

11. Noise and Vibration

11.1. Introduction

- 11.1.1. This Chapter of the Environmental Statement ('ES') has been prepared by Hepworth Acoustics on behalf of Taylor Wimpey UK Limited ('the Applicant'). It assesses the Proposed Development in relation to noise and vibration.
- 11.1.2. Potential effects associated with vibration were scoped out at EIA scoping stage and are therefore not considered further within this Chapter.
- 11.1.3. This chapter is supported by the following appendices and/or figures:
- **Technical Appendix 11.1** – '*Halsnead Garden Village, Whiston Phase 3 – Noise Impact Assessment*'
 - **Figure 11.1** – Identified Receptors
 - **Figure 11.2** – Local Road Links Included in the Traffic Assessment
- 11.1.4. This Chapter, and its associated appendices, is intended to be read as part of the wider Environmental Statement (ES) with particular reference to the introductory chapters (Chapter 1 to Chapter 4), as well as to Transport Chapter 9.

11.2. Legislative and Policy Framework

National Planning Policy

- 11.2.1. The National Planning Policy Framework ('NPPF') December 2024: states that planning policies and decisions should aim to "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.
- 11.2.2. In doing so they should:
- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;"*
- 11.2.3. In the accompanying Planning Practice Guidance ('PPG') on noise there is some general guidance including relevant factors to be considered and possible approaches to mitigation, which have been taken into account in the assessment described in this Chapter.
- 11.2.4. However, the relevant PPG does not contain any specific technical guidance or acoustic design criteria which is relevant to the development proposed at the assessment site.

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Noise Policy Statement for England

11.2.5. The Noise Policy Statement for England ('NPSE') 2010 which is referred to in the NPPF, includes three aims:

- Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development;
- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development;
- Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

Professional Practice Guidance on Planning & Noise

11.2.6. The Professional Practice Guidance on Planning & Noise ('ProPG') provides '*guidance on a recommended approach to the management of noise within the planning system in England*', for proposed new residential developments on land that is exposed to transportation noise.

11.2.7. ProPG recommends a staged approach to assessment. Stage 1 is an initial site noise risk assessment, indicating whether the proposed site is considered to pose a negligible, low, medium or high risk from a noise perspective. Stage 2 is a full assessment to consider good acoustic design. The guidelines in terms of suitable acoustic design criteria are broadly consistent with the guidance of BS8233 (see below).

Statutory Powers

11.2.8. Additional statutory powers to control noise exist outside of the planning system, and the granting of planning permission does not remove the need to comply with these controls. The major legislative instruments are:

11.2.9. Part III of the Environmental Protection Act 1990, as amended by the Noise and Statutory Nuisance Act 1993, which requires local authorities to serve notices where noise emitted from premises constitutes a statutory nuisance.

11.2.10. Part III of the Control of Pollution Act 1974 which gives local authorities certain powers to control noise from construction sites.

11.2.11. It is usual for the implementation of this legislation to be applied under delegated powers by the Environmental Health Department of the relevant local authority, in this instance St Helens Borough Council ('SHBC').

Local Planning Policy

11.2.12. The development plan policies relevant to noise are set out in the Knowsley Local Plan: Core Strategy (KLCS) adopted in January 2016.

11.2.13. Policy CS2 of the KLCS ('Development Principles') states that:

"New development in Knowsley and the preparation of subsequent stages of the Local Plan will be expected to support the following development principles:

Principle 4: Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:

...

e) Mitigating potential negative impacts of traffic growth and road traffic on highway safety, air quality, noise and health;

...

j) Minimising negative impact upon flood risk, air quality, water quality, land quality, soil quality, and noise or vibration levels and ensuring any negative impacts are appropriately mitigated"

11.2.14. In the transition to the Local Plan system, a number of the original Knowsley UDP policies were saved. As a result, a number of UDP policies remain in effect, as listed in Appendix C of the Core Strategy.

11.2.15. Among these, Policy ENV2: Noise and Vibration remains extant and continues to be relevant to the consideration of noise impacts from development proposals.

11.2.16. Policy ENV2: Noise and Vibration states that:

- 1. Development that will either cause an unacceptable increase in noise or vibration levels or itself be subject to unacceptable noise or vibration from an existing source will not be permitted.*
- 2. Where developments are permitted, conditions may be attached to the planning permission to ensure effective noise insulation or other required mitigation measures are carried out.*

11.2.17. The Site forms part of the wider Halsnead Garden Village allocation under Policy SUE2 under Locap Plan Core Strategy, which is supported by the *Halsnead Garden Village Masterplan Supplementary Planning Document* (SPD). The SPD provides detailed guidance on the delivery of sustainable development across the Garden Village, including the integration of environmental mitigation.

11.2.18. Paragraphs 6.22 and 6.23 of the SPD specifically address motorway noise, stating that attenuation measures will be required along the M62 boundary to create an acceptable residential environment. The SPD further promotes a strategic approach to noise and air quality mitigation that is integrated with green infrastructure and surface water management, by creating an environmental corridor adjacent to the M62.

British Standards and Other National Guidance

11.2.19. The following documents have been used in the assessment described in this chapter:

11.2.20. BS5228-1:2009+A1:2014 – '*Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1*'. This document (which is referred to hereafter in this chapter as BS5228) contains useful guidance on the measurement, prediction and control of construction noise. In particular it describes practical measures to minimise the impact of construction noise which have been taken fully into account in the remedial measures recommended in this chapter for the proposed development.

