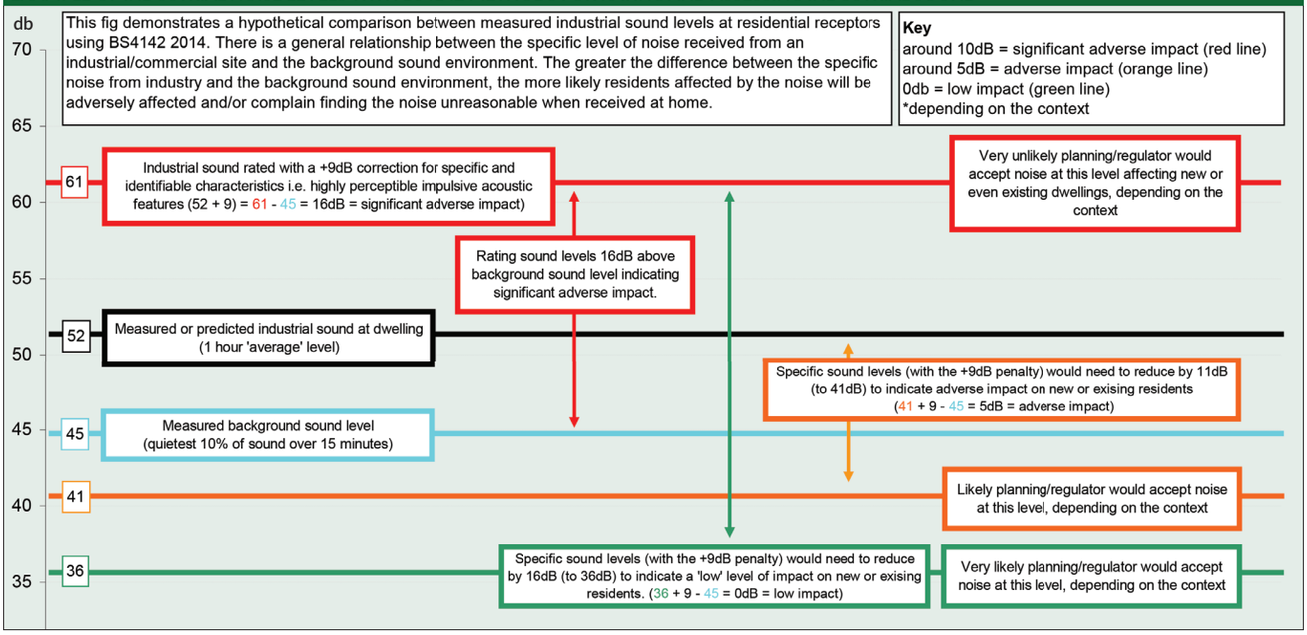
EXAMPLE OF INDUSTRIAL NOISE LEVELS WITH BS4142 METHODS FOR RATING AND ASSESSING INDUSTRIAL SOUND



PLANNING

Be sensitive to how neighbours perceive sound from a waste site

DANIEL BAKER explains how noise guidance and policy are changing, and why the waste and recycling sector must use vigilance when acquiring new sites or where residential uses are proposed next to existing ones

The role of consultants involved in land use planning is to improve understanding of various emissions, such as noise, and allow good judgements based on science. Bad judgements can lead to land use conflicts, including complaints from residential neighbours and the demise of industry.

MAS Environmental specialises in environmental health matters, including the planning of new waste and recycling sites. It conducts noise at work assessments and provides expert advice and evidence where local authorities or the Environment Agency (EA) are considering enforcement action.

The business also provides training to environmental health officers in the assessment of statutory nuisance. MAS sees the consequences when decision makers get it wrong and, like those working for councils or the EA, often ends up at the sharp end to resolve problems. The consultancy undertakes work metal recycling businesses in the UK. This has provided it with practical experience of the conflicts that can arise with residential neighbours.

Planning guidance from the 1990s applied the principle of having the noisiest industrial/commercial premises at the greatest distance from homes, with quieter operations forming the boundary and known as a 'buffer zone'. But planning policy and pressures to reuse brownfield land are increasing and often allocate land within the buffer zone for residential use.

The Planning Practice Guidance Notes on Noise (PPGN) outline a number of considerations relevant to the assessment of noise impact from development. 'Development' includes new industrial development affecting existing dwellings or new dwellings that are affected by existing sources of noise. The PPGN identifies that local planning authorities (LPAs) should consider whether or not a significant adverse effect is occurring or is likely to occur, and whether or not a good standard of amenity can be achieved.

The PPGN noise exposure criteria range from 'not noticeable', with no effect and therefore no specific mitigation measures necessary, to noise that is 'noticeable and very disruptive', leading to significant observed adverse effects and likely refusal of the development. Categories between these extremes relate to noise impact and likely perception – noise that can be heard and causes small behavioural changes, noise that causes a material change in behaviour and attitude such as having to turn up the TV or close a window to reduce noise.

