



PRELIMINARY NOISE IMPACT ASSESSMENT FOR PROPOSED CLASS Q RESIDENTIAL CONVERSION

Land off Hartcliffe Lane, Hillside, Thurlstone, Sheffield, S36 9QJ

Report Ref: TH/Ridge/Bothy/Noise/01/July 2019/v01

July 2019

Responsibility Statement: *Earth-Tech Ltd has used reasonable skill and care in completing this work and preparing this report, within the terms of the brief issued by the architect and takes account of the resources allocated by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the stated scope. The report represents the expert views of Mr Timothy M. Hyett in his role as Chartered Engineer (CEng MIEI) and Building Consultant (MCIOB). The opinions and interpretations presented in this report represent our reasonable technical interpretation of the data made available to us. Subject to and in accordance with the brief, Mr Hyett accepts responsibility for the contents of this report only to persons engaged by the Company but accepts no responsibility to any other person. Any reliance placed by any other person on the report will be entirely at that person's own risk. No part of this document may be reproduced.*

(i) Terms of Reference

In July 2019, on the instructions of the Planning Consultant (Mr Tom Warren, Prism Agriculture Ltd) acting for the owner (Mrs Angela Ridge) Earth-Tech Consulting Ltd were asked to prepare a *Preliminary Noise Impact Assessment* on a proposed low-scale development site at land off Hartcliffe Lane, Hillside, Thurlstone, South Yorkshire, S36 9QJ.

The development proposals consist of the change of use of a small historic stone agricultural building (*not dissimilar in proportions to a remote hillside 'bothy' sometimes found in northern England*) to create a compact residential dwelling in accordance with a proposed Class Q planning application to be submitted to Barnsley MBC (ref: tba).

The client's Planning Consultant has indicated that due to the proximity of Hillside Quarry up the hill side to the north and north-east of the site the Local Planning Authority can be expected to require, as a minimum, a preliminary assessment of the potential impact of noise from the quarrying operations in making an overall assessment of the suitability of the site for the change of use. Generally, the recognised steps to making a *Preliminary Noise Impact Assessment* of this type includes reference to;

- *National Planning Policy Framework* (NPPF) [1];
- *Noise policy Statement for England* (NPSE) [2];
- *Planning Practice Guidance (Noise)* (PPGN), and
- Any other appropriate guidance.

The guidance contained in PPGN provides advice on how to deliver the broader policies of the NPPF, and PPGN reiterates the general guidance on noise policy and assessment methods provided in the NPPF, NPSE and British Standards (BSs) and contains examples of acoustic environments commensurate with various effect levels (see below).

(ii) The Parties

Property	Existing old stone built agricultural barn and curtilage off Hartcliffe Lane, Hillside, Thurlstone, Sheffield, S36 9QJ
Client/Owner	Mrs A Ridge
Planning Consultant	Prism-Agriculture Ltd Mr Tom Warren
Quarry Planning Consultants (2006)	Fennel, Green & Bates Ltd (now FGB Fennels) 25 Smyth Street Wakefield WF11ED (acting for <i>Grenoside Rock Developments Ltd</i>)
Quarry Noise Consultants (2009)	The Noise Consultancy Ltd (acting for <i>Grenoside Rock Developments Ltd</i>)
Building/Engineering Consultants	Earth-Tech Consulting Ltd Mr T. M. Hyett MSc BSc CEng MIEI, MCIQB

PART 1 INTRODUCTION

- 1.1 Earth-Tech Consulting Ltd have been appointed by the owner (Mrs A Ridge) to carry out a preliminary noise assessment to inform the development brief for a proposed change of use of a small agricultural building to create a single storey, detached residential dwelling in accordance with a proposed Class Q planning application at land off Hartcliffe Lane, Hillside, Thurlstone, S36 9QJ. The site lies within the administrative area of Barnsley Metropolitan Council (BMC).
- 1.2 The building is located on a land parcel between Hartcliffe Lane and Hillside, off Cross Lane near the A628 Manchester/Penistone Road. It is elevated some 180m above sea level on a steep hillside close to the rural conurbation of Thurlstone. The requirement for consideration of noise has arisen because of proximity to the existing **Hillside Quarry** - a small operational stone quarry (see MBC Planning Ref:2009/1278 *Continuation of sandstone quarrying and stone cutting operations followed by low level restoration*). Concerns arose regarding potential noise pollution generated by the quarry adversely affecting the proposed class Q scheme.