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- 11.2.21. Department of Transport Memorandum 'Calculation of Road Traffic Noise' (1988) (which is referred to hereafter in this chapter as CRTN). This document describes a formal procedure for calculating traffic noise for proposed new or altered highways. The procedure considers a number of factors including the volume of traffic, the speed of traffic, and the composition of the traffic flow. For environmental assessment purposes it is also used as a basis for undertaking comparative traffic noise calculations i.e. to compare the 'with development' and 'without development' scenarios.
- 11.2.22. ISEP 'Guidelines for environmental noise impact assessment' (2014). This document was originally published in draft format in 2002 by a joint working party of the Institute of Environmental Management and Assessment and the Institute of Acoustics. The final published version represents the most relevant 'best practice' guidance for undertaking noise studies for EIA purposes. It includes examples of tables of scales of significance of noise change, but these are only examples, and it is stated that it is necessary for the individual assessor to define appropriate scales of significance for the particular type of noise/development being evaluated.
- 11.2.23. Highways England 'Design Manual for Roads and Bridges' (2020) set out the requirements for assessing and reporting the effects of highways noise and vibration from construction, operation and maintenance projects. For environmental assessment purposes it also provides a basis for the determination of the significance of the effect depending upon both the magnitude of change of road traffic noise levels as predicted using the methodology with CRTN.
- 11.2.24. BS8233:2014 'Guidance on sound insulation and noise reduction for buildings' (which is referred to hereafter in this chapter as BS8233). This document contains guidance on the control of noise in and around buildings. It is applicable to the design of new buildings but not provide guidance on assessing the effects of changes in the external noise levels to occupants of existing buildings. In particular the standard includes recommended acoustic design criteria, as absolute values, for habitable rooms and gardens of proposed new dwellings.

11.3. Assessment Approach

Methodology

During Construction

- 11.3.1. The methodology for assessing noise impacts of the temporary construction phase of the Proposed Development has by necessity been qualitative rather than quantitative.
- 11.3.2. This is because at this stage (i.e., planning application stage) contractors have not been appointed and there is no detailed information available regarding the type of construction plant, operations, programme, etc.
- 11.3.3. The assessment has therefore focussed on the need to mitigate construction noise as far as is reasonably practicable by implementing appropriate measures in accordance with the 'best practice' guidance that is set out in BS5228-1.
- 11.3.4. The assessment of construction noise has been undertaken based on reasonable assumptions that typical construction activities will be carried out during standard daytime working hours using conventional plant and equipment operating at representative sound power levels derived from BS5228-1. In the absence of finalised construction phasing or plant schedules, indicative traffic flows associated with material deliveries and workforce movements have also been assumed.

- 11.3.5. For the construction phase, the study area for this Chapter has been defined as the Site and the existing residential properties that adjoin the Site boundary, as these receptors are anticipated to be the most exposed to periods of construction-related noise. Baseline noise levels have been measured at representative locations within these areas.
- 11.3.6. The identified receptors comprise dwellings to the east of the site (R1 on **Figure 11.1**), dwellings at Halsnead Caravan Park to the north (R2 on **Figure 11.1**), and dwellings on the recently constructed Wild Cherry Avenue to the west of the site boundary, beyond Big Water (R3 on **Figure 11.1**).
- 11.3.7. The study area also includes any new dwellings that become occupied during phased construction of the Proposed Development, which would be considered becoming noise-sensitive receptors from the point of occupation.

During Operation

- 11.3.8. Besides the potential impact of existing noise on proposed new dwellings, the potential noise impact associated with the completed development will be limited to changes in road traffic noise on the existing local road network.
- 11.3.9. Changes in traffic noise resulting from such changes in traffic flow on existing roads can be predicted on the basis of the calculation procedure set out in the Department of Transport document '*Calculation of Road Traffic Noise*', 1988 ('CRTN').
- 11.3.10. In this Chapter, potential long term traffic noise impacts resulting from operation of the completed development have been assessed using a comparative approach. This involves investigating the difference between calculated traffic noise levels for the 'without development' and 'with development' scenarios, based upon the anticipated future traffic flows.
- 11.3.11. Potential changes in road traffic noise have been assessed for existing dwellings on, or in the vicinity of, Fox's Bank Lane, and for a representative sample of other roads within the wider study area. The traffic noise calculations are based on traffic flow data supplied by Eddisons for the corresponding do-minimum and do-something (with-development) scenarios.

Assessment of Significance

During Construction

- 11.3.12. Potential noise impacts associated with the temporary construction phase of the Proposed Development have been assessed using the 'ABC Method' described in Section E.3.2 of BS5228-1:2009+A1:2014.
- 11.3.13. This method establishes threshold values for the onset of potential significant effects at noise-sensitive receptors, depending on the prevailing ambient sound level.
- 11.3.14. Where predicted construction noise levels are available, these should be compared to the relevant BS5228 threshold values. The magnitude of potential construction noise impact may then be determined according to the difference between predicted and threshold levels.
- 11.3.15. The following scale of significance has been adopted for this assessment:
- More than 5 dB below BS5228 ABC threshold value: Negligible impact;

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- 0 to 5 dB below BS5228 ABC threshold value: Minor Adverse impact;
- 0 to 5 dB above BS5228 ABC threshold value: Moderate Adverse impact; and
- More than 5 dB above BS5228 ABC threshold value: Substantial adverse impact.