Why do noise problems arise? Glass or metals recycling generates a 'character' of sound that most people would consider to be noise. When heard in a home by someone not associated with the recycling site, noise will generally be perceived in a negative way.

Reducing the risk of fire with tensioned fabric
Plant & Equipment, page 41

NOISE MEASUREMENT

STANDARD ASSESSMENT OF INDUSTRIAL OR COMMERCIAL SOUND

The primary assessment tool for industrial noise is BS4142 2014: methods for rating and assessing industrial and commercial sound. The standard relates specifically to the assessment of sound of an industrial or commercial nature. The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling.

The principle of BS4142 considers the specific noise from a process, site or activity in comparison with the background sound of an area when noise from the process, site or activity is absent.

An individual's response to sound can be subjective and is affected by many factors. The significance of its impact can depend on the margin by which a sound exceeds the background environment, as well as local attitudes to the source of the sound and the character of the neighbourhood. Sound can be measured by a sound level meter but noise is related to a human response.

BS4142 recognises that specific acoustic features (bangs, crashes) are likely to be perceived differently and applies decibel penalties where these features are present. The implications for waste and recycling sites are increased penalties for industrial sound with impulsive characteristics or tonality.

A summary of the acoustic feature penalties can be seen in the table above.

ACOUSTIC FEATURE CORRECTIONS (BASED ON PERCEPTION OF CHARACTERISTIC)

ACOUSTIC FEATURES	PERCEPTION OF AUDIBILITY			CORRECTION APPLIED
	JUST	CLEARLY	HIGHLY	
IMPULSIVITY	+3	+6	+9	0, +3, +6 OR +9DB
TONALITY	+2	+4	+6	0, +2, +4 OR +6DB
OR				
OTHER SOUND CHARACTERISTICS	+3DB			0 OR +3DB
INTERMITTENCY	+3DB			0 OR +3DB

An example of the BS4142 2014 methodology is shown opposite

Research recognises that noise with inherent characteristics, including banging and crashing, attracts more attention compared with a similar level of noise from, for example, a passing vehicle which is anonymous. The inherent acoustic features of metal recycling include impulsive characteristics from metal hitting other metals during loading/unloading or from tipping on to hard surfaces.

The assessment of noise for new waste sites or homes adjacent to existing waste sites is derived by an acoustic consultant and accepted or rejected by the LPA. The key determinant is the quality of the assessment, acoustic report and competency of the LPA noise specialists.

I have been involved in a number of cases where the underestimation of noise impact results in an increased likelihood of acquiring planning permission. But this also increases the likelihood of complaints to regulators and enforcement action post-development. The result is reduced protection for industry as well as new dwellings where people are affected.

Four cases in which I have recently been involved included proposals for residential dwellings adjacent to existing waste sites. Three of the four cases included proposals for hundreds of houses with rear gardens facing towards the boundary with metals recycling sites that have inadequate mitigation. Many of the developments include blocks of flats at increased height overlooking the site, reducing the effectiveness of existing screening.

In all four cases, noise impact was significantly understated, often because noise measurements did not consider a typical 'worst case' noise emission. One case omitted ship loading from a dockyard waste site because it was an 'irregular' activity. But this activity would lead to significant adverse noise causing complaints, and restrictions would be placed on waste handling and ship loading.

Land use conflicts can arise where there is an inadequate distance between the noise source and 'sensitive receptor'. The primary means of attenuating noise, and other types of pollutant generally, is to provide an appropriate separation distance between the source and receptor. Typically for a point source of noise (a skip hitting hard ground), a reduction of 6dB per doubling of distance is expected.

It is important to differentiate between assessing impacts for planning, statutory nuisance and 'pollution' as determined by the EA. All three are different regimes that consider different aspects of emissions from a waste site. Statutory regimes refer to Acts of Parliament.

Furthermore, there are potential actions by residents as a civil action for private nuisance in common law. The burden of proof in common law is 'on the balance of probabilities' compared with 'beyond reasonable doubt' for regulators using statutory regimes. The standards applicable for statutory actions by a LPA or EA are higher than would be considered unreasonable for planning or a private nuisance action in common law.

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The acquisition of planning permission does not provide immunity from statutory nuisance action; compliance with the EA's environmental permit similarly provides no immunity for a private nuisance action. MAS will apply a typical 'worst case', and consider whether the level of impact would not only satisfy planning and regulatory requirements but also the likelihood of a civil action by individual residents.

Industry must use vigilance when acquiring new sites but also increasingly be cautious where residential uses are proposed adjacent to existing sites. This will, I believe, become a fundamental issue during the next decade as pressures to utilise brownfield sites for residential development increase, offer cheaper development costs and are supported for redevelopment by planning policy.

The expectations of communities and society in general has changed, with reducing tolerance of pollution, yet planning policy often supports the amalgamation of residential and industrial land uses. The demise of UK industry is concerning and presents the need for long- term protection.

● *Daniel Baker is a senior environmental health practitioner at MAS Environmental and a former environmental health officer*