Fig 1 - Site boundary (between Hill Side Lane and Hartcliffe Lane)



Fig 2 - Site Location showing proximity to Quarry

- 1.3 This preliminary assessment has been undertaken based on the use of existing measurement data extracted from the most recent planning application for Hillside Quarry (see MBC Planning Ref:2009/1278) and limited noise baseline assessments performed on site on Friday 26th July 2019.
- 1.4 Earth-Tech are not a member of the *Association of Noise Consultants* (ANC), but we do have the necessary professional and technical competence in this area and are familiar with the requirements of the *Code of Conduct of the Institute of Acoustics*. The technical content of this assessment, and the limited baseline measurements taken, all align with the other relevant reports for the same location (e.g. *Peak Acoustics Noise Assessment* report, as prepared by M. May BSc (Acoustic Consultant) dated 2017 for Cross Royd Farm - see MBC Planning Ref: 2019/0333 dated 10 May 2019).
- 1.5 Because of the presence of abundant relevant measurement data in the public domain, and because of the size and scale of the development, it is not considered absolutely necessary to repeat the exhaustive baseline survey phase: the building (i.e. the 'Bothy' to which this report relates) whilst in close proximity to the Hillside Quarry boundary, is positioned at a significantly lower elevation downslope than the quarry site, which lies at the top of the terrain at circa 250m AOD plus. Also, inquiries have confirmed that there has been no change to the extraction regime at the quarry in terms of working hours or output since (i) the renewal of the quarry's planning permission in 2009, and (ii) since exhaustive field assessments were made in relation to a planning application at neighbouring Cross Royd Farm in November 2017.
- 1.6 In addition, restrictions in extraction/output, traffic volumes and working hours etc., are featured in the existing planning permission grant for the quarry (MBC Ref: 2009/1278). These include certain requirements to mitigate noise for the benefit of local residents (i.e. as described in the 2009 Planning Application **Supporting Statement** at paragraph 10) produced on behalf of the quarry operator *Grenoside Rock Developments Ltd* by consulting engineers *Fennell Green & Bates*. [**Note - the current planning permission for the quarry expires on 10th February 2020 (i.e. in 7 months) and it is envisaged that further extensive noise assessments will be required for the renewal of the extraction license*].
- 1.7 Specifically, the Support Statement prepared by *Fennell Green & Bates* contains a detailed *Noise Impact Assessment* **BEFORE** quarrying commenced, as carried out by *S&D Garritt Ltd* (Noise & Vibration Consultants) dated 17th March 2006. On page 3 of the *S&D Garritt* report the stated objective is 'prediction' of noise levels, where it states inter alia:

The objective of this report is to predict the sound levels from the site operations as affecting dwellings and to assess them against the acceptance standards normally adopted for this type of sound source. The assessment makes use of the sound levels measured at similar plant items to those proposed for use at Hill Side Quarry.