11.3.16. In accordance with accepted EIA practice, impacts classified as Moderate Adverse or Substantial Adverse are considered to be significant in EIA terms.

During Operation

11.3.17. There are no legally defined methodologies or criteria to employ when determining the magnitude of the noise impact resulting from the operation of a proposed residential development on the external environment (i.e. potential gradual changes in traffic noise on existing roads).

11.3.18. The assessment of operational traffic noise has been undertaken for two scenarios: a 'do-minimum' scenario, representing future baseline traffic flows without the Proposed Development, and a 'and do-something' scenario, representing predicted traffic flows inclusive of the Proposed Development.

11.3.19. Local committed developments have been included within the future-year model scenarios. Accordingly, the approach is considered appropriate and precautionary for Environmental Impact Assessment (EIA) purposes.

11.3.20. The Institute of Sustainability and Environmental Professionals (ISEP Formerly IEMA) has produced guidelines for noise impact assessment which include examples of tables of impacts relating to changes in noise level specifically for use in Environmental Statements.

11.3.21. A scale of significance of traffic noise impacts has therefore been developed for the operation of the Proposed Development which is based upon the ISEP guidelines and is set out in Table 11.1 below.

Table 11.1 Noise Impact of Traffic Generated by the Proposed Development

Increase in Traffic Noise Level in dB(A)	Subjective Response	Significance
0 – 0.9	No change to barely perceptible increase	Negligible impact
1.0 – 2.9	Low but perceptible increase	Minor Adverse impact
3.0 – 4.9	Noticeable increase	Moderate Adverse impact
5.0 – 9.9	Up to a doubling of loudness	Major Adverse impact

11.3.22. In line with EIA guidance, effects assessed as Moderate Adverse or Major Adverse are considered significant in EIA terms, whereas Negligible and Minor Adverse effects are not considered significant.

- 11.3.23. For assessing traffic noise impact on the proposed new dwellings, the relevant guidance is set out in absolute terms in BS8233:2014. As described in Section 2 of **Appendix 11.1** (Volume 2 to this ES), appropriate acoustic design criteria have been adopted from BS 8233 in order to protect residential amenity.
- 11.3.24. These criteria are as follows:
- Daytime (07:00–23:00) levels below 35 dB $L_{Aeq(16hr)}$ inside living rooms;
 - 55 dB L_{Aeq} in private rear gardens as far as is reasonably practicable; and
 - Night-time (23:00–07:00) noise levels not exceeding 30 dB $L_{Aeq(8hr)}$ and generally not exceeding 45 dB L_{Amax} in bedrooms.
- 11.3.25. Achieving these criteria would ensure that there would be Negligible impact. The assessment of noise impact has taken into account not only the magnitude of the predicted noise level but also the duration and temporal characteristics of exposure at receptors, consistent with ISEP guidance.
- 11.3.26. Where noise occurs intermittently or for limited durations, this has been reflected in the assessment of significance, as the potential for disturbance is reduced compared to continuous exposure.
- 11.3.27. Baseline noise measurements and the proposed site layout indicate that some form of noise mitigation will be required to achieve the recommended internal and external design criteria set out in BS 8233:2014. The specific measures such as façade treatments, ventilation specifications, and garden boundary screening are detailed in the accompanying Planning Noise Assessment (**Appendix 11.1**)
- 11.3.28. These recommendations will be refined and implemented at the detailed design stage to ensure compliance with relevant standards and the protection of residential amenity.

EIA Scoping Process

- 11.3.29. As discussed in Chapter 2, a request for a Scoping Opinion was submitted on behalf of the Applicant to Knowsley Metropolitan Borough Council (KMBC) on 30th January 2025, which set out the proposed scope of assessment (see **Appendix 2.1**). KMBC issued their Scoping Opinion on 27th March 2025 and is summarised in Chapter 2 and included in full at **Appendix 2.2**. At that time, the intention was to submit one planning application for 2 parcels of land, referred to as Phase 2b and Phase 3. However, the planning application, which this ES supports, is now seeking planning permission in relation to Phase 3 only at this time..
- 11.3.30. It is considered that the Scoping Opinion provides relevant information to ensure a robust assessment in relation to the Phase 3 site and has therefore been used to guide the scope of this chapter and ES as a whole.
- 11.3.31. With regard to noise matters, no discipline-specific requirements or comments were raised through the EIA scoping consultation, with the formal scoping Opinion stating the proposals identified within the Scoping Report are acceptable and agrees inclusion of noise. The scope and approach for the noise assessment were therefore agreed as proposed, and no further consultees' comments were received.

