MARTIN
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SOLUTIONS

Acoustic Assessment for Proposed agricultural building on land south of Higher House Farm, Clitheroe Road, Great Mitton, BB7 9PH.

Prepared for:

Higher House Farm,
Clitheroe Rd,
Great Mitton,
BB7 9PH

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Contents

1. Introduction 3

Site Location and Context 3

2. Policy and Guidance 4

3. The Assessment 8

4 Conclusion 10

Appendix A – Illustrated noise break out form the opening to the animal housing. 13

1. Introduction

1.1. Martin Environmental Solutions has been commissioned to undertake an acoustic assessment to support planning applications for an agricultural building on land to the south of Higher House Farm, Clitheroe Road, Great Mitton, BB7 9PH.

Site Location and Context

1.2. The site is located to the west of the busy Clitheroe Road, Great Mitton. The area is primarily agricultural in nature. To the north is Higher House Farm, owned and occupied by the applicant. To the west a large farm/industrial complex and a residential property. An aerial photograph

1.3. The Environmental Health Officer has raised concerns over the potential impact on the nearby residential property from the use of the agricultural building. As a result this report has been produced to identify any mitigation measures required to ensure there is no adverse impact on the nearby property.

2. Policy and Guidance

2.1. The impact of noise can be a material consideration in the determination of planning applications. The planning system has the task of guiding development to the most appropriate locations. It is recognised that on occasions it will be difficult to reconcile some land uses, such as housing, hospitals or schools, with other activities that generate high levels of noise. However, the planning system is tasked to ensure that, wherever practicable, noise-sensitive developments are separated from major sources of noise (such as road, rail and air transport and certain types of industrial development).

2.2. The Government's publication of the National Planning Policy Framework (NPPF), updated in July 2018, states that planning policies and decisions should prevent new and existing development from contributing to or being put at unacceptable risk from, of being adversely affected by unacceptable levels of noise pollution.

2.3. The Government have also issued the Noise Policy Statement for England (NPSE). The NPSE clarifies the Government's underlying principles and aims in relation to noise and sets a vision to promote good health and a good quality of life through the effective management of noise while having regard to the Government's sustainable development strategy. The NPSE aims to mitigate and minimise adverse impacts on health and quality of life through the effective management and control of noise.

2.4. The NPSE introduces the following terms although no sound levels are given to represent these many authorities including those within Lancashire have identified the sound level criteria in line with the World Health Organisation, BS8233:2014 and BS4142: 2014 levels. The terms introduced by the NPSE are:

NOEL – No Observed Effect Level (<30dB(A)inside <50dB(A) outside, 10dB below background)
LOAEL – Lowest Observed Adverse Effect Level (30-35dB(A) inside 50-55dB(A) outside, background to +5dB)
SOAEL – Significant Observed Adverse Effect Level (>35dB(A) inside, >55dB(A) outside, >+10dB above background)

2.5. The sound levels within the brackets of the previous paragraph are those determined by Lancashire authorities as appropriate levels to indicate the relevant effect levels represented by the NPSE. These levels are detailed with in the Lancashire Planning

Guidance document on noise which is in the process of being finalised and is currently used by a number of Lancashire authorities.

2.6. Other commonly used examples of standards utilised by Local Planning authorities for the consideration of noise impacts include comparison of the likely noise levels to be experienced at a development, with levels that have been recommended by the World Health Organisation (WHO) as Guidelines for the prevention of Community Noise Annoyance and within BS8233: 2014.

2.7. The WHO recommended noise levels for outdoor amenity areas (gardens) that should not be exceeded are 55dB(A) $L_{Aeq,16hr}$ in order to avoid 'Serious Community Annoyance or 50dB(A) $L_{Aeq,16hr}$ to avoid 'Moderate Community Annoyance' during the day. For indoor levels WHO set 35dB(A) $L_{Aeq,16hr}$ during the day to prevent Moderate Annoyance and 30 dB(A) $L_{Aeq,8hr}$ at night to prevent sleep disturbance.

2.8. The WHO guidance also recommends that maximum sound levels at night should not regularly exceed 45dB(A) within bedrooms to prevent sleep disturbance. Regularly is considered to be more than 10 times during any 8 hour night time period.

2.9. BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' also specifies desirable noise levels to be achieved inside dwellings.

2.10. BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of Practice' also specifies desirable noise levels to be achieved inside dwellings. BS 8233 presents two levels, the first between the hours of 07:00 – 23:00 and the second between 23:00 -07:00.

2.11. The daytime period suggests internal noise levels of 35dB $L_{Aeq,16hr}$, for resting in living rooms and bedrooms while for night time a level of 30dB LAeq,8hr is recommended. Criteria for external areas mirrors that within the WHO guidance.

