



Yeargate Limited

LAND NORTH OF BIRCH BUSINESS PARK

Environmental Statement Volume I Chapter 7 –
Noise and Vibration

August 2026

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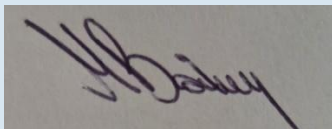
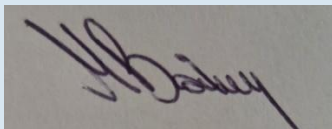
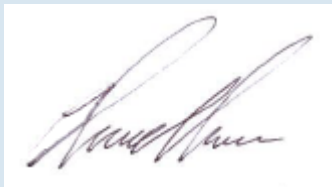
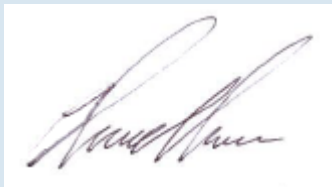
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7 NOISE AND VIBRATION

ABBREVIATIONS

CRTN	Calculation of Road Traffic Noise
BS	British Standard
NPPF	National Planning Policy Framework
DMRB	Design Manual for Roads and Bridges

GLOSSARY

Noise	Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
LAeq, T	LAeq is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
LAmix	LAmix is the maximum A-weighted sound pressure level recorded over the period stated. LAmix is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the "fast" sound level meter response.
L10 and L90	If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time and as such can be regarded as the "average maximum level". Similarly, L90 is the "average minimum level" and is often used to describe the background noise. It is common practice to use the L10 index to describe traffic noise.

Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Fast	A time weighting used in the root-mean-square section of a sound level meter with a 125-millisecond time constant.
Slow	A time weighting used in the root-mean-square section of a sound level meter with a 1000-millisecond time constant.

7.1 INTRODUCTION

- 7.1.1. This chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Development upon Noise and Vibration. This chapter has been produced by E3P.
- 7.1.2. The assessment of Noise and Vibration has established that no additional mitigation measures are required.
- 7.1.3. The following residual effects have been identified:
- For construction noise and vibration, there is likely to be a direct, temporary, medium-term **negligible adverse** residual effect on residential and commercial receptors (**not significant**).
 - For operational noise sources, there is likely to be a direct, permanent, long-term **negligible adverse** residual effect on residential and commercial receptors (**not significant**).
- 7.1.4. Consequently, there are no monitoring requirements identified.
- 7.1.5. The following environmental enhancement opportunities have been identified:
- There is potential for environmental enhancement in relation to noise in so far as potentially planting any exposed boundaries to receptors to remove line of sight to noise sources at the development site and to, subjectively, lessen the potential impact of commercial noise.
- 7.1.6. The remainder of this chapter describes the assessment methodology and the baseline conditions relevant to the assessment, which have been used to reach these conclusions, as well as a summary of the likely significant effects leading to the additional mitigation measures required to avoid, prevent, reduce or, if possible, offset any likely significant adverse effects, and the likely residual effects and any required monitoring after these measures have been employed. Opportunities for environmental enhancement, where such opportunities exist, are also discussed.
- 7.1.7. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES, with particular reference to **Chapters 1 to 5** and is supported by the Noise Impact Assessment in **Appendix 7.1**.

7.2 CONSULTATION, SCOPE, METHODOLOGY AND SIGNIFICANCE CRITERIA

CONSULTATION UNDERTAKEN TO DATE

7.2.2.

7.2.3. Table 7-1 provides a summary of the consultation activities undertaken in support of the preparation of this assessment.

Table 7-1 - Summary of consultation undertaken

Body / organisation	Individual / stat body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
Rochdale Metropolitan Borough Council	Environmental Health Officer	Adoption of scoping response on wider Northern Gateway 24/01039/SCO	Adoption of methodology for assessment. We note that operational vibration is unlikely to have a significant effect and has been scoped out. The scoping report outlined the proposed methodology which aligns with a typical approach. The Environmental Health Pollution Control section have confirmed that they have no objections to the approach and the methodology proposed in the scoping report. Although this is a separate scheme, a similar approach has been taken due to the same sources of noise assessed.

