Tunbridge Wells Borough Council

## Tunbridge Wells Borough Local Plan

# Noise and Vibration

## Supplementary Planning Document

**Adopted November 2014**

# Section 1: Introduction

**1.1** This Supplementary Planning Document (SPD) seeks to ensure that there is sufficient mitigation for noise to prevent substantial loss of amenity at the development stage. There are statutory provisions for noise beyond planning legislation including the Control of Pollution Act 1974 that deals with construction site noise and legislation such as the Environmental Protection Act 1990 that deals with statutory nuisance.

**1.2** The Borough Council will incorporate European Directives (such as noise directives) and other government legislation or guidance that relates to planning applications as part of its planning policy. As assessment and guidance for noise control is always evolving, the Borough Council will incorporate amendments or updates of existing guidance into the SPD.

**1.3** The SPD will form part of the Tunbridge Wells Borough Council's suite of Local Plan documents. The role of a SPD is to support existing policies and proposals contained within the adopted Core Strategy 2010 or a saved policy from the Local Plan 2006. The SPD is intended to provide detailed guidance on the implementation of national and local policy relating to the potential impact of noise and vibration arising from, or affecting, new development. This SPD is based on existing best practice carried out within Tunbridge Wells Borough Council.

**1.4** Noise can have a significant impact on the quality of life and public wellbeing. It arises from a number of sources, including roads, railways, aircraft, industry and recreational activities. The WHO guidelines 1999 and BS 8233: 2014 (Sound insulation and noise reduction for buildings - Code of Practice) refer to "*anonymous*" noise sources; that which cannot be attributed to a specific single source, e.g. traffic. Therefore other noise sources, which can be specified, need to be considered separately. The aim within new development proposals is to design out noise rather than provide mitigation and this will be the starting point. The Borough Council wishes to protect residents of both existing and new residential developments and the occupiers of other noise-sensitive developments from the adverse effects of noise.

**1.5** The National Planning Policy Framework (NPPF) was published in March 2012. Its aim is to make the planning system less complex and more accessible, to protect the environment and is underpinned by the Government's sustainable growth strategy:

- **Ensuring a Strong Healthy and Just Society:** meeting the diverse needs of all people in existing and future communities, promoting personal wellbeing, social cohesion and inclusion, and creating equal opportunity for all
- **Using Sound Science Responsibly:** ensuring policy is developed and implemented on the basis of strong scientific evidence, while taking into account scientific uncertainty (through the precautionary principle) as well as public attitudes and values
- **Living Within Environmental Limits:** respecting the limits of the planet's environment, resources and biodiversity – to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations
- **Achieving a Sustainable Economy:** building a strong, stable and sustainable economy which provides prosperity and opportunities for all, and in which environmental and social costs fall on those who impose them (polluter pays), and efficient resource use is incentivised
- **Promoting Good Governance:** actively promoting effective, participative systems of governance in all levels of society – engaging people's creativity, energy and diversity

Source: Securing the future – delivering UK sustainable development strategy, HM Government, March 2005.

**1.6** The NPPF superseded and replaced a large number of Planning Policy Statements (PPS) and Guidance Notes (PPG), including PPG24: Planning and Noise (1994). The key reference to noise is at paragraph 123 of the NPPF and states:

"*Planning policies and decisions should aim to:*

- *avoid noise from giving rise to significant adverse impacts*[27] *on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts*[27] *on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;*[28] *and*
- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason*."

[27] See Explanatory Note to the Noise Policy Statement for England (2010) (Department for the Environment, Food and Rural Affairs).
[28] Subject to the provisions of the Environmental Protection Act 1990 and other relevant law.

**1.7** The Explanatory Note to the Noise Policy Statement for England (NPSE) states that there are two established concepts from toxicology that are currently being applied to the assessment of noise:

- No observed effect level (NOEL) – the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise and
- Lowest observable adverse effect level (LOAEL) – the level above which adverse effects on health and quality of life can be detected

It expands these and introduces the following concept:

- Significant observed adverse effect level (SOAEL) – the level above which adverse effects on health and quality of life occur

None of these levels have a numeric definition and the NPSE makes it explicit that the SOAEL is likely to vary depending on factors such as the type of noise source, the receptor and the time of day. It acknowledges the need for more research to give further guidance on SOAEL, but until that evidence is provided, noise policies cannot be prescriptive.

**1.8** The following commentary is given on the representation of NOEL, LOAEL and SOAEL in relation to existing British Standards and International guidelines:

- NOEL – Inaudibility
- LOAEL – The guideline values for community noise in specific environments as set out in Table 1 of the World Health Organisation (WHO) Guidelines for Community Noise 1999 and in Table 4 of British Standards BS8233 2014 - Guidance on sound insulation and noise reduction for buildings. Further guidance is given in the WHO Night Noise Guidelines for Europe 2009
- SOAEL – Variable values set somewhere above LOAEL dependent on the type of noise source, the receptor, the time of day, etc

**Table 1 Data from Table 4 of BS8233**

| Activity | Location | 07:00-23:00 | 23:00-07:00 |
|---|---|---|---|
| Resting | Living room | 35 dB $L_{Aeq,16hour}$ | - |
| Dining | Dining room/area | 40 dB $L_{Aeq,16hour}$ | - |
| Sleeping (daytime resting) | Bedroom | 35 dB $L_{Aeq,16hour}$ | 30 dB $L_{Aeq,8hour}$ |