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Limitations to the Assessment

- 11.3.32. The assessment of construction noise has by necessity been qualitative rather than quantitative. This is because at this stage there is no detailed information available regarding the type of construction plant to be deployed, the construction operations, programme, etc.
- 11.3.33. The assessment has therefore focussed on the need to mitigate likely significant effects of construction noise as far as is reasonably practicable by implementing appropriate measures in accordance with the 'best practice' guidance that is set out in BS 5228.
- 11.3.34. Mitigation measures set out this chapter are necessarily outline in nature at this stage. The need, type and extent of mitigation measures is established, however detailed specification is a detailed design matter. Implementation of an adequate scheme of noise mitigation measures can be ensured by the use of an appropriately worded planning condition in the usual way.
- 11.3.35. The construction noise assessment has been undertaken based on reasonable assumptions regarding the type of construction activities, plant usage, working hours and sequencing, as detailed construction methodologies are not yet available at this stage of the planning process. It has been assumed that traditional strip foundations will be used, with no requirement for piling, and that construction works will take place during standard daytime hours only, with no night-time or Sunday working.
- 11.3.36. These assumptions reflect typical practices for residential development of this scale and represent a conservative worst-case scenario for assessment purposes. The outcomes of the assessment may therefore be subject to refinement at the detailed design and construction planning stage; however, the adoption of a Construction Environmental Management Plan (CEMP) will ensure that noise is controlled in accordance with best practice.
- 11.3.37. This limitation is not considered to affect the identification of likely significant effects for the purpose of this ES.

11.4. Baseline Conditions

Site Description and Context

- 11.4.1. The Phase 3 parcel is situated within a mixed setting comprising residential development, woodland and open land. The dominant environmental noise source at the Site is road traffic on the M62 Motorway, which forms the southern boundary.
- 11.4.2. To the north, the site adjoins Halsnead Caravan Park, and to the west it is bounded by woodland associated with Big Water. Local road traffic on Fox's Bank Lane and the surrounding road network represents a further, lesser source of noise affecting the Site.

Baseline Survey Information

- 11.4.3. A baseline noise monitoring survey was undertaken to determine the ambient noise climate at a location on the Site representative of the proposed first row of dwellings facing the M62 Motorway. Supplementary short-term attended noise measurements were also undertaken at a number of additional locations across to support calibration of a computerised noise model prepared for the planning noise assessment. The noise monitoring locations are indicated on Figure 1 within **Appendix 11.1**.

- 11.4.4. These measurements also provide an indication of prevailing ambient conditions relevant to the consideration of construction noise.
- 11.4.5. A 24-hour automated noise measurement survey was undertaken between approximately 11:30 on Wednesday 8 May and 11:30 on Thursday 9 May 2024. The supplementary attended measurements were undertaken between 10:15 and 13:00 on Thursday 19 September 2024. Full details of the survey, instrumentation, weather conditions and results are set out in **Appendix 11.1**.
- 11.4.6. The results of the baseline noise measurements are summarised in Table 11.2 below.
- 11.4.7. The impact of traffic generated by the Proposed Development on existing dwellings adjoining roads in the area is assessed on the basis of comparative noise calculations for the 'without development' and 'with development' scenarios, with the 'without development' position representing the baseline.
- 11.4.8. The results of the daytime baseline noise monitoring survey at locations selected in connection with construction site noise are summarised in Table 11.2 below.

Table 11.2 Baseline Noise Levels

Monitoring Location	Daytime dB $L_{Aeq}(07:00-23:00)$	Night dB $L_{Aeq}(23:00-07:00)$
Location 1: (90m from M62 boundary) Close to Phase 2B Dwellings	56	52
Location 2: (90m from M62 boundary)	59	–
Location 3: (75m from M62 boundary)	61	–
Location 4: (70m from M62 boundary)	61	–
Location 5: (175m from M62 boundary)	56	–
Location 6: (250m from M62 boundary) Close to Halsnead Caravan Park	55	–

- 11.4.9. The results in Table 11.2 indicate that existing dwellings adjacent to, or near, the Site are exposed to daytime ambient noise levels in the range of 55–56 dB L_{Aeq} . These values represent a moderate noise environment influenced primarily by road traffic from the M62.
- 11.4.10. According to BS5228, the appropriate daytime threshold value for assessing construction noise impacts using the ABC method depends on the prevailing ambient noise level.
- 11.4.11. The measured noise levels straddle the boundary between Category A (≤ 65 dB) and Category B (65–70 dB) environments. In such cases, BS5228 advises that professional judgement should be applied, taking account of local sensitivity and the need for a precautionary approach.
- 11.4.12. To ensure that potential impacts are not underestimated, this assessment has adopted the Category A threshold value of 65 dB L_{Aeq} for daytime construction activities.

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- 11.4.13. This represents a conservative approach, recognising that while parts of the site experience ambient levels approaching Category B, nearby residential receptors may experience lower background conditions at certain times of day. The use of the Category A threshold therefore provides a robust basis for evaluating construction noise significance in accordance with EIA best practice.