SCOPE OF THE ASSESSMENT

- 7.2.4. The scope of this assessment has been established through an ongoing scoping process for the wider Northern Gateway application. However, as it concerns the same study area and noise and vibration sources, a similar approach can be adopted. Further information can be found in **Chapter 5: Approach to EIA**.
- 7.2.5. This section provides an update to the scope of the assessment and updates the evidence base for scoping out elements following further iterative assessment.
- 7.2.6. We note that the wider scoping response for the Northern Gateway application scoped out operational vibration as it is unlikely to have a significant effect. The scoping report concludes that the following, applicable to the development site, would have a significant effect:
- Noise from construction works.
 - Vibration from construction works.
 - Construction traffic noise on the road network.
 - Noise from proposed commercial and industrial uses.
 - Noise from existing and reasonably foreseeable future noise sources.
- 7.2.7. The Environmental Health Pollution Control section have confirmed that they have no objections to this approach and the methodology proposed in the scoping report.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

7.2.8. The elements shown in **Table 7-2** are not considered to give rise to likely significant effects as a result of the Proposed Development and have therefore not been considered within this assessment:

Table 7-2 - Elements scoped out of the assessment

Element scoped out	Justification
Operational Vibration	No significant sources of vibration expected as part of the development

ELEMENTS SCOPED INTO THE ASSESSMENT

Construction Phase

7.2.9. The following elements are considered to have the potential to give rise to likely significant effects during construction of the Proposed Development and have therefore been considered within this assessment:

- Construction noise.
- Construction vibration; and
- Construction generated road traffic noise.

Operation Phase

7.2.10. The following elements are considered to have the potential to give rise to likely significant effects during operation of the Proposed Development and have therefore been considered within this assessment:

- Proposed commercial sound impact; and
- Changes in road traffic noise levels.

EXTENT OF THE STUDY AREA

7.2.11. The extent of the assessment will focus on existing human sensitive receptors within the vicinity of the Site. As noise dissipates with distance, any receptors not within the immediate vicinity of the Site would be subject to lower noise levels and therefore unlikely to be significantly affected.

METHOD OF BASELINE DATA COLLATION

DESK STUDY

7.2.12. A desk-based study has been undertaken in order to identify receptors around the development site.

7.2.13. Additionally, a 3D noise model has been constructed using readily available information.

SURVEYS

7.2.14. A full weekday and weekend background and ambient sound survey has been conducted in July 2025 in a position considered representative of the nearby receptors. The full details of which are given in Section 3.1 of Appendix 7.1.

ASSESSMENT METHODOLOGY

CONSTRUCTION PHASE

7.2.15. The following assessments are undertaken as part of this assessment in relation to the construction (including enabling works) phases:

- Assessment of construction noise at existing and proposed local sensitive receptors in accordance with BS 5228-1.
- Assessment of construction generated noise due to construction traffic on the local road network at existing local receptors in accordance with the DMRB; and,
- Assessment of ground-borne vibration levels at existing local sensitive receptors in accordance with BS 5228-2.

CONSTRUCTION NOISE APPROACH

- 7.2.16. The likely significant effects of enabling and construction noise will be assessed in accordance with the guidance given in BS 5228-1, specifically following the 'ABC Method'. This method utilises the existing ambient noise levels, as measured on site, and uses these to set the appropriate threshold value above which adverse impact may be expected.
- 7.2.17. With respect to hours of work, BS 5228-1 makes reference to the fact that noise levels generated during the evening (19:00 to 23:00) may need to be lower than the daytime (07:00 to 19:00) period (a figure of 10 dB is quoted) and also that for any night-time operations (23:00 to 07:00) levels should be quieter still. The Standard does not, however, offer guidelines with respect to acceptable levels.
- 7.2.18. Magnitude of change used in the construction noise assessment are based upon guidance in BS 5228:2009+A1:2014 and are detailed below. Following the ABC Method in BS 5228-1, where the existing ambient noise levels determine the appropriate threshold noise level with consideration of absolute limits of 75 dB for urban areas.

