HOGSHAW FARM & WILDLIFE PARK
Claydon Road. Hogshaw.
Buckinghamshire.
MK18 3LA
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HOGSHAW FARM & WILDLIFE PARK
Reference number: [redacted]

Written Representation

Summary

Hogshaw Farm & Wildlife Park (HFWP) is a rural visitor attraction located directly next to the proposed Rosefield Solar Farm. We support renewable energy in principle, and sustainability is already part of our business. However, we are very concerned that the scale, location and cumulative impact of this project would materially harm the setting, visitor experience and long-term viability of our business.

Our attraction depends on offering families, schools and other visitors an immersive countryside experience centred on animals, nature and the surrounding landscape. That setting is not incidental to what we do — it is a core part of our identity, our educational role and our appeal to visitors.

Rosefield Solar Farm's (the Applicant) own assessment recognises that HFWP would experience significant adverse visual effects. However, despite identifying us as the only tourism receptor with significant visual impacts, the application does not properly assess what those impacts would mean for us as a business. We do not believe it gives enough weight to the likely effect on visitor behaviour, visitor numbers, educational visits, or the wider attractiveness of the Park.

We are also concerned about the cumulative effect of this development when added to the major infrastructure pressures already affecting the area, including frequent road closures and access disruption linked to HS2, East West Rail and other projects. Reliable and easy access is essential for a rural visitor attraction, particularly for family visitors and school groups.

The proposed BESS and associated infrastructure raise further concerns in relation to noise, tranquillity, visual impact, fire risk, visitor perception and the effect on nearby wildlife. Parts of the Park, including our wildlife trail and areas we hope to use for future camping, are valued because they are quiet rural spaces where people can experience nature directly. We do not believe the Applicant has properly assessed the loss of that tranquillity and what it would mean for HFWP.

More broadly, Hogshaw Farm & Wildlife Park sits within an already ecologically rich and sensitive landscape. Our concern is not only about the effect on our business, but also about

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the wider impact on the rural and natural setting that gives the site its character and public value.

For those reasons, we respectfully ask the Examining Authority to look carefully at whether the assessment properly reflects the scale, duration and significance of the likely impacts on Hogshaw Farm & Wildlife Park.

Introduction

Hogshaw Farm & Wildlife Park is a visitor attraction located directly next to the proposed Rosefield Solar Farm. It houses a variety of animals, with a focus on rare breed livestock and European wildlife, managed under a zoo licence. It is set against the backdrop of Runts Wood, permanent pastures and wildflowers and rolling hills.

Our mission statement highlights the business offering: *Through fun & adventure, we work together to care for our local landscape, conserve our native habitats and protect our natural environment for future generations. Our innovations link with horticultural wilding programmes, the conservation of rare breeds, sustainable farming practices, and education on British and European wildlife.*

We support renewable energy in principle and sustainability is embedded within our business as one of our key brand and educational pillars. We have solar panels, biomass heating, rainwater harvesting and sustainable wastewater systems across the site. As such, this representation does not oppose renewable energy development in general but it does raise concerns about the scale and location of the proposed site and the cumulative impact of the proposed development on the local area and businesses within it, effectively transforming them from a rural setting (vital to the open farm and park feeling we foster) to a semi-industrial landscape.

In our case specifically, we do not believe the Applicant's material correctly assesses the level of impact in its assessment in relation to Hogshaw Farm & Wildlife Park as a rural tourism business.

Nature of the Business

Hogshaw Farm & Wildlife Park attracts over 70,000 visitors annually and employs around 35 staff from the local area. We have a development plan in place to increase this to 150,000 visitors over the next 5 years, while increasing employment. We host family visitors, school visits, seasonal events and community programmes. The continued viability of the business depends upon maintaining an easy access, welcoming and immersive countryside visitor experience.

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HFWP is a business whose proposition is explicitly based on being an outdoor countryside experience. It is not a "passive landscape receptor". It is an experience led rural business, whose focus is on the countryside, animals and a rural day out.

Our Brand Positioning Statement describes Hogshaw Farm and Wildlife Park as: "the perfect animal-led destination where fun meets education". Its vision includes: "To transform how families experience nature" and "To preserve the countryside for future generations." Its value proposition invites visitors to: "Experience the best of the Bucks countryside in a fun-filled family day out."

The countryside setting is therefore central both to why visitors come to us and to the business itself. It is the main focus of our attraction.

The importance of that countryside setting is also reflected in the approach previously taken by Buckinghamshire Council in relation to development at Hogshaw Farm & Wildlife Park. When we sought planning permission to enlarge our onsite café, landscape impact was identified as a reason for refusal. It is therefore difficult to reconcile that level of sensitivity in relation to modest onsite development with the suggestion in the present application that a major solar and battery scheme adjacent to HFWP would not materially affect the business.

The Environmental Statement (ES) categorises tourism sensitivity as "medium". However, we disagree that the impacts of this project on our specific tourism business would only be "medium". This is because we have tried to set ourselves apart from other farm attractions by focusing our whole mission and commercial identity upon the countryside setting that we have developed and continue to develop. HFWP is much more sensitive to changes in landscape and industrial character than a more generic tourism receptor, or one that is mainly indoors. Part of our development plan is around creating a rich and biodiverse natural landscape around the site. We have planted over 5000 trees and hedging plants over the last 5 years and continue to monitor and record a wide variety of flora and fauna, including noteworthy rare species which other local representations also confirm, notably Berks, Bucks and Oxon Wildlife Trust and Natural England.

Hogshaw Farm & Wildlife Park also plays an educational role within the local community. It hosts school visits and educational programmes that introduce children to farming, wildlife conservation and biodiversity. These programmes depend upon the site maintaining a clear countryside setting where visitors can experience nature directly. Changes to the surrounding landscape that introduce large-scale infrastructure risk undermining the authenticity of this educational experience.

Summary of the Applicant's Assessment
The Environmental Statement (ES Volume 2, Chapter 14: Population) concludes that:

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- Hogshaw Farm & Wildlife Park would experience moderate adverse (significant) visual effects.
- Construction noise and air quality effects would be minor adverse (not significant).
- Highway effects would be negligible to minor (not significant).
- Overall tourism effects would amount to a temporary slight adverse residual effect (not significant).

Hogshaw Farm & Wildlife Park is the only identified tourism entity experiencing significant adverse visual effects. It is also close to the proposed BESS site which is highlighted as the noisiest infrastructure component in the project. HFWP is, by a significant margin, the largest draw of footfall to the local area affected by the proposed development. The assessment then aggregates impacts across the wider tourism economy and concludes that overall tourism effects are not significant. This approach dilutes the site specific effect on HFWP, which is clearly significant.

The Environmental Statement acknowledges moderate adverse (significant) visual effects at HFWP. The Applicant's own Landscape and Visual assessment goes further and states that the visual effect on HFWP during Years 1 to 10 of operation would be moderate adverse and significant, with the assessment indicating that the effect tends closer towards major/moderate than moderate/minor. However, this is not followed by any site specific analysis of, and concern around, the impact the project could have on us as a business. This seems strange, especially given the 10 year impact window the Applicant's own assessment highlights. The significant visual and noise impacts that will occur due to this project will do more than temporarily disrupt the business, they will have a longer-term impact on its attractiveness to visitors, our core business offering and ultimately, its viability.

It is also notable that other receptors in the area, such as Claydon House and its historic parkland, receive more detailed visualisation and design-focused consideration within the Environmental Statement, whereas Hogshaw Farm & Wildlife Park, despite being acknowledged as a significant visual receptor, is not afforded equivalent business specific analysis of the consequences of those effects on the attraction.

Access and Infrastructure
The local area is already subject to a lot of major infrastructure projects, including HS2, East West Rail and the new Grendon Underwood mega prison. These have already caused significant issues, disruptions and customer complaints for the business, mainly arising from road closures and diversions.

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Council data indicates that in the five years to March 2025 there were 194 road closures within a 10-mile radius of the site, resulting in over 1,100 cumulative days of disruption. Separately, HS2 data identifies 93 road closures within a 5-mile radius in a similar time period. We have requested an update to the figures above but are still waiting at the time of submission.