2.12. In addition, the recently published 'ProPG Planning & Noise, Professional Practice Guidance on Planning & Noise, New Residential Development' provides a 4-staged approach to undertaking a risk assessment in relation to anticipated sound levels at new residential development and the provision of mitigation measures. The guidance

is principally aimed at sites exposed predominantly to noise from transportation sources.

2.13. The first stage consists of an initial noise risk assessment, based on indicative day and night-time *noise* levels. Simple put the higher the ambient noise in an area the greater the impact. The levels given are shown below although it should be noted that these are in excess of both the Lancashire guidance, WHO and BS 8233: 2014.

Noise Risk Category*	Potential Effect if Unmitigated	Pre-Planning Application Guidance
0 – Negligible $L_{Aeq,16hr}$ <50dB $L_{Aeq,8hr}$ <40dB	May be noticeable but no adverse effect on health and quality of life	In this category the development is likely to be acceptable from a noise perspective, nevertheless a good acoustic design process is encouraged to improve the existing environment and/or safeguard against possible future deterioration and to protect any designated tranquil areas. A noise assessment may be requested to demonstrate no adverse impact from noise. Application need not normally be delayed on noise grounds.
1 – Low $L_{Aeq,16hr}$ 50-63dB $L_{Aeq,8hr}$ 40-55dB	Adverse effect on health and quality of life	In this category the development may be refused unless a good acoustic design process is followed and is demonstrated via a Level 1 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised and that a significant adverse impact will not arise in the finished development. Planning conditions and other measures to control noise may be required.
2 – Medium $L_{Aeq,16hr}$ 63-69dB $L_{Aeq,8hr}$ 55-60dB L_{AFmax} >80dB**	Significant adverse effect on health and quality of life	In this category the development is likely to be refused unless good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised, and clearly demonstrates that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise will normally be required.
3 – High $L_{Aeq,16hr}$ >69dB $L_{Aeq,8hr}$ >60dB L_{AFmax} >80dB**	Unacceptable adverse effect of health and quality of life	In this category the development is very likely to be refused on noise grounds, even if a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement. Applicants are advised to seek expert advice on possible mitigation measures. Advice on the circumstances when the refusal of a new housing on noise grounds should normally be anticipated is included in the ProPG.

2.14. Stage 2, consists of a full assessment of the prevailing ambient noise and is required considered 4 elements to be considered:

I. Element 1 – Good Acoustic Design
II. Element 2 – Internal Noise Level Guidelines
III. Element 3 – External Amenity Area Nosie Assessment
IV. Element 4 – Assessment of Other Relevant Issues

2.15. A good acoustic design is implicit in meeting the requirements of the NPPF and can help to resolve many potential acoustic issues.

2.16. Details of the criteria considered suitable are provided above for both internal and external sound levels. Element 4 includes such issues as local and national policy, likely occupants, wider planning objectives.

3. The Assessment

3.1 The proposed building will be split into two the section nearest the road to be used for the storage of farm equipment, feed etc. the second section to be used to house (during winter months) the owners cattle.

3.2 The animals will be brought in from pasture during the winter months and are to be used for breeding over alternate years resulting in a total of 12 animals being housed at any period.

3.3 Following the involvement of Martin Environmental Solutions and subsequent discussions with the Environmental Health Officer the design of the proposed building has been altered to include a concrete panel divide between the animal housing and the storage component of the building providing a solid barrier between the animals and the nearby property. This solid panel will also extend along the front of the building to entrance way, enclosing the animal housing.

3.4 This concrete panel wall will provide a sound reduction of 52dB R_w.

3.5 Martin Environmental Solutions has previously undertaken monitoring of a 350 head heard of cattle on the day that the cows were separated from their calves, and thus a worse-case scenario with the mothers calling to the off-spring which were located opposite and in view of the cows.

3.6 The average sound level from this heard during the day was 69dB(A) with maximum individual 'calls' between 70-88dB(A), levels during the night dropped significantly. This monitoring is considered to represent the period when cattle will be most vocal and generate the most noise. Therefore, the assessment will be based on this level of 88dB(A) measured at 2m.

3.7 The nearby property façade is located 44m from the edge of the animal housing, with amenity garden save to the rear. Over this distance a sound reduction of 26.8dB is experienced.

3.8 The above details identified that the sound emission through the wall will result in a sound level at the façade of the nearby property of 9.2dB(A), significantly below the guideline values identified above. However, some sound will escape through the opening of the building but with the increased distance attenuation and directivity factor resulting in sound being directed to the south and away from the residential property

the resulting sound level would be no higher than 40dB(A) at the properties. This has been illustrated in diagram in Appendix A.

3.9 An open window provides 15dB attenuation[1] and therefore the resulting sound level within the proposed properties will be 25dB(A) as a maximum sound level. Well below the recommended averages of 35dB(A) during the day and 30 at night.

