

Suite 24 Doncaster Business Innovation Centre Ten Pound Walk Doncaster DN4 5HX

# New Micropub 12 Market Street, Goldthorpe, S63 9HA Noise Impact Assessment

For:

White Agus Partnership

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# 1 Introduction

- 1.1.1 Environmental Noise Solutions Ltd (ENS) has been commissioned by White Agus Partnership to undertake a Noise Impact Assessment for the New Micropub at 12 Market Street, Goldthorpe, S63 9HA (hereafter referred to as 'the site').
- 1.1.2 The objectives of the noise impact assessment are to:
  - Determine current external ambient and background noise levels at the application site during the evening periods.
  - · Assess the potential impact of the proposed development with reference to relevant guidelines.
  - Provide recommendations for a scheme of sound attenuation works, as necessary.
- **1.1.3** This report details the methodology and results of the assessment and provides recommendations where required. It has been prepared to accompany the planning applications submitted to Barnsley Metropolitan Borough Council for the proposed development at the application site.
- 1.1.4 This report has been prepared for White Agus Partnership for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult the aforementioned and ENS as to the extent to which the findings may be appropriate for their use.
- 1.1.5 A glossary of acoustic terms used in the main body of the text is contained in Appendix A.

# 2 Proposed Development

- 2.1.1 The development is located at 12 Market Street, Goldthorpe, S63 9HA. The site is located in a mixed residential/commercial context with dwellings located above and to the south with commercial activity on Doncaster Road, and on the northern section of Market Street.
- 2.1.2 The proposal is for the redevelopment of the ground floor unit of 12 Market Street into a micropub. The small public house will occupy the ground floor only. No fixed services are proposed for the unit. The nearest noise sensitive receptor (NSR) is that of the 1<sup>st</sup> floor flat above the proposal.
- 2.1.3 The proposed opening times for the micropub are as follows:
  - 1100 to 2100 hours Monday to Thursday
  - 1100 to 2300 hours Friday & Saturday
  - 1100 to 2200 hours Sunday
- 2.1.4 The approximate application site boundary is shown in Figure 2-1 with the monitoring positions given in Appendix B.



### Figure 2-1: Site Plan

# 3 Noise Impact Assessment Criteria

# 3.1 National Planning Policy Framework

- 3.1.1 The National Planning Policy Framework (NPPF)<sup>1</sup> was updated in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.
- 3.1.2 Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 174 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of.....noise pollution'.

3.1.3 Paragraph 185 advises that:

'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should.....mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life'.

3.1.4 With regard to extant community noise sources and the potential to affect proposed new developments, paragraph 187 states that:

'Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'

3.1.5 The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

# 3.2 Noise Policy Statement for England

- 3.2.1 The Noise Policy Statement for England<sup>2</sup> (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:
  - Avoid significant adverse impacts on health and quality of life
  - Mitigate and minimise adverse impacts on health and quality of life
  - Where possible, contribute to the improvement of health and quality of life
- 3.2.2 The NPSE describes the following levels at which noise impacts may be identified:
  - NOEL No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise
  - LOAEL Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected

<sup>2</sup> Noise Policy Statement for England. Government Department for Environment, Food and Rural Affairs (2010)

<sup>&</sup>lt;sup>1</sup>National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2019)

- SOAEL Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur
- 3.2.3 According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

*`....all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.'* 

# **3.3 Planning Practice Guidance on Noise**

- 3.3.1 Planning Practice Guidance<sup>3</sup> (PPG) is an online resource (last updated 2019) which provides additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:
  - Whether or not a significant adverse effect is occurring or likely to occur
  - Whether or not an adverse effect is occurring or likely to occur
  - Whether or not a good standard of amenity can be achieved
- 3.3.2 In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

"...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation".

3.3.3 Table 3-1 summarises the PPG noise exposure hierarchy.

Table 3-1: PPG N	oise Exposure	Hierarchy
Table 3-1: PPG N	oise Exposure	Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observe	d Adverse Effect Level		
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Obse	rved Adverse Effect Level		
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid

<sup>3</sup> Planning Practice Guidance on Noise, 2014: http://planningguidance.planningportal.gov.uk/blog/guidance/noise/

Perception	Examples of Outcomes	Increasing Effect Level	Action
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

3.3.4 The PPG also provides general advice on the typical options available for mitigating noise, suggesting that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

'Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed'.

# 3.4 IEMA Guidelines for Environmental Noise Impact Assessment

- 3.4.1 The Guidelines for Environmental Noise Impact Assessment provide recommendations for approaches to noise impact assessment in the context of the Environmental Impact Assessment (EIA) process. However, the principles in the guidelines are relevant to all types of project where noise effects are likely to occur, regardless of size including small developments which are not screened as EIA development.
- 3.4.2 The guidelines provide a number of examples regarding approach to impact assessment. In circumstances where a noise environment may be altered by addition or removal of a noise source, considered to be within the prevailing acoustic character of an area, assessment of impact magnitude may be performed by considering the relative change in ambient noise level, as shown in Table 4.2.

