
Our ref: NIA/10631/22/10785/v1 Lidget Lane

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Dear Sir

**NOISE IMPACT ASSESSMENT FOR PROPOSED BEER KEG STORAGE AREA
LAND TO THE NORTH OF LIDGET LANE, THURNSCOE, ROTHERHAM (THURNSCOE 2)**

1.00 INTRODUCTION

- 1.01 Environmental Noise Solutions Limited (ENS) has been commissioned by Architectural Design Consultant Ltd to undertake a noise impact assessment for a proposed beer keg storage facility and associated development at land to the north of Lidget Lane, Thurnscoe, Rotherham (hereafter referred to as the application site).
- 1.02 The objectives of the noise impact assessment were to:
- Establish background noise levels at the nearest noise sensitive receptors (NSRs) to the application site;
 - Assess the potential noise impact at the nearest NSRs associated with the proposed development at the application site in accordance with the National Planning Policy Framework and other pertinent guidelines and standards; and
 - If appropriate, recommend a scheme of noise mitigation.
- 1.03 This report details the methodology and results of the noise impact assessment. It has been prepared to accompany a planning application to be submitted to Barnsley Metropolitan Borough Council (BMBC).
- 1.04 This report has been prepared for Architectural Design Consultant Ltd 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 Architectural Design Consultant Ltd and ENS as to the extent to which the findings may be appropriate for their use.
- 1.05 A glossary of acoustic terms is contained in Appendix 1 for reference.

2.00 APPLICATION SITE SETTING AND PROPOSED DEVELOPMENT

- 2.01 The application site is located in a mixed-use area on the eastern fringe of Thurnscoe, Rotherham. Irregular in shape, the application site is bound by (see Appendix 2 for site location plan):
- The B6411 Lidget Lane to the south
 - A tyre shop to the west
 - The rears of residential dwellings on George Street to the north-west
 - A builder's merchant to the north
 - A hydraulics manufacturer to the east
- 2.02 Close Brothers Brewery Rentals (the applicant) offers rental and sales of kegs and casks for the brewing sector and operates from an existing site on Albion Drive, circa 280 metres to the north of the application site. Kegs and casks are delivered to the existing site to be sterilised, stored and collected.
- 2.03 Proposals are to utilise vacant brownfield land at the application site to form additional storage for the existing site.
- 2.04 Activities at the application site will be limited to the storage of kegs, with sterilising continuing to take place at the existing site. It is anticipated that there will be 2 no. deliveries/collections per week via HGV to the application site, between 0900 and 1600 hours Monday to Friday.
- 2.05 The nearest existing NSRs to the application site were identified as residential dwellings on George Street to the north west.

3.00 BASELINE NOISE SURVEY

- 3.01 In order to establish the existing ambient and background noise levels at the nearest noise sensitive receptors, a baseline noise survey was undertaken between 0900 and 1600 hours on Tuesday 1st November 2022.
- 3.02 For the purpose of the assessment, a single noise monitoring position (MP1) was adopted in the vicinity of the dwellings at George Street (the approximate location of the noise monitoring position is contained in Appendix 2).
- 3.03 Noise measurements were undertaken in a free field environment, at 1.5 metres above ground level, using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. Measurements consisted of A-weighted broadband parameters, together with linear octave band L_{eq} levels.
- 3.04 The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end, using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted. Weather conditions throughout the survey were appropriate for monitoring. A windshield was fitted for all measurements.
- 3.05 Table 3.1 overleaf contains a summary of the measurement data rounded to the nearest decibel.
- 3.06 The noise climate in the vicinity of the application site is due to local road traffic on Lidget Lane and distant road traffic on the A635 and the wider surrounding road network. The most commonly-occurring background noise level was **44 dB L_{A90} (15 mins)**.

