

Proposed Gypsy and Traveller Site, Bradbury Farm, Crick

Noise

Part 1- Clarification on methodology

1. There are x2 ST3 positions listed on the map however believe one of them should be ST4 (page 19)
2. Advised that southern eastern corner of the site chosen to used $L_{Aeq,16hour}$ for the BS 8233 assessment criteria, however it appears to have come from the LT baseline monitoring for the assessment located at LT1 rather than positioning ST3. This place is furthest from the M48 therefore likely to be the quietest part of the site which is not necessarily representative to the site unless that is the only location of proposed pitches.
3. Table 4.2 summary refers to 15 minute recordings although 5 minute recordings have been undertaken.
4. ProPG is an English planning standard, however reference to BS 8233 (page 20) said a 3dB $L_{Aeq,8hrs}$ although this should be 30dB.
5. Reference for a barrier/bund along the southern boundary of the site closest to the M48, however the M48 is north of the site (page 21)
6. Uncertain how 60m from the M48 and 20m from the Crick Road would put that part of the site in TAN 11 NEC B, can't see the workings/modelling in the report that shows how they got to that conclusion
7. Understand how they've worked out the Day and Nighttime dBA at each short-term location from the LT data, however, I am not uncertain as to whether this is a recognised method.

Part 2- Relevant standards applicable to the site and summary of NIA findings

TAN11

	Noise Exposure Category ($L_{Aeq,TdB}$)			
Source: road traffic	A	B	C	D
0700-2300 Day time	<55	55-63	63-72	>72
2300-0700 Nighttime	<45	45-57	57-66	>66

Source: Taken from Table 2: Recommended Noise Exposure Categories For New Dwellings Near Existing Noise Sources <https://www.gov.wales/sites/default/files/publications/2018-09/tan11-noise.pdf>

“**NEC B.** Noise should be taken into account when determining planning applications and where appropriate, conditions imposed to ensure an adequate level of protection.

NEC C. Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.”

Figure below has been taken from February 2024 Mott MacDonald: Proposed Gypsy and Traveller Site, Bradbury Farm, Crick “Figure 5.1: Areas within TAN 11 NEC categories”, page 19.



BS8233 Internal criteria

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35dB LAeq, 16hrs	-
Dining	Dining room/area	40dB LAeq, 16 hrs	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq, 16 hrs	30dB LAeq, 8 hrs

Source: Taken from BS8233:2014 'Sound insulation and noise reduction for buildings – Code of Practice'

The report makes reference to a mobile home may provide a sound insulation value of around 15dB to 20dB with windows closed. *“Calculated Leq, 16hour levels in the southeastern corner of the site were 56.6dB during daytime and 53.0dB at night”*. From the reduction of noise from the caravan of 15-20dB provides internal day time levels of 41.6dB- 36.6dB and nighttime 38dB-33dB. Therefore, without any noise mitigation to the site, the lowest level (caravans providing a 20dB reduction in sound) are unable to meet BS8233 Internal criteria standards for daytime or nighttime for any activity or location.

The BS8233 External criteria

On the basis that it will be necessary to achieve the internal limits with open windows during warmer months, an open window provides a typical sound reduction of 10 – 15 dB. From this, it may be extrapolated that external limit levels for open windows are as follows:

- Daytime - LAeq,T 50 – 55 dB
- Night time - LAeq,T 45 – 50 dB

In the case of gardens and external amenity areas, BS 8233 advises that a level of LAeq,T 50 dB is desirable and that a level of LAeq,T 55 dB should be considered an upper limit. These values correlate with the derived daytime external limit values.

“Calculated Leq,16hour levels in the southeastern corner of the site were 56.6dB during daytime and 53.0dB at night”. This is furthest away from the M48 and Crick Road, the location does not meet the external daytime upper limit of 55dB or external nighttime upper limit of 50dB without sound mitigation in situ.

The nearest dwelling to the edge of the site is around 65m with Crick Road between the dwelling and the site. The second closest dwellings are around 100m from the edge of the site with the M48 in-between. There is also a solar farm to the east of the proposed site. The site will be a new noise source to the area.

Part 3- Proposed mitigation and further information required

The areas of the proposed site that fall in the NEC C should not be developed for accommodation or outdoor living area. The NEC B area of the site, TAN11 states that “Noise should be taken into account when determining planning applications and where appropriate, conditions imposed to ensure an adequate level of protection”.

Proposed earth bunds have been suggested as possible mitigation for the site and they are likely to be more effective for Crick Road rather than against traffic noise emanating from the M48. However, the proposed sound mitigation needs to be modelled on the site to ensure it can meet both internal and external BS 8233 standards. This should also inform the siting for the proposed 6 pitches.

Air Quality

An air quality assessment was undertaken by Mott Macdonald in February 2024. A qualitative review of local and national air quality monitoring data and a qualitative Design Manual for Roads and Bridges (DMRB) calculation spreadsheet assessment using Department for Transport traffic count from 2022 for the M48. That traffic data was then used with emission factors from DEFRA’s Emission Factor Toolkit (EFT) based on traffic flows, speeds, and vehicle emission factors.

For Bradbury Farm the consultants used a worst-case location as the receptor the northwestern corner adjacent to Crick Road and the M48, as there are currently no plans highlighting the exact locations of the proposed accommodation areas.

As this is a model/calculation rather than monitoring, there will be uncertainties which the assessment highlights (e.g. traffic data, emission predictions, background air quality).

Model uncertainty can be improved by model verification (i.e. comparing the model against monitored concentrations to improve the model at other locations by adjusting for systematic bias). However, in this case the consultant did not do this, as they were not sure of the exact monitoring locations that they had identified as being carried out by Newport Council along a similar stretch of the M4. Instead, they increased the model outputs by a factor of 2.