11.5. Assessment of Likely Significant Effects

Construction

- 11.5.1. The Site currently comprises open grass fields with no associated buildings. Therefore, no demolition works will be required prior to the commencement of construction.
- 11.5.2. There will be some earthworks to facilitate development platforms, however the majority of the construction programme will be taken up by construction of the new houses and associated on-site roadways, services, etc.
- 11.5.3. Construction works will incorporate embedded best practice noise controls as part of the CEMP, including the selection of plant, maintenance regimes, and the use of temporary acoustic barriers where necessary.
- 11.5.4. However, there will be periods during the phased construction programme when building activities occur closer to the Site boundaries, and some temporary noise may be experienced by nearby existing residents during these phases.
- 11.5.5. Construction of houses does not usually generate significant levels of noise. The 'worst case' period is usually the initial ground preparation/foundation works because this is when heavy plant and machinery is required (e.g. tracked excavator, backhoe, truck, dumpers, etc.). Thereafter less machinery is deployed, and thus lower noise levels are generated.
- 11.5.6. We understand that foundations at this Site are likely to be constructed by traditional strip footings, with trench fill, and therefore no piled foundations are envisaged as being necessary at this stage. Thus, none of the likely construction activities will involve unduly noisy construction methods.
- 11.5.7. Also, no requirement for out of hours working (e.g. at night or on Sundays/Bank Holidays) is anticipated, however should this be the case LPA will be notified.
- 11.5.8. Construction activities are temporary, and the level of noise generated at any one location will vary considerably throughout the duration of the works. Depending on the proximity of construction works to noise sensitive residential properties, construction noise has the potential to give rise to short-term noise impacts, unless appropriate, best practice, noise mitigation measures are implemented.
- 11.5.9. The results of the baseline noise survey have identified that, in accordance with the ABC threshold approach of BS 5228-1, the lowest threshold value of 65 dB $L_{Aeq,T}$ for daytime construction works applies. In the absence of mitigation (i.e. assuming no CEMP controls and no best practice measures) construction activities occurring at the closest points to existing receptors could give rise to short-term noise impacts of up to Moderate Adverse significance. However, for the purposes of this assessment, the Construction Environmental Management Plan (CEMP) and best practice measures are treated as embedded mitigation.

- 11.5.10. These short-term significant effects would be limited to periods when the noisiest construction activities are undertaken in proximity to existing noise-sensitive receptors. These comprise the likely future dwellings to the east of the Site and the caravan park to the north of the Site. The assessment also applies to any future dwellings that become occupied within the development during the construction period.
- 11.5.11. With embedded mitigation and best practice noise control measures secured through the Construction Environmental Management Plan (CEMP), construction noise levels are anticipated to be reduced such that the residual effects would not exceed Minor Adverse significance. As Minor Adverse effects are not considered significant in EIA terms, the overall residual impact of construction noise is assessed as **not significant** and **temporary** in nature
- 11.5.12. The CEMP will be required by planning condition prior to commencement of development and will set out measures compliant with BS 5228-1 for the control of environmental noise from construction activities.
- 11.5.13. These measures will likely include the selection of quieter plant, strict maintenance regimes, use of temporary acoustic barriers where necessary, and adherence to agreed working hours. As such, these controls are considered embedded mitigation for the purposes of this assessment. Adoption of Best Practicable Means (BPM), as defined under the Control of Pollution Act 1974, will further ensure that construction noise at receptors is minimised as far as reasonably practicable. In addition, Section 61 of the Act enables developers to agree construction protocols with a local authority prior to works commencing. These powers present the best method for minimising any noise effects that may arise during the construction phase of the development.
- 11.5.14. There will also be some 'off site' noise during the construction phase due to associated traffic movements on existing roads (i.e., deliveries of materials, employee vehicles, etc). The volume of daily construction traffic will be less than that likely to be generated by the completed development. Given that this is the case, and that the significance of the noise impact of traffic generated by the completed development is Negligible (as discussed later in this Chapter), it can also be concluded that the traffic noise impact during the construction phase will be **Negligible** and for a temporary period only and not significant.
- 11.5.15. The construction noise impacts are summarised in Table 11.3 below.

Table 11.3 Noise Effects – During Construction

Construction Activity	Receptors	Residual effect with embedded mitigation (CEMP / best practice)
On site works	Existing bordering the site	Minor Adverse (temporary) – not significant
On site works	Any new houses that are in situ on the application site itself	Minor Adverse (temporary) – not significant
Off-site Construction Traffic	Existing dwellings on roads used by construction vehicles	Neutral/ Negligible

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- 11.5.16. Traffic flow data has been provided by Eddisons (the Highways consultants for the Project) in terms of 18-hour Average Annual Weekly Traffic ('AAWT') two-way flow rates.
- 11.5.17. The change in basic road traffic noise level between scenarios has been estimated from the change in traffic flow using the standard logarithmic relationship:
- where ΔL is the change in noise level (dB), $Q1$ is the traffic flow for the 'Do Minimum' scenario and $Q2$ is the traffic flow for the 'Do Something' (with development) scenario.*
- 11.5.18. The calculated noise level changes in dB $L_{A10(18\text{hour})}$ for noise-sensitive locations on a representative selection of local road, highlighted on **Figure 11.2**, based on the supplied traffic flow data, is presented in Table 11.4 below.