Table 3.1 – Summary of Baseline Noise Measurement Data

Date	Time	L _{Aeq, T} (dB)	L _{A90, T} (dB)	Comment
01/11/22	0915–0930	50	46	Dominated by road traffic on Lidget Lane and distant road traffic on the wider surrounding network
01/11/22	0930–0945	51	45	
01/11/22	0945–1000	50	46	
01/11/22	1000–1015	50	45	
01/11/22	1015–1030	51	45	
01/11/22	1030–1045	50	45	
01/11/22	1045–1100	49	46	
01/11/22	1100–1115	52	48	
01/11/22	1115–1130	50	45	
01/11/22	1130–1145	51	46	
01/11/22	1145–1200	51	45	
01/11/22	1200–1215	49	43	
01/11/22	1215–1230	49	43	
01/11/22	1230–1245	49	43	
01/11/22	1245–1300	49	43	
01/11/22	1300–1315	50	44	
01/11/22	1315–1330	50	43	
01/11/22	1330–1345	49	44	
01/11/22	1345–1400	49	44	
01/11/22	1400–1415	50	44	
01/11/22	1415–1430	50	46	
01/11/22	1430–1445	50	45	
01/11/22	1445–1500	52	44	
01/11/22	1500–1515	50	45	
01/11/22	1515–1530	50	43	
01/11/22	1530–1545	50	42	
01/11/22	1545–1600	50	44	
Daytime ambient noise level circa 50 dB L _{Aeq} (15 min) Daytime background noise level circa 44 dB L ₉₀ (15 min)				

Noise Associated with the Proposed Development

- 3.07 In order to assess the potential noise impact of the proposed development, noise measurements were undertaken at the application site during a simulated delivery. Measurements were made using a calibrated B&K 2250 Type 1 sound level meter, during the daytime on Tuesday 1st November 2022. Measurements consisted of A-weighted broadband parameters, together with linear 1/3rd octave band L_{eq} levels.
- 3.08 Loading noise was measured at up to **65 dB L_{Aeq} (1 hour)** at 5 metres, and consisted of a wagon arrival/departure and forklift truck (FLT) loading operations. These are adopted as worst-case external noise levels.

4.00 NOISE IMPACT ASSESSMENT CRITERIA

National Planning Policy Framework

- 4.01 The National Planning Policy Framework (NPPF) was updated in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.
- 4.02 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'.

- 4.03 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'.

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

Noise Policy Statement for England

- 4.05 The Noise Policy Statement for England (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.

- 4.06 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.
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

Planning Practice Guidance – Noise

- 4.07 Planning Practice Guidance on Noise (PPG) is an online resource (as updated October 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.

4.08 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.

4.09 Table 4.1 summarises the noise exposure hierarchy, based on the likely average response.

Table 4.1 – Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level (NOEL)			
Not Noticeable	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level (NOAEL)			
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 Observed Adverse Effect Level (LOAEL)			
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 Observed Adverse Effect Level (SOAEL)			
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
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

4.10 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’.

4.11 The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest 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’.

- 4.12 With cognisance to this, further useful contextual guidance is taken from British Standard BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142).

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

- 4.13 BS 4142 describes methods for determining, at the outside of a building, noise levels from factories or industrial premises and a method for assessing whether the noise is likely to give rise to adverse impacts, and states:

The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. Typically, the greater this difference, the greater the magnitude of the impact. For example:

- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context*
- *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*

Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the absolute level of sound.

- 4.14 The reference time interval of the specific sound is 1 hour during the daytime and 15 minutes during the night time.
- 4.15 The background sound level is the A-weighted sound pressure level of the residual sound at the assessment position that is exceeded for 90 percent of a given time interval, T, measured using time weighting 'F' and quoted to the nearest whole number of decibels. The residual sound is described as the ambient sound remaining in a given position in a given situation when the specific sound source is suppressed to a degree such that it does not contribute to the ambient sound.
- 4.16 The rating level is described as the specific sound level (the equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific sound source over the given reference time interval) plus any adjustment for the characteristic features of the sound. The character correction relates to whether and to what degree the specific sound is assessed to have an element of tonality, impulsivity and/or characteristics that are readily distinctive against the residual acoustic environment.

5.00 NOISE IMPACT ASSESSMENT

- 5.01 The principal noise sources potentially associated with the proposed development are considered to be occasional deliveries/collections to the application site.
- 5.02 In order to maintain access, the storage of kegs at the existing site is located at the boundaries of the external yard, with deliveries taking place near the site entrance (see Figure 5.1). It is assumed that this arrangement will be mirrored at the proposed storage yard, with loading/unloading operations taking place near the entrance at circa **50 metres** from the nearest receptors.