**Table 2 Health effects of noise (from WHO Night Noise Guidelines for Europe)**

| Average night noise level over a year $L_{night, outside}$ | Health effects observed in the population |
|---|---|
| Up to 30 dB | Although individual sensitivities and circumstances may differ, it appears that up to this level no substantial biological effects are observed. $L_{night,outside}$ of 30 dB is equivalent to the NOEL for night noise |
| 30 to 40 dB | A number of effects on sleep are observed from this range: body movements, awakening, self-reported sleep disturbance, arousals. The intensity of the effect depends on the nature of the source and the number of events. Vulnerable groups (for example children, the chronically ill and the elderly) are more susceptible. However, even in the worst cases the effects seem modest. $L_{night,outside}$ of 40 dB is equivalent to the LOAEL for night noise. |
| 40 to 55 dB | Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with the noise at night. Vulnerable groups are more severely affected. |
| Above 55 dB | The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases. |

**1.9** National government has issued planning practice guidance for noise. The document indicates that noise is an important consideration in planning terms. It gives an indication of when noise is an issue and guidance on planning responses for noise levels between Lowest Observable Exposure Level (LOEL) and Significant Observable Adverse Effect Level (SOAEL). The guidance states that local plans can include specific standards to apply to various forms of proposed development and locations in their area.

**1.10** This guidance provides noise and vibration criteria for developers where new proposals are being made that will generate noise or vibration, or are in a noisy location, or are in a noise sensitive area, in order to ensure that the potential or existing noise/vibration levels in the area are acceptable. As a starting point, it is expected that new development will not increase background noise levels.

**1.11** The National Planning Policy Framework states that planning policies and decisions should aim to identify and protect areas of tranquillity that have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason. When the local planning authority considers an area to be an area of tranquillity it will protect it from noise generating developments. The local planning authority will have regard to guidance on tranquillity and will incorporate these into planning assessments.

**1.12** Tunbridge Wells Borough comprises many rural areas that could be considered to be areas of tranquillity, according to the Tranquil Areas map (Developing an Intrusion Map of England) (2007) produced by consultants for the Campaign to Protect Rural England (CPRE) (and based on the maps previously produced by the Countryside Commission in 1995), and there are other areas that enjoy low background noise levels (i.e. below 35dBA). These areas are important for their recreational and amenity value and therefore the Borough Council seeks to protect them from noise-generating developments.

**1.13** Where appropriate standards cannot be achieved, planning permission will normally be refused.

## Section 2: Noise and Vibration Assessments

**2.1** Where an Environmental Impact Assessment (EIA) is deemed necessary, there may be a general requirement for a noise assessment to be carried out as part of that planning application. The Town & Country Planning (Environmental Impact Assessment) Regulations 2011 can be found on the **Office of Public Sector Information (OPSI)** website www.legislation.gov.uk.

**2.2** Information on the European Union Directive from which the requirements for EIA arise can be found on the website of the European Commission's **Directorate-General for the Environment** http://ec.europa.eu/environment/eia/home.htm.

**2.3** In addition to requirements under EIA, the Borough Council will require an assessment in situations where:

- there is a proposal for a development generating noise and/or vibration in a noise sensitive area (premises where noise is likely to cause or contribute to some harmful or otherwise unwanted effect, such as annoyance or sleep disturbance). These premises will include residential development, offices, hospitals, care homes and schools and other premises regularly occupied by people
- there is a proposal for a noise sensitive development in an existing noisy environment. There is no single noise-based measurement that can provide a minimum limit above which a noisy environment exists. A noisy environment is one where non-standard adaptations have to be made to the development in order to prevent harmful or otherwise unwanted effects, such as annoyance or sleep disturbance, being caused

**2.4** In such cases, a noise and vibration assessment will need to be submitted to the local planning authority as part of the planning application. There needs to be good liaison between the chosen acoustic consultants and the Environmental Protection Team within the Borough Council, which should start prior to the acoustic work being carried out to ensure that an appropriate methodology is agreed.

**2.5** The assessment shall be carried out and produced by a suitably qualified acoustic consultant and must be carried out to the standards laid out in BS 7445 1-3: 2003 (Description and measurement of environmental noise) or any later replacement guidance and to report all information required in section 10 of BS 4142: 1997 (Method for rating industrial noise affecting mixed residential and industrial areas) or later replacement guidance.

**2.6** There are numerous British Standards, International Standards and appropriate guidance documents (and updating of, and changes to, current standards) that will be relevant to the assessment of noise, depending on the nature of the noise being assessed. Undertaking the appropriate form of assessment and compliance with the relevant standards is fundamental to a good assessment and acoustic consultants are advised to discuss their methodologies and assessments with the Borough Council's Environmental Protection Section to ensure that the proposed method of assessment is acceptable to the local authority for the given circumstances of the development.

**2.7** If noise is an important issue for a proposed development and the Borough Council's Environmental Protection Team indicates that noise reports and mitigation are likely to achieve required levels, then planning officers will consider the use of planning conditions on any planning permission to allow for reports and mitigation to be submitted, approved and carried out as part of the planning approval. If a noise survey and report is considered integral and/or essential in determining a planning permission and one has not been submitted with the application, as required above, or if the advice of Council officers is not obtained or followed, then an application for planning permission may be refused, or not validated and thus not registered due to lack of information.

**2.8** The use of planning conditions will also be considered if there are specific circumstances, such as limiting hours of operation, restricting window opening or use of external tannoys, which could assist in ensuring noise levels are kept to an acceptable level. The Environmental Protection Team will provide advice to Planning Services on the use of possible conditions.

