12th February 2018

Paul Wharrick
Eskdale Engineering Co Ltd
Sneaton Lane
Ruswarp
Whitby
YO22 5HN

DC2533-L1 – Noise Impact Assessment – Eskdale Engineering Co Ltd, Sneaton Lane, Ruswarp

Dear Paul,

I am Daniel Shaftoe, Acoustic Consultant with responsibilities for completing acoustic reports on behalf of Dragonfly Consulting.

I hold a Bachelor of Science Degree, with Honours, in Music Technology from the University of York. I also hold the Institute of Acoustics Diploma in Acoustics and Noise Control from Leeds Beckett University. I am an Associate Member of the Institute of Acoustics.

I have been instructed by you to provide a report on the noise impact on the surrounding environment of the proposed development at Sneaton Lane, Ruswarp. The intention of said report is to satisfy Condition 7 of the extant planning permission (application ref. NYM/2015/0064/FL).

Summary

The development is for a single building to house three individual Class B2 (industrial use) occupiers. At the time of this document, it is understood that the units will be occupied by a joinery workshop. The building has been constructed on the site of a former structure previously occupied by Messrs Benson Agricultural Engineers, established in 1860. The former structure was destroyed by fire in 2013; the new development replaces this building and does not increase the site footprint. Additionally, the Class B2 (industrial use) of the site has not changed as a result of the development.

Condition 7 of the extant planning permission states:

"The development hereby permitted shall not be brought into use until details of measures to be undertaken to limit the transmission of noise to adjacent properties have been submitted to and approved in writing by the Local Planning Authority. The work shall not be carried out otherwise than in accordance with the details so approved."

Guidance

IEMA Guidelines for Environmental Noise Impact Assessment

The guidelines state that, for any assessment, the noise level threshold and significance statements should be determined by the assessor, based upon the specific evidence and likely subjective response to the noise.

The impact scale adopted in this assessment is shown in Table 1 below:

Table 1
Impact Scale for Comparison of Future Noise against Existing Noise

Degree of Effect	Effect Descriptor
None / Not Significant	Less than 2.9dB L_{Aeq} change in sound level and/or all receptors are of negligible sensitivity to noise or marginal to the zone of influence of the proposals
Slight	A 3.0 to 4.9dB L_{Aeq} change in sound level at a receptor of some sensitivity
Moderate	A 3.0 to 4.9dB L_{Aeq} change in sound level at a sensitive or highly sensitive noise receptor, or a greater than 5dB L_{Aeq} change in sound level at a receptor of some sensitivity
Substantial	Greater than 5.0dB L_{Aeq} change in sound level at a noise sensitive receptor or a 5.0 to 9.9dB L_{Aeq} change in sound level at a receptor of great sensitivity to noise
Very Substantial	Greater than 10.0dB L_{Aeq} change in sound level perceived at a receptor of great sensitivity to noise

The criteria above reflect key benchmarks that relate to human perception of sound. A change of 3dB(A) is generally considered to be the smallest change in noise that is perceptible. A 10dB(A) change in noise represents a doubling or halving of the noise level.

It is considered that the criteria specified in the above table do provide a good indication as to the likely significance of changes in noise levels in this case. Therefore, the above noise threshold levels and significance statements have been used to supplement the criteria provided by the British Standard in order to assess the impact on a listener.

British Standard 8233:2014

The scope of British Standard 8223:2014: *Sound insulation and noise reduction for buildings* is the provision of guidance for the control of noise in and around buildings. It suggests appropriate criteria and limits for different situations; the primary intention of these is to guide the design of new buildings or refurbished buildings undergoing a change of use rather than to assess the effect of changes in the external noise climate.

However, BS8233 suggests noise limits for external areas of a property such as gardens or balconies, which may be of use within this assessment. It states that:

"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

Environmental Assessment

The nearest noise sensitive receptors (NSRs) are considered to be 'Mill View' (property) to the West, properties on Sneaton Lane to the North and properties on Glen Esk Road to the East.

