Our ref: NIA/9103/20/9089/v2/ 2 Huddersfield Road

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Dear Ms. Dumville

NOISE IMPACT ASSESSMENT
PROPOSED COMMERCIAL DEVELOPMENT, LAND AT 2 HUDDERSFIELD ROAD, BIRSTALL, BATLEY, WF17 9AA

1.00 INTRODUCTION

1.01 Environmental Noise Solutions Limited (ENS) has been commissioned by Robert Halstead Chartered Surveyors & Town Planners to carry out a noise impact assessment for a proposed commercial development of a new food store with A1 use at land at 2 Huddersfield Road, Birstall, Batley, WF17 9AA (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 during representative periods of the daytime and night time.
- Assess the potential noise impact of the development on the nearest NSRs with reference to pertinent guidelines.

1.03 This report details the methodology and results of the assessment. It has been prepared to accompany a planning application to be submitted to the local planning authority. Following a pre-application consultation with Kirklees Council the following concerns / condition were highlighted / recommended in relation to noise:

'*Before construction work commences, details of a noise assessment by a suitably competent person must be submitted in writing to the Local Planning Authority. The report shall include: -*

a) As assessment of all noise emissions from the proposed development.
b) Details of existing background and predicted future noise levels at the boundary of the nearby sensitive premises.
c) A written scheme of how the occupants of the above-mentioned noise sensitive premises will be protected from noise from the proposed development with noise attenuation measured as appropriate.
d) A written scheme of any necessary noise attenuation measures and demonstrate how nearby residents will be protected from noise from the proposed development.

The assessment shall be appropriate for all times of day and night when the development will operate. The report should include any supporting calculations.

If the levels predicated in the report are unacceptable, it may be necessary to refuse the application. Otherwise, it may be necessary to specify attenuation measures as conditions of consent.'

1.04 This report has been prepared for Robert Halstead Chartered Surveyors & Town Planners 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 Robert Halstead Chartered Surveyors & Town Planners and ENS as to the extent to which the findings may be appropriate for their use.

1.05 A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

2.00 APPLICATION SITE SETTING AND PROPOSED RESIDENTIAL DEVELOPMENT

2.01 The application site is located at the corner of a busy junction between Leeds Road and Huddersfield Road in Birstall town centre. Proposals are to demolish the existing buildings (including terraced houses and a used car sales forecourt) and erect a new class A1 supermarket. Irregular in shape (see Appendix 2 for a site layout) the application site is bound by:

- Leeds Road to the north-east with existing shops and residential dwellings further beyond.
- Geldard Road to the north with retail units (including Carpets Direct) and a dentist surgery opposite.
- Huddersfield Road and existing residential dwellings to the west.
- Nelson Street to the north-west with existing shops and residential dwellings opposite.
- Existing residential dwelling to the south and south-east on Brownhill Close and Brownhill Road.

2.02 Proposals include associated car parking and a shared service yard (a site layout is shown in Appendix 3 for reference). The developer has confirmed that the proposed Class A1 supermarket will be leased by Sainsbury's.

2.03 The nearest noise sensitive receptor (NSRs) are as follows:

- NSR1 existing residential dwellings to the south and south-east on Brownhill Close and Brownhill Road.
- NSR2 existing residential dwellings to the north-east on Leeds Road.
- NSR3 existing residential dwellings to the west on Huddersfield Road and Nelson Street.

3.00 BASELINE NOISE SURVEY

3.01 In order to establish prevailing baseline noise levels at the application site, a noise survey was undertaken on Wednesday 29th April 2020 and the early hours of Thursday 30th April 2020.

3.02 The following noise monitoring positions were adopted (the approximate locations of the noise monitoring positions are shown in Appendix 2 for reference):

- MP1 was located in the southern corner of the application site, representative of NSR1.
- MP2 was located on Leeds Road, representative of NSR2.
- MP3 was located on Huddersfield Road, representative of NSR3.

3.03 Noise measurements were made using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. A windshield was fitted for all measurements. 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. Measurements were made at 1.5 metres above ground level in free field conditions.

3.04 Measurements consisted of A–weighted broadband parameters, together with linear octave band L_{eq} levels. Table 3.1 presents a summary of the noise data for each measurement session, at each position, rounded to the nearest decibel.