Table 7-3 – Construction noise magnitude of change criteria

Magnitude of Change	A 65 dBA Threshold	B 70 dBA Threshold	C 75 dBA Threshold
Negligible	<65 dB(A)	<70 dB(A)	<75.0
Small	>65.0 - <69.9	>70.0 - <74.9	>75.0 - <79.9
Medium	>70.0 - <74.9	>75.0 - <79.9	>80 - <85.0
Large	>75	>80	>85

CONSTRUCTION VIBRATION APPROACH

- 7.2.19. The likely significant effect of construction vibration will be assessed in accordance with the guidance given in BS 5228-2. Consideration will be given to worst-case activities and their associated PPV levels at each receptor. Consideration will be given to human perception and building response.

7.2.20. The magnitude of change of vibration effects has been assessed drawing upon the guidance criteria presented within BS 5228-2 as outlined below:

- 0.14 mm/s – Negligible - Vibration might just be perceptible in the most sensitive situation for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
- 0.3 mm/s – Small - Vibration might be just perceptible in residential environments.
- 5.0 mm/s – Medium - It is likely that vibration of this level in residential environmental will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
- 10.0 mm/s – Large - Vibration is likely to be intolerable for any more than a very brief exposure to this level.

CONSTRUCTION TRAFFIC NOISE APPROACH

7.2.21. Changes in road traffic noise levels as a result of construction generated traffic will be assessed in accordance with the guidance given in DMRB LA 111. The same magnitude of change criteria adopted in the change in road traffic noise level assessment, below, will be used.

OPERATIONAL PHASE

CHANGES IN ROAD TRAFFIC NOISE APPROACH

7.2.22. Changes in road traffic noise levels as a result of traffic flows associated with the Proposed Development will be assessed in accordance with the guidance given in DMRB LA 111.

7.2.23. The assessment of noise impact due to changes in road traffic has been undertaken drawing upon the suggested classification of effect provided within the DMRB. The DMRB classification of effects has been adapted to produce a set of magnitude criteria ranging from no effect to major as presented within Table 7-4 for the short term (0-3 years) and Table 7.5 for the long term (3 year+).

Table 7-4 – Magnitude of Change in road traffic noise levels – Short Term

Noise level change, LA10,18hr (dB)	Short term magnitude of change
0.0-0.9	Negligible
1.0-2.9	Small
3.0-4.9	Medium
5.0+	Large

Table 7-5 – Magnitude of Change in road traffic noise levels – Long Term

Noise level change, LA10,18hr (dB)	Short term magnitude of change
0.0-2.9	Negligible
3.0-4.9	Small

5.0-9.9	Medium
10.0+	Large

COMMERCIAL NOISE IMPACT APPROACH

- 7.2.24. For onsite operational noise, the rating level from such activity will be calculated, in accordance with BS 4142:2014+A1:2019 and compared against the measured background sound level.
- 7.2.25. The assessment of noise impact due to operation of the Site, i.e. commercial/industrial noise, will be assessed in accordance with BS 4142:2014+A1:2019. This will consider typical operations on site, day and night, and allow for any acoustic feature corrections associated with the source, allowing for context. The rating level predicted will be compared to the background sound level, the difference between the two will determine the magnitude of impact as outlined in Table 7.6.

Table 7-6 – Magnitude of Change for BS 4142 Assessment of commercial sound

Difference between rating level, $L_{A,r}$, and background sound level, $L_{A90,T}$ (dB)	Magnitude of change
0 dB or below	Negligible
0 to +4.9 dB	Small
+5 dB to +9.9 dB	Medium
>+10 dB	Large

SIGNIFICANCE CRITERIA

- 7.2.26. The significance level attributed to each effect has been assessed based on the sensitivity/value of the affected receptor(s) and the magnitude of change arising from the Proposed Development, as well as a number of other factors that are outlined in more detail in **Chapter 5: Approach to EIA**. The sensitivity of the affected receptor is assessed on a scale of high, medium, low and negligible, and the magnitude of change is assessed on a scale of large, medium, small, negligible and no change, as set out in **Chapter 5: Approach to EIA**.