# Section 3: Specific Noise Criteria

## a) Construction and Demolition Work

**3.1** A Demolition Method Statement and Construction Management Plan will be required for substantial developments and where the site is close to other sensitive premises. The Borough Council has a document entitled Environmental Code of Development Practice, which is available online and deals with issues surrounding construction and demolition practice.

## b) Noise from new development proposed near existing dwellings and other noise/vibration sensitive developments/areas

### i) Major industrial sources

**3.2** The most appropriate way to assess noise issues resulting from proposals to site factories or industrial premises, or sources of an industrial nature in commercial premises, near an affected building façade, is via the use of BS 4142: 1997 (Method for rating industrial noise affecting mixed residential and industrial areas) or its subsequently updated form. This method provides a tool to assess the likelihood of complaints about noise from industrial development. It can be carried out using a mix of predictive and actual measurements. Post development verifications checks on predicted levels may be required, particularly where the predicted results are close to limits.

**3.3** There are, however, certain situations where this standard is not relevant; for example, where background and rating noise levels are both very low, or where weather conditions are not suitable for taking measurements. It is important that the assessment is carried out by a competent person. Should this method be found to be unsuitable, then the applicant should speak with the Borough Council's Environmental Protection Section to discuss the matter further.

**3.4** Where the Borough Council is satisfied that the measurement and calculations have been carried out in accordance with the current version of BS 4142, the expected criterion is that there would be no increase in background levels as a result of the development.

**3.5** While the British Standard specifically refers to its use being for industrial noise, it can also have a wider remit, including premises where the following operations are carried out:

- lorries being loaded or unloaded by forklift trucks (or tailgate)
- lorries where on-board refrigeration plant runs or charges
- loaders, dumpers, haulage vehicles, etc, operating in yards handling building materials, etc
- the standard indicates its scope and should be referred to for guidance on these issues

**3.6** The local planning authority cannot, however, impose conditions outside of the application site, or control noise levels from traffic or vehicles entering/leaving the premises, although hours of operation can be controlled through planning conditions.

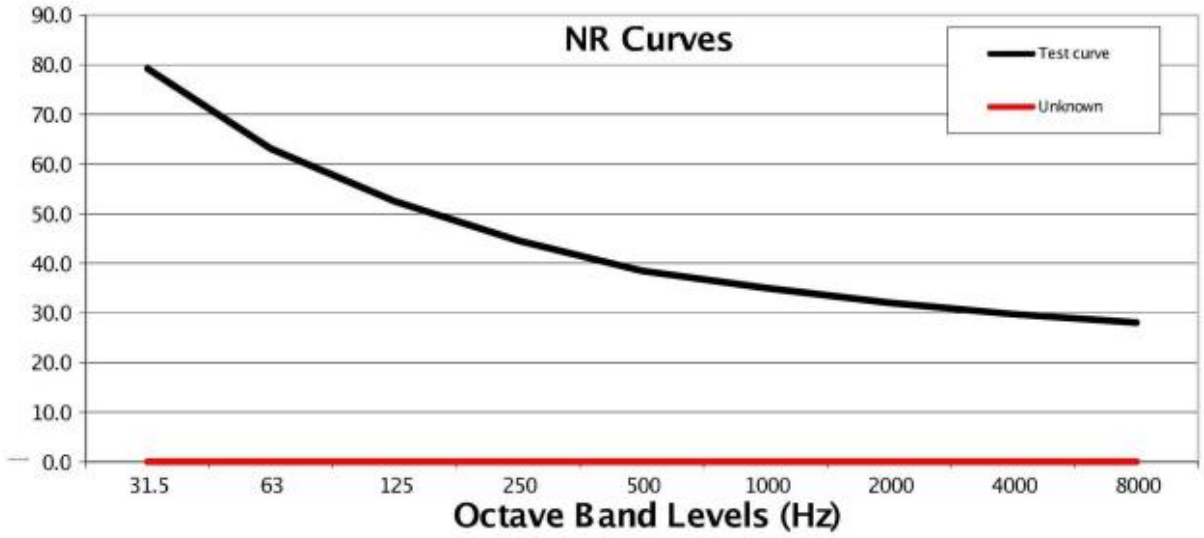
**3.7** BS 4142 has limitations for noise with tonal elements at high and low frequencies. Therefore, frequency analysis (to include, for example, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required. The use of NR curves is outlined in 9.4 and Annex B of BS 8233:2014. The use of average noise levels is very useful in terms of general noise, but certain types of noise may need the use of other metrics, such as maximum noise levels or statistical noise levels, as part of the assessment.

### ii) Small items of industrial equipment at commercial premises

**3.8** There are certain smaller pieces of equipment on commercial premises, such as extract ventilation, air conditioning units and condensers, where the Borough Council may consider that just a BS 4142 assessment alone is not able to provide all the information necessary. In these cases, the

Borough Council will generally also require a NR curve specification of less than NR35 (based upon measured or predicted Leq,5mins noise levels in octave bands) 1 metre from the façade of affected premises. Where the noise sensitive premise is located in a quiet background area, then a NR30 specification may be implemented. The use of NR curves is outlined in 9.4 and Annex B of BS 8233:2014.

**Figure 1 Example of NR35 curve and associated table**




| | Octave band centre frequency (Hz) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NR Curve | 31.5 | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 35 | 79.2 | 63.1 | 52.5 | 44.6 | 38.5 | 35.0 | 32.0 | 29.8 | 28.1 |

### iii) Other proposals not suitable for a BS 4142 type assessment

**3.9** Commercial developments such as fast food restaurants, night clubs and public houses pose particular difficulties, not least because associated activities are often at their peak in the evening and late at night. There will also be the problem of noise made when customers are smoking or congregating outside, entering and leaving the premises and noise from traffic associated with the use.