Further, on page 3 the values of predicted noise resulting from quarrying are:

It is predicted that the sound levels at the nearest dwellings caused by the proposed activities at the quarry will be: (dBA L_{eq} 1-hour):

Abbot Birks	29 dBA
Hill Side Lane	44 dBA
Hornthwaite Hill Road	36 dBA
Sike House	28 dBA
Bella Vista	32 dBA

- 1.8 The Support Statement prepared by *Fennell Green & Bates* for the purposes of MBC Planning in 2009 also contains a detailed *Noise Impact Assessment* **AFTER** quarrying was underway (i.e. 'monitoring' and 'feedback' as required by the original planning condition (6)) carried out by

'The Noise Consultancy' of Holmfirth (Report Ref: B/AMS/137a/09) dated 11th March 2009. On page 6 (of 8) this report it concludes, inter alia:

3 Conclusions

- 3.1 The noise levels on site whilst the quarry was operating were comparable to the levels measured in the same locations before the quarry was operating. The noise levels before the quarry was operating are provided in the report by S & D Garritt Ltd dated 17th March 2006 and are summarised at Appendix II.
- 3.2 On site observations revealed that quarrying operations were not audible at four of the monitoring locations and were just audible at Sike House. The measured noise levels fall well within the levels predicted in the initial report and meet the acceptance standards contained in MPS2.

- 1.9 Notwithstanding that the current operational noise levels from the quarry appear to be indiscernible from the background noise levels on or around Hill Side Lane before quarrying commenced, and that the operator (*Grenoside Rock Developments Ltd*) are bound by current planning permission conditions to monitor and reduce noise levels etc., the quarry operator is also under a legal duty imposed by CDM2015 to mitigate noise:

The **Control of Noise at Work Regulations 2005** (*Noise Regulations 2005*) require businesses to prevent or reduce risks to health and safety from exposure to noise at work. The Regulations require the quarry to:

- Assess the risks to employees and members of the public from noise at work;
- Take action to reduce the noise exposure that produces those risks;
- Provide employees with hearing protection if the noise exposure cannot be reduced enough by using other methods (screening, different plant etc.);
- Make sure the legal limits on noise exposure are not exceeded;

As such, this Preliminary Report contains:

- a description of the limited baseline survey relative to the building ('Bothy') off Hartcliffe Lane and Hill Side Lane;
- a description of relevant previous baseline surveys which have been carried out exhaustively in order to determine the existing sound environment at the quarry site and a presentation of the results thereof;
- a description of the methodology used to assess internal and external sound levels;
- a summary of the standards, guidance & policy upon which the assessments are based;
- the results of the physical assessments undertaken; and
- a summary of the findings.

PART 2 ASSESSMENT METHODOLOGY

Planning Guidance

- 2.1 This assessment has been carried out with specific reference to the National Planning Policy Framework (NPPF) [1], Noise policy Statement for England (NPSE) [2] and Planning Practice Guidance (Noise) (PPGN) and other appropriate guidance. Full details of the legislation and guidance that has been considered in this assessment.
- 2.2 The NPSE, published in March 2010 by Defra, aims to provide clarity regarding current policies and practices, to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion. The NPSE was the first planning guidance document to introduce categorisation of adverse noise effects in terms of effect levels. These have then been continued into the PPGN (described below).
- 2.3 The NPPF, published in March 2012, sets out the Government's planning policies for England. The document does not contain any specific noise policy or noise limits, but it provides a framework for local authorities to produce their own local and neighbourhood plans, which reflect the needs and priorities of local communities.

PPGN

- 2.4 The guidance contained within the PPGN (specifically paragraph Reference ID: 30-001-20140306) provides advice on how to deliver the policies of the NPPF. The PPGN reiterates general guidance on noise policy and assessment methods provided in the NPPF, NPSE and British Standards (BSs) and contains examples of acoustic environments commensurate with various effect levels.
- 2.5 Paragraph 005 (Reference ID: 30-005-20140306) of the PPGN describes the different effect levels which are defined and briefly outlined below:
- No Observable Effect Level (NOEL);
 - Lowest Observable Adverse Effect Level (LOAEL); and
 - Significant Observed Adverse Effect Level (SOAEL).
- 2.6 The PPGN describes noise that is not noticeable to be at levels below the NOEL. Noise exposures in this range are below the LOAEL and hence need no mitigation. The PPGN suggests that noise exposures above the LOAEL cause small changes in behaviour. Examples of noise exposures above the LOAEL provided in the PPGN are having to turn up the volume on the television; needing to speak more loudly to be heard etc., or, where there is no alternative ventilation, closing windows for some of the time because of the external noise.
- 2.7 In line with the NPPF and NPSE, the PPGN states that consideration needs to be given to mitigating and minimising effects above the LOAEL but also to taking account of the economic and social benefits being derived from the activity causing the noise (i.e. in this case Hillside Quarry) . The PPGN suggests that noise exposures above the SOAEL cause material changes in behaviour: examples of noise exposures above the SOAEL are, where there is no alternative ventilation, keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present.
- 2.8 In line with the NPPF and NPSE, the PPGN states that effects above the SOAEL should be avoided and that whilst the economic and social benefits derived from the activity causing the noise must be taken into account - such exposures are undesirable.

