

NOISE ASSESSMENT

on behalf of

BKW DEVELOPMENTS LTD.

for the site at

**LAND SOUTH OF BLACKBURN ROAD,
HOTHERSALL, LONGRIDGE PR3 2YY**

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**Miller Goodall Ltd
Ground Floor
Ashworth House
Deakins Business Park
Blackburn Road
Egerton
Bolton
Lancashire
BL7 9RP**

Tel: 01204 596166

www.millergoodall.co.uk

Company registration number 5201673

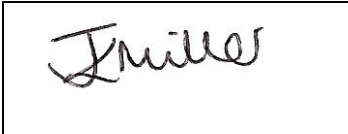
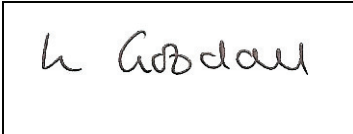


Summary

A noise assessment was undertaken to predict the potential impact of a proposed development consisting of an outline application for employment with use classes B1, B2 and B8 at Land South of Blackburn Road, Hothersall, Longridge PR3 2YY

The assessment provides initial guidance on the potential for noise to impact on the existing residential uses and Hillside Specialist School in close proximity of the site. Advice has been provided on the outline planning application to assist in mitigating any potential noise from the proposed site. A further detailed noise assessment would be provided at the detailed reserved matters phase of the development.

Record of changes

Prepared By	Joanne Miller MIOA	Reviewed By	Lesley Goodall MIOA
Signed		Signed	
Date	21st August 2017	Date	21st August 2017

Version	Date	Change	Initials
1	21st August 2017	Draft issue	JLM

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1 Introduction

- 1.1 Miller Goodall Ltd has, on behalf of BKW Developments Ltd., undertaken a review in respect of the impact of noise from the use of a proposed employment development on existing noise sensitive properties. At this stage the application is outline, with limited information in relation to any end user, or potential plant and equipment likely to be used on the site. This assessment has been provided to indicate the likely noise mitigation measures which are would be required and a further more detailed assessment would be undertaken at the reserved matters application stage, once further information is available.

2 Site Description

- 2.1 The site is located approximately 1 km west of Longridge town centre. The site location is shown in plan reference 5220-E01-A.
- 2.2 Blackburn Road runs along the northern boundary of the site and an access road to business units and agricultural land runs along the western boundary of the site. Open land lies to the south and east of the site with a number of dwellings and also Hillside Specialist School lie to the east. 195 dwellings (planning ref 3/2015/0065) are currently under construction to the north west of the development site.

3 Proposed Development

- 3.1 Consent is sought for the erection of circa 8,500 square metres of employment floor space falling with the 'B' Use Class Order categories and associated access, car parking, landscaping and services infrastructure. All matters are reserved at this stage other than the proposed access. The proposal would comprise a mixed employment development including office, research and light industrial use (B1), general industrial use (B2) and/or storage (B8), the finalised details of which would be established as part of any reserved matters submission. An illustrative site plan is included at Appendix 2.
- 3.2 The proposed development will be accessed directly from the B6243, Blackburn Road. No end users have currently been identified for the site. There is approximately 14.5 m offset from the existing neighbouring semi-detached houses to the edge of the development area of the site and the proposed access is approximately 50 m from these existing properties.

4 Policy Context

4.1 Noise Policy Statement for England

- 4.1.1** The Noise Policy Statement for England (NPSE¹), published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

¹Noise Policy Statement for England, Defra, March 2010

- avoid significant adverse effects on health and quality of life;
- mitigate and minimise adverse effects on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.”

4.1.2 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and the quality of life occur.

4.1.3 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the Statement). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case:

“...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development”.

4.1.4 Importantly, the NPSE goes on to state:

“This does not mean that such adverse effects cannot occur”.

4.1.5 The Statement does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that:

“Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available”

4.1.6 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

4.2 National Planning Policy Framework

4.2.1 The National Planning Policy Framework (NPPF²) was published in March 2012. One of the documents that the NPPF replaces is Planning Policy Guidance Note 24 (PPG 24) “Planning and Noise”³.

4.2.2 Paragraph 109 of the NPPF states that the planning system should contribute to and enhance the natural and local environment by, (amongst others) “preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, water or noise pollution or land stability”.

4.2.3 The NPPF goes on to state in Paragraph 123 “planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;

² National Planning Policy Framework, DCLG, March 2012

³ Planning Policy Guidance 24: Planning and Noise, DCLG, September 1994

- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including thorough use of conditions;
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land use since they were established, and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value”.

4.2.4 The NPPF document does not refer to any other documents regarding noise other than NPSE.

4.3 Planning Practice Guidance – Noise

4.3.1 As of March 2014, a Planning Practice Guidance⁴ for noise was issued which provides additional guidance and elaboration on the NPPF. It advises that when plan-making and decision-taking, 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; and
- Whether or not a good standard of amenity can be achieved.

4.3.2 In line with the Explanatory Note of the NPSE, the PPG goes on to reference 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”.

