Introduction

Noise is often an important factor in assessing the environmental acceptability of a development proposal and it should be one of the factors addressed in a planning application submission. The planning process is the primary mechanism for local authorities to prevent serious conflicts between different land uses.

Many developments can generate significant amounts of noise or are sensitive to the impact of noise. It is the responsibility of Ipswich Borough Council as the Local Planning Authority to ensure that developments are appropriately designed so that they do not have an unacceptable impact on local communities and that noise sensitive developments are also appropriately designed and are not subjected to unacceptably high levels of noise.

Although undertaking a noise survey and assessment as part of the planning application process will incur a financial cost for a developer, the costs of remedying any noise problems after a development has been completed are likely to be much higher.

This document provides guidance to applicants and consultants concerning the assessment and prediction of environmental noise associated with a particular development. It does not provide guidance concerning Part E of the Building Regulations.

This document provides guidance that is not exhaustive. If you have any questions or wish to discuss the requirements of a specific noise assessment, please contact Environmental Protection at environmental.health@Ipswich.gov.uk

Failure to comply with this guidance is likely to result in a planning application failing local validation requirements or being refused.

The National Planning Policy Framework (NPPF)

National planning policy is set out within the NPPF and requires that planning policies and decisions should ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment.
The NPPF does not set out numerical criteria for noise affecting proposed development sites but states that planning policies and decisions should aim to mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and quality of life.

The Noise Policy Statement for England (NPSE)

The Noise Policy Statement for England (NPSE) published in March 2010 sets out the Government's policy on noise and introduced the concepts from toxicology currently being applied to noise impacts by the World Health Organisation. These are:

- NOEL – No Observed Effect Level: This is the level below which no effect can be detected.
- LOAEL – Lowest Observed Adverse Effect Level: This the level above which adverse effects on health and quality of life can be detected.
- SOAEL – Significant Observed Adverse Effect Level: This is the level above which significant adverse effects on health and quality of life occur.

The first aim of the NPSE is to avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
The second aim of the NPSE is to mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development. This second aim refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life.

Planning Practice Guidance (Noise)

The Ministry of Housing, Communities & Local Government published updated planning guidance on 22nd July 2019 which is available at https://www.gov.uk/guidance/noise--2 it includes a "Noise exposure hierarchy table" shown in

Response	Examples of outcomes	Increasing effect level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Table 1 – Noise exposure hierarchy

Professional Practice Guidance on Planning & Noise (ProPG)

The Professional Practice Guidance on Planning and Noise (ProPG) was published in May 2017 and produced jointly by the Association of Noise Consultants, the Institute of Acoustics and the Chartered Institute of Environmental Health. The guidance adopts a 2-stage approach to assessing potential residential developments that will be exposed predominately to airborne noise from transport sources.

Stage 1 is an initial noise risk assessment of the proposed development site. This should indicate whether the site poses a negligible, low, medium or high noise risk.. An indication that there may be more than 10 noise events at night (23:00hrs – 07:00hrs) with $L_{AF\ Max}$ > 60dB means the site should not be regarded as negligible risk. Figure 1 shows the indicative day and night-time noise levels and the corresponding risk assessment.

Where the initial site noise risk assessment indicates a negligible risk, the application need not normally be delayed on noise grounds and a Stage 2 assessment is not required.

Stage 2 is a full assessment of 4 key elements to be undertaken in parallel. These are:

1. Good acoustic design.
2. Internal noise level guidelines.
3. External amenity area noise assessment.
4. Assessment of other relevant issues.

The building envelope constructions for the proposed dwellings should be sufficient to meet the following internal noise levels.

Activity	**Location**	**07:00hrs – 23:00hrs**	**23:00hrs – 07:00hrs**
Resting	Living room	35 dB $L_{Aeq,\ 16\ hours}$	-
Dining	Dining room/area	40 dB $L_{Aeq,\ 16\ hours}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,\ 16\ hours}$	30 dB $L_{Aeq,\ 8\ hours}$ 45 dB $L_{AF\ Max}$

Table 2 – Internal noise levels

The design of the dwellings should aim to meet the internal noise levels set out in the above table with windows open. Where internal noise levels are assessed with windows closed, the justification for this should be included in the Acoustic Design Statement.

External amenity areas such as balconies and terraces should not exceed 50 dB $L_{Aeq,T}$ between the hours of 07:00hrs to 23:00hrs although an upper limit of 55 dB $L_{Aeq,T}$ may be acceptable if the lower guideline value is not achievable and the justification for this should be included in the Acoustic Design Statement.