EFFECT SIGNIFICANCE

- 7.2.27. The following terms have been used to define the significance of the effects identified and apply to both beneficial and adverse effects:
- **Major effect:** where the Proposed Development could be expected to have a substantial improvement or deterioration on receptors;
 - **Moderate effect:** where the Proposed Development could be expected to have a noticeable improvement or deterioration on receptors;

- **Minor effect:** where the Proposed Development could be expected to result in a perceptible improvement or deterioration on receptors; and
- **Negligible:** where no discernible improvement or deterioration is expected as a result of the Proposed Development on receptors, including instances where no change is confirmed.

7.2.28. As set out in **Chapter 5: Approach to EIA**, effects that are classified as **moderate or above** are considered to be **significant**. Effects classified as below **moderate** are considered to be **not significant**.

7.3 LEGISLATIVE FRAMEWORK, POLICY AND GUIDANCE

LEGISLATIVE FRAMEWORK

7.3.1. The applicable legislative framework is summarised as follows:

- The Control of Pollution Act 1974 (**Ref 7.1**) contains powers for local authorities to deal with noise and vibration from construction and demolition sites.
- The Environmental Protection Act 1990 (**Ref 7.2**) provides the principal controls over so-called "statutory nuisances", including noise emitted from premises so as to be prejudicial to health or a nuisance. By virtue of the Noise and Statutory Nuisance Act 1993, it also applies to nuisances arising from vehicles, machinery and other equipment, in the street.

POLICY

7.3.2. The following planning policy documents are considered throughout:

- Rochdale Borough Draft Local Plan Regulation 18 Consultation 2025.
- Rochdale Adopted Core Strategy 2016.

7.3.3. In addition, this chapter has been prepared in accordance with the Government's National Planning Practice Guidance (**Ref. 7.3**).

GUIDANCE

7.3.4. The following guidance documents have been used during the preparation of this chapter:

- Calculation of Road Traffic Noise (CRTN) 1988 (**Ref 7.4**).
- British Standard BS 4142:2014+A1:2019 'Methods for rating and assessment industrial and commercial sound' (**Ref 7.5**).
- British Standard BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites- Part 1: Noise' (**Ref 7.6**).
- British Standard BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites- Part 2: Vibration' (**Ref 7.7**); and
- Design Manual for Roads and Bridges (DMRB) (2020) LA 111 Noise and Vibration Revision 2 (**Ref. 7.8**).

7.4 BASELINE CONDITIONS

7.4.1. E3P has conducted a full weekday-weekend Background Sound Survey in order to quantify the existing levels of background sound at a position considered representative of the closest associated and non-associated receptors at Moss Hall Farm and on Dr Fold Lane. The survey was conducted between the following periods:

- 10:00 Friday 25th July to 10:00 Monday 28th July 2025.

- 7.4.2. The following noise measurement position was chosen for the Background and Ambient Sound Survey:
- Noise Measurement Position 1 (NMP1): Located on the south eastern boundary of the site. The microphone of the sound level meter was attached to a tripod and located in free-field conditions at a height of 1.75m above ground level. Sound sources here consisted of commercial noise from the nearby industrial site, and are representative of noise at existing receptors due to being installed at an equal distance from current commercial activity.
- 7.4.3. The full dataset and NMP position are shown in **Appendix 7.1** within Section 3.
- 7.4.4. From the survey, typical representative background sound levels of 37 dB during the day and 30 dB during the night are noted.

FUTURE BASELINE

- 7.4.5. No significant change to the baseline is anticipated. Although further development in the area is proposed which could result in higher background sound levels at the receptors, the assessment has taken a worst-case stance using existing baseline for the assessment to ensure further protection to the existing sound climate.

