

Proposed Gypsy and Traveller Site, Bradbury Farm, Crick

Site description

There are 12 dwellings to the Southeast perimeter of the site, all of which adjoin the proposed site along the boundary. The second closest dwellings are around 20M+ from the edge of the site. The site will be a new noise source to the area.

Noise

Part 1- Clarification on methodology

The following points need addressing in the report;

1. There are limitations to deriving the Day and Nighttime dBA at each short-term location from the LT data, in that this method does not define the contours of noise level exposure distributed throughout the site. This is usually provided as part of an acoustic assessment to determine site suitability.
2. The acoustic consultant has indicated BS4142 assessments were undertaken within their report, it is unclear as to the reasoning to include such an assessment within this context, as the proposed site use would be classified as residential as opposed to industrial or commercial, notwithstanding that the site would become a new noise source.
3. Whilst there were suggested noise mitigation measures of earth-bundling and acoustic barriers, the extent and specification of these measures were not determined. Please consider specific noise modelling for the site to determine the indicative extent and effectiveness of suggested mitigation measures for the site.
4. The acoustic report makes reference to the ProPG Planning guidance. This guidance relates specifically to English planning policy, with TAN 11 forming the Welsh approach.

Overall, I consider that the methodology of the baseline noise survey is suitably robust and representative of the noise exposure, having regard to the sampling locations, duration of both (long term) noise sampling period, and in particular the timing of the short-term noise recordings.

It is worth noting that the sample at this site erred on the side of caution at Langley Close as the short term (ST) measurements were undertaken during morning rush hour times. Again, the long term (LT) sampling erred towards worst case scenario, being undertaken a few days before Christmas. Compounding this, there is traffic to and from large businesses, a large national retail distribution centre and a large brewery utilising the M4 off-ramp and also the A4810, respectively at the North and West boundaries of the proposed site.

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>

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

Orange border - 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, Langley Close, Magor “Figure 5.1: Areas within TAN 11 NEC categories”, page 18.



Considering TAN 11 as above - with specific regard to the area falling within NEC ‘C’ – this is a very large (albeit unspecified) portion of the site footprint and would limit the number of pitches as planning consent is recommended to be ruled out of these areas without enforceable noise mitigation planning conditions in place.

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'			

BS8233 Internal criteria

The report makes reference that a mobile home may provide a sound insulation value of around 15dB to 20dB with the windows closed. In this case a 15dB reduction can be seen to have been the reduction calculated within this report and this aligns with the MCC approach.

Therefore, when included for a 15dB closed window reduction, without other noise mitigation; the site average noise levels measured were (at LT1 LAeq of 45dB daytime) and (LAeq of 40.5dB nighttime), (at ST1 LAeq of 45.5dB daytime) and (LAeq of 41dB nighttime), (at ST4 LAeq of 41dB daytime) and (LAeq of 37dB nighttime).

All areas significantly exceed the BS8233 Internal criteria standards for daytime or nighttime noise levels for noise sampling locations within NEC'B'. Noise levels substantially exceeded the recommended levels at the North and Eastern NEC 'C' sampling locations.

The BS8233 External criteria

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.**

Measured noise levels at all NEC 'B' locations on the site exceeded the upper limit of 55dB LAeq,T value recommended by BS 8233 for external amenity areas (LT1 being 60.dB, ST1 being 60.5dB and ST4 being 56.4dB). The equivalent average noise measurements were substantially above the recommended noise levels at both of the North and Eastern NEC 'C' sampling locations.

It would therefore be necessary to provide localised noise screening for the outdoor amenity areas. This may take the form of solid noise barriers or landscaped bunds between the M4 and the residential plots of the site. These measures would need to be of significant height in order to achieve the desired exterior level of 50 dB LAeq,T especially at the eastern end of the site.

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”.

Measured noise levels at all locations on the site exceeded the noise LAeq,T values recommended by BS 8233 for both indoor standards and external amenity area standards. It would therefore be necessary to provide localised noise screening to achieve compliance in any area of the site. This may take the form of solid noise barriers or landscaped bunds between the M4 and the residential plots of the site. This barrier would need to be of significant height in order to achieve the desired exterior level of 50 dB LAeq,T especially at the eastern end of the site.

Proposed earth bunds and acoustic barriers have been suggested as possible mitigation for the site against traffic noise emanating from the M4 and the A4810. 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 overall cost of mitigation and the overall viability of the proposed site for the number of pitches under consideration.

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 M4, M4 slip road and A4810. 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 Langley Close the consultants used three worst-case locations as the receptors the northwestern corner adjacent to south of the M4, 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.

It would be preferable to undertake a proper quantitative model verification by either visiting the locations of the monitoring to determine exact locations, 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 a 1km square for both 2024 and 2019. These are all well below the NO₂ annual mean objective level of 40 µg/m³ (10.2 µg/m³ in 2024 and 13.1 µg/m³ 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 26.2µg/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 surrounded north by the M4 (20 metres), and the A4810 immediately to the west, 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 between 20.9 µg/m³ and 23.5 µg/m³.

Conclusions

- The locations of the monitoring were not obtained to undertake a qualitative model verification, it would be more robust to obtain this information and undertake 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.
- Assuming the predicted impacts given in Table 5.1, are the modelled concentrations of NO₂ at those locations, and that they have been multiplied by a factor of 2, it would indicate that the original model predicted 10-12 µg/m³, which is below the 1km square background concentrations.
- As the receptor is only 20m south of the M4, it would be expected that concentrations would be higher than the 1km average. It is appreciated that due to a lack of verification the concentrations were doubled, but the model does not give confidence in the actual concentrations at the site, nor the fact that in the recent past,

concentrations at M4 roadside locations in Newport were close or exceeded the NO₂ annual mean objective level.

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 µg/m³.

Contaminated Land

Mott Macdonald undertook a desktop study and site walk over to produce the land 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 (1879), with the only changes being offsite i.e. a quarry 200m to the south-west in 1800, and the construction of the M4 immediately to the north in 1966-1970.

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. An animal water trough and alkathene supply pipe were present.

Based 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 animal water troughs fed by a water supply pipe, a metal caravan, and potential buried redundant water supply pipes.

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, and on the south-eastern boundary adjacent to the residential development.

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 M4, and southeastern boundary next to the residential development, from being landscaped, or available for growing produce, due to the CL assessment's consideration of the possibility of made ground in these areas. In addition, there could be a greater concentration of atmospheric pollution deposition in this area from the use of the M4.

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).