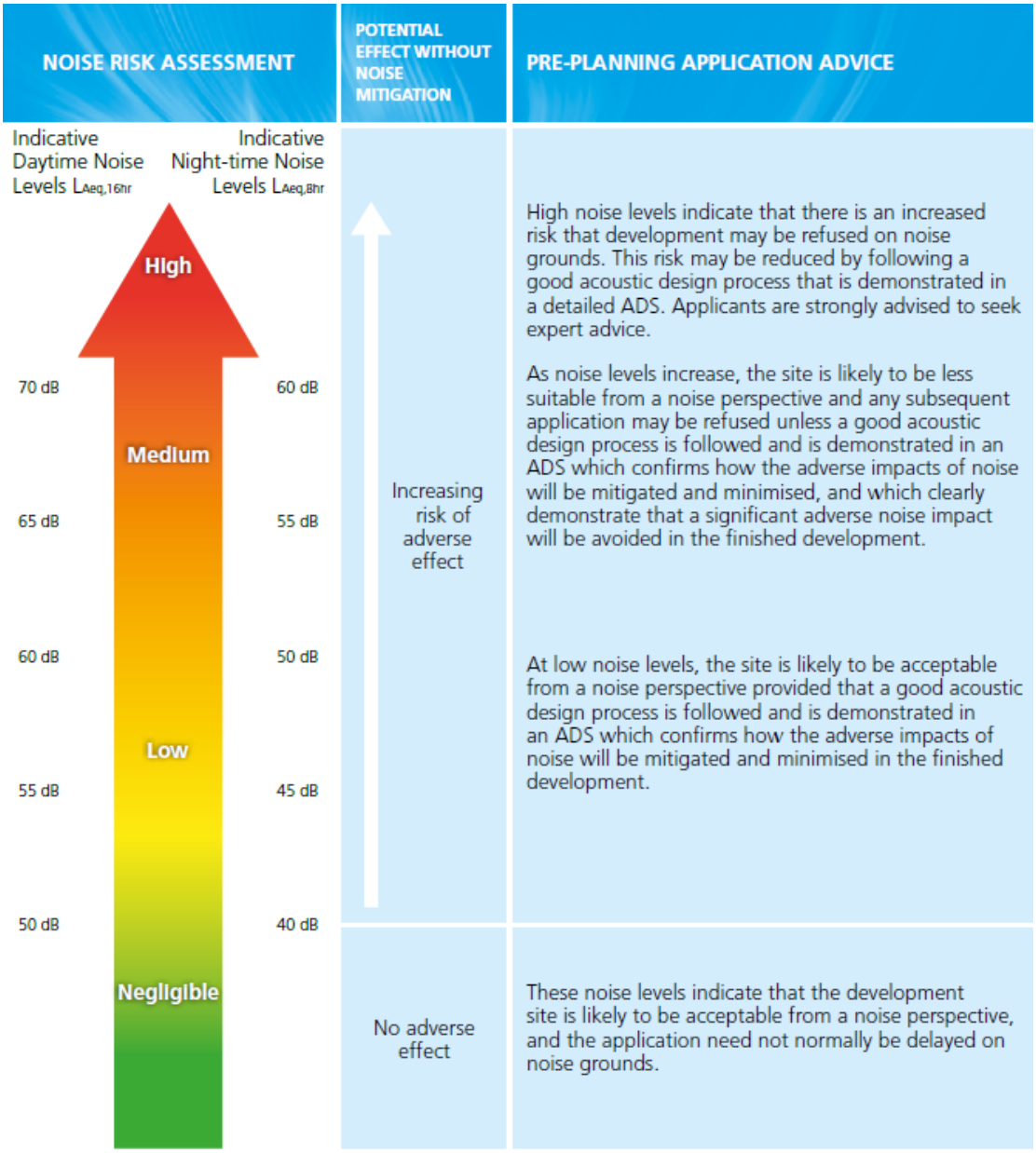

Figure 1 – Stage 1 Initial Site Noise Risk Assessment

Acoustics Ventilation and Overheating – Residential Design Guide

This guidance was published jointly by the Institute of Acoustics and the Association of Noise Consultants in January 2020. It provides guidance for those acousticians involved in the design of buildings to prevent noise ingress to reasonable internal levels. Issues related to overheating of properties and the adverse impacts that may occur have become more prevalent in recent years and it has often been difficult to reconcile the competing requirements to ensure that properties do not overheat and a requirement to maintain the acoustic integrity of the proposed buildings. This guidance provides valuable advice on ventilation and overheating in support of the “Good Acoustic Design” principle advocated by ProPG.

BS 8233:2014 Guidance on sound insulation and noise reduction for buildings.

British Standard 8233:2014 provides information on the design of buildings that have internal acoustic environments appropriate to their functions. It deals with control of noise from outside the building, noise from plant and services within it, and room acoustics for

non-critical situations. This document is intended for use by non-specialist designers and constructors of buildings and those concerned with building control, planning and environmental health.

Annexe G.2 provides a "rigorous" calculation method for estimating internal noise levels and where the performance of glazing and ventilation elements are essential to the achievement of the internal noise level criteria, these must be specified in both single-figure ratings (Rw and Dn,e,w) and octave band values.

BS4142:2014 Methods for rating and assessing industrial and commercial sound

British Standard BS 4142:2014 "Method for rating and assessing industrial and commercial sound" is a tool widely used by local authorities to determine whether a new industrial sound source is likely to give rise to complaint from people living in the vicinity.

