



BRAIDEN ACOUSTICS LTD

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

NOISE IMPACT ASSESSMENT

Prepared For : Heman Mena

Date : 20 Aug 2025

Site : Unit 3, Clayton Lane, Openshaw

Report No. : 11432

1 INTRODUCTION

Braiden Acoustics has been commissioned by Heman Mena to undertake an acoustic survey at the site of Unit 3, Clayton Lane, Openshaw (hitherto known as the 'Site') in order to support planning application 143367/FO/2025 for "Proposed change of use from former taxi rank to mechanics garage and body works shop."

1.1 PLANNING PERMISSION

An 'invalid letter' dated 14 July 2025, states:

"2) An acoustic study identifying ambient noise levels during daytime, night time and weekends along with details of the noise levels that are currently achieved within the accommodation at various times during operating hours. The study should identify the acoustic treatment and measures necessary to limit the breakout of noise in accordance with a noise study of the premises and a scheme of acoustic treatment. The scheme proposed shall include measures such as acoustic lobbies at access and egress points of the premises, acoustic treatment of the building structure, sound limiters linked to sound amplification equipment, details of the acoustic glazing and acoustically treated ventilation you have installed/propose to use and specified maximum internal noise levels."

The above 'noise break out' recommendations for assessment are more related to break out noise from pubs and clubs, although the relevant methodology will be undertaken here, regarding noise break out from a car mechanics and body works shop.

This is a retrospective application, as the Site is currently in use.

1.2 AIM

This report will define the pertinent noise sources and receivers and assess using appropriate guidance and standards so that the noise level, at the nearest resident, is within relevant thresholds. Where necessary, acoustic mitigation will be recommended.

2 DESCRIPTION OF SITE

The site is a light industrial building within a complex of other light industrial buildings, some of which are accessed from the south, from Clayton Lane, whilst others are accessed from the north via Wilson Street.

Unit 3 is accessed from Clayton Lane.

2.1 SITE LOCATION AND SURROUNDING USES

The site is immediately bounded by other light industrial units within the light industrial park.

The industrial park as a whole is bounded by Wilson Street to the north, Clayton Lane to the south east, Ridings Street to the west (with residential dwellings beyond) and a green space and housing to the east.



Figure 1
Site location and surrounding uses

On the opposite side of the road to the Clayton Lane entrance to the industrial park is car sales lot.

The surrounding area is otherwise primarily residential.

2.1.1 Nearest sensitive receptors

The entrance / exit to Unit 3 is shown in Figure 2 by white arrows.

The nearest residential dwellings, to the entrance /exit, are 114 -126 Clayton Lane, as highlighted in green in Figure 2.



Figure 2
Site in relation to nearest sensitive receptors

Figure 2 shows that there is no direct line of sight from the Site's entrance to the nearest resident.

2.2 PROPOSED USE

The proposed use is for a car mechanics for both mechanical repair and body work.



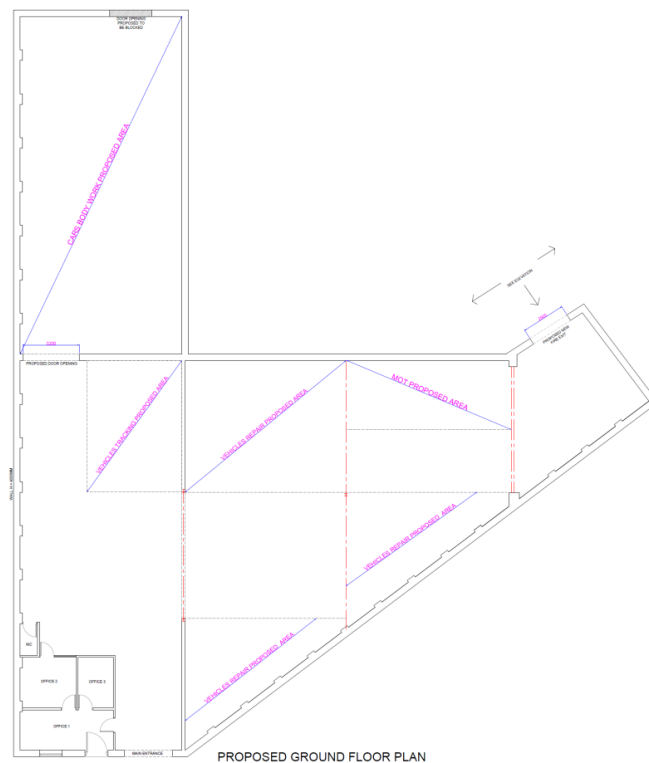


Figure 3
Proposed Site Layout

2.2.1 Opening hours

The opening hours are proposed as follows:

Monday to Saturday 09:00 to 18:00

Sunday close

The car mechanics will only be open during daytime hours.