The immediate surrounding area is a mixture of commercial and industrial use including, but not limited to, C E Hogarth Motors Ltd, Sneaton Lane Body Repairs, JM Bollands Joinery, Newton Builders Whitby Ltd and

Wilf Noble Building Supplies Ltd. Additionally, Ruswarp railway station is situated further to the Northeast, with the railway line travelling parallel to Sneaton Lane to the North.

As the site is currently subject to significant industrial noise, it is considered that the existing noise levels throughout the working day frequently exceed 50dB(A) at the most exposed NSRs: the noise limit for external areas in residential developments as per the guidance within British Standard 8233:2014. As a conservative estimate for this assessment, it is considered that the average $L_{Aeq,T}$ within the immediate area is 45dB(A).

Building Envelope

Information provided by you states that the building envelope comprises a steel frame construction with 100mm Thermolite blockwork. The North facing façade has an additional 100mm brick-built external wall, whilst the other three façades are clad in steel sheeting. All four façades have a 140mm air gap between the Thermolite blockwork and the external façades. The internal walls consist of a layer of the Thermolite blockwork.

Each of the three units has a roller shutter door approximately 8.5m^2. Information provided by the door manufacturer states that the doors are a 19mm twin-walled system; this consists of two 0.7mm aluminium sheets, between which is 17.6mm foam-filled insulation. Additionally, each unit has a timber pedestrian access door approximately 2m^2 (assumed to be a 44mm plywood construction); all six of these apertures are situated along the northern façade of the development.

Utilising the dimensions in the 'Proposed Plans & Elevations' drawing provided by BHP Partnership (dated 27/05/14, drawing ref. D10562-03-D), the following sound reduction indices have been calculated for each of the three units:

Table 2
Composite R_W of Northern Façade per Unit, dB

Unit Reference	R_W of Individual Elements			Composite R_W, dB
	Roller Shutter Door	Plywood Door	Thermolite/Brick	
A (East)	22	27	75	28.0
B (Centre)				26.8
C (West)				26.7

Using standard formulae for noise break-out and point-source sound propagation, the following hypothetical levels have been calculated at the nearest NSR ('Mill View'):

Table 3
Calculation of Noise Levels at the Nearest NSR, dB(A)

Unit Reference	Source Noise Level, $L_{Aeq,T}$	Approximate Distance, m	Distance Attenuation, dB	Sound reduction of façade, dB	Free-field correction, dB	Resultant Level at NSR, $L_{Aeq,T}$	
						Per Unit	Total
A (East)	95.0	40	32.1	28.0	6.0	24.0	37.1
B (Centre)		32	30.2	26.8		27.0	
C (West)		25	28.0	26.7		29.3	

Assuming that all three units each produce internal noise levels of 95.0dB(A), the resultant combined noise levels at the nearest NSR would be 37.1dB(A).

Comparison of the assumed noise environment with and without the inclusion of the predicted noise levels within the proposed development are shown in Table 4:

Table 4
Comparison of Future Noise against Existing Noise, dB(A)

Source Noise Levels at Nearest NSR, dB(A)	Ambient Noise Levels, dB(A)		Difference, dB
	Pre-Development	Post-Development	
37.1	45.0	45.7	0.7

With reference to the IEMA guidelines, it is considered that the noise impact of the proposed development on the nearest NSR is "None / Not Significant".

Operating Hours

With regards to operating hours, Condition 5 of the extant planning permission states:

"No machinery shall be operated on the premises before 0730 hrs on weekdays and 0800 hrs on Saturdays nor at any time on Sundays or Bank Holidays without the prior written agreement of the Local Planning Authority."

It is considered that adhering to Condition 5 will also fulfil any requirements within Condition 7 in relation to the noise impact of operating hours on the nearest NSRs.

Conclusion

As a result of the building envelope and the existing noise environment, it is considered that the noise impact of the proposed use of the development on the nearest NSRs will be minimal. This conclusion is based on the assumption that both the roller shutter doors and the pedestrian access doors remain closed when not in use and that no operations take place externally.

Statement of Truth

I confirm that I have made clear which facts and matters referred to in this document are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Yours sincerely,

Daniel Shaftoe, BSc (Hons) AMIOA
Acoustic Consultant
For and on behalf of
Dragonfly Consulting