Table 11.4 Noise Impact of Traffic Generated by the Proposed Development

Location	Future Year 2031 Do-Minimum (Future Baseline & Cumulative)	Future Year 2031 Do-Something (Future Baseline & Cumulative + Phase 3)	Calculated Increase in Traffic Noise in dB(A)	Significance of Noise Impact
Stoney Lane (East of Windy Arbor Road)	1,587	1,728	0.4	Negligible
Dragon Lane (North of Meadway/Stoney Lane)	4,241	4,381	0.1	Negligible
A5080 Cronton Road (West of Fox's Bank Lane)	1,597	1,822	0.6	Negligible
Fox's Bank Lane (North of A5080 Cronton Road)	1,222	1,470	0.8	Negligible
Fox's Bank Lane (South of Site Access)	1,222	1,470	0.8	Negligible
Fox's Bank Lane (North of Site Access)	2,271	2,586	0.6	Negligible
Fox's Bank Lane (South of Lickers Lane)	2,285	2,600	0.6	Negligible
Fox's Bank Lane (North of Lickers Lane)	1,413	1,594	0.5	Negligible
Cumber Lane (South of Stoney Lane)	1,332	1,512	0.6	Negligible
Cumber Lane (North of Stoney Lane)	1,411	1,586	0.5	Negligible

- 11.5.19. With the fully completed development in place, the range of increases in road traffic noise would be 0.1 – 0.8 dB. This equates to a **Negligible** noise impact (**not significant**).

Effect of existing Noise on Proposed Development

- 11.5.20. With reference to Appendix 11.1, Technical Assessment, the calculated noise exposure levels for the proposed dwellings in the eastern part of the Site (closest to the M62) would fall within the 'Medium-Low' risk category of ProPG for both the daytime and night-time periods.
- 11.5.21. For the western part of the Site, where the motorway is in a cutting, the calculated noise exposure levels would fall within the 'Low' risk category for both daytime and night-time periods. Due to the lower noise levels, no specific noise mitigation measures are anticipated to be required for the dwellings to the western part of the site.
- 11.5.22. For dwellings located towards the M62 in the eastern part of the site, predicted road traffic noise levels indicate that some mitigation measures will be necessary to secure appropriate internal noise conditions within habitable rooms and to achieve suitable noise environments within external amenity areas. This mitigation is discussed in the following section, however without mitigation it is considered there could be significant effects.

11.6. Mitigation, Enhancement and Residual Effects

- 11.6.1. This section describes the measures which are recommended to mitigate any environmental impacts.

Mitigation by Design

- 11.6.2. Embedded mitigation for the construction phase is assumed through the implementation of a Construction Environmental Management Plan (CEMP), which will apply industry best practice measures in accordance with BS 5228 to control noise at source.
- 11.6.3. These measures are inherent to the scheme design and have therefore been taken into account within the assessment. The embedded measures are expected to include, but not be limited to, the following:
- Restricting construction activities to daytime hours only (07:00–19:00 Monday to Friday and 08:00–13:00 Saturday), with no working on Sundays or Bank Holidays.
 - Use of well-maintained plant fitted with silencers, engine covers and noise enclosures, with engines turned off when not in use.
 - Designing vehicle routes and site logistics to minimise reversing manoeuvres and associated warning alarms.
 - Adoption of appropriate speed limits on-site and provision of directional signage.
 - No percussive piling unless agreed in advance with the Local Planning Authority.
 - Locating any fixed plant, compounds and haul routes away from noise-sensitive receptors where practicable.

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- Provision of site inductions and toolbox talks to ensure all personnel are aware of noise control requirements.

11.6.4. These measures represent embedded mitigation and are assumed as standard for the purposes of determining the residual construction noise effects.

11.6.5. The Proposed Development parameters and emerging layout incorporate embedded design measures to reduce operational noise effects. In particular, the majority of new dwellings are set back from existing residential properties, and a landscaped green buffer between the motorway and the first row of dwellings forms part of the inherent site design. These measures are treated as embedded mitigation for the purposes of this assessment and are reflected in the residual effects reported.

Additional Mitigation.

During Construction

11.6.6. No further specific mitigation measures are required during the construction phase, as all noise control measures are embedded within the CEMP

11.6.7. No mitigation measures are necessary in respect of “off-site” noise from construction traffic during the construction phase because the magnitude of such an impact is Negligible in any event.

During Operation

11.6.8. In determining appropriate mitigation in respect of the impact of existing noise on the proposed dwellings, the guidance in BS8233 has been used. BS8233 recommends appropriate acoustic design criteria for different types of buildings including residential buildings and includes useful guidance on the sound insulation of buildings against external sources.

11.6.9. The guidance provided in BS8233 includes appropriate internal and external noise level criteria which are applicable to dwellings for steady external noise sources. It is stated that it is desirable that the internal ambient noise level does not exceed the following criteria set out in Table 11.5.

Table 11.5 BS 8233 Internal Noise Criteria

Activity	Location	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)
Resting	Living room	35 dB $L_{Aeq(16hr)}$	–
Dining	Dining room/area	40 dB $L_{Aeq(16hr)}$	–
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq(16hr)}$	30 $L_{Aeq(8hr)}$

11.6.10. Whilst BS8233 provides guidance in terms of ‘peak’ noise in terms of L_{AFmax} for the assessment of regular individual noise events that can cause sleep disturbance during the night-time, a specific

criterion is not stipulated. ProPG does however recommend that peaks of noise inside bedrooms at night do not exceed a limit of 45 dB L_{AFmax} more than 10 times per night.

