open from 08:00 – 12:00.

The activity noise levels were movements around the warehouse; either by personnel or fork lift truck.

The upper typical 15-minute reverberant noise level within the warehouse during times of activity was

$$58 \text{ dB } L_{Aeq_15mins}$$

The unweighted octave band data used in the assessment is shown in the Figure below.

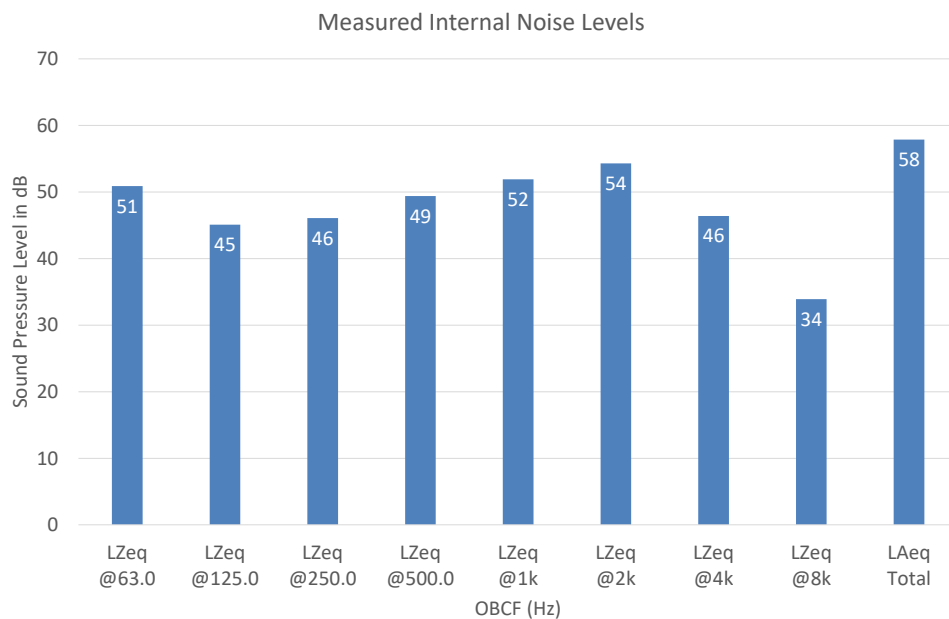


Figure 7
Octave band internal noise data

4.2 BACKGROUND NOISE LEVELS

The most sensitive receptor, in the case, is not the nearest residential property but 3 Crowbank Walk, which is on Bower Street and approximately 45m away from the loading bays with the potential for direct line of sight of an opening.



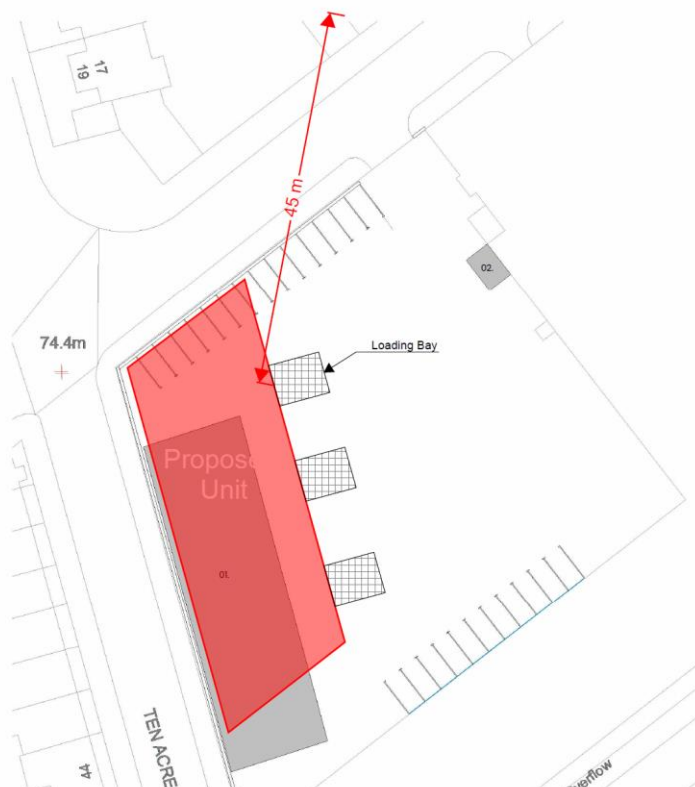


Figure 8
NSR to nearest opening

4.3 OVERVIEW

Personnel: John Braiden, BSc & MSc Acoustics, MIOA.

Equipment: NTi XL2 integrated real time analyser & B&K 4231 calibrator.

Weather 4- 8degC, <5m/s wind, 40-60% cloud

Time / Date: Saturday 27th December 2025 at 00:42 until 15:29.

The sound level meter was calibrated before after the measurements with no drift reported.

Monitoring was unmanned.

Background noise (L_{A90}), 'average' noise levels (L_{Aeq}) and maximum noise levels (L_{Amax}) were taken in 15-minute intervals.

4.4 MONITORING LOCATION

The monitoring location was at least 2m from the ground in the location marked 'ML1' in Figure 9.





Figure 9
Monitoring Location

The monitoring location represented the noise level at the nearest sensitive receptor (NSR).