4.3.3 Examples of these factors include:

- The source and absolute noise level of the source along with the time of day that it occurs;
- Where the noise is non-continuous, the number of noise events and pattern of occurrence;
- The frequency content and acoustic characteristics of the noise;
- The effect of noise on wildlife;
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design;
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

4.3.4 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 Planning Practice Guidance – Noise, <http://planningguidance.planningportal.gov.uk/blog/guidance/noise/>, 06 March 2014

4.3.5 The PPG was amended in December 2014 to clarify guidance on the potential effect of noise from existing businesses on proposed new residential accommodation. Even if existing noise levels are intermittent (for example, from a live music venue), noise will need to be carefully considered and appropriate mitigation measures employed to control noise at the proposed accommodation.

4.4 Local Planning Policy

4.4.1 RVBC adopted their Core Strategy in 2008 which shapes development within the borough until 2028. Policy DMG1 states that:

“In determining planning applications, all developments must...

...not adversely affect the amenities of the surrounding area.”

5 Acoustic Standards and Guidance

5.1 BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

5.1.1 This standard provides recommended guideline values for internal noise levels within dwellings which are similar in scope to guideline values contained within the World Health Organisation (WHO) document, Guidelines for Community Noise (1999)⁵. These guideline noise levels are shown in Table 1, below.

⁵ World Health Organisation Guidelines for Community Noise, 1999

Table 1: BS 8233: 2014 guideline indoor ambient noise levels for dwellings

Location	Activity	07:00 to 23:00	23:00 to 07:00
Living Room	Resting	35 dB $L_{Aeq,16hr}$	-
Dining room/area	Dining	40 dB $L_{Aeq,16hr}$	-
Bedroom	Sleeping (daytime resting)	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

5.1.2 BS 8233:2014 advises that:

“regular individual noise events...can cause sleep disturbance. A guideline value may be set in terms of SEL⁶ or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values”.

5.1.3 BS 8233:2014 adopts guideline external noise values provided in WHO for external amenity areas such as gardens and patios. The standard states that it is “desirable” that the external noise does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ whilst recognising that development in higher noise areas such as urban areas or those close to the transport network may require a compromise between elevated noise levels and other factors that determine if development in such areas is warranted. In such circumstances, the development should be designed to achieve the lowest practicable noise levels in external amenity areas.

5.2 World Health Organisation (WHO) Guidelines for Community Noise 1999

5.2.1 The WHO Guidelines 1999 recommends that to avoid sleep disturbance, indoor night-time guideline noise values of 30 dB L_{Aeq} for continuous noise and 45 dB L_{AFmax} for individual noise events should be applicable. It is to be noted that the WHO Night Noise Guidelines for Europe 2009⁷ makes reference to research that indicates sleep disturbance from noise events at indoor levels as low as 42 dB L_{AFmax} . The number of individual noise events should also be taken into account and the WHO guidelines suggest that indoor noise levels from such events should not exceed approximately 45 dB L_{AFmax} more than 10 – 15 times per night.

5.2.2 The WHO document recommends that steady, continuous noise levels should not exceed 55 dB L_{Aeq} on balconies, terraces and outdoor living areas. It goes on to state that to protect the majority of individuals from moderate annoyance, external noise levels should not exceed 50 dB L_{Aeq} .

⁶ Sound exposure level or L_{AE}

⁷ WHO Night Noise Guidelines for Europe 2009

5.3 BS 4142: 2014 'Methods for rating and assessing industrial and commercial sound'

5.3.1 BS 4142: 2014⁸ provides guidance on the assessment of the likelihood of complaints relating to noise from industrial sources. It replaced the 1997 edition of the Standard in October 2014. The key aspects of the Standard are summarised below.

5.3.2 The standard presents a method of assessing potential noise impact by comparing the noise level due to industrial sources (the Rating Level) with that of the existing background noise level at the nearest noise sensitive receiver in the absence of the source (the Background Sound Level).

5.3.3 The Specific Noise Level - the noise level produced by the source in question at the assessment location - is determined and a correction applied for certain undesirable acoustic features such as tonality, impulsivity or intermittency. The corrected Specific Noise Level is referred to as the Rating Level.

5.3.4 In order to assess the noise impact, the Background Sound Level is arithmetically subtracted from the Rating Level. The standard states the following:

- *Typically, the greater this difference, the greater the magnitude of the impact,*
- *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.*

5.3.5 In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014 edition places emphasis upon an appreciation of the context, as follows:

An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

5.3.6 The 2014 edition of BS 4142 also introduces a requirement to consider and report the uncertainty in the data and associated calculations and to take reasonably practicable steps to reduce the level of uncertainty.