- 11.6.11. With respect to external amenity spaces such as gardens and patios, it is desirable that noise levels do not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ considered acceptable in noisier environments. Given the Site's proximity to the strategic road network, the application of the upper guideline value of 55 dB $L_{Aeq,T}$ is considered appropriate in this instance.
- 11.6.12. The noise assessment appended as Technical Appendix 11.1 identifies that road traffic noise from the M62 motorway would give rise to elevated noise levels at the most exposed dwellings and, therefore, mitigation is required. As discussed in Appendix 11.1, the required measures are limited to upgraded glazing and associated ventilation provisions at the most exposed façades, together with localised acoustic fencing to a select number of gardens. These are shown on Figure 2 within Appendix 11.1.
- 11.6.13. The assessment confirms that, with the incorporation of the recommended plot-specific measures, operational noise effects would be reduced to Negligible (not significant) in EIA terms at the nearest proposed dwellings.

Table 11.6 Mitigation (including embedded and additional)

Ref	Measure to avoid, reduce or manage any adverse effects and/or to deliver beneficial effects	How measure would be secured		
		By Design	By S.106	By Condition
1	<u>Construction: Noise Management</u> Implement CEMP incorporating BS 5228 good practice.			X
2	<u>Construction: Working Hours</u> Restrict working hours and control any out-of-hours works.			X
3	<u>Operational: Internal Noise Levels</u> Acoustic design to achieve BS 8233 internal noise criteria. The required measures are limited to upgraded glazing and associated ventilation provisions at the most exposed façades, together with localised acoustic fencing to a select number of gardens.	X		X
4	<u>Operational: External Noise Levels</u> Provide external amenity areas designed with regard to BS 8233 external guidelines.	X		X

Noise

Residual Effects

- 11.6.14. This section comments on the residual noise effects, taking into account the embedded mitigation measures described above (including the CEMP and best practice measures during construction).

During Construction

- 11.6.15. Taking into account the embedded construction noise mitigation measures (including the CEMP and best practice measures), residual construction noise effects are predicted to be not significant in EIA terms.
- 11.6.16. Temporary Minor Adverse effects may occur during peak construction activities when works are closest to receptors; however, these effects will be short-term and controlled through the CEMP.

Table 11.7 Residual Noise Effects – During Construction (with embedded mitigation)

Construction Activity	Receptors	Residual effect (with embedded mitigation, including CEMP)
On site works	Existing dwellings close to site	Minor Adverse (Not Significant)
On site works	Any new houses that are in situ on the application site itself	Minor Adverse (Not Significant)
Off site Construction Traffic	Existing dwellings on roads used by construction vehicles	Negligible (Not Significant)

During Operation

- 11.6.17. The negligible noise impact of traffic generated by the development means that no further mitigation measures are necessary in relation to that matter.
- 11.6.18. The noise assessment appended as Technical Appendix 11.1 identifies that road traffic noise from the M62 motorway would give rise to elevated noise levels at the most exposed dwellings and, therefore, mitigation is required as noted above.
- 11.6.19. The assessment confirms that, with the incorporation of the recommended plot-specific measures, operational noise effects would be reduced to Negligible (not significant) in EIA terms at the nearest proposed dwellings. The required measures are limited to upgraded glazing and associated ventilation provisions at the most exposed façades, together with localised acoustic fencing to a select number of gardens. The need to ensure that an adequate scheme of noise mitigation is implemented can be formalised by an appropriately worded planning condition.
- 11.6.20. The residual operational noise effects, taking into account the embedded design measures described above, are summarised in Table 11.8.

Table 11.8 Residual Noise Impact – After Completion (with embedded and additional mitigation)

Noise Source	Receptors	Noise Impact prior to Noise Mitigation	Residual Noise Impact
Additional traffic on existing roads in the area generated by the development	Dwellings alongside existing roads in the area	Negligible (Not Significant)	Negligible (Not Significant)
Traffic noise from M62	Proposed new dwellings on southern part of development	Moderate Adverse impact (Significant)	Negligible (Not Significant)

11.7. Cumulative and In-Combination Effects

11.7.1. Construction noise from the Proposed Development will be temporary and phased. Construction activities associated with other schemes within the area, if occurring at the same time, would also be subject to standard construction noise controls secured through planning conditions and Construction Environmental Management Plans (CEMPs).

11.7.2. Accordingly, cumulative construction noise effects are considered as **Minor Adverse** and **not significant**.

Cumulative Effects During Operation

11.7.3. Under the cumulative traffic scenario (as modelled by Eddisons, using the future year traffic flows for the Proposed Development in-combination with other committed developments), the predicted change in road traffic noise on the local highway network is in the range of +0.1 dB to +0.8 dB.

11.7.4. As changes in road traffic noise of less than 1 dB are generally imperceptible and represent a negligible change, the predicted cumulative changes are assessed as Negligible and not significant in EIA terms. The cumulative traffic assumptions are set out in Chapter 9 of this Environmental Statement (Transport), based on the Transport Assessment/technical note prepared by Eddisons.

11.7.5. In addition, the noise assessment (Technical Appendix 11.1) identifies plot-specific mitigation measures for the dwellings closest to the M62 motorway, such that appropriate internal noise levels and external amenity standards can be achieved in accordance with BS 8233 and the residual effects are not significant.

11.7.6. Therefore, no significant cumulative effects are expected for future residents of Phase 3.

Noise

11.8. Summary

11.8.1. This Chapter has assessed the noise impact of the Proposed Development on existing noise-sensitive receptors in the area. In particular, it considers minimising potential impact of construction noise and assessing any additional traffic noise generated on the local highway network as a result of the completed Proposed Development.