7.5 SENSITIVE RECEPTORS

- 7.5.1. The following sensitive receptors have been assessed:
- Residential properties in the immediate vicinity of the development site.
 - Residential properties along the affected road network; and
 - Offices in the immediate vicinity of the development site.
- 7.5.2. All key sensitive receptor locations in relation to Noise and Vibration are shown on **Figure 7.1**.

7.6 ASSESSMENT OF POTENTIAL EFFECTS, MITIGATION AND RESIDUAL EFFECTS

CONSTRUCTION PHASE

CONSTRUCTION NOISE

- 7.6.1. There is potential that with any major development that could be some disturbance caused to those nearby during the enabling and construction phases of the Site. However, disruption due to construction is only temporary, limited to the Site and areas immediately surrounding and is of short-term duration. The impacts will be localised to the nearest receptor(s) to any phase of development and, as such, a medium-term duration is considered appropriate.
- 7.6.2. The predictions have followed the methodology contained within BS 5228-1 and are in terms of the LAeq,T over the core working day, which is assumed to be 08:00 to 18:00 hours Monday to Friday and 08:00 to 14:00 on Saturdays. Any minor deviation from these times have little to no impact on the outcome of these assessments as these consider daytime periods only.
- 7.6.3. Table 7.7 sets out the typical plant type, number and assumed utilisation (percentage 'on-time') used in the prediction of noise levels during the key construction activities. The actual method of operations for the enabling and earthworks activities would be determined by the contractor and this can vary and so it is not possible to provide exact numbers and plant types at this stage. As such,

reasonable assumptions have been made. For the earthworks, site clearance, grading, road construction and piling are included to inform a worst-case assessment.

Table 7-7 – Assumed plant details

Plant Type	Sound pressure level at 10 m, $L_{Aeq,T}$ (dB)	No. of assumed plant	Assumed % on-time
Earthworks			
Dozer	64.9	4	80
Tracked Excavator	62.9	4	80
Dump truck	86.0	5	80
Rotary bored piling	83.0	2	75
Road Roller	63.9	1	60
Asphalt Paver	60.9	1	60
Construction			
Cement mixer truck idling	71.0	1	60
Concrete pump + cement mixer	67.0	2	80
Mobile telescopic crane	77.0	2	40
Telescopic handler	79.0	2	50
Circular saw	85.0	1	40
Diesel generator	77.9	1	100
Tracked excavator	88.0	1	60
Forklift truck	88.0	2	70

- 7.6.4. Predictions based on the BS 5228-1 data have been carried out to determine noise levels likely to be generated during the enabling/earthworks and construction phase/s. For the purpose of these predictions, it was assumed that the intervening ground between the construction noise sources and the receivers will be acoustically hard such that there will be no additional attenuation of sound due to ground absorption thus informing a worst-case assessment.
- 7.6.5. Noise predictions have been undertaken for the noise sensitive receptors R1 to R5. The noise sensitive receptors are detailed in **Figure 7.1**.

- 7.6.6. Table 7-8 sets out the average predicted unmitigated noise levels for each part of the works. The ABC Method described in BS 5288-1 has been used to inform the assessment. For the appropriate period (night, evening/weekends or day), the ambient noise level is determined and rounded to the nearest 5 dB. This is then compared with the Site noise level. If the Site noise level exceeds the appropriate category value, then a potential significant effect is indicated. As stated previously, Category A Threshold Values of 65 dB to be applied within the assessment. Any exceedances are highlighted in bold.
- 7.6.7. For the commercial receptors on Moss Hall Road (R3), a limit of 75 dB, for urban areas, will be applied considering their lower sensitivity and locality.
- 7.6.8. For the magnitude of change, these are categorised depending on the worst-case period.

Table 7-8 – Construction noise assessment

Receptor	Distance to site (m)	Predicted earthworks noise level, $L_{Aeq,10hr}$ (dB)	Predicted construction noise level, $L_{Aeq,10hr}$ (dB)	Magnitude of Change
R1 – Dr Fold Lane East	400	56.2	50.6	Negligible
R2 – Dr Fold Lane South East	645	52.1	46.5	Negligible
R3 – Commercial Premises to South	50	74.3	68.7	Negligible
R4 – Moss Hall	150	64.7	59.1	Negligible
R5 – Moss Hall Road	490	54.4	48.8	Negligible

- 7.6.9. A review of Table 7-8 identifies that the calculated unmitigated site preparation and construction noise levels are negligible at all receptors.
- 7.6.10. Tables 7.9 and 7.10 summarises the assessment of potential effects, any mitigation measures required and residual effects.