[1] BS8233: 2014; Guidance on sound insulation and noise reduction for buildings

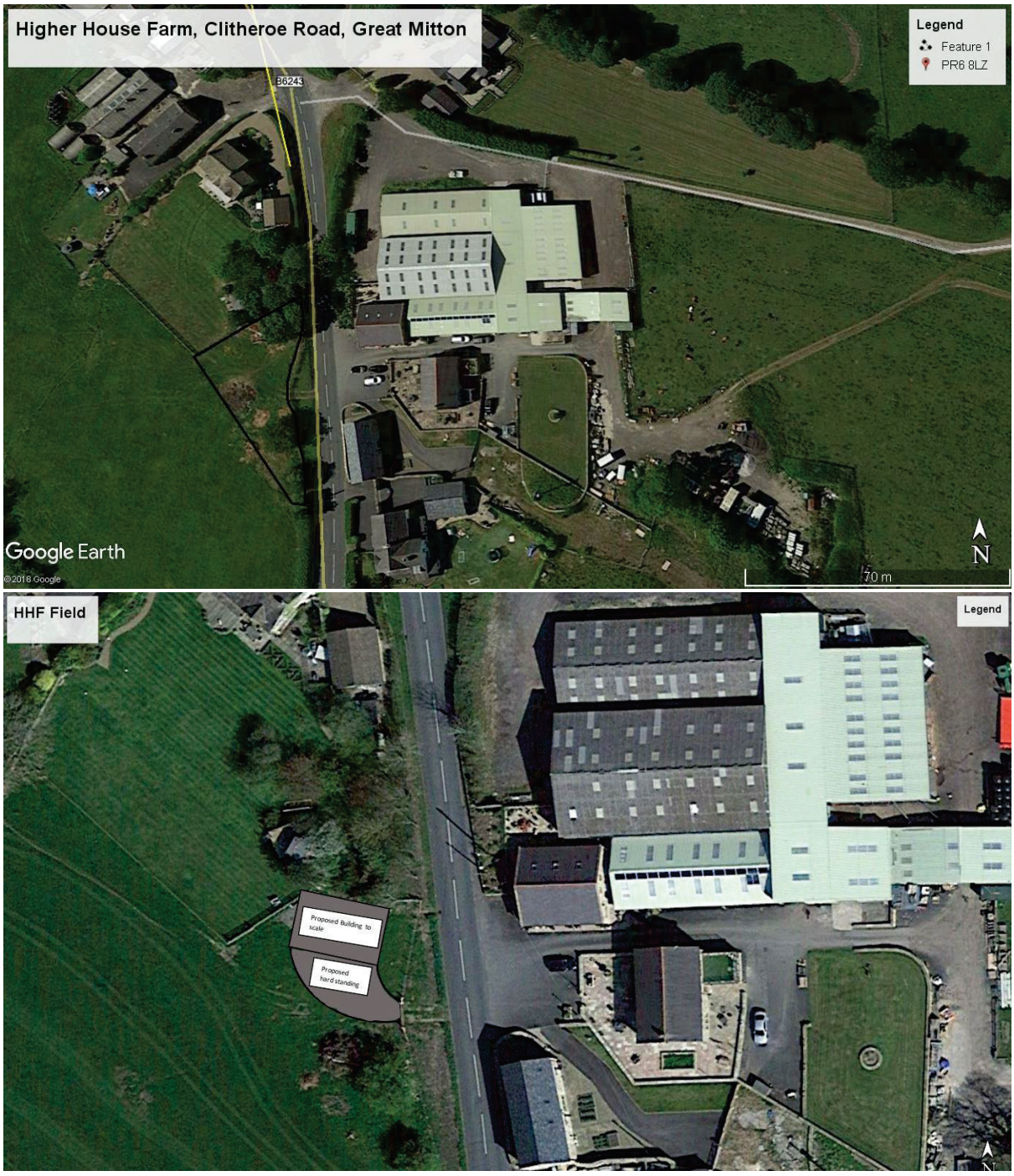
4 Conclusion

4.1 Monitoring data obtained Martin Environmental Solutions for the sound levels from cattle when recently separated from the young has been used to assess the impact of the proposed agricultural building on the nearby property.

4.2 This has shown that the maximum sound levels produced from the cattle will result in sound levels at the property substantially below those recommended by the relevant guidance documents and are likely to be significantly below the prevailing background sound level in the area.