Relative Change dB(A)	Magnitude / Scale of Change
≤ 2.9	Negligible
3 - 4.9	Minor
5 – 9.9	Moderate
≥ 10	Major

Table 3.2: Example Noise Impact Magnitude Descriptors

# **4 Baseline Noise Survey**

- 4.1.1 The noise survey was undertaken on Wednesday 10<sup>th</sup> May 2023 and covered an evening period from the front façade of the 1<sup>st</sup> floor flat. The location of the noise monitoring position is shown in Appendix B for reference.
- 4.1.2 Noise measurements were made using a Bruel & Kjaer 2250 Type 1 integrating sound level meter with the microphone mounted on a pole out of a 1<sup>st</sup> floor window at distance of 1 metre from the façade. A windshield was fitted for all measurements.
- 4.1.3 The calibration of the measurement system was verified immediately before and after the survey using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted.
- 4.1.4 Weather conditions throughout the survey were appropriate for monitoring with dry conditions and low windspeed throughout.
- 4.1.5 Measurements consisted of A-weighted broadband parameters, together with linear octave band  $L_{eq}$  levels. Table 4-1 presents a summary of the measurement data for the session, at the measurement position, rounded to the nearest decibel. A correction of -3 dB has been applied to all levels to account for proximity to the façade.

Time (hh:mm)	Period (hh:mm)	L <sub>Aeq,T</sub> (dB)	L <sub>Amax</sub> (dB)	L <sub>A90,T</sub> (dB)
16:25	00:30	57	78	43
16:55	00:30	59	79	47
17:25	00:30	57	77	43
17:55	00:30	56	71	42
18:25	00:30	56	74	44
18:55	00:30	55	76	42
19:25	00:30	56	79	40
19:55	00:30	54	74	36
20:25	00:30	52	69	36
20:55	00:30	52	68	36
21:25	00:30	50	73	33
21:55	00:30	50	70	33
22:25	00:30	47	69	31
22:55	00:30	50	68	30

Table 4-1 - Summary of Noise Measurement Data

- 4.1.6 The ambient and background noise levels were considered to be commensurate to the application site setting with the dominant noise associated with traffic on Doncaster Road, and the occasional car-pass and pedestrian activity on Market Street.
- 4.1.7 The average levels at MP1 over the measurement period was 56 dB  $L_{Aeq,T}$  < 2000 hours dropping to 50 dB  $L_{Aeq,T}$  by 2300 hours.

# 5 Noise Impact Assessment

- 5.1.1 It was noted noise from the local road network was the dominant source at the monitoring location with an additional contribution from pedestrian activity on Market Street.
- 5.1.2 Regarding noise from the micropub; the following measures are assumed:
  - There will be no live/loud music played within the pub.
  - There will be no outside drinking or smoking areas.
  - No additional services are planned for the development.
- 5.1.3 As such the only potential noise source(s) considered within the report are:
  - Customer Noise and Bar Activity from Within Premises
- 5.1.4 This is a small unit with the internal area dedicated to seating and no plans for live music, therefore internal noise levels would not be expected to exceed 75 dB L<sub>Aeq,T</sub>.
- 5.1.5 Internal noise from the micropub has the potential for to transmit to the nearest neighbour up and through the party floor, or by breaking out and up the front façade to a window of the nearest neighbour of the upper flat.
- 5.1.6 The current performance of the party floor in attenuating airborne noise was confirmed during the survey. The graphical results are given in Appendix C, and show a performance of  $D_{nT,w}$  (C;  $C_{tr}$ ) = 46 (-2; -8), or **38 dB D**<sub>nT,w</sub> + C<sub>tr</sub>.
- 5.1.7 Given Approved Document E (ADE) requires all party floors to meet a specification of 43 dB  $D_{nT,w}$  + $C_{tr}$ , and a good quality of isolation between the micropub and the living areas upstairs will need to be achieved, is it expected that further work is required to the floor/ceiling to improve the current performance.
- 5.1.8 In order to achieve the required airborne sound insulation, the recommended solution is to install a 'deep' suspended ceiling within the ground floor.
- 5.1.9 Existing floor boards should be in good repair and all gaps in the existing floorboards and at the perimeter wall junctions should be sealed. Where floorboards are replaced, 22 mm t&g flooring grade chipboard should be used.
- 5.1.10 The existing ceiling may be retained, made good and over boarded with an additional layer of 15 mm Fire Line plasterboard fixed directly to the underside of the existing timber joists; this should then be upgraded with a metal frame ceiling consisting of (see Figure 5-1):
  - A suspension system consisting of a concealed grid metal frame (e.g. British Gypsum Casoline, or equivalent) system incorporating **acoustic hangers** to create a **(minimum) 300 mm void**
  - 2 x 15 mm Sound Bloc plasterboard (or equivalent) with staggered joints
  - 100 mm mineral wool insulation (density 45 kg/m<sup>3</sup>) above the ceiling