11.8.2. The potential impact of existing environmental noise impact on the development has also been considered.

Baseline Conditions

11.8.3. A baseline environmental noise survey has been carried out in May and September 2024 and the methodology and results are described fully in the separate technical reports in Technical Appendix 11.1.

11.8.4. The methodology for assessing noise impacts of the temporary construction phase of the development has by necessity been qualitative rather than quantitative. This is because at this (pre-planning consent) stage contractors have not been appointed and there is no detailed information available regarding the type of construction plant, operations, programme, etc. The assessment has therefore focussed on the need to mitigate the impact of construction noise on residential areas as far as is reasonably practicable.

Likely Significant Effects

11.8.5. It has been concluded that, without the implementation of appropriate noise mitigation measures, construction Site noise may give rise to short-term noise impacts of up to Moderate Adverse significance during periods where the noisiest activity is taking place at the closest points to existing noise-sensitive properties that border the Site.

11.8.6. Therefore, there is a need to mitigate construction noise, as far as is reasonably practicable, by implementing appropriate measures in accordance with the 'best practice' guidance that is set out in BS5228-1. It has been concluded that with the implementation of appropriate mitigation measures, the residual noise impact from construction works is likely to be no more than of Minor Adverse significance.

11.8.7. For the operational phase, potential long term traffic noise impacts resulting from operation of the completed development have been assessed using a comparative approach. This has involved investigating the difference between calculated traffic noise levels for the 'without development' and 'with development' scenarios, based upon the anticipated future traffic flows.

11.8.8. Noise impacts have been evaluated for existing noise sensitive receptors on, or near, a sample of roads in the area. The calculated increases in traffic noise, using a nationally recognised calculation procedure, range from 0.1 to 0.8 dB for the fully completed and development. In terms of environmental noise impact these increases are low and are of Negligible significance.

11.8.9. In respect of the potential impact of existing noise on the proposed dwellings, the potential noise impact on the majority of proposed dwellings would be Negligible.

11.8.10. For the small number of proposed dwellings most exposed to noise from M62, the potential noise impact would be Moderate Adverse without mitigation. Subject to appropriate mitigation, in the

form of enhanced glazing and ventilation specifications, the residual noise impact is anticipated to be Negligible.

11.8.11. **Table 11.9** provides a summary of effects, mitigation and residual effects.

Noise

Table 11.9: Summary of Effects, Mitigation and Residual Effects

Receptor Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
Construction								
Existing dwellings adjoining / close to the Site boundary (R1, R2 and R3)	Construction noise from on-site works during periods when the noisiest activities are undertaken closest to receptors	Temporary / Direct	Not Applicable	Not Applicable	Local	Minor Adverse (temporary) – not significant without mitigation	Embedded mitigation via CEMP incorporating BS 5228 best practice (selection of quieter plant; strict maintenance; agreed working hours; temporary acoustic barriers where necessary; site logistics/routing; inductions/toolbox talks; no percussive piling unless agreed)	Minor adverse – not significant
Any new dwellings that become occupied within the development during the construction period	Construction noise affecting any new dwellings that become occupied during phased construction	Temporary/ Direct	Not Applicable	Not Applicable	Local	Minor Adverse (temporary) – not significant without mitigation	Embedded mitigation via CEMP incorporating BS 5228 best practice (as above)	Minor adverse – not significant
Existing dwellings on roads used by construction traffic	Off-site construction traffic noise on the local road network during construction	Temporary / Direct	Not Applicable	Not Applicable	Local	Negligible (not significant)	None required	Negligible – not significant

Operation								
Existing dwellings alongside the local road network within the study area (representative sample including Fox's Bank Lane and other local links)	Change in road traffic noise on existing roads due to development-generated traffic (do-minimum versus do-something)	Permanent / Direct	Not Applicable	Not Applicable	Local	Negligible (not significant) (0.1–0.8 dB increase)	None required	Negligible – not significant
Proposed new dwellings (most exposed dwellings closest to the M62 motorway)	Existing road traffic noise affecting proposed dwellings, with potential exceedances of BS 8233 internal criteria and external amenity guideline values without mitigation	Permanent / Direct	Not Applicable	Not Applicable	Local	Moderate Adverse (adverse) (significant) without mitigation (for the most exposed dwellings)	Plot-specific mitigation to achieve BS 8233 internal criteria and external amenity guidance (as set out in Technical Appendix 11.1), limited to upgraded glazing and associated ventilation provisions at the most exposed façades, together with localised acoustic fencing to a select number of gardens	Negligible (not significant)
Cumulative and In-Combination								
Existing dwellings adjoining / close to the Site boundary (R1, R2 and R3)	Cumulative construction noise effects where construction activities from multiple schemes could overlap temporally	Temporary / Indirect	Not Applicable	Not Applicable	Local	Minor Adverse (adverse) (temporary) – not significant	Standard construction noise controls secured through planning conditions and CEMPs and embedded CEMP measures for the Proposed Development	Minor Adverse (adverse) (temporary) – not significant

Noise

Existing dwellings alongside the local road network within the study area	Cumulative change in road traffic noise on the local highway network under the future-year cumulative scenario (in-combination with committed development)	Permanent / Indirect	Not Applicable	Not Applicable	Local	Negligible (not significant) (less than 1 dB)	None required	Negligible (not significant)
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