⁸ BS 4142:2014 Methods for rating and assessing industrial and commercial sound

6 Impact of Noise from the Proposed Development

- 6.1 B1, office or light industrial use appropriate for a residential area, uses are not expected to impact upon the existing noise sensitive properties. The main potential noise sources for the development relate to the proposed B2 and B8 use classes, namely general industry and storage or distribution, however at this stage the application is outline with no fixed detail in relation to the end uses which would be clarified at the reserved matters application.
- 6.2 Road traffic associated with the proposed development has been assessed by PSA, who concludes that the site is accessible by sustainable transport. The traffic that is likely to be generated by the proposal has been established and is not considered to be significant and is unlikely to result in the proposed development having a material impact on the operation of the local road network. The layout of the site can also be designed to ensure that reversing alarms can be minimised.
- 6.3 The exact end use of the B2 and B8 units are not currently known, however these units can be insulated against noise breakout. A full noise impact assessment will be undertaken at reserved matters stage when more information is available. The specification for the fabric of the building will be utilised within calculations at the detailed noise assessment phase to ensure noise breakout would not impact upon the closest residential properties or Hillside Specialist School and upgraded insulation measures can be implemented necessary.
- 6.4 Further mitigation which can be included at reserved matters stage includes orientation of buildings to ensure that no openings face towards nearby residential properties or the school, including loading areas and access doors where possible.
- 6.5 Deliveries to the proposed development have potential to impact adversely on nearby noise sensitive properties, particularly during the early hours of the morning or during the night-time. This will also be assessed at reserved matters stage but mitigation in relation to permitted delivery hours can be imposed through a planning condition to control these impacts. For example, deliveries to the site could be restricted to between 07:00 and 19:00 Monday to Saturday, with no deliveries on a Sunday or during a bank holiday. A planning condition would be appropriate for this purpose.
- 6.6 Once information is available on the likely plant and equipment associated with the site a BS4142:2014 assessment can be undertaken to ensure than noise from this plant does not exceed the recommended criteria within this standards. The following noise condition would be appropriate to control noise from plant and equipment at the site:

The rating level ($L_{Aeq,T}$) from all activities associated with the units, when operating simultaneously, shall not exceed the background noise level ($L_{A90,T}$) by more than 0 dB at any time when measured at the boundary of the nearest noise sensitive premises. Noise measurements and assessments shall be carried out according to BS 4142:2014 "Methods for rating and assessing industrial and commercial sound". 'T' refers to any 1 hour period between 07.00hrs and 23.00hrs and any 15 minute period between 23.00hrs and 07.00hrs.

7 Impact of the development on Hillside Specialist School

7.1 The school is located approximately 114 m to the east of the development site, we would therefore not expect the school to be impacted by the development. However, the mitigation techniques described in section 6 above would be effective in protecting the school also.

7.2 In any event there are particular requirements for the acoustic performance of internal and external spaces within schools; BB93: Acoustic Design of Schools: 2015. The document also contains specific requirements for pupils with special educational needs and states:

'Pupils with hearing impairment, autism and other special needs are often very sensitive to specific types of noise, particularly those with strong tonal, impulsive or intermittent characteristics.'

7.3 There are alternative performance standards (APS) contained within BB93 for teaching spaces intended specifically for students with special hearing and communication needs. The highest of these standards is 30 dB $L_{Aeq, 30 mins}$. Any future assessments of the impact of noise shall take into account the aforementioned criteria as part of the assessment aims.

8 Conclusions

8.1 A review of the proposed development has been undertaken in relation to the potential impact of noise on existing noise sensitive receptors. At this stage there is limited information in relation to the end use of the proposed units other than the specific use class. A detailed noise assessment would be undertaken at the reserved matters phase of the development which will address noise breakout from proposed building, deliveries to the proposed development and noise from plant and equipment.

8.2 Recommendations have been made in relation to the orientation of building on the proposed development, including the orientation of delivery areas and access doors away from the noise sensitive receptors.

8.3 A planning condition has also been recommended which would ensure that noise from any potential plant and equipment associated with the site does not lead to a significant noise impact to existing noise sensitive receptors. A further detailed assessment is proposed at the reserved matters phase of the development which would consider in more detail the specific plant and equipment and any necessary sound insulation of the units which may be required to achieve the specific noise criteria. Given the distances to the existing noise sensitive receptors it is not considered that noise will have a significant impact once the initial mitigation measures are included within the design.

8.4 It is considered that with a noise assessment at reserved matters stage and implementation of suitable controls, the site can be operated without impacting on nearby noise sensitive receptors.

APPENDICES

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Appendix 1: Site Plan

Appendix 2: Illustrative Site Layout Plan



ILLUSTRATIVE SITE LAYOUT

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Glossary of Terms

- Decibel (dB)** The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa , the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under controlled conditions.
- dB L_A** Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .
- $L_{A90,T}$** The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 1997 it is used to define background noise level.
- $L_{Aeq,T}$** The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.
- L_{Amax}** The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.
- $L_{A10(18\text{ hour})}$** Often referred to as the UK road traffic noise index, this is the arithmetic average of the values of L_{A10} hourly for each of the 18 one hour periods between 06:00 and 00:00.
- NOEL** No observed effect level: the level of noise exposure below which no effect at all on health or quality of life can be detected.
- LOAEL** Lowest observed adverse effect level: the level of noise exposure above which adverse effects on health or quality of life can be detected.
- SOAEL** Significant observed adverse effect level: the level of noise exposure above which significant adverse effects on health or quality of life can be detected.

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