- 2.9 The non-numeric guidance contained within the PPGN, based upon the starting point in the NPSE, is summarised in the table below:

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
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

Fig 3 - Summary of Guidance from NPSE and PPGN

- 2.10 Consideration was given to a suitable, practicable assessment methodology within the context of the proposed small-scale Class Q development, where the dominant source of sound in the area of the building subject to a *Change of Use to Residential* could be reasonably expected to be from the neighbouring Hillside Quarry, some 75m upslope to the north and north-east of the Hill Side Lane / Hartcliffe Lane development site.

For residential housing, BS 8233: 2014 requires the following, for domestic usage;

- Internal levels of 35 dB LAeq, 16h during the daytime (BS 8233:2014 Table 4);
- Internal levels of 30 dB LAeq, 8h during the night-time (BS 8233:2014 Table 4); and
- External levels in amenity areas of 55 dB LAeq, 16h during the daytime (BS 8233:2014 paragraph 7.7.3.2);

- 2.11 The principle of this *Preliminary Noise Assessment* was/is that, in all cases, where noise level readings exceed (or are likely to exceed over a longer survey time) the values stated in BS 8233: 2014, suitable levels of mitigation will need to be determined 'by design' in accordance with best building practice, local planning policy and the NPPF.

- 2.12 Assuming that excessive noise levels (if present) are capable of suitable mitigation i.e. by designing a suitable façade to the building without impacting the requirements of the Class Q application (or) by installing double glazing, (or) by some other external means (TBC) then a commensurate level of protection will be provided against *maximum levels* from individual

sound events (i.e. the protection provided to ensure $L_{Aeq,T}$ levels will not be exceeded will ensure that appropriate L_{Amax} levels will also not be exceeded).

- 2.13 This methodology generally accords with the broader approach used in previous Noise Impact Assessments for buildings within the zone of influence of the Hillside Quarry, and broadly follows the accepted approach identified in BS8233: 2014 (save for an acknowledged requirement for a slightly longer survey time). These values are usually acceptable as the key criteria for the purposes of planning permission, and for the imposition of further planning conditions etc. For example;

1.3. Planning Conditions & Criteria

For desirable internal and external noise level to be maintained, given in BS8233:2014 as:

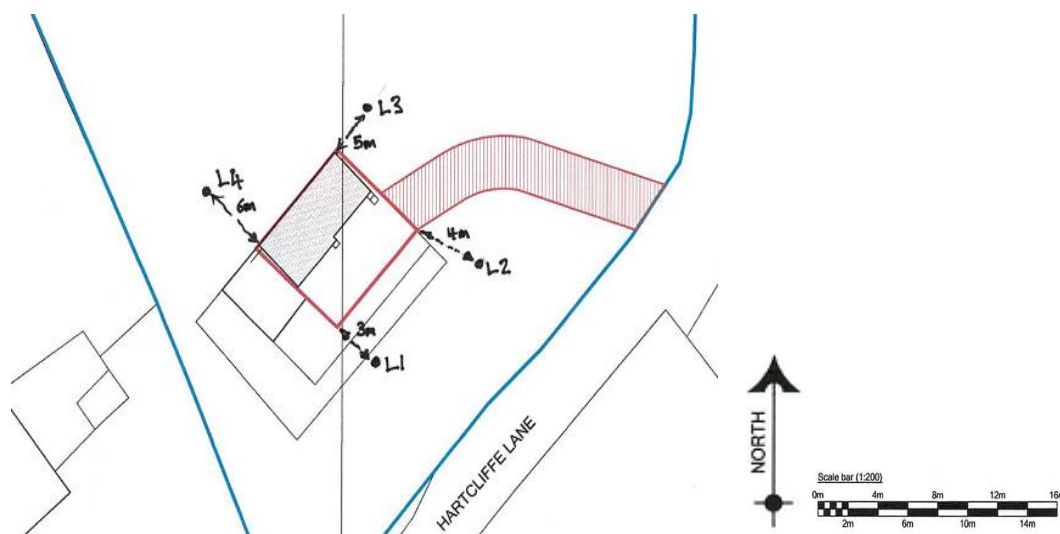
- 35dB L_{Aeq} within living rooms (07:00 – 23:00)
- 30dB L_{Aeq} within bedrooms (23:00 – 07:00)
- 45dB L_{Amax} should not be regularly exceeded within bedrooms (23:00 – 07:00)
- <55dB $L_{Aeq,16hr}$ within external amenity spaces

PART 3 SHORT-TERM ATTENDED SOUND LEVEL SURVEY

- 3.1 The site was surveyed and assessed by Mr T. M Hyett MSc CEng MIEI, a Chartered Civil Engineer and professional Building Consultant, on Friday 26th July 2019 between 10:00 and 12:00 and again between 16:00 and 18:00. The intention of the survey was to collect sufficient data to compare against previous baseline readings, and to determine whether a longer survey period would/would not be required. The readings were recorded using a hand-held *Amprobe SM-10/A Sound Meter* (shown below) that was used periodically over the two visits.



3.2 Sound Level Monitoring Positions - 26th July 2019



- 3.3 All survey locations (shown above) were subjected to attended short-term (15 mins) sound level measurements (only).
- 3.4 All instrumentation was field checked for calibration prior to and following the measurements and no significant drift was observed between the start and end of the survey(s). The equipment used had been calibrated beforehand and/or was less than 1 year old at the time of the measurements.
- 3.5 Wind conditions during the survey were considered (but not checked directly with any nearby meteorology station). Weather conditions during the survey period were largely dry with no instances of periods of measured rainfall. Wind speeds were *low* (ranging between 0.0 and 2.5 m/s) and did not appear to influence the measurements.
- 3.6 A summary of the survey results is presented below

Monitoring Results - 26th July 2019

Time	Position	Period	L _{Aeq} (dB)	L _{AFmax} (dB)
10:00 – 10:15	L1	Day (15mins)	32	
10:15 – 10:30	L2	Day (15mins)	34	
10:30 – 10:45	L3	Day (15mins)	32	
10:45 – 11:00	L4	Day (15mins)	38	
11:15 – 11:30	L1	Day (15mins)	39	39
11:30 – 11:45	L2	Day (15mins)	32	
11:45 – 12:00	L3	Day (15mins)	37	
12:00 – 12:15	L4	Day (15mins)	36	
16:00 – 16:15	L1	Day (15mins)	32	
16:15 – 16:30	L2	Day (15mins)	31	
16:30 – 16:45	L3	Day (15mins)	36	
17:00 – 17:15	L4	Day (15mins)	34	
17:15 – 17:30	L1	Day (15mins)	41	41
17:30 – 17:45	L2	Day (15mins)	32	
17:45 – 18:00	L3	Day (15mins)	30	
18:00 – 18:15	L4	Day (15mins)	32	