Table 7-9 – Assessment of potential effects, additional mitigation, residual effects and monitoring of Construction Noise - Residential

Sensitive receptor	Residential dwellings
Potential effects	The potential effects arise from noise generation by equipment and processes as part of the earthworks and/or construction works. The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant).

Additional mitigation	No additional mitigation is required as a result of the above.
Residual effects and monitoring	The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant). Given this, no monitoring during the construction phase is required.

Table 7-10 – Assessment of potential effects, additional mitigation, residual effects and monitoring of Construction Noise - Commercial

Sensitive receptor	Commercial Premises
Potential effects	The potential effects arise from noise generation by equipment and processes as part of the earthworks and/or construction works. The sensitivity of the receptors is medium, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant).
Additional mitigation	No additional mitigation is required as a result of the above.
Residual effects and monitoring	The sensitivity of the receptors is medium, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant). Given this, no monitoring during the construction phase is required.

CONSTRUCTION VIBRATION

- 7.6.11. Ground borne vibration calculations have been performed for typical construction activities / machinery based on the empirical prediction procedures and historical measurement data presented within BS 5228-2. Such predictions have been performed to determine the possible distances at which the adopted significance criteria may be registered based on a specified confidence limit (where applicable). In this regard, the ground borne vibration levels and associated distances have been identified for a sample of typical construction vibration sources as shown in Table 7.11.

Table 7-11 – Predicted groundborne vibration levels applicable to typical construction activities

Operation	Confidence Limit	Distance (m)	Peak Particle Velocity (PPV) (mm/s)
	95	60	0.3

Vibratory rollers – start and end	95	23	1.0
Vibratory rollers – steady state ¹	95	3.3	10.0
Piling – driven cast in place	95	215	0.3
	95	85	1.0
	95	15	10.0
HGVs ²	N/A	50	≤0.3
	N/A	17	≤1.0
	N/A	2.5	≤10.0
1. Assumes 2 rollers. 0.4 mm amplitude, drum width of 1.3 m, e.g. heavy duty ride on roller 2. Assumes max height/depth of surface defect of 50 mm, max speed of 30 km/h, and that surface defect occurs at both wheels. Note: Where alluvium soils are present, higher vibration levels can be expected.			

- 7.6.12. It should be noted that the data presented within Table 7-11 is general and based on industry standard but is not specific to the Site, however the vibration levels and associated distances can be used to determine the typical distances at which specific impacts are likely to be registered.
- 7.6.13. Given the distances in Table 7-8 and the above values, consideration of vibration impact upon receptors is not required as the setback distance is more than sufficient to fall well below any applicable criteria when considering potential for human response to vibration. It should be noted that the magnitude ratings presented within the table, in some cases, have been generated based on a 95% confidence limit, in reality, it is likely that lower vibration levels will prevail for the majority of activities.
- 7.6.14. As such, Tables 7.12 and 7.13 summarises the assessment of potential effects, any mitigation measures required and residual effects.

Table 7-12 – Assessment of potential effects, additional mitigation, residual effects and monitoring of Construction Vibration - Residential

Sensitive receptor	Residential dwellings
Potential effects	The potential effects arise from vibration generation by equipment and processes as part of the earthworks and/or construction works. The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant).
Additional mitigation	No additional mitigation is required as a result of the above.

Residual effects and monitoring	The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant). Given this, no monitoring during the construction phase is required.
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Table 7-13 – Assessment of potential effects, additional mitigation, residual effects and monitoring of Construction Vibration - Commercial

Sensitive receptor	Commercial Premises
Potential effects	The potential effects arise from vibration generation by equipment and processes as part of the earthworks and/or construction works. The sensitivity of the receptors is medium, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant).
Additional mitigation	No additional mitigation is required as a result of the above.
Residual effects and monitoring	The sensitivity of the receptors is medium, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant). Given this, no monitoring during the construction phase is required.