**3.10** Some guidance is available relating to noise levels from amplified sound across a partition. The Institute of Acoustics' Good Practice Guide on the Control of Noise from Pubs and Clubs, in particular, recommends that, where entertainment takes place on a regular basis, music and associated sources of noise should not be audible inside a noise sensitive property at any time.

**3.11** However, there are no British Standards relating to the assessment of noise from sources such as amplified sound, people noise or vehicle noise in car parks.

**3.12** In these circumstances, it is expected that the applicant will discuss the situation with the Borough Council's Environmental Protection Team to agree on the most appropriate way forward.

**3.13** In assessing such uses, the Borough Council will require an applicant to have regard to the following:

### Amplified music and speech: insulation of building envelope standards

**3.14** In the case of amplified noise breaking out from premises, the Borough Council's policy is to ensure that the sound insulation of the premises is appropriate and the volume and bass setting inside the commercial premises are commensurate with the level of sound insulation. These buildings will require an adequate mechanical ventilation or air conditioning system to be provided supplying sufficient fresh air for patrons, following the guidance in the Chartered Institute of Building Engineers (CIBSE) Environmental Design Guide 2006, or any later replacement guidance. Such applications will therefore need to be accompanied by a suitable assessment demonstrating that the building is adequate in sound insulation terms for its proposed use, which will include ensuring there is sufficient sound attenuation of the ductwork, particularly at the inlet/outlet, to prevent excessive noise breakout and the provision of sound-proofed doors and windows, which must remain closed. The fitting of a suitable limiter device with electric contact breaks on fire doors and/or windows as appropriate may also be required (see also 5c). Planning conditions may be imposed to ensure compliance with the long-term retention of such sound-proofing measures.

### Delivery vehicles and noise from patrons outside premises: criteria for sleeping

**3.15** Applications for commercial uses that will have an impact on occupiers of noise sensitive premises will need to be accompanied by a suitable assessment identifying all likely noise sources and demonstrating their predicted noise impact and associated mitigation measures in a management plan, to include consideration of the following points, taking into account guidance contained in the WHO guidelines (1999)), the WHO night noise guidelines for Europe (2009) and other relevant guidance:

- minimising the noise impact of people arriving, queueing, congregating and leaving the building. Access routes to and from the building, smoking areas, pub gardens, etc should be away from noise sensitive façades and/or effectively screened. Details of the active management measures to minimise noise disturbance will need to be provided
- minimising vehicle noise by ensuring arrangements are made with taxi and private hire vehicle companies to ensure that drivers arrive and depart as quietly as possible without sounding horns or leaving engines idling unnecessarily
- preventing noise disturbance caused by staff arriving early in the morning or departing late at night
- ensuring that bottles and cans are not disposed of in outdoor bins or external storage areas in the evening, at night, or during the early morning
- minimising the impact of delivery and refuse collection vehicles

### Breakout of impulsive noise from associated vehicles and delivery vehicles entering or exiting premises and noise from patrons outside the premises

**3.16** Where possible, deliveries should be carried out during weekday business hours between 08:00-18:00 Monday to Friday. In town centres, these times may be extended to Saturday. Where Sunday deliveries are proposed, the applicant should demonstrate the need for Sunday deliveries. If permitted, times of Sunday deliveries will be restricted to prevent undue disturbance to neighbours.

**3.17** Where night-time deliveries are proposed, justification for not delivering during daytime should be provided, together with details of measures to minimise any noise, in accordance with current guidance. Regard should be had to:

- the Noise Abatement Society's Silent Approach™ Quiet Night Time Delivery Scheme and the Freight Transport Association Guidance Delivering the Goods – a toolkit for improving night-time deliveries, or successive legislation, policy, standard or guidance

- refuse collections should, where possible, be similarly carried out during weekday daytime hours after 07:00 and/or in accordance with the above mentioned guidance, as appropriate
- applications that involve deliveries and commercial refuse collections, particularly where night-time or Sunday deliveries are proposed, should be submitted accompanied by a Service Yard Management Plan. Details within this Plan should include applicable environmental controls on the following points:
  - times and frequency of deliveries and collections
  - effective enclosure and sealing of loading bays and service areas and/or locations away from noise sensitive premises
  - vehicle movements, including forklift vehicles
  - quiet reversing methods; preference will be given to broadband reversing alarms, which emit a broad spectrum noise, or alternative quiet safety methods for reversing
  - good practice working methods to minimise noise from the use of cages, trolleys, pallets and forklift vehicles
  - mitigation measures, such as barriers, low noise wheels on cages, low noise surfaces on tail lift decking and delivery routes for trolleys, etc
  - silent electronically operated shutters
  - electric powered charging of mobile refrigerated units on vehicles in locations away from noise sensitive premises
  - vehicle engines not to be left running while vehicles are stationary in service yards
  - no music or loud voices

**3.18** For other activities, including open air pop concerts, shooting facilities, model aircraft and motor sports venues, the Borough Council, as local planning authority, will have to take into account how frequently the noise will be generated and how disturbing it will be and then balance the enjoyment of the participants against nuisance to other people. Partially open buildings such as sports stadiums may not be in frequent use. Depending on local circumstances and public opinion, local planning authorities may consider it reasonable to permit higher noise emission levels than they would from industrial development, subject to a limit on hours of use and control of noise emissions (including public address systems) during unsocial hours. There are codes of practice available for a number of these more specific activities, which consider the impact of the noise they generate, in particular:

- 1982 Department of Environment's Code of Practice on Noise from Model Aircraft
- 1994 Noise Council's Code of Practice on Noise from Organised Off-road Motor Cycle Sport
- 1995 Noise Council's Code of Practice on Environmental Noise Control at Concerts and
- 2003 The Chartered Institute of Environmental Health's Clay Target Shooting: Guidance on the Control of Noise

**3.19** The Borough Council will generally accept the recommendations made in these codes, or later replacement guidance, for assessing the impact of the activity and specifying conditions.