4.5 MONITORING RESULTS

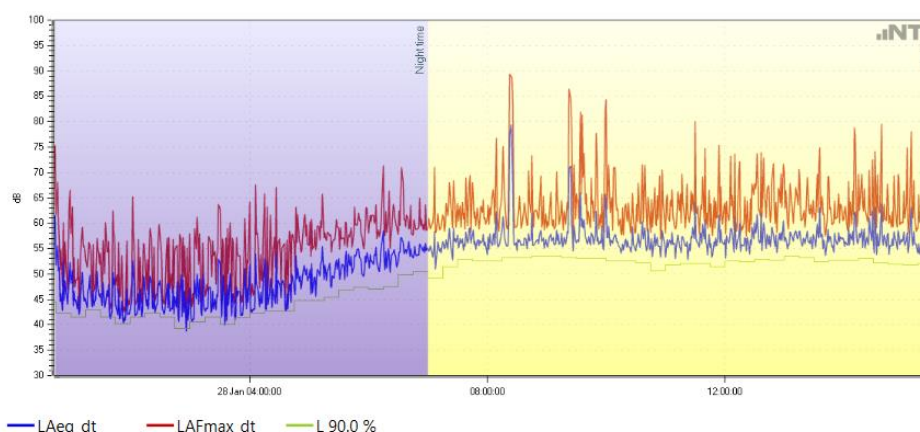


Figure 10
Time history

The impulsive nature of the plot was due to a combination of relatively low background noise levels and passing vehicles. The only real noise source was from road traffic on Every Street and the surrounding road network.

The most sensitive time of the week would be Sunday. The monitoring recording Sunday until just after 3pm (the proposed opening hours on Sunday are 09:00 – 16:00).

To find the typical Background Noise Level for the Sunday opening hours, a histogram was derived from the Background noise data.



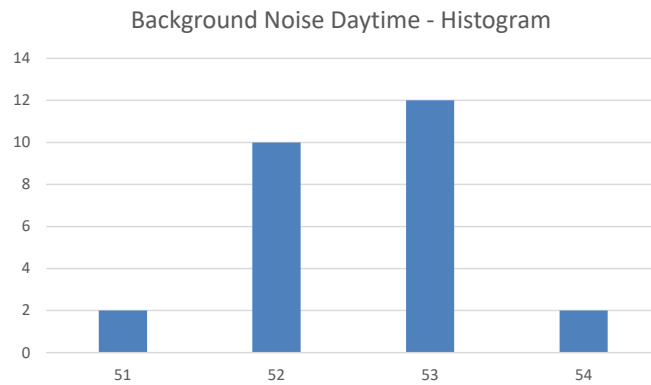


Figure 11
Histogram of BNLs

Figure 11 shows that the typical daytime Background Noise Level, on a Sunday, is 53 dB L_{A90} .

5 ACOUSTIC ASSESSMENT

Internal noise from the premises can be transmitted via the building fabric and potentially annoy local sensitive receptors, such as local residents.

The nearest sensitive receptors are the properties at Crowbank Walk, some 45m away from the nearest opening of the proposed warehouse.

5.1 BREAKOUT NOISE FROM UNITS

To assess the noise break out the following steps have been taken:

1. Determine the internal reverberant noise level with noise measurement from a similar site (see Section 4).
2. Calculate noise break out via the buildings' facade to the nearest resident and compare with typical background noise level.

5.1.1 Determine internal reverb noise level

The internal reverberant noise level is 58 dB.

5.1.2 Determine noise transmission to resident

Once the internal reverberant noise level has been calculated then the noise transmission to the nearest resident is calculated using equation (1)

$$SPL_{res} = SPL_{rev} - SRI_{ave} + 10 \log S_p - 20 \log r - 14 \quad (1)$$

where SPL_{res} = sound pressure level at nearest resident

SRI_{ave} = average Sound Reduction Index of partition

S_p = area of partition

As a worst-case scenario, only the visible open area of the loading bay aperture was considered which gives an area of 71m².

A BS4142 penalty of 3dB of intermittency was also added, as a worst case scenario.

Description	Value	Noise Level
-------------	-------	-------------



		dB
SPL_internal		58
SRI of façade	open	0
Area of façade	71	19
Distance to resi (m)	45	-33
Correction		-14
Specific Noise Level @ res		29
BS 4141		
Tonality	0/2/4/4	0
Impulsivity	0/3/6/9	0
Intermittency	0/3	3
Rating Level @ res		32
Background Noise Level		58
Difference		-26

Table 2
Summary of noise calculations to nearest resident from A3 unit

The calculation in Table 2 shows that the Rating Level is 26 dB below the Background Noise Level. Much lower than the 5dB below Background Noise Level threshold.

Therefore, no acoustic mitigation is required.

6 CONCLUSION

Acoustic survey has taken place at Sleepdown House, Ten Acres Ln, Newton Heath, Manchester M40 2BH to determine if noise breakout would affect local residents.

The nearest potential sensitive receivers are 45m across Bower Street, Crowbank Walk, with direct line of sight of the loading bays (although at an angle).

Internal noise measurements at a similar site reveal typical daytime noise level of 58 dB(A).

A noise breakout calculation has been used to assess noise break-out at the nearest resident. When this is compared to the typical Background Noise Level, the result is -26 dB; much lower than the threshold of -5 dB.

Therefore, no acoustic mitigation is required.

7 REFERENCES

- [1] BS 4142: 1997
Method for Rating industrial noise affecting mixed residential and industrial areas
British Standards Institute, 1997.
- [2] BS 4142: 2014
Methods for rating and assessing industrial and commercial sound
British Standards Institute, 2014.



[3] BS 8233:2014
Guidance on sound insulation and noise reduction for buildings
British Standards Institute, 2014.



A1 DRAWING