2.2.2 Building services

There will not be any building services on this site.

3 ACOUSTIC CRITERIA AND METHODOLOGY

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.”

3.2 BS 8233: 2014

The British Standard BS 8233:2014 “Guidance on sound insulation and noise reduction for buildings” gives guidance on recommended indoor ambient noise levels for residential dwellings.



Room	Criterion	$L_{Aeq,T}$	
		night	day
Bedroom	Sleeping	30	35
Dining Room/Area	Dining	--	40
Living Room	Resting	--	35

Table 1

Recommending indoor ambient noise level thresholds from anonymous noise (taken from Table 4, BS 8233:2014)

Internal levels are simply predicted by the subtraction of the estimated sound reduction index (SRI) of the building façade from the external free field noise measurements. When considering the SRI of a particular façade it is usual to only consider the glazing as this is the weakest element acoustically.

3.3 COUNCIL CRITERIA

It is usual for Councils to adhere to a BS4142:2014 for industrial noise.

Section 11 d) of BS 4142:2014 says

“Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact”

Therefore, the Rating Level should not exceed the Background Level to ensure any potential noise has a low or no impact.

4 NOISE MONITORING

Noise monitoring was undertaken just inside the unit whilst cars were being worked upon.

Background noise measurements were taken from a similar location to the nearest residential houses on Clayton Lane.

4.1 OVERVIEW

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

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

4.2 INTERNAL NOISE

Time / Date: Wednesday 30th July 2025 at 1pm for 24 hours.

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

Monitoring was manned.

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

4.2.1 Monitoring location

The monitoring location was on a ledge near the front door, some 2m from the floor but close to a wall, as shown in Figure 4.



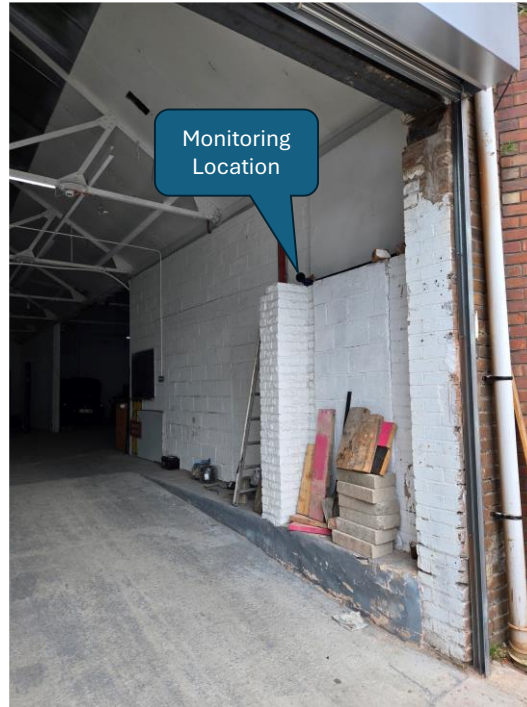


Figure 4
Monitoring Location

4.2.2 Results

Noise monitoring was taken during a 'typical' day.

The time history of the noise monitoring is shown in

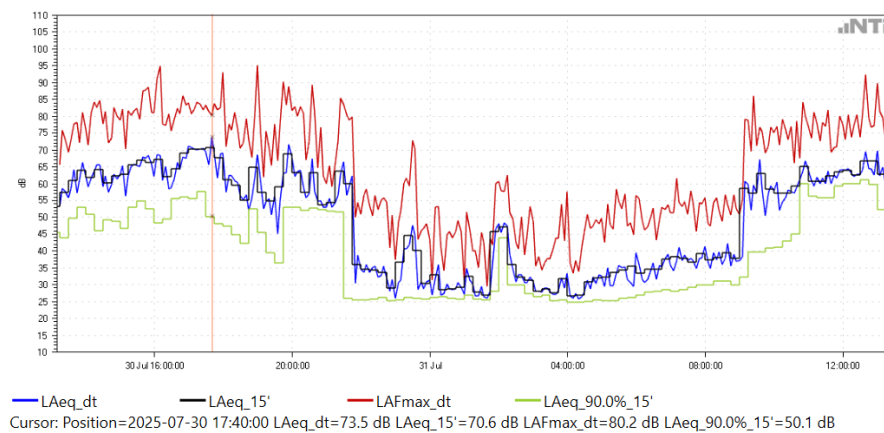


Figure 5
Noise monitoring - internal

The highest 15-minute L_{Aeq} will be used as a basis for the assessment and is:

71 dB L_{Aeq} .

4.3 BACKGROUND NOISE

Background noise data, L_{A90} , was taken from a similar residential street to Clayton Lane.