The standard is complicated, but basically it sets out a method of assessing the impact of measured or calculated sound, based on the difference between the "rating level" of the sound and the "background sound level" (LA90) that would otherwise exist in the absence of the sound. The "rating level" is derived by adding any correction that is necessary, due to certain characteristics of the sound to the "specific sound level".

The "specific sound level" is the equivalent continuous A-weighted sound pressure level ($L_{Aeq,T}$) of the sound, at the assessment position, over a time period specified in the standard. The assessment position must be outside the dwelling or other noise sensitive building affected by the sound and the measurements must be representative of the specific sound and the background sound level.

Where the sound has a tonal element e.g. whine, hiss, screech, hum etc., or contains distinct impulses such as bangs, clicks, clatters, or thumps etc, the standard recommends that, an adjustment of between 2 to 9dB is added to the "specific sound level" to give a "rating level".

The standard provides an assessment by subtracting the background sound level from the rating level:

- A rating level 10dB or more above background is likely to be an indication of a significant adverse impact.
- A rating level 5dB above background is likely to be an indication of an adverse impact.
- Where the rating level does not exceed the background level, this is an indication of the specific sound source having a low impact, depending on the context.

Submitting a Planning Application

Most residential developments will require as a minimum an Initial Site Noise Risk Assessment in accordance with the guidance set out in the "Professional Practice Guidance on Planning and Noise (ProPG). If the initial site noise risk assessment indicates a negligible risk, no further assessment will be required. If the assessment indicates a low to medium risk a Stage 2 full assessment will be required. If the initial site noise risk assessment indicates a high risk a recommendation of refusal is likely.

For small residential developments of 3 or less dwellings in an established residential area not significantly affected by road or rail traffic noise, a noise assessment may not be required. In this case an opinion on whether an assessment is required should be sought from Ipswich Borough Council's Environmental Protection Team.

Where the development will be affected by industrial or commercial noise, an additional assessment in accordance with British Standard BS 4142:2014 "Method for rating and assessing industrial and commercial sound" will be required. In general, the rating level should not exceed the background level. However, this has to be taken in context and we recommend that the acoustic consultant engaged to undertake the assessment should contact us prior to undertaking the assessment.

For clarity, proposed dwellings should meet the following requirements:

The building envelope constructions for the proposed dwellings should be sufficient to meet the following internal noise levels:

Activity	Location	07:00hrs – 23:00hrs	23:00hrs – 07:00hrs
Resting	Living room	35 dB $L_{Aeq,\ 16\ hours}$	-
Dining	Dining room/area	40 dB $L_{Aeq,\ 16\ hours}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,\ 16\ hours}$	30 dB $L_{Aeq,\ 8\ hours}$ 45 dB $L_{AF\ Max}$

Table 3 – Internal noise levels

The design of the dwellings should aim to meet the internal noise levels set out in Table 3 with windows open. This can be achieved through careful consideration of the orientation of the building and location of noise sensitive living areas such as bedrooms and living rooms ie: facing away from the road. Where internal noise levels are assessed with windows closed, the justification for this should be included in the Acoustic Design Statement. Simply specifying acoustic glazing as a method for reducing internal noise levels without any thought to ventilation or thermal comfort during the warmer seasons is not an adequate justification.

The calculation of internal noise levels should use the "rigorous" calculation method described in Annexe G.2 of BS 8233:2014 and were the performance of glazing and ventilation elements are essential to the achievement of the internal noise level criteria, these must be specified in both single-figure ratings (R_w and $D_{n,e,w}$) and octave band values.

External amenity areas such as gardens, balconies and terraces should not exceed 50 dB $L_{Aeq,T}$ between the hours of 07:00hrs to 23:00hrs although an upper limit of 55 dB $L_{Aeq,T}$ may be acceptable if the lower guideline value is not achievable and the justification for this should be included in the Acoustic Design Statement.

Residential developments close to entertainment venues will always require a noise impact assessment. Music noise, unlike anonymous noise sources such as transportation noise, can be very intrusive even at very low levels. This means that the A-weighted internal noise levels shown in Table 3 are not suitable noise limits. In order to avoid music noise

disturbance, the internal noise level in any habitable room of a proposed dwelling should not exceed the levels shown in Table 4

Location	Octave Band Centre Frequency (Hz), dB							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Inside any habitable room	37	30	30	24	20	17	15	13

Table 4 – Internal noise levels for dwellings close to entertainment venues

Contacts

Ipswich Borough Council	environmental.health@ipswich.gov.uk	01473
Environmental Protection Team		433115

The following organisations hold details of suitably qualified acoustic consultants:

- Institute of Acoustics www.ioa.org.uk
- Association of Noise Consultants www.association-of-noise-consultants.co.uk

Disclaimer

This Note is intended to serve as an informative and helpful source of advice. However, readers must note that legislation, guidance and practical methods are inevitably subject to change. This note should therefore be read in conjunction with prevailing legislation and guidance, as amended, whether mentioned here or not. Where legislation and documents are summarised, this is for general advice and convenience, and must not be relied upon as a comprehensive or authoritative interpretation. Ultimately it is the responsibility of the person/company involved in the development or assessment of noise to apply up to date working practices in any environmental noise impact assessment.