We have received numerous complaints and requests for refunds over the last 5 years because customers have been unable to reach the site, often due to their frustrations around road diversions which either go nowhere or are so long and complicated they get completely lost. We are often given very little notice of the road closures and we have even been completely cut off on a couple of occasions so that our staff or customers cannot reach the site. Family visitors are easily put off by diversions and the reputational perception of "roadworks around the area" can influence visitor decisions. We have seen a drop in visitors when we have to communicate about local road closures and diversions.

Noting the 362 peak construction vehicle movements, we do not see how the business can successfully coexist with the construction period traffic and associated issues, given that we sit just off the main access road into the site.

The Environmental Statement assesses that the highway effects of the project would not materially affect visitor's propensity to visit our site. However, no clear analysis is provided of how Rosefield's additional construction and operational impacts will work with the current pattern of infrastructure related closures. There is also no assessment of the risks of a large number of HGVs passing a visitor attraction on what is a minor road.

For a rural visitor attraction, reliable and safe access is critical. School visits and coach arrivals depend on predictable routes and advance warning of closures so that journeys can be planned properly. As schools and educational groups are a key part of our strategy, this disruption could cause a significant impact.

The likely disruption of access is therefore directly relevant to the impact on tourism. Even if this increased disruption is 'only' during the construction period, this is not a temporary problem that we can absorb. The current business climate for small businesses and the leisure / hospitality industry is already extremely difficult. A significant drop in visitor numbers will have an extremely negative effect on our ability to operate.

Battery Energy Storage Systems
The proposed development includes Battery Energy Storage Systems (BESS) which is situated close to HFWP. The noise analysis from the applicant highlights from its figures that HFWP is one of the most affected areas for noise.

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However the ES concludes that operational noise impacts would be minor adverse (not significant). However, we are not sure how this conclusion can be reached when there is no specific analysis of the site's current noise, nor any demonstration that the change in noise will not affect visitor experience or general characteristics of this rural attraction. The proximity of large-scale BESS site so close to a family attraction may also carry perceptual implications that impact our visitors numbers and have not been assessed.

The Applicant's own Landscape and Visual assessment also records that views of activity associated with the BESS in Fields D8 and D9 may be experienced from parts of the attraction, including potentially more open views from the car parks and north-western areas of the site.

The proposed BESS infrastructure also gives rise to wider concerns in relation to fire risk, emergency response and visitor perception. Even if such risks are said to be manageable in principle, no site-specific assessment has been presented to demonstrate that infrastructure of this nature is compatible with a family wildlife attraction in such close proximity.
The area surrounding the proposed Battery Energy Storage System (BESS) location is also known locally to support notable wildlife. In particular, the fields in this area regularly host wintering flocks of lapwing. These birds are observed annually during the winter months using the open farmland immediately adjacent to Hogshaw Farm & Wildlife Park and down towards the road.

Lapwing populations have experienced significant national declines and are recognised as an important indicator species for farmland ecosystems. The presence of regular wintering birds suggests that the area forms part of a wider winter feeding landscape. In this context we question whether the ecological surveys undertaken for the Proposed Development have fully captured the seasonal wildlife use of this part of the site.

Given the proximity of the proposed BESS infrastructure to these fields, further clarity on survey coverage and seasonal ecological use would be warranted.

Noise, Tranquillity and Visitor Experience
Parts of Hogshaw Farm & Wildlife Park, including the wildlife trail that runs around the perimeter of the site bordering the proposed solar farm, are valued precisely because they are quiet rural spaces where visitors can experience nature directly. Those areas form part of the attraction's character and visitor offer. They are places where families, school groups and other visitors can enjoy a sense of calm, openness and immersion in the surrounding countryside.

This concern is reinforced by the evidence of Clive's report, included in the Annex, which identifies that parts of HFWP currently provide areas of relative tranquillity and that the baseline conditions used by the Applicant do not appear to reflect the quieter parts of the

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site. The report also raises concern that operational noise from the proposed development, including the BESS and associated infrastructure, could become a noticeable and intrusive feature in those quieter parts of the site, altering the existing sound environment and reducing the sense of tranquillity that visitors currently experience.

That matters not only for current visitors, but also for the future development of the business. HFWP has plans for onsite camping in the area surveyed by Clive, which has been previously highlighted to the Applicant during a site visit. The attractiveness of a camping offering would depend heavily on the quiet rural setting and the ability of visitors to experience nature in a peaceful environment. If that setting is replaced by a development with operational plant noise, construction activity and industrial infrastructure, the quality and viability of the offering would change materially for the worse.

In those circumstances, we do not consider that the Applicant has adequately assessed the effect of the proposed development on tranquillity, quiet enjoyment and the wider visitor experience at HFWP.

Biodiversity and Conservation Identity
Hogshaw Farm & Wildlife Park actively promotes conservation and care for the environment. As stated above, it is one of our key principles and everyone at the farm is passionate about wildlife, both within the site and the surrounding area (footpaths link the site to Botolph Claydon and Runts Wood). In particular, we are focused on supporting rare species of animals and plants, as reflected in the notable species identified at and around HFWP in the annex to this representation. HFWP's educational and conservation programming forms part of its main identity and is a growth area for us.

The Applicant proposes biodiversity mitigation, but that does not remove the concern that the wider landscape around the site would become more fragmented and disturbed, with consequences for habitat connectivity and the movement of wildlife through the area. However this does not change the fact that the project has an industrial character that will conflict with the immersive conservation story of Hogshaw Farm and already ecologically rich landscape.

The landscape surrounding Hogshaw Farm & Wildlife Park forms part of a wider ecological network across the Claydon and Bernwood area. This landscape context is important not only for biodiversity but also for the visitor experience that HFWP seeks to provide. The importance of this landscape has also been highlighted by regional conservation organisations - BBOWT has described the wider area as **"one of the most ecologically important landscapes remaining in southern England**" and has noted the increasing cumulative pressure placed upon it by major infrastructure projects including High Speed Two and East West Rail.

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Similar concerns have also been raised by North Bucks Bat Group, which has objected to the proposed development because of the likely impact on the nationally important Bernwood Bechstein's bat population with their representation stating the proposed development "**would almost certainly be the final nail in the coffin for our Bechstein population**", a population notable enough that mitigations costing over £100m have been implemented by HS2.

In those circumstances, it is difficult to see how a landscape identified by local ecological organisations as being of national importance for biodiversity can properly be regarded as an appropriate location for industrial-scale solar and associated infrastructure, or how the site selection and assessment process can be said to have given sufficient weight to that sensitivity. Government environmental policy increasingly emphasises the importance of restoring and enhancing nature while also improving public engagement with the natural environment. Rural visitor attractions such as Hogshaw Farm & Wildlife Park contribute to these objectives by providing accessible opportunities for families, schools and communities to experience wildlife, farming and the countryside directly. Any development that significantly alters the rural character and ecological setting surrounding HFWP therefore has implications not only for the business itself but also for the wider public value derived from nature based education and leisure.

Biodiversity Net Gain and Mitigation

Hogshaw Farm & Wildlife Park is also concerned that the Applicant's biodiversity mitigation and net gain case depends heavily on assumptions about habitat creation, habitat condition and long-term management that are not yet clearly demonstrated in practice. Given the ecological sensitivity of the wider Bernwood and Claydon landscape, including our own land and that of our neighbour Rob Turner, and the concerns already raised by BBOWT and other local ecological groups, we consider that the genuine ecological value of the proposed mitigation and enhancement measures require particularly careful scrutiny.

Adequacy of the Assessment

In summary:

- A significant adverse visual effect has been acknowledged at Hogshaw Farm & Wildlife Park.
- Tourism sensitivity may be understated given the business' immersive countryside positioning.
- No meaningful assessment has been undertaken of the effect of the development on tranquillity, quiet enjoyment and visitor experience in the quieter parts of HFWP.
- No meaningful business-specific analysis has been undertaken of what the acknowledged adverse effects would mean for HFWP as a visitor attraction.

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- Cumulative infrastructure and access disruption have been understated as an impact on the site as not specifically examined.
- Coach access and the education visit sensitivity has not been examined.

The assessment therefore understates the material effect of the development on our business and tourism to the local area.