Noise data was logged every 15 minutes between the proposed opening hours of 09:00 – 18:00 and a histogram plotted to determine the 'typical' background noise level.



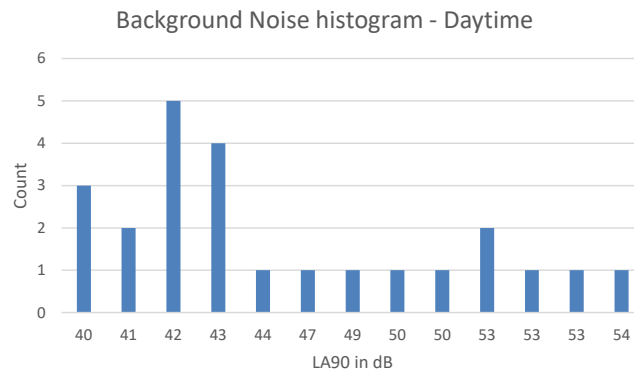


Figure 6
Background Noise Level - histogram

According to Figure 6, the typical Background Noise Level is:

42 dB L_{A90}

5 ACOUSTIC ASSESSMENT

The upper internal noise level of 71dB has been used and the typical Background Noise Level at the nearest residential dwelling is 42 dB

5.1 CALCULATION

A basic noise break-out calculation has been used to determine the noise level outside the unit.

$$SPL_{ext} = SPL_{int,rev} - SRI - 6 \quad (1)$$

where SPL_{ext} = external open air sound pressure level (SPL), dB

$SPL_{int,rev}$ = internal reverberant SPL, dB

SRI = sound reduction index of building element, dB

An SRI of 0 dB has been used, assuming the roller shutter door is open during the day.

Therefore the noise level outside the unit is $71 - 0 - 6 = 65$ dB

To calculate back to the nearest resident, distance attenuation and any barrier effect needs to be determined.

5.1.1 Distance

The nearest resident is over 50m from the entrance to Unit 3. In addition, there is no direct line of sight, as Figure 3 shows.



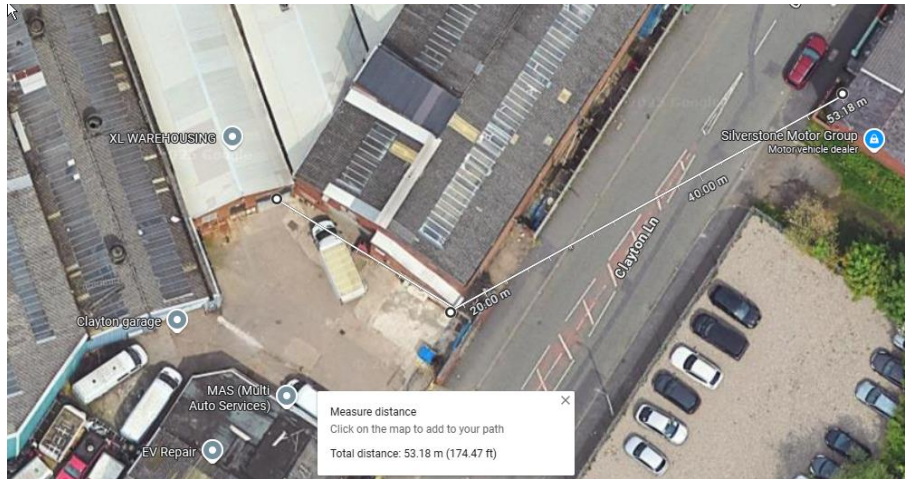


Figure 7
Distance from Unit 3 to nearest resident

5.1.2 BS 4142 calc

The Specific Noise Level was determined at the nearest resident by factoring in the distance and the barrier effect. From there the Rating Level was evaluated by considering both intermittent and impulsive noise that the car mechanics may generate.

Figure 8 shows that the Rating Level is 15 dB less than the typical Background Noise Level; therefore, noise from the proposed car mechanics is of low or no impact.

Hence, no acoustic mitigation is required.

BS 4142 Noise Assessment Noise Break Out	Value	dB
Specific Noise Level @ Unit 3		65
Distance	50	-34
Barrier	yes	-10
Total Specific Noise Level @ NSR		21
BS 4141		
Tonality	0/2/4/6	0
Impulsivity	0/3/6/9	3
Intermittency	0/3	3
Rating Noise Level		27
Background Noise Level	day	42
Rating minus Background		-15

Figure 8
BS 4142 calculation

6 CONCLUSION

An acoustic survey has taken place at Unit 3, Clayton Lane, Openshaw to determine if noise from the proposed car mechanics will have any impact on nearby residents.

A BS4142 assessment has shown that the proposed use will have low or no impact.



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.



Appendix



A1 DRAWING