I would have preferred that they undertook a proper quantitative model verification by either visiting the locations of the monitoring to determine exact positions, or phoning Newport Council to ask for more exact locations.

However the Consultants state that a factor of 2 is highly conservative based on their previous project experience.

The assessment presents monitoring data from automatic monitoring stations and diffusion tubes alongside the M4. One of the diffusion tubes exceeded the nitrogen dioxide objective level (annual mean) in 2018, 2019 and 2020 however the report does not state their distance from the M4 – and if this is comparable to the distance of the proposed site from the M4. As mentioned above none of this monitoring data is used to verify the model in any case but does provide some monitoring information further west along the M4 (although how relevant that is could be debatable without corresponding traffic flows, and distance to the monitoring locations).

The model used DEFRA background concentrations (based on 1km grid square) for two 1km squares for both 2024 and 2019. These are all well below the NO₂ annual mean objective level of 40 µg/m³ (6.7, 6.1 in 2024 and 8.4, 8.2 in 2019).

The assessment also mentions DEFRA's Pollution Climate Model (PCM) which is used to report compliance with the Air Quality Directive limit values. The closest location for the PCM however is by the Coldra Roundabout. That model predicts current (2024) NO₂ to be 26.2 µg/m³. Again this was not used in the model verification for the site, but provides further context/information about potential NO₂ concentrations along the M4.

The report concludes that the site is 20m south of the M4 motorway (possibly a typo and they mean the M48), and that therefore the two automatic monitors and the diffusion tubes operated by Newport Council are relevant as they are located next to the M4. The report states that the automatic monitors show data far below the objective level of 40 µg/m³. This is the case for 2022 – where concentrations were 21 µg/m³, but not for 2019 when concentrations were 35 µg/m³. In addition, one diffusion tube exceeded the objective level in 2018 (54.6), 2019 (48.5), and 2020 (46.7) and was 34.7 in 2021 with no data obtained for 2022 or 2023.

The report states that the predicted impact on NO₂ concentrations at the proposed site will be 10.1 µg/m³, which is 3.5 µg/m³ higher than 2024 background and 1.5 µg/m³ higher than 2019 background.

Further Information Required

- The locations of the monitoring were not obtained to undertake a qualitative model verification.
- Exceedances and near exceedances of monitored locations were not considered as relevant and were not provided with any context e.g. how they compare to the proposed site in terms of distance to the road, traffic flows, congestion etc.
- No discussion as to if Newport have undertaken any localised actions that resulted in improved concentrations that between 2018 and 2022 to improve air quality.
- What does the predicted impact of 10.1 µg/m³ mean? Is it an increase of 10.1 µg/m³ or is 10.1 µg/m³ the predicted NO₂ concentration at the modelled receptor?

- Is $10.1 \mu\text{g}/\text{m}^3$ the actual modelled concentration, or is it multiplied by a factor of 2 due to the lack of model verification? If so, did the model originally predict $5 \mu\text{g}/\text{m}^3$, which would be lower than the general 1km square background concentrations. As the receptor is only 20m south of the M48, it would be expected that concentrations would be higher than the 1km average.

I would agree that the site would not impact local air quality (due to the number of proposed pitches) however I am uncertain that the highest concentration of nitrogen dioxide that would be experienced anywhere on the site is $10.1 \mu\text{g}/\text{m}^3$.

Contaminated Land

Mott Macdonald undertook a desktop study and site walk over to produce the 7land contamination assessment in February 2024. An intrusive site investigation (soil/water/gas sampling) was not undertaken.

Based on the desktop study and site walk over a conceptual site model to identify potential contamination linkages, a preliminary risk assessment and recommendations were produced.

Historically the site has been an undeveloped field since the first map version (1881), with the only changes being offsite i.e. railway line 200m to the west in 1965, and the M4 to the construction of the M4 20 metres to the north in 1967.

Radon is a potential issue (3-5% likelihood of exceedance of the action level) on the site if utility blocks are built.

The report did not consider services or utilities buried beneath the site. A utility search would be required prior to development. A manhole cover labelled 'water' and animal troughs were present, which would be associated with buried pipes.

Base on the desk study and site walk over, the report considered that there are no specific sources of contamination identified, with the only evidence of land disturbance being the utility manhole in the north-west and the animal water troughs fed by a water supply pipe.

The report considers it likely that topsoil is present across the whole site, and that significant thicknesses of made ground are not anticipated, however localised Made Ground might be present along the northern boundary associated with construction of the M4 (now M48), and in the vicinity of the water main.

The report considered that ground gas potential is not significant, however if deposits of organic materials are encountered during development, the risk should be further assessed.

The Preliminary Conceptual Site Model does not highlight any significant consequences from the site; however, this does assume a transient population, and therefore a low likelihood of residents growing produce.

The report does not consider progressing to an intrusive ground investigation, however if any unforeseen ground conditions are encountered during development, work must stop, and the risks reassessed.

This is reasonable, however If the council considers the assumptions that residents will have no contact with soil and will not grow produce to be incorrect, it would be appropriate for some soil samples to be taken for laboratory analysis of contaminants prior to development. It would be reasonable to exclude the northern section of the site – adjacent to the M48, from being landscaped, or available for growing produce, due to the CL assessment's consideration of the possibility of made ground in this area. In addition, there could be a greater concentration of atmospheric pollution deposition in this area from the use of the M48.

All other recommendations (Section 7.2) should also be followed, including utility survey, radon search, and production of a discovery strategy (to plan for the discovery of unforeseen contamination).