**3.20** Where there is no appropriate Code of Practice available, for example, noise from five-a-side football pitches, multi-use games areas and associated car park use, the applicant is advised to speak with the Borough Council's Environmental Protection Team at the earliest opportunity to discuss an agreed criterion on which noise can be assessed.

**3.21** It is also recognised that, in some cases, it may not be reasonable or economically achievable to completely isolate residential properties from some of the noise associated with the use of non-residential buildings; for example, in an area of predominantly commercial businesses with an isolated residential premises. In such cases, mitigation and application of best practice guidance should be adopted.

## c) New Dwellings and other Noise Sensitive Developments (e.g. schools and hospitals, etc) proposed near existing noise and/or vibration sources

**3.22** Proposals for noise sensitive development (including housing, offices, hospitals and schools) likely to be affected by noise from existing or programmed developments will require a full assessment of the impact, in the form of a competent report to be provided by the developer. The development should be designed to minimise the impact of these noise sources.

**3.23** In accordance with the NPPF, where noise impact lies somewhere between LOAEL and SOAEL, all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life, while also taking into account the guiding principles of sustainable development (see i) above).

**3.24** Development will only be permitted where the local planning authority is satisfied that the criterion outlined in the above paragraph has been achieved and that a development does not give rise to significant adverse impacts on health and quality of life and/or does not require businesses to have unreasonable restrictions put on them because of changes to nearby land uses.

**3.25** Where noise mitigation is required, the Borough Council will adopt the criteria found in Tables 1 and 2 below (taken from WHO (1999) and BS 8233: 2014 (Guidance on sound insulation and noise reduction for buildings)). Ideally, the internal levels should be achieved with windows open. On some sites this will not be possible and so, in those cases, the assessment must include proper consideration of the premises' ventilation (see section 5e).

### Noise from railways

**3.26** Railway noise emanates from a variety of sources. For noise from operational railway lines, the noise levels found in Tables 1 and 2 below will be appropriate. Local noise from station activities, freight distribution depots and marshalling yards should be treated in the same way as noise from industrial and commercial sources.

**3.27** The likelihood of significant ground-borne vibration will depend on the nature of the ground and the types of train. Ground-borne vibration can occur close to railways and sometimes next to some types of industry. The possibility of vibration and re-radiated noise caused by trains running in tunnels should not be overlooked. Advice on acceptable levels of vibration can be found in BS 6472 1-2: 2008 Evaluation of human exposure to vibration in buildings.

### Noise from aircraft

**3.28** Noise from aircraft has not been a significant planning issue to date within the Borough although with recent changes to flight paths approaching Gatwick airport in particular this situation could change and this situation will continue to be monitored. The remit for seeking noise assessments in areas which are or become prone to aircraft noise will, however, be limited to new buildings and will extend only to mitigation and insulation against noise within the property. In identified circumstances applicants will be asked to provide additional noise assessments as set out below.

**3.29** A site-specific assessment shall be carried out to agree desirable upper limits for major new noise sensitive development. Where replacement schools, clinics and other community facilities are needed to serve the existing population in high noise areas, expert consideration of sound insulation measures will be necessary.

**3.30** Helicopter noise has different characteristics from that of fixed wing aircraft and is often regarded by the general public as more intrusive or more annoying. Planning applications for helicopter landing and take-off facilities must be accompanied by information about the proposed take-off and landing flight paths and air traffic routes where appropriate. Preferably, these paths should have been discussed and agreed with National Air Traffic Services (NATS) in principle before submission.

**3.31** Increased use of helicopters has led to air movements from the gardens of private houses and from commercial premises, such as factories, offices and hotels. For safety reasons, helicopters may only operate from elevated sites if given special approval by the Civil Aviation Authority. All of these movements can cause local annoyance. However, they may often be incidental or ancillary to the principal use of the land and as such do not generally require a separate planning permission. The construction of a hardstanding or installation of landing lights may constitute development requiring planning permission and applicants are advised to check with the local planning authority.

**3.32** Small private fixed wing aircraft would be subject to similar requirements to helicopters as stated in para 3.31 above, where planning permission is required.

### Low frequency noise

**3.33** Where applications are made for developments that produce low frequency noise (including electricity substations), an acoustic report assessing their impact shall be submitted to, and approved in writing by, the local planning authority. The report shall address the issue of noise (including low frequency noise) and vibration from the development to ensure there is no loss of amenity to residential or commercial properties. For development of commercial sites with low frequency noise-generating potential, or new residential accommodation close to such sites, noise assessments shall ensure that the low frequency noise is controlled so that it does not exceed the Low Frequency Criterion Curve for the 10 to 160Hz third octave bands inside residential accommodation, as described in Defra's Proposed Criteria for the Assessment of Low Frequency Noise Disturbance Revision 1, December 2011 (Contract No. NANR45).