Figure 5.1 – Existing Premises



- 5.03 In order to derive the worst-case loading noise levels at the nearest NSRs, the following formula may be used:

$$SPL_{REC} = SPL_{SOURCE} - DA - SA$$

where:

SPL_{REC} is the free field sound pressure level at the receiver (dB L_{Aeq})

SPL_{SOURCE} is the sound pressure level at source (dB L_{Aeq})

DA is the distance attenuation of noise

SA is the screening attenuation of noise

- 5.04 Distance attenuation (DA) is calculated as follows:

$$DA = 20 \times \log (D_{SOURCE} / D_{REC}) \text{ where,}$$

D_{SOURCE} = distance to source (5 metres in this case); and

D_{REC} = distance to receiver.

- 5.05 With regards to screening attenuation (SA), BS 5228:2009 Part 1 states '*In the absence of spectral data, as a working approximation, if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources from the receiver. High topographical features and specifically designed and positioned noise barriers could provide greater attenuation.*'

- 5.06 The stored kegs at the site will be positioned at the north-western site boundary and will provide screening to the remainder of the application site. Screening attenuation is therefore taken as 10 dB.
- 5.07 On the basis of the above, the worst-case resultant noise levels at the nearest NSR associated with loading operations at the application site are set out in Table 5.1.

Table 5.1 – Calculated Resultant External Loading Noise Levels at Nearest Receptor

Noise Level at Source (5 metres)	Distance Attenuation	Screening Attenuation	Resultant Noise Level at NSR
65 dB L_{Aeq} (1 hour)	-20 dB [= $20 \cdot \log(5 / 50)$]	-10 dB	35 dB L_{Aeq} (1 hour)

- 5.08 BS 4142 requires that an adjustment can be made for the characteristic features of the sound. Unloading noise may contain subjectively impulsive characteristics. Whilst the absolute unloading noise levels are relatively low (and below existing background levels) at the nearest NSRs, a **+3 dB penalty** is robustly applied for perceptible impulsivity.
- 5.09 On the basis of the above, Table 5.2 contains a BS 4142 assessment at the nearest NSRs for operations at the application site.

Table 5.2 – BS 4142 Assessment

Results		Comment
Resultant sound level	35 dB $L_{Aeq, T}$	Worst-case level at NSRs
Specific sound level	35 dB L_{Aeq} (1 hour)	Reference time interval is 1 hour
Acoustic feature correction	+3 dB	Impulsivity may be perceptible at the nearest receptors
Rating level	38 dB L_{Ar} (1 hour)	Rating level
Background sound level	44 dB L_{A90} (15 min)	Daytime background noise level
Excess of rating over background sound level	-6 dB	Indication of low impact subject to context

- 5.10 The delivery rating levels are at least 6 dB below the existing background noise levels at the nearest receptors. In accordance with BS 4142, this is an indication of a low impact, subject to context.
- 5.11 In relation to context, the following should be noted:
- Noise rating levels of **38 dB L_{Ar} (1 hour)** are very low in absolute terms. For reference, the World Health Organisation (WHO) Guidelines for Community noise considers that few people are moderately annoyed where daytime external noise levels do not exceed **50 dB L_{Aeq} (0700–2300)**
 - As the application site is to be used for storage only, activities at the site are likely to be sporadic, with an anticipated 2 no. deliveries/collections per week. By virtue of the limited frequency and duration of events, use of the site is not likely to result in significant impacts at existing receptors.
 - The application site is located on an existing industrial estate with numerous B2/B8 premises in the immediate vicinity and the proposals will therefore not change the acoustic character of the area.
- 5.12 In summary, the noise impact of the proposed development is considered to be negligible.

6.00 CONCLUSIONS

- 6.01 A noise impact assessment has been carried out in relation to a proposed beer keg storage facility and associated development at land to the north of Lidget Lane, Thurnscoe, Rotherham.
- 6.02 The predicted noise levels associated with use of the proposed development are assessed to be a low impact, subject to context, in accordance with BS 4142.
- 6.03 In relation to 'context', the predicted noise rating levels are relatively low in absolute terms, and it is not considered that the proposed development will change the acoustic character of the area, which is industrial/commercial in nature.
- 6.04 The noise impact is therefore considered to be negligible, with no specific mitigation measures required.

I trust the foregoing is sufficient for your needs. Should you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely



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cc File

Appendix 1

Glossary of Acoustic Terms

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa 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_0 = reference sound pressure (20 μPa).

A-weighting Network

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.

$L_{A10, T}$

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.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T . L_{A90} is typically taken as representative of background noise.

$L_{AF \max}$

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.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_w)

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).

Appendix 2
Site Location Plan and Approximate Noise Monitoring Position