Measurement Summary				
Date	Position	Period	L _{Aeq} (dB)	L _{AFmax} (dB)
26.07.2019	L1 to L4	Day (15mins)	34.12	41
		Night (15mins)	n/a	n/a

PART 4 ASSESSMENT

- 4.1 These levels do not lie within the SOAEL (*Significant Observed Adverse Effect Level*) i.e. where the proposal should be 'avoided' and/or 'prevented': it warrants noting that during the survey on Friday 26th July 2019 no reading exceeded 41 dB LAeq and this maximum reading appeared to originate from traffic on Hill Side Lane associated with a local children's birthday party. The sound from the quarry or any associated vehicular traffic was inaudible throughout the survey period(s). [**Note - it is acknowledged that the readings are for attended short-term data collection (only) - not in strict accordance with BS 7445-1:2003 and BS 7445-2:1991*].
- 4.2 The readings taken were in external amenity areas only i.e. outside the building, but indicated general compliance with the basic requirements for domestic usage and residential housing as specified in BS 8233: 2014;
- Internal levels of 35 dB LAeq, 16h during the daytime (BS 8233:2014 Table 4);
 - Internal levels of 30 dB LAeq, 8h during the night-time (BS 8233:2014 Table 4); and
 - External levels in amenity areas of 55 dB LAeq, 16h during the daytime (BS 8233:2014 paragraph 7.7.3.2);
- 4.3 Taking account of the above, a reasonable *Preliminary Assessment* would be:

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
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Representative Sound Levels in the Context of the Locality

- 4.4 The main sound source on site was observed during the survey to be road traffic associated with Hill Side Lane, with very intermittent background noise from the operational quarry itself. Based on the current plans, the building subject to a *Change of Use* lies > 75m, from the nearest boundary to the quarry to the north, north-east. Other residential dwellings on Hill Side Lane lie within closer distance to the sound source.
- 4.5 These locations on Hill Side Lane were identified in previous *Baseline Studies* carried out in March 2009, and specified sound levels were listed as follows:

Monitoring Address	Ambient Leq	Background LA ₉₀	Description of noise sources
1 Abbot Birks	44	34	Noise from road traffic on Manchester Road, activities on the housing development site in Thurstone, cockerels and occasional dog barking. Noise from activities at the quarry was not audible.
2 Hillside Lane	48	39/40	Noise from road traffic on Manchester Road, activities on the housing development site in Thurstone. Noise from activities at the quarry was not audible
3 Hornthwaite Hill Road	48	37/38	Noise from road traffic on Manchester Road, activities on the housing development site in Thurstone. Noise from quarry operations audible but no more intrusive than other noise sources.
4. Sike House	39/40	32	Noise of distant road traffic and occasional light air craft, sheep and birdsong. Occasional clatter of excavator bucket at quarry was just audible.
5 Bella Vista	39/40	32	Noise from farm activities at Bella Vista, sheep birdsong and light air craft. Noise from road traffic on Hartcliffe Road Noise from activities at the quarry was not audible

- 4.6 The above accords, to a degree at least, with the findings of the short-term attended survey carried out on 26th July 2019, and with respect to Hill Side Lane, the previous *Baseline Report* states, inter alia;

[48L_{Aeq} (dB)] - *'Noise from the activities at the quarry was not audible'*.

- 4.7 In my opinion, there is therefore no immediate reason to undertake an exhaustive long-term un-attended Noise Survey for the building under consideration. Whilst the development is yet to be fully designed, it is reasonable to assume that window double glazing will be utilised to provide further façade attenuation and ventilation.

- 4.8 **Façade Attenuation - Windows:** It is generally accepted that the windows of any dwelling are the weakest point of the building fabric with regards to sound transmission, especially when windows are opened to provide natural, rapid ventilation. The assessment carried out does not consider internal noise levels with respect to establishing the minimum required sound insulation performance for all proposed windows and ventilation units etc., however it is possible to estimate the total façade sound attenuation and confirm that conventional mitigation measures typically achieving;

- **Minimum Glazing Performance ($R_w + C_{tr}$) of 25, and;**
- **Minimum Ventilation Performance ($D_{ne,w} + C_{tr(open)}$) of 40**

(based on the assumption that partially open window provides 15 dB of attenuation) could not and would not be applied to the current building under consideration as part of best building practice.