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Table 3.1 – Summary of Noise Measurement Data

Position	Date	Time	$L_{Aeq,T}$ (dB)	$L_{A90,T}$ (dB)	Comment
MP1	29/04/20	1214-1244	55	47	Dominated by road traffic on Leeds and Huddersfield Road
		1508-1538	57	48	
		1931-1946	53	44	
		2304-2319	48	31	
	30/04/20	0000-0015	45	28	
Lowest daytime and night time background noise levels 44 dB $L_{A90,T}$ and 28 dB $L_{A90,T}$ respectively. Daytime and night time ambient noise levels 53 – 57 dB $L_{Aeq,T}$ and 45 – 48 dB $L_{Aeq,T}$ respectively					
MP2	29/04/20	1248-1318	61	50	Dominated by road traffic on Leeds and Huddersfield Road
		1542-1612	64	54	
		1948-2003	58	45	
		2323-2338	51	29	
	30/04/20	0019-0034	47	28	
Lowest daytime and night time background noise levels 45 dB $L_{A90,T}$ and 28 dB $L_{A90,T}$ respectively. Daytime and night time ambient noise levels 58 – 64 dB $L_{Aeq,T}$ and 47 – 51 dB $L_{Aeq,T}$ respectively					
MP3	29/04/20	1359-1429	71	58	Dominated by road traffic on Leeds and Huddersfield Road
		1625-1655	70	57	
		2006-2021	64	46	
		2341-2356	56	33	
	30/04/20	0038-0053	59	30	
Lowest daytime and night time background noise levels 46 dB $L_{A90,T}$ and 30 dB $L_{A90,T}$ respectively. Daytime and night time ambient noise levels 64 – 71 dB $L_{Aeq,T}$ and 56 – 59 dB $L_{Aeq,T}$ respectively					

3.05 During the survey it was noted that the noise environment at the application site was dominated by road traffic on Leeds and Huddersfield Road.

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'.

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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 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 (PPG) is an online resource (last updated in 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.

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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 guidance is taken from British Standard BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142).

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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 day and 15 minutes at night.

4.15 The rating level is described as the specific sound level (the equivalent continuous A-weighted sound pressure level at the assessment position (NSR) 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.

4.16 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.

IEMA Guidelines for Environmental Noise Impact Assessment

4.17 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.

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4.18 The guidelines provide a number of examples regarding approach to impact assessment. Table 4.2 replicates an example of noise impact magnitude descriptors used to assess traffic generated onto the highway network by a proposed development. This has been adopted in this instance as a means of assessing potential changes in noise level due to car park activity.

Table 4.2: Example Noise Impact Magnitude Descriptors

Relative Change dB(A)	Magnitude / Scale of Change
≤ 2.9	Negligible
3 – 4.9	Small
5 – 9.9	Medium
≥ 10	Large

5.00 NOISE IMPACT ASSESSMENT

Noise Sources

5.01 The principal noise sources potentially associated with the proposed development are considered to be:

- Delivery noise.
- Noise associated with any fixed external plant.
- Customer parking provision.

5.02 The following sections of the noise impact assessment discuss the potential noise impacts of the above activities on the amenity of the nearest residential dwellings.

Delivery / Waste Collection Noise

5.03 The developer has confirmed that store deliveries and collections including waste will be restricted to daytime only hours, between 07:00 – 23:00 hrs. It is considered that any noise associated with deliveries is therefore controlled through the restriction of hours.

5.04 It is assumed that any store deliveries will take place to the rear / side of the supermarket. To minimise potential noise impacts, of daytime delivery and waste collection noise upon external amenity in neighbouring gardens, it is recommended that an acoustic barrier (e.g. masonry or close boarded timber fencing with a mass per unit area ≥ 12kg/m^2) with a height of ≥ 2.4m is installed along the entire south-western boundary. The barrier should be solid and continuous with no gaps or holes and should be fully sealed at the ground (i.e. include a gravel board). See Appendix 3 for the recommended location of the proposed barrier.

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5.05 The use of the solid timber fence should serve to protect the gardens of the existing residential dwellings to the south-west. The use of the boundary treatment demonstrates good acoustic practice when considering the proposed application site layout.

Fixed External Plant

5.06 Detailed information regarding item(s) of plant required was not available at the time of writing and therefore this report should be used to aid in the specification of any external plant.

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5.07 Should external plant be proposed for the scheme, in order to avoid an adverse noise impact (as per guidance set out in BS 4142) the cumulative rating level of such plant should not exceed the typical background noise levels in a free field position at the location of the NSRs as follows:

- NSR1 the cumulative rating level of external plant operating during the daytime and night time period should not exceed 44 dB $L_{Ar,day}$ and 28 dB $L_{Ar,night}$ respectively.
- NSR2 the cumulative rating level of external plant operating during the daytime and night time period should not exceed 45 dB $L_{Ar,day}$ and 28 dB $L_{Ar,night}$ respectively.
- NSR3 the cumulative rating level of external plant operating during the daytime and night time period should not exceed 46 dB $L_{Ar,day}$ and 30 dB $L_{Ar,night}$ respectively.