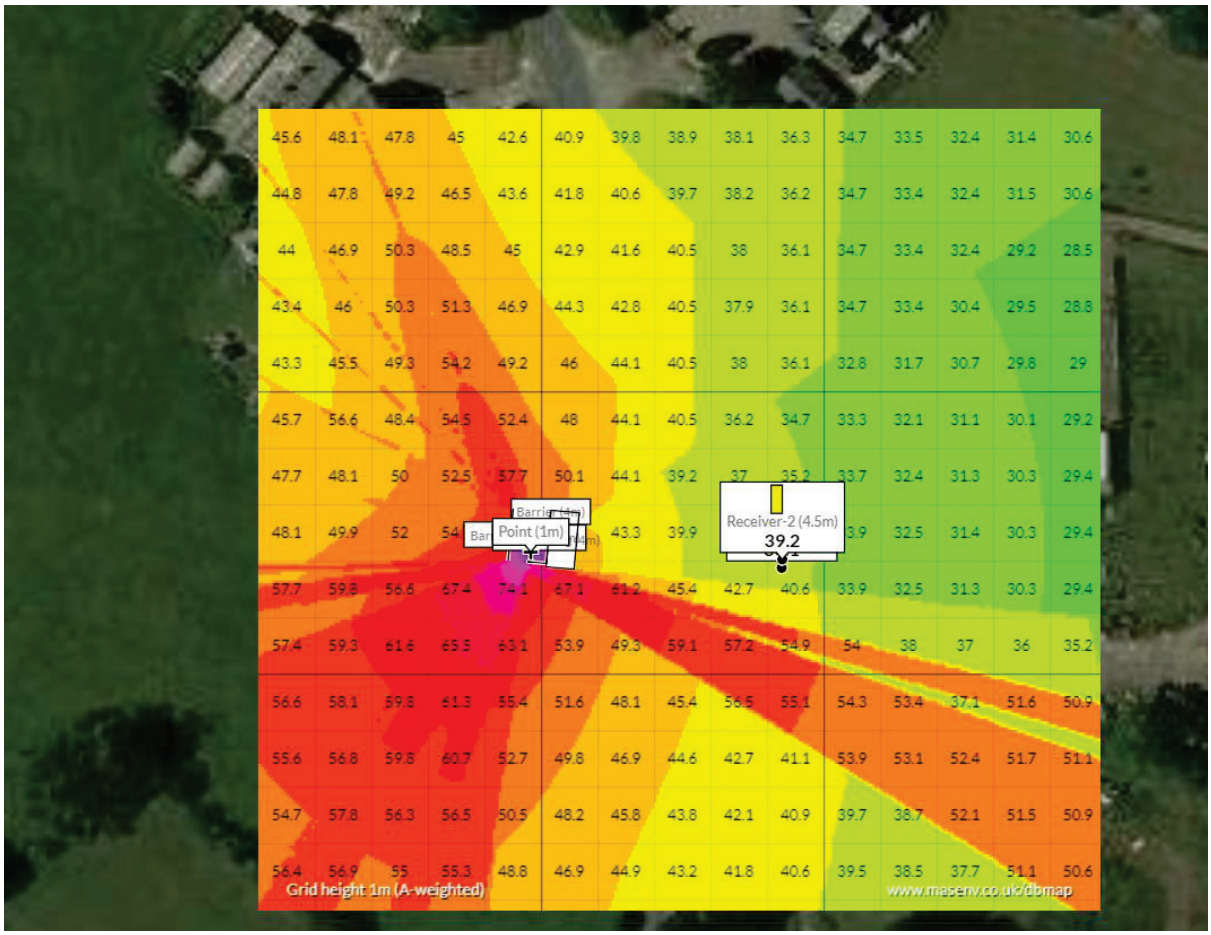
4.3 As such the enhanced construction methodology will ensure that no significant adverse impact is experienced in line with the National Planning Policy Framework, and in terms of noise issues the development is suitable.

Figure 1 – Aerial Photograph and layout plan

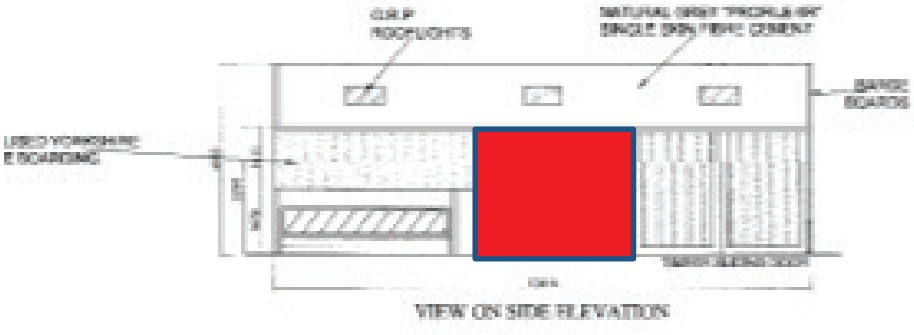


Appendix A – Illustrated noise break out form the opening to the animal housing.

It should be noted that the diagram does not taken into account the full sound reduction offered by the concrete walls, and is for illustration purposes to show how the sound from the doorway will be directed.



* http://noisetools.net/dbmap/ - used to produce the above illustration



Suggested line of concrete panel wall, ground to roof in red.