Conclusion
Hogshaw Farm & Wildlife Park supports renewable energy in principle and remains willing to engage constructively with the Applicant and the Examining Authority.

However, the Applicant's own assessment acknowledges that Hogshaw Farm & Wildlife Park would experience significant adverse visual effects, and the Landscape and Visual assessment goes further in identifying a long-term significant effect on the attraction during operation. Despite that, no meaningful business-specific analysis has been undertaken to examine what those effects are likely to mean for the operation of the site as a visitor attraction, for visitor behaviour, or for the viability of a business whose identity and offer depend on an immersive countryside setting.

Those concerns must also be considered alongside the cumulative infrastructure pressures already affecting the area, the pattern of sustained road closures and access disruption, and the proximity of the proposed BESS and associated infrastructure to HFWP.

Hogshaw Farm & Wildlife Park therefore respectfully requests that the Examining Authority scrutinise carefully the adequacy of the assessment as it relates to this receptor and consider whether further site-specific analysis is required before any reliable conclusion can be reached about the likely implications of the Proposed Development for the site, its visitors and its longer-term operation. As the only tourism receptor identified as experiencing significant adverse visual effects, Hogshaw Farm & Wildlife Park warrants a level of assessment that properly reflects the scale, duration and significance of those impacts.

Yours faithfully,

Katherine Preston
Director
For and on behalf of Hogshaw Farm and Wildlife Park Ltd.

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Annex of Notable Species Identified at Hogshaw Farm & Wildlife Park and Surrounding Area:

Birds

- Barn Owl
- Little Owl
- Cuckoo (breeding pair)
- Lapwing (wintering)
- Skylark
- Meadow Pipit
- Yellowhammer
- Swift
- Kingfisher
- Snipe
- Hobby
- Peregrine Falcon

Amphibians and Reptiles

- Great Crested Newt
- Grass Snake

Mammals

- Harvest Mouse
- Otter
- Badger

Butterflies and Moths

- Black Hairstreak
- White Admiral

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- Marbled White
- Small Heath
- Forester Moth

sharps acoustics

Rosefield Solar Farm

Review of noise assessment work for proposed solar farm development on Hogshaw Farm and Wildlife Park

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10th March 2026

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Appendices

1.0 Introduction

1.1 Sharps Acoustics LLP (SAL) has been commissioned by Hogshaw Farm and Wildlife Park to review the ES impact of construction and operational noise from the proposed Rosefield Solar Farm on the quiet character of Hogshaw Farm and Wildlife Park.

1.2 This report discusses relevant policy requirements, the importance of considering quiet areas and a suitable approach for doing this and reviews the extent to which this matter has been properly dealt with in the submitted noise and vibration chapter of the submitted ES for this development.

1.3 The report also discusses other concerns arising from a review of the noise and vibration assessment presented, which have the potential to affect the assessment outcome.

2.0 Relevant Policy

2.1 National Policy Statements (NPS) set out government policy for different types of Nationally Significant Infrastructure Projects (NSIPs) and the guidance contained in NPS EN-1 *'Overarching National Policy Statement for Energy'* and NPS EN-3 *"National Policy Statement for Renewable Energy Infrastructure''* is relevant when determining the requirements and appropriate methodology for assessing noise generated by the proposed solar farm development. The key requirements of these documents in this case are described below.

NPS EN-1

2.2 The context for the NPS EN-1 *'Overarching National Policy Statement for Energy'* (2025) guidance on noise and vibration is provided in paragraph 5.12.1, which states:

> *"Excessive noise can have wide-ranging impacts on the quality of human life and health such as annoyance, sleep disturbance, cardiovascular disease and mental ill-health. It can also have an impact on the environment and the use and enjoyment of areas of value such as quiet places and areas with high landscape quality …"*

2.3 Of relevance to this matter, the NPS EN-1 sets out the following factors that it states will determine the potential noise impact of a proposed NSIP:

- inherent operational noise from the proposed development, and its characteristics;
- the proximity of the proposed development site to noise-sensitive premises and areas (including dwellings, schools and hospitals), and noise sensitive areas (including certain parks and open spaces);
- the proximity of the proposed development site to quiet places and other areas that are particularly valued for their acoustic environment or landscape quality; and
- the proximity of the proposed development site to designated sites where noise may have an adverse impact on protected species or other wildlife, including migratory species.

2.4 NPS EN-1 references the three policy aims from the Noise Policy Statement for England (the NPSE).

2.5 To demonstrate that the aims of NPS EN-1 will be achieved, paragraph 5.12.6 of NPS EN-1 sets out a number of elements that should be considered and included within a noise assessment:

- a description of the noise generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal characteristics, if the noise is impulsive, whether the noise contains particular high or low frequency content or any temporal characteristics of the noise;
- identification of noise sensitive premises and noise sensitive areas that may be affected;
- the characteristics of the existing noise environment;
- a prediction of how the noise environment will change with the proposed development;
    - in the shorter term such as during the construction period;
    - in the longer term during the operating life of the infrastructure;
    - particular times of the day, evening and night (and weekends) as appropriate, and at different times of year.
- An assessment of the effect of predicted changes in the noise environment on any noise-sensitive receptors, including an assessment of any likely impact on health and quality of life / wellbeing where appropriate, particularly among those disadvantaged by other factors who are often disproportionately affected by noise-sensitive areas;
- All reasonable steps taken to mitigate and minimise potential adverse effects on health and quality of life.

2.6 Paragraph 5.12.14 of NPS EN-1 describes options for mitigating the adverse effects of noise and/or vibration, which include engineering solutions; lay-out options; administrative controls (such as setting noise limits); and insulation.

NPS EN-3

2.7 NPS EN-3 "National Policy Statement for Renewable Energy Infrastructure" (2025) sets out governmental policy specifically relating to DCO applications for renewable energy infrastructure. It does not require any additional guidance or standards to be considered but advises that a noise assessment would be required (in accordance with guidance in EN-1) and that good design is required to mitigate noise impacts on ecological and heritage receptors.

2.8 In addition to the NPS documents, if there are other considerations that are both relevant and important to the determination of an application for a DCO, such matters can also be considered alongside the NPS, and other guidance may be relevant.

PPG

2.9 The Government first published their Planning Practice Guidance on noise (PPG) in March 2014, with the most recent paragraphs relating to noise issued in July 2019. The PPG provides guidance on the interpretation and implementation of planning policy.

2.10 In relation to the factors that are relevant when seeking to identify areas of tranquillity, paragraph 008 of the PPG states;

> *"For an area to justify being protected for its tranquillity, it is likely to be relatively undisturbed by noise from human sources that undermine the intrinsic character of the area. It may, for example, provide a sense of peace and quiet or a positive soundscape where natural sounds such as birdsong or flowing water are more prominent than background noise, e.g. from transport.*
>
> *Consideration may be given to how existing areas of tranquillity could be further enhanced through specific improvements in soundscape, landscape design (e.g. through the provision of green infrastructure) and/or access."*

2.11 When considering potential effects of noise on tranquillity, it is therefore important to consider the relative levels of man-made and natural sounds, the overall level of sound and the contribution of transportation noise sources to the overall noise level.

3.0 Assessment of impact on the sound character of Hogshaw Farm

3.1 The quiet character of a location can be assessed with reference to measured levels and an assessment of the relative contributions of natural and man-made sounds (as recommended by the PPG in relation to tranquillity referred to in 2.10 above). The most reliable method available for doing this, in SAL view, is the Natural Tranquillity Method (NTM). A discussion of the suitable methodology for the assessment of tranquillity is described in more detail in Appendix A and a detailed description of the NTM is presented in Appendix B.

3.2 In essence, the method involves measuring and assessing the relative contributions of man-made sound and natural sound and the overall level of sounds present and processing this data to provide a predicted tranquillity score. This provides a baseline tranquillity against which the noise from a particular development can be considered.

3.3 The method has been successfully applied when considering DCO examinations and planning appeals at Sizewell C nuclear power station, Portland Energy Recovery Facility, Daw Mill Colliery: North Warwickshire and A303 Stonehenge bypass. These are discussed in Appendix C. It has also been used at a range of other, smaller or less well known sites.