5.08 It is considered that appropriate noise control can be achieved by the judicious selection and siting of plant and/or standard noise mitigation techniques.

Noise Associated with Customer Parking Provision

5.09 The proposed plan shows 18 no. customer parking spaces are located to the north-east of the proposed supermarket. With reference to the proposed application site layout, the centre of the car park is circa 43 metres from the existing residential dwellings represented by NSR1, 37 metres to NSR2 and 64 metres to NSR3 (significantly screened).

5.10 Previous noise survey work, in close proximity to supermarket car parking spaces, has determined the following noise levels at 10 metre distance:

Table 5.1: Car Park Source Noise Data

Parameter	Single Event Noise Level (SEL) at 10m
Car pass by	67 dB(A)
Door slam	64 dB(A)
Car ignition and depart	72 dB(A)

5.11 In lieu of trip rate information, it is assumed that within 1 hour, each car parking space would accommodate 1 no. vehicles, every hour. For assessment purposes, it is assumed that 75% of all car parking spaces are in use at any time.

The following formula may be used for calculating the L_{Aeq} level from the SEL:

$L_{Aeq,\,T} = 10\ log_{10}\ [(n \times 10^{SEL/10}) / T]$

where:

SEL	=	*the Single Event / Sound Exposure Level*
n	=	*number of event occurrences*
T	=	*reference time period, in seconds*

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5.12 Processing the above formula, calculated car park noise levels are presented for NSR1 and NSR2 in Tables 5.2 - 5.3.

Table 5.2: Car Park Noise Levels at 10m Distance – NSR1

Activity	No. of Events Per Space Per Hr	No. of Spaces in Use	Total No. of Events Per Hr	Noise Level (dB $L_{Aeq,1hr}$)
Car pass by	1	14	14	**43**
Door slam	2	14	28	**43**
Car ignition and depart	1	14	14	**48**
Cumulative				**50**
Distance correction at NSR1 20log(10/43)				**-13**
Total Calculated car park noise level at NSR1				**37**

5.13 The lowest daytime ambient noise level measured at MP1 (representative of NSR1) was 53 dB $L_{Aeq,T}$. The total combined noise level (including existing ambient noise and additional car park noise) at NSR1 is calculated (via logarithmic addition) at 53 dB $L_{Aeq,T}$ resulting in no increase in ambient noise level. With reference to the IEMA Guidelines for Environmental Noise Impact Assessment (see Section 4 of this report) this is considered a **Negligible** impact.

Table 5.3: Car Park Noise Levels at 10m Distance – NSR2

Activity	No. of Events Per Space Per Hr	No. of Spaces in Use	Total No. of Events Per Hr	Noise Level (dB $L_{Aeq,1hr}$)
Car pass by	1	14	14	**43**
Door slam	2	14	28	**43**
Car ignition and depart	1	14	14	**48**
Cumulative				**50**
Distance correction at NSR2 20log(10/37)				**-11**
Total Calculated car park noise level at NSR2				**39**

5.14 The lowest daytime ambient noise level measured at MP2 (representative of NSR2) was 58 dB $L_{Aeq,T}$. The total combined noise level (including existing ambient noise and additional car park noise) at NSR2 is calculated (via logarithmic addition) at 58 dB $L_{Aeq,T}$ resulting in no increase in ambient noise level. With reference to the IEMA Guidelines for Environmental Noise Impact Assessment (see Section 4 of this report) this is considered a **Negligible** impact.

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6.00 CONCLUSIONS

6.01 A noise impact assessment has been undertaken for a proposed commercial development of a new food store with A1 use at land at 2 Huddersfield Road, Birstall, Batley, WF17 9AA.

6.02 Noise associated with store deliveries and waste collection will be controlled through the restriction of daytime only delivery hours.

6.03 Appropriate planning conditions and management controls can be adopted in order to mitigate noise impacts from fixed installations (e.g. plant / condenser / extraction).

6.04 When assessing the use of the car park in accordance with the IEMA Guidelines for Environmental Noise Impact Assessment, the noise impact is considered to be **Negligible** at all NSRs.

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

Richard Whitaker BSc (Hons)
MIOA, Diploma in Acoustics & Noise Control
For Environmental Noise Solutions Limited
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
Noise Monitoring Position

Appendix 3
Site Plan / Boundary Treatments

= 2.4-metre-high solid timber fence