CONSTRUCTION GENERATED TRAFFIC NOISE

- 7.6.15. During the construction of the development, HGVs, and other small site/plant vehicles together with construction works will undertake trips to and from the Site. The following assessment is based on reasonable assumptions and experience on similar sites.
- 7.6.16. Based on a TYPICAL construction period, it is estimated there would be an average of 33.1 LDV and 4.9 HDV daily trips in each direction, with 67 LDV and 10 HDV two way trips.
- 7.6.17. For road traffic impacts, a change of more than 50% would be needed to have a notable impact, i.e. +/-2 dB. The above traffic figures would certainly be well below this value along Moss Hall Road, existing (2024) 18 hour Average Annual Weekday (AAWT) traffic is 5,941. As such, any changes in road traffic noise levels will be less than 2 dB. This results in a negligible magnitude of change at the receptors.
- 7.6.18. As such, Table 7.14 summarises the assessment of potential effects, any mitigation measures required and residual effects.

Table 7-14 – Assessment of potential effects, additional mitigation, residual effects and monitoring due to Construction generated traffic - Residential

Sensitive receptor	Residential dwellings
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Potential effects	The potential effects arise from changes in road traffic noise levels due to additional trips associated with construction traffic as part of the earthworks and/or construction works. The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant).
Additional mitigation	No additional mitigation is required as a result of the above.
Residual effects and monitoring	The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, temporary, medium-term negligible adverse effect on residential dwellings (not significant). Given this, no monitoring during the construction phase is required.

OPERATIONAL PHASE

CHANGES IN ROAD TRAFFIC NOISE

- 7.6.19. Upon completion of the proposals, it is anticipated that local road traffic noise levels may change because of development generated vehicle movements. Therefore, it is appropriate to consider the magnitude of any impacts that might arise.
- 7.6.20. The results of the Transport Assessment have been used as the basis for the road traffic noise assessment. This focuses on roads immediately surrounding the Site before the development generated traffic is dispersed across the wider network. The traffic data supplied in the form of 18-hour Average Annual Weekday Traffic (AAWT) flows was used in the calculations.
- 7.6.21. Where road traffic route alignments are to remain unchanged, road traffic noise calculations have been carried out in accordance with CRTN, being undertaken for a notional receptor location 10 m from the edge of the carriageway of each road considered and 0.5 m above ground level. A notional receptor has been used because the change in noise level adjacent to any given road will be the same at all locations where noise from this route is dominant.
- 7.6.22. It is noted from the data provided that on roads, not allowing for access to the site, affected by the proposed traffic, there is predicted to be a maximum increase of 1.3% in the short term and 7.2% in the long term.
- 7.6.23. There is noted to be no changes in HGV composition along these routes that could affect the above.
- 7.6.24. This level of increase would result in less than 1 dB increases along the affected routes.
- 7.6.25. Table 7.15 summarises the assessment of potential effects, any mitigation measures required and residual effects.

Table 7-15 – Assessment of potential effects, additional mitigation, residual effects and monitoring of changes in road traffic noise levels – Receptors along road network

Sensitive receptor	Receptors on local road network
Potential effects	The potential effects arise from increases in road traffic flows due to operational traffic dispersing across the local road network.

	The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent, long-term negligible adverse effect on receptors along the road network (not significant).
Additional mitigation	No additional mitigation is required as a result of the above.
Residual effects and monitoring	The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent, long-term negligible adverse effect on receptors along the road network (not significant). Given this, no monitoring is required.