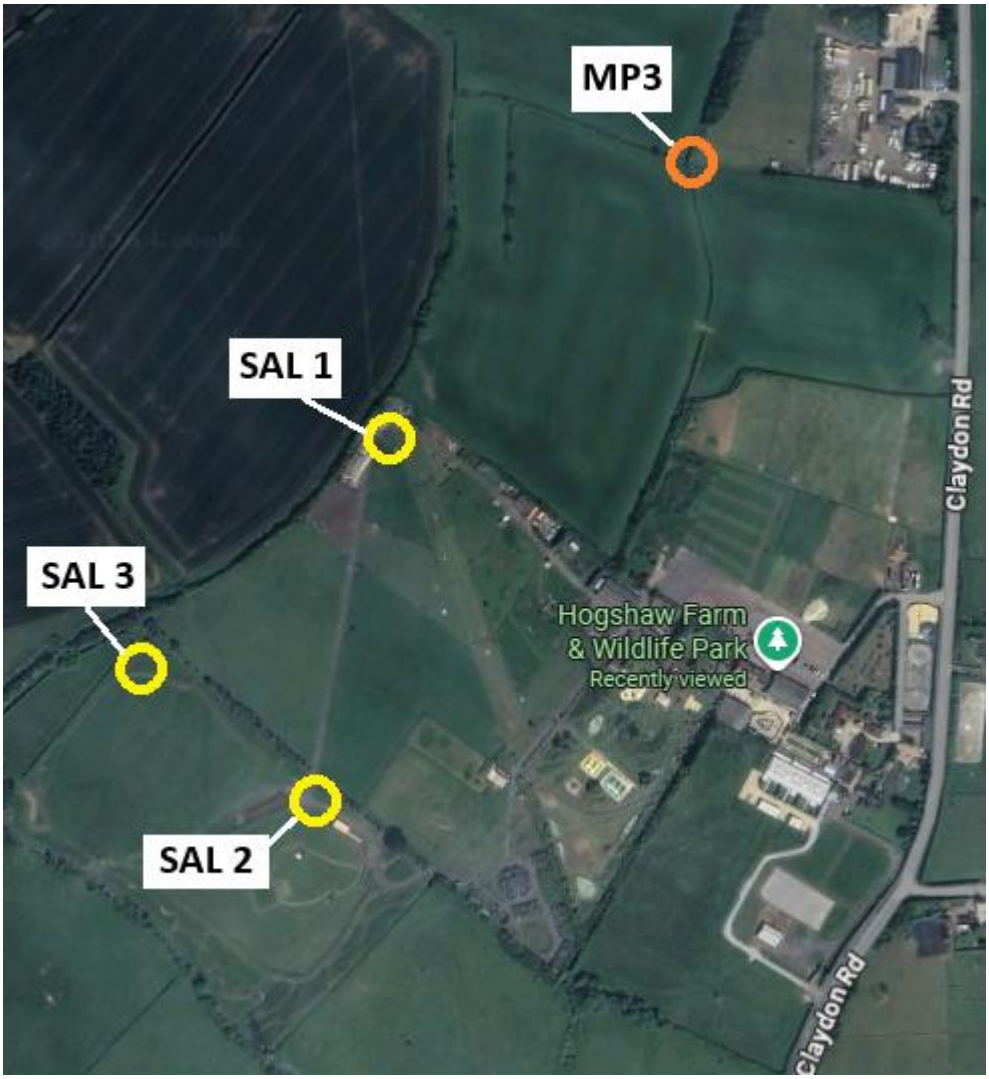
Existing noise environment at Hogshaw Farm and Wildlife Park

3.4 SAL have visited Hogshaw Farm and Wildlife Park on 17th February 2026 and carried out some short term noise survey work in some of the quieter locations on site to provide an initial view of the sound character

present at that time. The day was a Tuesday in half term and there were many visitors present at the site. The assessment was intended to be a quick spot check, intended to provide an initial indication of the sound character and degree of tranquillity present. A more detailed assessment would be required before firm conclusions can be drawn.

3.5 We assessed the sound character in the locations shown in Figure 3.1 below.

Figure 3.1: SAL survey locations with applicant's survey location (MP3) shown



3.6 Measurements were made with a Rion NL53 Class 1 sound level meter at a height of 1.5m above ground. A calibration check was carried out before and after use and no drift was noted. The weather was cool and dry and wind speed was Beaufort Scale 1 or less throughout. Measured levels and observations were as shown in Table 3.1 below.

Table 3.1: Measurements and observations at Hogshaw Farm, 17th February 2026

Location	Time	Measured levels, dB		Sounds present
		$L_{Aeq,T}$	L_{A90}	
1	1459	34	28	Children's voices in the distance. Pig and goat in nearby pen. No road traffic audible. Occasional aircraft over.
2	1232	39	33	Children's voices in distance. Occasional aircraft over.
2	1420	43	31	Voices from family near to meter looking at deer. Children's voices in distance. Occasional aircraft over. Sheep in distance and crows.
3	1259	37	28	Very little sound indeed. Sheep in distance and crows. Occasional aircraft over. Woodpecker in distance. Children's voices in distance. Running water audible (stream). If aircraft discounted, the level would be 33dB, $L_{Aeq,T}$.
3	1313	38	29	
3	1432	38	29	
3	1459	35	27	

3.7 These are very low sound levels. These locations within the site were undoubtedly quiet. Although the survey only took place over a relatively short period, our initial conclusion is that these parts of the site are quiet and have either good to fair tranquillity. If there were more visitors or if there were fewer aircraft, this may affect this conclusion to some degree. With fewer aircraft, the area would be likely to experience a good to excellent tranquillity score, when assessed using the NTM, with more people present, the area may be reduced to neutral or fair tranquillity. Further survey work under a range of conditions would be required to provide a more robust determination of the tranquillity here. However, it is clear that parts of the Hogshaw Farm site were very quiet indeed.

3.8 SAL have reviewed the Chapter on Noise and Vibration and associated documents submitted by the applicant. Within this chapter, no attempt has been made to consider whether the proposed development might have an impact on the use and enjoyment of areas of value such as quiet places, contrary to guidance in EN-1, 5.12.1 and 5.12.5. It does not mention areas of quiet character nor describe any approach to ascertain where such areas may be.

3.9 In particular, the assessment fails to take account of the characteristics of the existing noise environment at Hogshaw Farm and Wildlife Park. The closest noise survey location (referred to by the applicant as MP3) is approximately 300m to the north of the closest part of Hogshaw Farm and more than 500m away from the quieter area of the site which is used by visitors. MP3 is also approximately 200m from Claydon Road, whereas the quieter areas in Hogshaw Farm are more than 400m from this road. The sound level from road traffic and the overall character is different (much lower at quieter parts of Hogshaw Farm) as a result.

3.10 The applicant provides tables and graphs showing the measured levels at MP3 which show that the daytime noise level in this location varies between approximately 42 and 50dB, $L_{Aeq,T}$ and they estimate

the typical daytime ambient and background noise levels to be 46dB, $L_{Aeq,T}$ and 29dB, L_{A90}. The only description provided of the sounds present at MP3 is:

> *"Road traffic noise from Claydon Road to the east audible."*

3.11 The noise and vibration chapter of the ES uses the baseline measurements and observations taken at MP3 as a proxy for the baseline at Hogshaw Farm. MP3 is a considerable distance from Hogshaw Farm and Wildlife Park. Comparing the applicants reported levels at MP3 to the levels from our survey, it appears that the measured ambient noise level at MP3 is around 10dB below the level in quieter parts of Hogshaw Farm. The baseline survey presented by the application does not therefore adequately or correctly characterise the true baseline conditions at Hogshaw Farm, in SALA judgment.

3.12 The ES chapter on noise and vibration therefore signally fails to identify or take account of the quiet and tranquil nature of large areas at Hogshaw Farm. This means no assessment has been made "*impact on … the use and enjoyment of areas of value such as quiet places*", contrary to the guidance in paragraphs 5.12.1 and 5.12.5 of NPS EN-1 and the associated advice in online Planning Practice Guidance.

3.13 This matters because the predicted noise level contours shown in Figure 13.4 of the ES suggest that the unrated noise levels from the operation of the Solar Farm at the quieter areas of Hogshaw Farm would be similar in level to the noise which is currently present (when aircraft are not present). This will stand out against the other sounds currently present (sheep, running water, birds, children's voices in the distance) and would dominate the soundscape in these areas. The good or fair tranquillity currently found in these spaces would be lost.

