

Appendix 9.1: Noise Policy and Guidance

Scottish Planning Policy

- B.1 Scottish Planning Policy states that ‘Planning authorities should support the development of a diverse range of renewable energy technologies, guide development to appropriate locations and provide clarity on the issues that will be taken into account when specific proposals are assessed. Development plans should support all scales of the development associated with the generation of energy and heat from renewable sources, ensuring that an area’s renewable energy potential is realised and optimised in a way that takes account of relevant economic, social, environmental and transport issues and maximises benefits.’ SPP goes on to state ‘Factors relevant to the consideration of applications will depend on the scale of the development and its relationship with the surrounding area, but are likely to include impact on amenity.’
- B.2 In addition to SPP 6, PAN 1/2011, Planning and Noise is the key Scottish guidance for planners with regard to planning and noise.

Planning Advice Note (PAN) 1/2011

- B.3 Planning Advice Note (PAN) 1/2011 ‘Planning and Noise’, which superseded PAN 56: Planning and Noise, is the principal guidance adopted in Scotland for assessing the impact of noise on and from proposed developments. The guidance provides advice on the role of the planning system in helping to protect and limit the adverse effects of noise.
- B.4 The document promotes the principles of good design and a sensitive approach to the location of a new development. It goes on to promote the appropriate location of new potentially noisy development and a pragmatic approach to the location of new development within the vicinity of existing noise-generating uses to ensure that quality of life is not unreasonably affected.
- B.5 A Technical Advice Note, ‘Technical Advice Note: Assessment of Noise’ is provided in support of the document which sets out the preferred approach for undertaking noise assessments in order to determine the suitability of a site for a proposed development.
- B.6 PAN 1/2011 refers to the World Health Organisation (WHO) when discussing noise impacts. The WHO Guidelines for Community Noise 1999 suggest guideline values for internal noise exposure which take into consideration the identified health effects and are set, based on the lowest effect levels for general populations.

- B.7 Guideline values for amenity which relate to external noise exposure are set at 50 or 55 dB(A), representing day time levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed respectively.
- B.8 The following guideline values are suggested by WHO:
- 35dB LAeq(16 hour) during the day time in noise sensitive rooms.
 - 30dB LAeq(8 hour) during the night in bedrooms.
 - 45dB LAmax(fast) during the night time in bedrooms.
 - 50dB LAeq(16 hour) to protect majority of population from becoming moderately annoyed in external areas.
 - 55dB LAeq(16 hour) to protect majority of population from becoming seriously annoyed in external areas.
- B.9 British Standard 8233 “Guidance on sound insulation and noise reduction for buildings” 2014 bases its advice on the WHO Guidelines. In addition, for the internal noise levels it states;
- B.10 “Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved.”
- B.11 Furthermore, with regards to external noise, the Standard states;
- B.12 “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 50dB LAeq,T with an upper guidance value of 55dB LAeq,T which would be acceptable in noisier environments. However, it is also recognised 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 adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the use of land resources to ensure the development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited”.

British Standard 5228:2009 +A1:2014 “Code of Practice for noise and vibration control on construction and open Sites – Part 1: Noise” (BS5228-1)

- B.13 Guidance on the prediction and assessment of noise from development sites is given in British Standard 5228 -1:2009 +A1:2014 “Code of Practice for noise and vibration control on construction and open Sites – Part 1: Noise” (BS5228-1), and BRE Controlling particles, vapour and noise pollution from construction Sites, Parts 1 to 5, 2003.
- B.14 In addition to the guidance from the local authority, the Control of Pollution Act 1974 (COPA 1974) gives the local authority power to serve a notice under Section 60 imposing requirements as to the way in which works are to be carried out. This could specify times of operation, maximum levels of noise which may be emitted and the type of plant which should or should not be used.
- B.15 However, it might be preferable for the chosen contractor to obtain prior consent under Section 61 of COPA 1974. Section 61, enables anyone who intends to carry out works to apply to the local authority for consent. Under Section 61 the local authorities and those responsible for construction work, have an opportunity to settle any problems, relating to the potential noise, before work starts.
- B.16 In addition to COPA 1974, BS5228-1 provides guidance on significance criteria for assessing the potential noise impacts associated with the construction phase of large projects. For the purposes of this noise assessment, the noise likely to be generated by the earthworks and construction phase, have been assessed against significance criteria established, using the BS5228-1 ABC Method.
- B.17 The ABC method for determining significance criteria requires the ambient noise levels at existing sensitive receptors to be determined. The ambient noise levels at each existing receptor location are then rounded to the nearest 5dB(A) to determine the appropriate threshold value in accordance with the category value A, B or C, as detailed in the following table.

Thresholds of Significant Impact from Construction Noise at Residential Receptors in accordance with the ABC Method of BS5228-1			
Assessment Category and Threshold Value Period (LAeq)	Threshold Value, in decibels (dB)		
	Category A *1	Category B *2	Category C *3
Daytime (0700 to 1900 hours) and Saturdays (0700 to 1300 hours)	65	70	75
*1 Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than this value.			
*2 Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as Category A values.			
*3 Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than Category A values.			