- 5.1.11 The proposed (upgraded) floor construction is capable of achieving circa 53 dB  $D_{nT,W}$ . In layman's terms, this means that (in the speech frequency range of 400 to 2500 hertz) the noise level in the overlying dwelling flats will be circa 53 dB lower than in the proposed micropub.
- 5.1.12 Given the presumed source levels, with the provision of the proposed ceiling upgrade, there is a very low probability of noise from loud conversation in the bar being audible within the attached property.
- 5.1.13 Regarding the impact of noise breaking out from the front façade of the micropub, it is expected the front window would provide approximately 30 dB of attenuation.
- 5.1.14 Based on the area of the façade and distance to the 1<sup>st</sup> floor window, external levels at the 1<sup>st</sup> floor façade would be expected to be  $\leq$  35 dB L<sub>Aeq,T</sub>, which is 15 dB below the representative noise level of 50 dB L<sub>Aeq,T</sub> measured over the later evening, and expected to only be + 1 dB above background L<sub>A90,T</sub> for the same period.
- 5.1.15 Therefore, the development is not expected to raise noise levels in the local area, or produce noise from the development which would be audible internally to a neighbour over the evening period (if the party floor performance can be improved).
- 5.1.16 Given the hours of opening of the public house will not extend past 11pm it is expected that night-time noise levels will not be of concern. Care should be taken that activities such as glass recycling are not conducted past 2300 hours as this would be expected to be conducted in close proximity to the neighbouring dwellings.

# 6 Summary and Conclusions

- 6.1.1 A noise survey and assessment has been conducted for the New Micropub at 12 Market Street, Goldthorpe, S63 9HA.
- 6.1.2 Section 3 details the relevant guidance regarding recommended noise limits for residential dwellings and the assessment of noise sources.
- 6.1.3 Section 4 details the external noise levels measured at the development which were established during noise monitoring carried out on Wednesday 10<sup>th</sup> May 2023. Levels were found to be commensurate with the setting, with traffic noise and pedestrian activity noted as the dominant noise sources in the area for the day/evening period.
- 6.1.4 Section 5 assesses the likelihood of noise impact from the development. Most significant is the potential for breakthrough noise through the party floor, recommendations have been made for upgrading the separating floor.
- 6.1.5 The potential maximum of noise breaking out from the front of the unit was found to be significantly below (>15 dB) the average level measured over the later evening. This level of noise would not normally be expected to be audible and thus no impact is expected.
- 6.1.6 As the hours of the micropub are to be limited to before 2300 no night-time impact is expected. To avoid the potential for temporary disturbance of the immediate neighbours in the night-time period, glass recycling should not be undertaken past 2300 hours.

# **Appendix A – Abbreviations and Definitions**

# Sound Pressure Level (L<sub>p</sub>)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20  $\mu$ Pa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

 $L_p = 20 \log_{10}(p/p_0)$ 

Where  $L_p$  = sound pressure level in dB; p = rms sound pressure in Pa; and  $p_o$  = reference sound pressure (20  $\mu$ Pa).

# A-weighting

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

# Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time.  $L_{Aeq, 16h}$  (07:00 to 23:00 hours) and  $L_{Aeq, 8h}$  (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

## LA10, T

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T.  $L_{A10, 18h}$  is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

### LA90, T

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L<sub>A90</sub> is typically taken as representative of background noise.

### L<sub>AF max</sub>

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

# Single Event Level / Sound Exposure Level (SEL or $L_{AE})$

The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

# Weighted Sound Reduction Index (R<sub>W</sub>)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies ( $R_W$  is used to characterise the insulation of a material or product that has been measured in a laboratory).

# Costal

# **Appendix B – Noise Measurement Position**

# **Appendix C - Party Floor Test**

Standardized level difference according to ISO 140-4 Field measurements of airborne sound insulation between rooms

Rating according to ISO 717-1

# $D_{nT,w}$ (C; C<sub>tr</sub>) = 46 (-2; -8) dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method.

Freq	Test D <sub>nT</sub> values (dB)			
(Hz)	curve	tes	t	
100	27	23.7		
125	30	21.0		
160	33	29.3		
200	36	33.4		
250	39	38.2		
315	42	39.9		
400	45	42.3		
500	46	46.0		
630	47	48.7		
800	48	52.4		
1000	49	55.5		
1250	50	58.5		
1600	50	60.1		
2000	50	59.3		
2500	50	58.2		
3150	50	64.4		

# indicates background corrected
\* indicates limit of measurement







Date of test:	Signature of tester:	Source Room:	Vol (m3)	Receiver Room:	Vol (m3)
10/05/2023	Rim	Shop Floor	72	1st Floor (Proposed bedroom)	38