3.14 These quiet, tranquil locations, which are prized for their recreation and amenity value because of their tranquillity should be protected. The impact of noise on these quiet spaces needs to be properly assessed, any adverse effects mitigated and minimised and any significant adverse effects avoided.

4.0 Other concerns relating to the noise and vibration assessment

Source data and assumptions

4.1 It is common for an assessment to be made without noise source levels for the plant which will be finally selected to be available and, in such instances, estimated noise levels must be used to provide the basis for predicting operational noise levels in the area. However, in this case, some of the source levels used are lower than are typical for a development of this nature and size.

4.2 No information has been provided in relation to tonal noise from plant, particularly that anticipated from the proposed inverters. (The source levels and characteristics are required to be described by paragraph 5.12.5 of EN-1).

4.3 The impact of vibration from piling has not been considered and no reason has been given for excluding it from the scope of the assessment.

4.4 The assumptions underlying the assessment appear incomplete and may be unreliable, therefore.

Construction noise and vibration

4.5 The assessment of construction noise has been adopted 65dB, $L_{Aeq,T}$ as the threshold of significance. For construction vibration a value of 1mm/s. PPV has been adopted as the threshold for potentially significant vibration impacts.

4.6 Neither of these values take account of the impact of construction noise and vibration on a quiet area.

Operational noise

4.7 The assessment of operational noise is proposed to be made using the approach suggested in BS4142. This is considered to be valid, except in relation to low frequency sound. BS4142 states, in its scope, that:

> *"The standard is not applicable to the assessment of low frequency noise.*
>
> *NOTE Information on the assessment of low frequency noise is given in NANR45"*

4.8 Given that some of the proposed plant (for example inverters) will produce low frequency tones, SAL consider that these should be considered separately, taking account of the guidance in NANR45 and bearing in mind the potential for standing waves at the frequencies likely to be present withing structures.

4.9 The submitted assessment does not consider such tones, other than by application of a penalty (discussed below). As advised by BS4142, this would not be appropriate for low frequency sound.

Consideration of tonality

4.10 The submitted assessment of operational noise applies either a 2 or 3dB penalty to account for tones (or other intrusive sounds) which the assessors consider may be present. The assessor considers that tonality which would be "just perceptible". Given the low ambient (and background) noise levels present (according to the applicant's noise survey work), SAL consider that tonality is likely to be more than "just perceptible" in some locations. As a result, the penalties applied appear likely to be too low. The impact of the noise may therefore be higher than that presented.

4.11 The ES chapter explains that these penalties have been applied based on an assessment of the predicted level and a comparison of these with the baseline noise level present. This is a reasonable approach, but no further detail has been provided, so it is not possible to check the validity of the values applied. In SAL view, further justification should be provided to demonstrate that these penalties are reasonable, particularly given the low noise levels present at some locations.

5.0 Conclusions

5.1 In SAL opinion, the Environmental Statement (ES) for the proposed Rosefield Solar Farm does not adequately consider the quiet and tranquil character of Hogshaw Farm and Wildlife Park. Large areas of the site experience very low ambient sound levels, with natural sounds dominating and occasional aircraft being the only notable intermittent intrusion. These characteristics indicate that parts of the site provide

a high level of tranquillity, which is a valued attribute requiring explicit consideration under NPS EN-1 and related planning guidance.

5.2 Despite these baseline conditions, the ES relies solely on measurements taken at location MP3, which is remote from the quieter areas of Hogshaw Farm and is influenced by road traffic noise. As a result, the assessment fails to identify the presence of quiet areas and does not evaluate the impact of noise from the proposed solar farm on their use and enjoyment. This omission is contrary to national policy requirements that specifically require the identification of quiet places and an appraisal of how noise changes may affect such environments.

5.3 In addition to these omissions, several methodological shortcomings have been identified in relation to operational sound sources, low-frequency noise, construction vibration, and the application of tonality penalties. These factors introduce uncertainty into the reliability of the developer's predictions. It is therefore essential, in SAL opinion, that a more robust assessment is undertaken that properly evaluates tranquillity, considers all relevant noise characteristics, and ensures that adverse and significant adverse effects are minimised or avoided in accordance with national policy aims.

Appendix A: Methodology for the Assessment of Tranquillity

What is tranquillity?

The Oxford English Dictionary defines tranquillity as: 'The quality or state of being tranquil; freedom from disturbance or agitation; serenity, calmness; quietness, peacefulness, and this can relate to states of mind and landscapes.'

The Campaign to Protect Rural England (CPRE) describes tranquillity as: '… the quality of calm experiences in places with mainly natural features, free from disturbance from man-made ones.'

The UK Government's National Planning Practice Guidance (Noise Section) states, under the heading 'What factors are relevant if seeking to identify areas of tranquillity?':

> *"For an area to justify being protected for its tranquillity, it is likely to be relatively undisturbed by noise from human sources that undermine the intrinsic character of the area. It may, for example, provide a sense of peace and quiet or a positive soundscape where natural sounds such as birdsong or flowing water are more prominent than background noise, e.g., from transport.*
>
> *Consideration may be given to how existing areas of tranquillity could be further enhanced through specific improvements in soundscape, landscape design (e.g., through the provision of green infrastructure) and/or access."*

In general tranquillity is experienced in places where there are:

- low noise levels;
- natural sounds rather than man-made sounds; and
- natural features in the area.

A place which is perceived to be natural and relatively quiet engenders a calmer, more serene, state of mind. It follows that people will respond to places differently dependent on how they are feeling or what expectations they have, or even on their cultural background.

Planning Policy relating to tranquillity

In England, Government policy relating to tranquillity and planning is found in the National Planning Policy Framework (NPPF). Paragraph 198 of the NPPF requires that:

'Planning policies and decisions should also 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, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

> *"… identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."*

What makes a location feel tranquil?

The following factors have been found to influence public perception of tranquillity in a location:

- Environmental factors
- Sound – levels and types of sounds
- Visual appearance – landscape
- The character of the area immediately outside of the site of interest – the 'neighbourhood tranquillity'
- Presence of water (river, lake, waterfall, fountain, sea)
- Perceived safety (e.g., people, biting insects, birdsong)
- Comfort (e.g., somewhere to rest, weather conditions)
- Smells
- Textures
- Personal factors
- Current psychological and /or emotional state
- Past experience / feelings / expectations about a site

The Natural Tranquillity Method

Factors other than noise influence perceptions of tranquillity but a reliable prediction of how people rate the degree of tranquillity for most locations can be made by considering only sounds using the Natural Tranquillity Method (NTM). A detailed description of how this method and the terms it uses is applied is set out in Appendix B. Further detail on the research which led to the production of the method and its application can also be found in "Tranquil Spaces" https://naturaltranquillity.com/product/tranquil-spaces-book/ by Clive Bentley (the author of this report).

The NTM considers the existing and predicted noise levels and the character of the sound. In considering effects on tranquillity, the Natural Tranquillity Method considers four factors:

the overall level of sound (how loud or quiet it is), described by the L_{AT} parameter;

the relative levels of man-made and natural sounds, described using the NAMM parameter;

the proportion of the time during which only natural sounds are present, described using the PONS parameter; and

the amount of road traffic and rail noise, described using the L_{RR} parameter.

These parameters are assessed partially by survey and partially by prediction, as described in the following sections using the NTM to provide a tranquillity score for existing (baseline) conditions and for the situation where the ERF is in operation. Surveyed parameters are adjusted to take account of various rules set out in the NTM and moderated using any other relevant information.

The NTM uses an eight-point tranquillity score from 1 (frantic / chaotic / harsh) to 8 (excellent tranquillity) as shown in Table 2.1 below. Since the release of the method, field tests have shown that the distinction between tranquillity scores 4 and 5 are hard to distinguish for many rural environments and that a description of "neutral tranquillity" better covers these two situations. Also, scores in the range 1 to 3 can be more simply described as "not tranquil" for most purposes.