- 4.9 Likewise, from the attended short-term survey, there is no reason why the Hill Side Quarry, if later assessed to generate a *'Noticeable and Intrusive'* noise source (assuming this to be the case) cannot also be mitigated and reduced further by adoption of conventional and where required appropriately designed building measures, again in accordance with accepted best building practice.
- 4.10 It is likely that double-glazing will be a minimum building regulation requirement in any event, but notwithstanding, there is no reason to suggest that windows should not be openable, in order to provide rapid natural ventilation so long as the openable windows, when closed, provide the required minimum attenuation. It should also be noted that these requirements are for habitable rooms only i.e. kitchens (unless part of a lounge/diner/living room) bathrooms – the detailed design of which will only take place post-planning, and may be influenced by other factors such as current Building Regulation requirements etc.
- 4.11 With regard to national planning policy, namely the NPSE, NPPF and the PPGN, it is also considered that, with the basic mitigation outlined, residual impacts on the building as receptors for the potential noise pollution generated by the neighbouring quarry (subject to an extension of planning permission being granted in 2020) will be below the LOAEL and hence it is considered that the proposal is acceptable with regard to national planning policy.

PART 5 CONCLUSIONS

- a. Earth-Tech Consulting Ltd have carried out a *Preliminary Noise Impact Assessment* with specific reference to previous detailed *Noise Impact Assessments* for the Hill Side Quarry which contain robust baseline data, primarily in order to ascertain the general suitability of the site for the development and to determine at an early stage any mitigation measures that may be required to ensure suitable internal and external environments for domestic usage.
- b. The results of this *Preliminary Assessment* indicate that, with basic, conventional mitigation measures acceptable internal and external sound environments will be achievable in accordance with the guidance contained within British Standard 8233:2014 i.e.
 - Internal levels of 35 dB LAeq, 16h during the daytime (BS 8233:2014 Table 4);
 - Internal levels of 30 dB LAeq, 8h during the night-time (BS 8233:2014 Table 4); and
 - External levels in amenity areas of 55 dB LAeq daytime (BS 8233:2014 paragraph 7.7.3.2);
- c. The basic mitigation measures are:
 - Double Glazing with min glazing performance ($R_w + C_{tr}$) = 25
 - Ventilation with min performance ($D_{ne,w} + C_{tr(open)}$) = 40
- d. Based on the above, the proposed development is, in my professional view, compliant with BMC local planning policy insofar as it relates to noise - and this preliminary report demonstrates that the current proposal is not in conflict with the National Planning Policy Framework (NPPF), the related Planning Practice Guidance (Noise) (PPGN) and the Noise Policy Statement for England (NPSE) hence it should not be objectionable solely based upon *noise*.

Testimony of Independence

I am a professionally qualified Chartered Engineer (CEng), Chartered Consultant Engineering Geologist (CGeol), and Chartered Construction Manager (CMan). I am a Fellow of *The Geological Society* (FGS), Member of the *Institute of Engineers Ireland* (MIEI) and Member of the *Chartered Institute of Building* (MCIOB). I hold a post-graduate law degree (LLM) a post-graduate MSc degree in *Engineering Geology*; a degree in *Mathematics and Physics* and under-graduate qualifications in *Civil Engineering*, and I have more than 30 years of experience working as a Consultant.

I confirm that I am suitably qualified to make these statements, and I understand that my overriding duty is to present independent and impartial expert analysis, and I believe I have complied with that duty. The facts I have stated in this report are true and the opinions I have expressed are correct and they are entirely my own, based upon the evidence I have been shown and my own observations.

Signed



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27th July 2019