**Table 3 Standards and criteria where externally generated noise due to transport noise sources affects new housing**

| ***Area*** | ***Noise Criteria*** |
|---|---|
| **Private and communal gardens** | It is desirable that amenity space levels should be as low as practicable and not greater than 50dB $L_{Aeq,16hr}$ 0700-2300hrs with an upper value of $L_{Aeq,16hr}$ 55dB |
| **Bedrooms** | Not greater than 30dB $L_{Aeq,8hr}$ 2300-0700 hrs<br>Should not normally exceed 45 dB $L_{Amax,(fast)}$ 2300-0700 hrs<br>Not greater than 35dB $L_{Aeq,16hr}$ 0700-2300 hrs |
| **Living rooms and dining rooms** | Not greater than $L_{Aeq,16hr}$ 35dB 0700-2300 hrs |
| ***Note 1:*** *In BS 8233: 2014, at paragraph 7.7.3.2, it is stated "….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* $L_{Aeq,T}$*."*<br>***Note 2:*** *Internal building services noise generated from ventilation systems and lifts, etc should meet the same criteria as specified above.* | |

**Table 4 WHO recommended night noise guidelines for Europe**

| **Night Noise Guideline Values (WHO)** | |
|---|---|
| Night noise Guideline (NNG) | $L_{night,outside}$ 40dB |
| Interim target (IT) | $L_{night,outside}$ 55dB |

**Table 5 Standards and criteria where externally generated noise due to transport noise sources affect other Noise Sensitive Developments, e.g. schools, hospitals, etc**

| **Externally generated noise affecting other new noise sensitive buildings** | | |
|---|---|---|
| ***Type of Development*** | ***Area*** | ***Noise Criteria*** |
| **Educational Buildings** | Workshops and practical areas | <50dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| Libraries and individual study spaces | | <45dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| Small lecture or seminar rooms and offices | | <40dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| Classrooms, lecture rooms and language laboratories | | <35dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| Music and drama spaces | | <30dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| **Public Libraries** | | <45dB $L_{Aeq,1hr}$ 09.00-22.00 hrs |
| **Law Courts & Council Chambers** | | <35dB $L_{Aeq,1hr}$ 0900-23.00 hrs |
| **Concert Hall, Opera House and Large Theatre** | | <25dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| **Small Theatres** | | <30 dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| **Hospitals, Clinics and Welfare Buildings** | Wards (including day recovery rooms) | <30 dB $L_{Aeq,1hr}$ 23.00-07 00 hrs |
| Operating theatres, reception areas | | <35 dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| Kitchens, laundry, physiotherapy, X ray utility and store rooms | | <45 dB $L_{Aeq,\ hr}$ 07.00-23.00 hrs |
| **Office Buildings** | Private offices and small conference rooms | < 40dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |
| Large offices | | <45dB $L_{Aeq,1hr}$ 07.00-23.00 hrs |

***Note 1:*** *The revised approved document E of the Building Regulations came into force in July 2003. One of the consequences is that new and refurbished schools will have to meet strict standards for noise levels, insulation and room acoustics. These standards are set at Section 1 of the DfES Building Bulletin 93, "Acoustic Design of Schools", February 2003. Building Control Officers of Local Authorities will have responsibility to ensure that the standards are complied with. Noise from schools to surrounding areas is still controlled under planning legislation.*

***Note 2:*** *National Health Service Estates has produced a series of Hospital Building Notes.*

# Section 4: Vibration: From New or Existing Sources including train movements affecting sensitive buildings

**4.1** Any site affected by vibration will require an assessment of the impacts of vibration levels. Vibration acceleration (m/sec$^2$rms) shall be measured on the foundations, ground beams or pile caps if possible, in each of the three orthogonal directions x, y and z, as necessary.

**4.2** The Vibration Dose Values (VDV) should be calculated and assessed from the measured acceleration levels in accordance with BS 6472-1: 2008 (Guide to Evaluation of Human Exposure to Vibration in Buildings Part 1: Vibration sources other than Blasting), or successive policy or standard. For residential and other noise sensitive development, the VDV (m $s^{-1.75}$) should not exceed the levels in Table 6, which indicate low probability of adverse comment.

**Table 6 Criteria for vibration from any new or existing source affecting a dwelling or other sensitive building**

| Highest vibration dose value (VDV) (m $s^{-1.75}$) measured on the foundations in any of the three orthogonal directions not to exceed the following values. | | | | |
|---|---|---|---|---|
| **Type of Building** | Hospitals, Theatres, Labs, etc | Residential | Offices | Workshops |
| **Day 16 hr G/F** | 0.085 | 0.17 | 0.34 | 0.64 |
| **Day 16 hr F/F & above** | 0.04 | 0.08 | 0.16 | 0.32 |
| **Night 8 hr G/F** | 0.076 | 0.11 | 0.30 | 0.60 |
| **Night 8 hr F/F & above** | 0.037 | 0.05 | 0.15 | 0.30 |
| ***Note**: The values given relate to an undeveloped site and allow for an amplification factor of 1.2 at ground level in proposed buildings and 2.5 at first floor level and above. For measurements within buildings, the permitted values may be derived by applying these multiplying factors.* | | | | |

**4.3** Measurements of vibration should normally be taken on a building's structural surface. In some circumstances, measurements may have to be made outside the structure, or on some surface other than points of entry to the human subject. In such situations, the relevant multiplying factor should be used.

**4.4** Amplification of vertical vibration magnitudes need to be considered where resonance occurs in certain floor constructions, e.g. suspended floors.

**4.5** Where VDVs exceed those of Table 6, proposals shall be submitted to demonstrate that vibration can be mitigated to acceptable levels.

**4.6** Building vibration within existing buildings or sites should normally be measured in acceleration terms, or corrected to derive the VDV. In some cases, however, including impulsive events such as blasting, pile driving and demolition, measurement of peak values may be more appropriate and so peak particle velocity (PPV) is required to be used.