The simplified scoring system still uses the same underlying NTM scores (1 to 8). The two "just tranquil" and "not quite tranquil" designations have been combined into one "neutral" and all three of the "not tranquil" designations are reported as "not tranquil". Thus, there is no change to the approach resulting from this simplified approach to reporting.

Hence, (baseline) tranquillity and predicted tranquillity as a result of the proposed development are summarised below using a simplified, five-level descriptive scale: not tranquil; neutral tranquillity; fairly tranquil; good tranquillity; and excellent tranquillity shown in the right hand column of Table 2.1.

Table 2.1: Tranquillity score descriptors

NTM Score	Original NTM Description	Simplified Tranquillity Description
1	Frantic / chaotic / harsh	Not tranquil
2	Busy / noisy	
3	Unsettled / slightly busy	
4	Not quite tranquil	Neutral
5	Just tranquil	
6	Fairly tranquil	Fair tranquillity
7	Good tranquillity	Good tranquillity
8	Excellent tranquillity	Excellent tranquillity

Potential impacts on tranquillity can be evaluated by predicting the changes to NAMM, PONS, L_{RR} and L_{AT} which would result from the proposals to enable a comparison to be made of existing and predicted tranquillity with the development in place.

The character and level of existing sounds are recorded using these four parameters and, from these, the tranquillity scores at each survey location are recorded. These can then be combined to create a description (or map, if desired) of the baseline tranquillity along a path (or in an area). The character and level of the sounds which would be present in the event that a particular development was to go ahead would then be predicted and these could be combined with existing characters and levels (in the manner described in detail in Appendix B) to generate "with development" tranquillity scores.

The baseline and "with development" tranquillity scores can then be used to determine:

a) how the tranquil the location currently is and
b) how the tranquillity score would be affected by the proposed development.

The NTM has been found to provide a very good prediction of perceived tranquillity in most situations. When comparing subjective assessments made by a wide range of assessors with the results of the NTM,

the scores match exactly 65% of the time, and are within one score either way 98% of the time. Given that tranquillity is a subjective assessment and perceptions (and therefore scores) will inevitably vary between people, the NTM can be considered a reliable measure of perceived tranquillity.

There are other methods which are sometimes used to assess tranquillity. The two most commonly referred to approaches are the University of Bradford method and the CPRE method. The limitations and reliability of these approaches is discussed in detail in Appendix C (which is an extract from the book, "Tranquil Spaces"). There are significant inherent flaws in both approaches; neither is capable of providing a reliable assessment tool for planning purposes.

The NTM, on the other hand, has provided a successful tool for the assessment of tranquillity. It has been used, for example, in a number of cases where landowners have used it to improve tranquillity within private garden areas and to apply for compensation for the effect of road traffic noise from a new road scheme on tranquillity.

It has also been used as the basis for expert evidence given to a number of significant planning decisions. These include its use in evidence at a Public Inquiry in relation to Daw Mill Colliery in North Warwickshire; at the DCO examination for the A303 Stonehenge bypass scheme; to underpin the amenity and recreation assessment of the effects of tranquillity resulting from the construction of Sizewell C nuclear power station; and to assess the change in tranquillity which would arise as the result of an Energy Recovery Facility (incinerator) at Portland. In each of these cases, the evidence on tranquillity was found to be reliable and the NTM findings have been referred to and endorsed in the planning decisions. Appendix C provides further details of these cases, for information.

Appendix B: Overview of the Natural Tranquillity Method

Assessment of Tranquillity using the Natural Tranquillity Method

The impact of the proposed development on tranquillity has been considered using the Natural Tranquillity Method (NTM) which is a method described in *'Tranquil Spaces'*, published in 2019. This method reviews previously published approaches to the assessment of tranquillity and concludes that they are not capable of providing a reliable assessment of tranquillity for planning purposes. Probably the best known of these, is the approach published by Campaign to Protect Rural England (CPRE) in 2006, *'Tranquillity Mapping: Developing a Robust Methodology for Planning Support in 2008'* is considered in detail and a number of key problems identified if the approach were to be used to carry out an assessment for planning purposes. Tranquil Spaces describes research involving the measurement and recording of sound character and level and simultaneous scoring of tranquillity at thousands of locations around the UK over a four year period and how this led to the derivation of a evidence based method for converting details about the sound level and character into a tranquillity score.

As well as dealing with key the shortcomings of other methods, such as the fact that people's response to road traffic noise is not linear, the fact that the CPRE method uses low resolution 500m by 500m grid sizes so that all tranquillity within each 500m square has the same score and that fact that the presence of natural sound is not properly considered in other methods, the NTM provides a reliable way to assess existing tranquillity and the tranquillity which would be present as a result of proposed changes.

In summary, the NTM involves surveying the area, noting sound character and level, according to a number of defined rules and recording results in terms of four parameters: NAMM, PONS, L_{RR} and L_{AT} (as described below). These parameters enable a record to be made of the relative level and degree of presence of natural sounds and man-made sounds, sounds from transportation sources and the overall level of sound. These parameters and the rules for assessing them are described below.

NAMM is the relative levels of natural and man-made sound recorded according to Table B1 below:

Table B1: NAMM values

NAMM parameter value	**Description**
1	All or virtually all sound is from man-made sources
2	Sounds are mainly man-made but natural sounds are also present
3	Natural and man-made noise contributes equally
4	Sounds are mainly natural but man-made sounds are also present
5	All or virtually all sound is from natural sources

Note: 'man-made' sounds include noise from items or animals brought to (or near to) the location by people so would, for example, include noise from machinery, dogs, and radios.

PONS is recorded as the percentage of time when you can only hear natural sound. Silence (or absence of man-made and natural sounds, as defined here) is considered a 'natural sound' contributing to the PONS value.

The values assessed for both PONS and NAMM should reflect conditions on a typical busy or quiet day. This presents a problem when survey time at any given location is limited as will often be the case. It is therefore important that the values observed are considered alongside other information about the pattern of noise source occurrence.

The NAMM and PONS indices are complementary; both provide a way of assessing the amount of natural and man-made sound experienced at each survey location. The more time spent making these observations, the more reliable the results. When scoring NAMM and PONS, follow the additional rules set out in Table B2 and estimate the value over a 12-hour day (from 07:00 to 19:00 hours). Atypical events should be excluded from results.

Table B2: NAMM and PONS rules

Rule	**Topic / situation**	**Rule**
NP1	Road traffic and rail noise	Other than where rules NP2, NP3 or NP4 below apply, when assessing PONS and NAMM values, noise from road traffic and rail must be disregarded*.
NP2	Road traffic noise continuous** and dominant, defined as: where RTN is greater than or equal to 50dB **and** RTN is greater than or equal to (all other sources + 4dB)	Score NAMM = 1 and PONS = 0
NP3	Road traffic is continuous** and significant, defined as: where RTN is not dominant (defined as in NP2) **and** RTN is equal to or between 3dB below the overall measured level and the overall measured level	Record PONS as 0 **and** if NAMM would be 5, record NAMM as 4, otherwise record NAMM as normal.
NP4	Rail noise dominant, defined as: where rail noise > 56dB **and** (rail noise – 6) > (all other sources + 4)	Score NAMM = 1 and PONS = 0

Rule	Topic / situation	Rule
NP5	When recording sound from aircraft or boats	For all such events, record using NAMM and PONS.
NP6	Where the overall background noise level is relatively low, distant sounds are more readily audible. In such circumstances, where one can clearly hear a distant man-made sound (such as children playing, dogs barking or aircraft flying over) but where these sounds do not affect the overall L_{AT} by more than 1dB	Record NAMM = 5 and reduce PONS by the amount necessary to account for proportion of time for which the source is present.
NP7	Continuous, low noise level man-made sound (such as a fan or motor in the distance running continuously but which is only noticeable when listening carefully)	Ignore for the purposes of NAMM and PONS and include as part of the L_{RR}.
NP8	Where there is very little man-made or natural sound (such as may be found within a courtyard area)	Record the percentage of time when there is 'silence' (i.e. the absence of sounds other than road traffic or rail noise) as a 'natural sound' within PONS.
NP9	Where man-made sounds are intermittent, sudden sounds but occurring repeatedly such as hammering or dog barking	Whenever a non-natural sound of this type occurs repeatedly in any given minute, then the PONS value for that minute should be 0%.