B.18 The noise level likely to be generated at the receptor during the construction phase, i.e. the ambient noise level plus construction noise, is then compared to the appropriate category value. If the noise level is greater than the appropriate category value, a significant noise impact may be registered.

British Standard 5228:2009 +A1:2014 “Code of Practice for noise and vibration control on construction and open Sites – Part 2: Vibration” (BS5228-2)

B.19 Guidance on the assessment of vibration from development sites is given in British Standard 5228-2:2009 “Code of Practice for noise and vibration control on construction and open sites – Part 2: Vibration” (BS5228-2). BS5228-2:2009 indicates that vibration can have disturbing effects on the surrounding neighbourhood; especially where particularly sensitive operations may be taking place. The significance of vibration levels which may be experienced adjacent to a site is dependent upon the nature of the source.

B.20 BS5228-2 indicates that the threshold of perception is generally accepted to be between a peak particle velocity (PPV) of 0.14 and 0.3mm/sec. In an urban situation it is unlikely that such vibration levels would be noticed. BS5228 also indicates that it is likely that vibration of 1.0 mm/s in residential environments will cause complaint but can be tolerated if prior warning and explanation have been given to residents. The standard also indicates that 10 mm/s is likely to be intolerable for any more than a very brief exposure to this level.

B.21 The Highways Agency Research report No. 53 “Ground Vibration caused by Civil Engineering Works” 1986 suggests that, when vibration levels from an unusual source exceed the human threshold of perception, complaints may occur. The onset of complaints due to continuous vibration is probable when the PPV exceeds 3mm/sec.

B.22 British Standard BS6472: 2008 “Guide to Evaluation of human exposure to vibration in buildings. Part 1: Vibration sources other than blasting” (BS6472-1) suggests that adverse comments or complaints due to continuous vibration are rare in residential situations below a PPV of 0.8mm/sec. Continuous vibration is defined as “vibration which continues uninterrupted for either a daytime period of 16 hours or a night-time period of 8 hours”. The proposed earthworks and construction works at the site will not cause continuous vibration as defined in BS6472-1.

B.23 BS5228-2 2009 suggests that the onset of cosmetic damage is 15mm/sec (15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz for residential or light commercial type buildings).

British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS4142):

- B.24 BS4142 is used to rate and assess sound of an industrial and/or commercial nature including:
- sound from industrial and manufacturing processes;
 - sound from fixed installations which comprise mechanical and electrical plant and equipment;
 - sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
 - sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.
- B.25 The standard is applicable to the determination of the following levels at outdoor locations:
- rating levels for sources of sound of an industrial and/or commercial nature; and
 - ambient, background and residual sound levels, for the purposes of:
 - 1) Investigating complaints;
 - 2) Assessing sound from existing, proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and
 - 3) Assessing sound at proposed new dwellings or premises used for residential purposes.
- B.26 The purpose of the BS4142 assessment procedure is to assess the significance of sound of an industrial and/or commercial nature.
- B.27 BS4142 refers to noise from the industrial source as the 'specific noise' and this is the term used in this report to refer to noise which is predicted to occur due to activities associated with the existing industrial premises. The 'specific noise' levels, of the existing industrial premises that have been measured are detailed in this report.
- B.28 BS4142 assesses the significance of impacts by comparing the specific noise level to the background noise level (L_{A90}). This report provides details of the measured or calculated background noise levels.

B.29 Section 8 of BS4142 discusses ways to determine the background sound level, in Section 8.1 it states;

‘Since the intention is to determine a background sound level in the absence of the specific sound that is under consideration, it is necessary to understand that the background sound level can in some circumstances legitimately include industrial and/or commercial sounds that are present as separate to the specific sound.’

B.30 Certain acoustic features can increase the significance of impacts over that expected from a simple comparison between the specific noise level and the background noise level. In particular, BS4142 identifies that the absolute level of sound, the character, and the residual sound and the sensitivity of receptor should all be taken into consideration. BS4142 includes allowances for a rating penalty to be added if it is found that the specific noise source contains a tone, impulse and/or other characteristic, or is expected to be present. The specific noise level along with any applicable correction is referred to as the ‘rating level’.

B.31 The greater the increase between the rating level over the background noise level, the greater the magnitude of the impact. The assessment criteria given by BS4142 are as follows:

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB 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.

B.32 During the daytime, BS4142 requires that noise levels are assessed over 1-hour periods. However, during the night-time, noise levels are required to be assessed over 15-minute periods.

B.33 Where the initial estimate of the impact needs to be modified due to context, BS4142 states that all pertinent factors should be taken into consideration, including:

- The absolute level of sound;

- The character and level of the residual sound compared to the character and level of the specific sound; and
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.