**4.7** The design of anti-vibration mounts must take proper account of expected forcing frequencies and resonances within the proposed dwellings and suitable documentation recording this must be provided as part of the planning process.

**4.8** Detailed guidance on assessing noise and vibration from construction sites can be found in BS 5228: 2009 (Noise and Vibration Control on Construction and Open Sites) and the Control of Dust from Construction Sites (BRE DTi Feb 2003).

**4.9** More stringent criteria may be necessary for commercial premises that are vibration sensitive, such as hospitals, photographic studios and educational premises.

**4.10** Potential vibration and re-radiated noise caused by trains running in tunnels will need to be considered and relevant assessments made.

**4.11** Re-radiated vibration noise within habitable residential rooms, as a result of vibration from adjacent railways and other sources, should not exceed 35dB LAmax(s). Where it is predicted that noise from this source is likely to exceed 35dB LAmax(s), proposals to mitigate re-radiated noise to acceptable levels shall be submitted for the Borough Council's approval.

# Section 5: Other Design Control Measures

## a) The Borough Council adopts the advice set out in part B (pages 21-25) Sound Control for Homes BRE and CIRIA, 1993, or later replacement guidance where applicable.

**5.1** In addition to this, design control measures should include the following where appropriate:

i. Orientation of sensitive rooms, balconies and gardens away from noise sources, barrier dwelling blocks, single aspect courtyard schemes, staggered rows of terraced housing, etc.

ii. Design of the layout and internal arrangement in blocks of flats and maisonettes to ensure that:

- similar rooms in individual dwellings are stacked above each other or adjoin each other
- halls are used as buffer zones between sensitive rooms and staircases
- large family units are not situated above individual flats or bed sitting rooms

iii. Provision of noise barrier walls and fences where necessary (see section d) below for further details).

iv. Insulation of the building envelope of noise sensitive buildings and buildings generating noise.

v. Anti-vibration treatment of the foundations. NB: design of anti-vibration mounts must take proper account of expected forcing frequencies and resonances, predicted to be transmitted into the proposed dwellings.

**5.2** The requirements of the Building Regulations are usually deemed adequate for the sound insulation transmission loss between floors and walls of adjoining dwellings, making planning conditions unnecessary. Poor or inappropriate installation of sound insulation, inappropriate workmanship during the construction, or conversion of the building and inappropriate arrangement or stacking of rooms can, however, cause serious neighbour noise disturbance just from normal household activities and behaviour. These are frequent causes of complaints both in conversions and new build development.

**5.3** It is essential that conversions and new dwellings are designed with the appropriate room arrangement in separate adjoining dwellings, ensuring that:

- large family units are not situated above or below smaller units
- similar types of rooms in neighbouring dwellings are stacked above each other or adjoin each other, i.e. bedroom-bedroom, living room-living room, etc
- halls are used as buffer zones between noise sensitive rooms of one dwelling and living areas of adjoining dwellings and communal areas, including main entrances, staircases, lift shafts and service areas

**5.4** The requirements of the Building Regulations can be inadequate where commercial use adjoins residential use.

**5.5** BS 8233: 2014 (Guidance on sound insulation and noise reduction for buildings) states:

- Paragraph 8.4.8.1 "*Dwellings that adjoin other buildings that generate noise levels greater than normal domestic activities may require constructions offering better performance than those described in the documents that support the Building Regulations.*"
- Paragraph 7.6.2.3 "*In rooms in which dancing may take place on one side of a division wall and speech making on the other, a wall of less than 60 dB Rw insulation may not give adequate protection*."

**5.6** Where such a development is proposed, or where the arrangement of rooms in separate but adjoining dwellings is shown to be unsuitable in terms of preventing transmission of household noise, the Borough Council will require substantially enhanced sound insulation of relevant walls, floors and ceilings compared to the minimum specifications of the Building Regulations, together with construction details of any proposed sound insulation system and structure as follows:

**Criteria for sound insulation standards where the arrangement of rooms in separate adjoining dwellings is shown to be unsuitable in terms of preventing transmission of household noise or where residential and commercial uses share separating floors, ceilings or walls and it is likely these situations will give rise to neighbour noise complaints**

- the applicant must supply a sound insulation assessment providing suitable details of the substantially enhanced sound insulation performance of sound reduction achieved by relevant floors, ceilings and/or walls, which will also include consideration of the suitable treated acoustic ventilation of the property
- the construction that separates the residential and commercial unit shall aim to resist the transmission of airborne sound such that the weighted standardised difference (DnT, W + Ctr) shall not be less than 53 decibels (i.e. an enhancement of the minimum levels stated in the Building Regulations of 10dB). The weighted standardised difference (DnT, W) is a spectrum adaptation term; Ctr is quoted according to BS EN ISO 140-4: 1998 Acoustics Measurement of sound insulation in buildings and of building elements Part 4: Field measurements of airborne sound insulation between rooms

## b) Calculation of the Sound Reduction Index (SRI) for the Building Envelope

**5.7** BS 8233: 2014 and BRE/CIRIA Sound Control for Homes 1993 provide examples of how the composite SRI for a building envelope should be calculated, in order to demonstrate compliance with target internal noise levels set for sensitive buildings so they are protected against noise generated.