* Disregarded means treating it as if it does not exist at all. Other than for rules NP2, NP3 and NP4, road traffic (and rail) noise is effectively considered to be inaudible when assessing NAMM and PONS.

** Continuous means present all or virtually all the time. Even busy roads can have brief lulls in traffic flow occasionally; where these occur, the flow may still be considered continuous if it is audible most of the time.

L_{RR} is the parameter used of the assessment of the contribution of road and rail noise. Ideally, road traffic levels around a site should be predicted using road traffic flow information (number, type and speed of vehicles) and a computer model used to predict noise propagation taking account of local topography, screening, wind conditions based on the prevailing wind for the area in question, ground and air absorption of sound. However, this is not always possible in practice. It is important to assess the contribution of road traffic noise by measurement, either to validate the model or because no modelled values are available. When it is not possible to predict road traffic levels by modelling or calculation, the rules in Table B3 below should be followed.

Table B3: L_{RR} rules

Rule	Situation	Rule
RR1	Road traffic noise levels can be heard clearly without interference from other sounds for much of the time	Measure directly, removing any other sounds from the measurement.
RR2	Road traffic noise levels are fairly steady but can only be heard when other sounds are not present (which may only occur occasionally)	Measure directly with care – noting the road traffic noise level when no other sounds are present.
RR3	Where there is a continuous flow of traffic on a road more than 100 metres away	It is particularly important to model RTN (if possible) for typical conditions, bearing in mind the prevailing wind. If not possible, then measurements must be made with a range of wind conditions and typical levels established with reference to this information.
RR4	Road traffic noise cannot be heard due to masking by other sounds (e.g., in a busy pedestrianised town centre or a park where there are sounds from other sources)	Either use a value which is 10dB below the minimum measured noise or 40dB, whichever is the lower.
RR5	Where road traffic noise is inaudible due to being too far away, very well screened, or due to low flows of vehicles	Use 15dB as value for RTN.
RR6	Where the local road has a low flow of traffic	See 'Dealing with roads with low vehicle flows and more complex road traffic conditions' below.
RR7	If the level of road traffic or railway noise is determined (by calculation) to be below 15dB	Record L_{RR} as 15dB.

Rail noise can be predicted by modelling using information about train and wagon types, numbers, speeds and so on. In practice, however, specific data about train and carriage/wagon types may be difficult to access/utilise. Rail noise is therefore often calculated by measuring the level of noise from different train types as the single event level, L_{AE}, at a particular distance, adding up the contribution from each type depending on the number of trains which run in a typical day, then correcting for attenuation with distance

and other factors which affect sound propagation, as appropriate to calculate an average level for the period of interest; in this case, generally, a 12-hour day.

To obtain a value for L_{RR} for sites where both road and rail noise is present, the road traffic noise (RTN) should be logarithmically added to the level of rail noise (RN) – 6dB over a 12-hour day between 07:00 and 19:00 hours using formula:

$$L_{RR} = 10 \times \log [10^{(RTN/10)} + 10^{((RN-6)/10)}]$$

Using the L_{RR} parameter for other sound sources

The L_{RR} parameter was designed for assessing the contribution of road and rail noise, but it has been also found to be useful for one additional type of sound source. Occasionally, where there is a continuous, distant man-made sound such as a fan or motor which is only noticeable when listening carefully, this should be logarithmically added to the L_{RR} parameter without the application of any correction.

L_{AT} – the corrected overall measured level

This is derived from the measured L_{Aeq}, which may be modified according to certain rules in certain conditions. The L_{Aeq} should be measured using a type 1 sound level meter, calibrated, with an appropriate wind shield. All measurements should be taken in a free field location at a height of around 1.5 metres above ground. Meteorological conditions should be suitable for the measurement of environmental sound.

The L_{AT} value used will, in general, be an estimate of the L_{Aeq} value which would be measured over a typical 12-hour day at each location. Reliable spot checks will normally suffice and the value to use for L_{AT} will simply be the measured L_{Aeq}, with two exceptions.

Exception 1

When train noise is present, this needs to be removed from the measurement (as explained below) and then added back in. When adding its contribution back into the assessment to obtain the effective 'with train' L_{AT} value, the corrected train noise must be used rather than the actual train noise.

L_{AT} = Measured L_{Aeq} (without trains) + (Train level - 6).

The subtraction is arithmetic, but the addition of levels is logarithmic.

Exception 2

If the survey location is within 25 metres of an active playground regularly containing children shouting and screaming, then a 5dB penalty should be added (arithmetically) to the measured L_{Aeq} value to account for the impact of this type of sound. In these circumstances,

L_{AT} = Measured L_{Aeq} + 5dB (arithmetic addition).

If a location has both an active playground and train noise present, then both corrections would need to be applied, with the playground correction being applied first.

Dealing with roads with low vehicle flows and more complex road traffic conditions

In rural locations, there is often less than one vehicle passing every minute and, although this can mean that the values of L_{RR} (and therefore L_{AT}) can be quite high, the tranquillity score is often still reasonably good since, for much of the time, there are no vehicles present. According to rules NP2 and NP3, if the sound of road traffic is not continuous (not audible for all or virtually all of the day), the NAMM and PONS scores should not be modified. NAMM and PONS only need to be modified to take account of this when vehicle numbers rise to the point where road traffic noise is continuous. For a country road a continuous flow might occur when vehicle numbers rise to approximately 200 – 300 vehicles per hour, for example, although this depends on the road layout and level of other ambient sounds. If other ambient sounds are lower and the stretch of road audible is long, then RTN may be continuously audible with lower flows than this.

Occasionally, one will encounter a more complex situation where there is a local road with low flows and continuous road noise from further away. In this situation, the value of L_{RR} is quite likely to be primarily affected by road traffic on the local low-flow road but the continuous sound of traffic on the more distant road(s) would also need to be considered.

To determine whether to correct the NAMM and PONS scores, one must first consider only the distant continuous road traffic noise, ignoring any noise from the local road. This approach would be important when considering the potential impact that a new road scheme might have on a rural location which may currently experience good or excellent tranquillity, and which could result in a noticeable drop in tranquillity as a result of the scheme.

Predicting tranquillity score using the NTM formulae

This can be done by processing the NAMM, PONS, L_{RR} and L_{AT} scores using the formulae in Table B4 below. This will return the relative probability of each tranquillity score according to the codes in Table B5 and from these select the score which has the highest probability.

Table B4: Formulae for predicting tranquillity scores

Tranquillity score	Relative probability of this score being chosen
1 Chaotic / frantic / harsh	0.00
2 Busy / noisy	74.17398+(NAMMx9.57158)+(PONSx5.32434) +(L_{RR}x0.08640)-(L_{AT}x1.21115)
3 Unsettled / slightly busy	114.46581+(NAMMx10.93007)+(PONSx5.27272) +(L_{RR}x0.08981)-(L_{AT}x1.85779)
4 Not quite tranquil	129.58104+(NAMMx11.55970)+(PONSx5.33385) +(L_{RR}x0.13029)-(L_{AT}x2.17490)
5 Just tranquil	133.98827+(NAMMx12.81092)+(PONSx5.35484) +(L_{RR}x0.12512)-(L_{AT}x2.32374)
6 Fairly tranquil	136.05294+(NAMMx14.11910)+(PONSx5.37543) +(L_{RR}x0.11841)-(L_{AT}x2.46001)
7 Good tranquillity	132.75350+(NAMMx16.44831)+(PONSx5.38689) +(L_{RR}x0.05909)-(L_{AT}x2.56049)
8 Excellent tranquillity	116.06068+(NAMMx19.41205)+(PONSx5.45928) -(L_{RR}x0.08844)-(L_{AT}x2.57928)

The relative probabilities are calculated as follows:

The relative probability, P_1 of the tranquillity score 1 (corresponding to the tranquillity score of 1, described as shown in Table B4 below) is always zero:

$$P_1 = 0.00$$

… and the relative probability of each other tranquillity score, P_n (where n is a value between 2 and 8, corresponding to the tranquillity scores of 2 to 8, as shown in Table 24) is given by;

$$P_n = A_{an} + A_{bn} \times NAMM + A_{cn} \times PONS + A_{dn} \times L_{RR} + A_{en} \times L_{AT}$$

Where:

A_{an}, A_{bn}, A_{cn}, A_{dn} and A_{en} are five different numbers (constants) for each value of n, such that there are in total of 35 different constants (five constants per tranquillity score and seven tranquillity scores) in total.

Table B5: Tranquillity scores and descriptions

Tranquillity score	Description
1	Frantic / chaotic / harsh
2	Busy / noisy
3	Unsettled / slightly busy
4	Not quite tranquil
5	Just tranquil
6	Fairly tranquil
7	Good tranquillity
8	Excellent tranquillity

The NTM uses an eight-point tranquillity score from 1 (frantic / chaotic / harsh) to 8 (excellent tranquillity) as shown in Table B5 above. Since the inception of the method, field tests have shown that the differences between tranquillity scores 4 and 5 are hard to distinguish for many rural environments and that a description of "neutral tranquillity" better covers these two situations. Also, scores in the range 1 to 3 can be more simply described as "not tranquil" for most purposes.

The simplified scoring system still uses the same underlying NTM scores (1 to 8). The two "just tranquil" and "not quite tranquil" designations have been combined into one "neutral" and all three of the "not tranquil" designations are reported as "not tranquil". Thus, there is no change to the approach resulting from this simplified approach to reporting.

Hence, (baseline) tranquillity and predicted tranquillity as a result of a proposed development are summarised below using a simplified, five-level descriptive scale: not tranquil; neutral tranquillity; fairly tranquil; good tranquillity; and excellent tranquillity shown in the right hand column of Table B6 below.

Table B6: Tranquillity score descriptors

NTM Score	Original NTM Description	Simplified Tranquillity Description
1	Frantic / chaotic / harsh	Not tranquil
2	Busy / noisy	
3	Unsettled / slightly busy	
4	Not quite tranquil	Neutral
5	Just tranquil	
6	Fairly tranquil	Fair tranquillity
7	Good tranquillity	Good tranquillity
8	Excellent tranquillity	Excellent tranquillity

Appendix C: Use of the Natural Tranquillity Method in other significant planning decisions

Daw Mill Colliery: North Warwickshire

In January 2017 the NTM was used to assist a public inquiry considering an appeal against the refusal of planning permission for development at this former colliery site. The proposed scheme would have provided general industrial use (likely involving locomotive maintenance or similar) and permission was refused in part, due to concerns about potential noise impact. Local people appreciated the site and surroundings for its 'quiet, rural character.'

The Natural Tranquillity Method was used to assess the potential impact on tranquillity from the proposal to develop the land for industrial use at the former colliery site.

The site is in a shallow valley with a small stream (the River Bourne) in the centre. The area around the site was found to be overgrown and supported a range of wildlife. There were footpaths running along the edge of the former colliery up to and across the valley.

The Birmingham to Leicester railway runs along the southern boundary and trains are audible for about 7% of the time between 0700 and 1900 hours. Throughout the site there was little man made sound. Non-natural sounds detected were from rail, road and occasional light aircraft. Natural sounds comprised birdsong (which was significant) and some water noise. The assessment found that the site and the immediate surroundings could be considered to have fair or good tranquillity.

It was found that the proposed development would result in a reduction in tranquillity to the key features of the site and surroundings (such as the footpath network). This conclusion, along with supporting data and tranquillity maps were given in evidence to the inquiry.

In March 2018, the Secretary of State issued a decision to refuse the appeal against the refusal of planning permission.

Under the heading "Tranquillity" the decision stated:

"… the Secretary of State agrees with the Inspector that there can be no surety that the noise from the rail-related uses would not give rise to significant adverse impacts on the long term health and quality of life of residents and those who enjoy the countryside, which would be conflict with CS Policy NW12 [which is a North Warwickshire Local Plan Policy]. The Secretary of State gives significant weight to this against the proposal."

A303 Stonehenge bypass

In January 2017, the UK Government announced its intention to commission a £1.6 billion highways project to develop a 2.9km tunnel under the Stonehenge site. The main reasons given were to ease traffic congestion on the nearby A303 and improve tranquillity and visitor experience by removing the sight and sound of traffic.

The NTM was used to assess whether the removal of the A303 would, in fact, have a positive beneficial effect on tranquillity at the henge.

A survey of existing tranquillity was carried out at the site. It was found that due to the way the site is accessed (with visitors restricted to a designated route), there were two areas where visitor density was particularly high — the two narrow pathways to the north of the stones, and the west. These paths were noisy and congested during busy periods.

Although road traffic noise from the A303 could be heard across the Stonehenge site, the most significant source of noise on site came from human voices and audio guides.

It was found that the removal of the road would result in a considerable improvement in tranquillity in the wider area around the henge but that, since the main detriment to tranquillity at the site was due to noise from tourists, removing the road would have a negligible effect on a visitor's experience of tranquillity at this site.

The busy areas would remain busy and the rest of the site would still be 'not quite tranquil'.

In summary, the site was found to be not tranquil and removing the A303 would result in no noticeable improvement in tranquillity experienced by visitors to Stonehenge. This finding was found to be valid by the Examining Authority in their decision.

Sizewell C nuclear power station

The NTM was used to underpin the submitted amenity and recreation assessment to the DCO examination process for Sizewell C nuclear power station project. This large, nationally significant infrastructure project is planned to be constructed in an Area of Outstanding Natural Beauty (AoNB) on the Suffolk Coast.

To assess the likely impact on tranquillity of the 10-year construction project, a team of six surveyors spent six months surveying the Suffolk Coast and Heaths area that includes RSPB Minsmere and Thorpeness.

In addition to the impact of the construction work on tranquillity in the AoNB, the NTM was used to consider the impact of two new proposed road schemes (which would be an integral part of the project) on a number of villages in a rural part of Suffolk.

The Examining Authority's (ExA) report felt that the way that the potential impact had been considered was notable and helpful, stating, at para 5.18.160 to 5.18.162 of their report, in relation to tranquillity:

"The veracity of the assessment was accepted by all parties as a fair and reasonable portrayal of the current and likely future position through the construction phases of the Proposed Development. It describes the baseline sound environment in these areas and describes the likely sound effects from the likely construction activities. These descriptions from the ExA's experiences fairly reflect the current experiences that people have when visiting the AONB and the public Right of Way within this area.

The ExA is appreciative that as a tranquillity assessment, this is an important piece of evidence which reflects the broader appreciation of the natural environment in a way which a more traditional noise assessment might do."

Portland Energy Recovery Facility

The NTM was used to predict the change in tranquillity which would occur if an Energy Recovery Facility (waste incinerator) were to be permitted and, consequentially, a footpath were to be re-opened on Portland. The matter was considered at a Public Inquiry in January 2024. The matter was disputed by the opposing expert, who sought to use the CPRE method to assess the impact on tranquillity.

Having heard evidence from both expert witnesses, the Inspector agreed with the findings of the NTM assessment in relation to tranquillity, stating:

"The appellant contends that these locations are not tranquil by reference to (a) the CPRE Tranquillity Map; and (b) the appellant's noise contour map. First, however, the CPRE map has significant shortcomings. Most notably, the map uses low resolution 500m x 500m grid sizes and fails to consider properly the presence of natural sound. This is why the appellant accepts that the map is slightly difficult to interpret and therefore provides no definitive tranquillity score for Portland (let alone the specific locations the Rule 6 parties have assessed)."

…

"As has been demonstrated, the ERF would have a significant adverse effect on the tranquillity that can be experienced at both locations. There would be a significant loss of tranquillity along the southern parts of Footpath S3/72 as well as a smaller (though still important) loss of tranquillity at the northern end of Footpath S3/81. The tranquillity that would be experienced along the permissive path would be lost. The loss would be experienced more acutely when the port is not busy but even when the port is noisy, there would be a perceptible and material loss of tranquillity."

In relation to the method itself, the Inspector found:

"… the methodology is plainly robust – it is supported by detailed evidence and stood up to questioning …"

And

"… the methodology accords with PPG Guidance – this notes that to justify being protected for its tranquillity an area is likely to be relatively undisturbed by noise from human sources that undermine the intrinsic character of the area."