**5.8** BS 8233: 2014 states that the use of SRI values (Rw) for the proposed building envelope will suffice for a rough calculation, using the overall calculated or measured single figure noise level, but this is likely to underestimate the level calculated inside a room by up to 5 dBA. Where this calculation estimates that the noise will be within 5 dBA of the set limit, a more rigorous calculation should be carried out using octave bands (see section 6.7.2. of BS 8233 for more information). The Borough Council requires that the worst case one hour single figure source noise level is used and, if required, the worst case one hour noise spectrum. This data can be obtained from a site survey, or from approved documents.

## c) Construction Details for materials making up the Building Envelope

**5.9** The following constructions may be required to achieve an acceptable value for the composite sound reduction index of the building envelope and alternative ventilation may be required to ensure that the insulation remains effective (see section 5f):

- building envelope materials comprising brickwork and/or blockwork, etc, sound proofed doors and acoustic secondary glazing to minimise the impact of significant noise produced by transport noise services
- for places of public entertainment where the noise source and sensitive receivers are in the same building, a box-in-box construction may be required. For receivers not connected to the place of entertainment, self-closing devices to all external doors, the installation of soundproof lobbies with double doors designed so that each set cannot be opened at the same time, acoustic secondary glazing and a mechanical ventilation system may be required. The installation of a noise limiter device linked to all amplifiers may also prove beneficial, as this can fix the internal noise to the level of insulation provided. The limiter may also be connected to external fire doors, etc so that opening the doors cuts the music. Attention also needs to be paid to the design of

the sound system to ensure speakers are properly isolated and consideration given to installing directional speaker systems

## d) Design and Specification for Noise Barriers

**5.10** Barriers may be made of many different materials, ranging from brick, metal, earth and timber, etc. The Borough Council will require specifications for noise barriers, based on certified laboratory tested acoustic performance, to ensure that effective long lasting barriers are built that significantly reduce noise levels and public complaint, while meeting the aesthetic needs of the area.

**5.11** The following guidance must be achieved where barriers need to be erected to mitigate against noise transmission:

i) Appropriate aesthetic design and life expectancy of proposed barrier

- Highways Agency, HA 65/94, A Design Guide for Environmental Barriers – guidance on installation with regard to the appearance of the noise barrier in the environment
- Highways Agency, HA 66/95, Environmental Barriers, Technical Requirements – requirement to build barriers for 20 years low maintenance and a 40 year operational life

ii) Testing of the airborne sound insulation of the proposed barrier and also sound absorptive performance where appropriate to BSEN 1794 Parts 1, 2 and 3

- test to be carried out in a nationally accredited laboratory, with a sample panel of the proposed barrier mounted in the window between two adjoining reverberant rooms, the sample to include the post and the exact fixings and sealants to be used on site
- detailed report submitted on the test conditions, fixings, component sizes and densities
- not less than category B insulation to be achieved
- not less than category A3 absorption to be achieved and A4 where the barrier is high and in a reverberant location

iii) Quality and preservation of timber used in barriers

- Timber quality and preservation to comply with BS 5589: 1989, Sections 1-6 and Specification of Highway Works Volume 1, Sections 304, 310 and 311

## e) Ventilation Design Criteria

**5.12** Design criteria relating to the insulation of building envelopes should include the provision of adequate ventilation, so that occupants can have adequate levels of fresh air in warm weather, should they choose to shut windows or be required to keep windows shut to screen out noise. In instances where this is likely, applicants will need to provide a report on this following the guidance in the Chartered Institute of Building Engineers (CIBSE) Environmental Design Guide 2006, or later replacement guidance. This is particularly important where measures to ensure that the internal room noise levels meet the required standards when the measures proposed result in the windows having to be kept closed to meet the standard. In this instance, whole premises mechanical ventilation or individual room mechanical ventilation will be required.

**5.13** If any dwelling in this section also falls into an Air Quality Management Area (AQMA), then works specific to the air quality solution would also need to be carried out and applicants are advised to discuss the requirements with the Borough Council rather than following the advice in the paragraph above in the first instance.

## (f) Wind Turbines

**5.14** Wind turbines have the potential to generate noise and cause disturbance. The Council will consider all applications on their merits with regard to relevant guidance such as the ETSU-R-97. The Institute of Acoustics guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise provides current best practice to utilising the guide. All applications for commercial wind turbines will require an acoustic report addressing the issues of noise in line with current guidance documents. A small part of Tunbridge Wells Borough comes within the Gatwick 30km wind turbine consultation circle, so the Council will consult with airport authorities in relation to the installation of wind turbines that have the potential to affect radar and other navigational aids.

**5.15** Under permitted development rights, in some cases it is possible to install domestic wind turbines without the need for an application for planning permission, as long as specified limits and conditions are met. The conditions are different dependent on whether the unit is free standing or attached to a building. The guidelines can be obtained from http://www.planningportal.gov.uk. In other cases, it will be necessary to apply for planning permission from the local authority to add a domestic wind turbine to a house, or grounds surrounding a home. It is advisable to always check with Tunbridge Wells Borough Council's Planning Department about planning issues before going ahead with installing a system.

## (g) Microlight and Model Aircraft

**5.16** The use of microlight aircraft or model aircraft flying that requires planning permission will be assessed for noise disturbance. Microlight landing strips will only be considered on their merit based upon assessments of:

- approach and take off circuits with assessments of the effect on residential property by way of noise levels or frequency of flights
- the numbers of aircraft using the facility
- the number of flights controlled on a daily, weekly or annual basis
- restrictions on “touch and go” and other landing and take off from the facility
- proposals for microlight training centres with fixed circuits will not normally be supported where it would result in serious loss of amenity for nearby residents. Applications for training centres will require a full acoustic assessment and mitigation schemes to be submitted with the planning application

**If you require this document in another format, please contact:**

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