COMMERCIAL NOISE IMPACT UPON RESIDENTIAL RECEPTORS

- 7.6.26. During the operation of the Proposed Development, there is potential for noise impact at existing sensitive receptors identified. As such, an assessment of operational industrial noise has been undertaken in accordance with BS 4142:2019+A1:2014.
- 7.6.27. The full assessment and outcomes of the assessment are given in Section 4 of **Appendix 7.1**.
- 7.6.28. For the purposes of the assessments, E3P has undertaken detailed 3D noise modelling for the assessment of commercial sound. CadnaA has been used to inform the assessment. The full data inputs and assumptions are given in **Appendix 7.1**.
- 7.6.29. During the daytime, the assessment has shown that the predicted rating level from commercial activity would fall below the background sound level during the daytime period. This would result in a negligible magnitude of change due to the development at all receptors.
- 7.6.30. For the night-time period, the assessment has determined that the predicted rating level from commercial activity would exceed the background sound level at Moss Hall by 2 dB.
- 7.6.31. However for the night-time period, given that residents would be inside and sleeping it is more prudent to assess internal noise levels in bedrooms. The highest façade specific noise level in the night-time period due to commercial sound is 28 dB. Internal noise levels are predicted to fall well below the internal night-time criteria of 30 dB even with windows open.
- 7.6.32. Given this, no adverse impact is predicted at existing receptors due to the proposed development.
- 7.6.33. Table 7.16 summarises the assessment of potential effects, any mitigation measures required and residual effects.

Table 7-16 – Assessment of potential effects, additional mitigation, residual effects and monitoring of commercial sound – Residential

Sensitive receptor	Residential
Potential effects	The potential effects arise from operation of the site and potential commercial noise sources impacting upon existing residential receptors. The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent, long-term negligible adverse effect on residential receptors (not significant).

Additional mitigation	No additional mitigation is required as a result of the above.
Residual effects and monitoring	The sensitivity of the receptors is high, and the magnitude of change is negligible. Therefore, there is likely to be a direct, permanent, long-term negligible adverse effect on residential receptors (not significant). Given this, no monitoring is required.

ASSESSMENT AGAINST FUTURE BASELINE

- 7.6.34. Assessment of future baseline is considered in the changes in road traffic noise level assessment by considering the potential future traffic flows. As such, the assessment outcomes for that assessment apply here.

CUMULATIVE EFFECTS

- 7.6.35. We have reviewed the list of committed and reasonably foreseeable projects in order to determine the potential for cumulative noise and vibration impacts.
- 7.6.36. When considering this, there are three aspects to the assessment. Firstly, cumulative construction noise and vibration from nearby sites, cumulative traffic on the local road network and operational noise impacts.
- 7.6.37. With regards the second point, cumulative traffic has already been included in the traffic data and, as such, does not consider further assessment here.
- 7.6.38. For construction noise, an application is immediately adjacent to further commercial developments, notably 22/01148/FUL to the south, 25/00045/REM to the north, 16/01399/HYBR to the north east and 20/00955/FUL to the south east. However, considering the outcome of the assessments, negligible impact and not significant, the cumulative impacts are considered negligible with Best Practicable Means likely followed at the wider developments due to the larger scale potential impact of construction noise. Given the much smaller scale of development, the cumulative impact is not considered significant. Indeed, nor do any developments lie between the development site and key receptors which could exasperate construction noise impact.
- 7.6.39. For operational noise impact, the committed developments in the immediate vicinity are mostly shielded from the receptors assessed here or are at a greater distance and, as such, there is unlikely to be a cumulatively increase in rating levels of more than 1 dB. Which would not change the significance of effect.

7.7 OPPORTUNITIES FOR ENVIRONMENTAL ENHANCEMENT

- 7.7.1. There is potential for environmental enhancement in relation to noise in so far as potentially planting any exposed boundaries to receptors to remove line of sight to noise sources at the development site and to, subjectively, lessen the potential impact of commercial noise.

7.8 DIFFICULTIES AND UNCERTAINTIES

- 7.8.1. It should be noted that the assessments within the chapter are relative to a specific sound source, both in terms of the measured sound pressure level and the character of the source. Where either the sound pressure level or the character of the sound varies following completion of the sound

survey, E3P cannot be held responsible for any subsequent variations beyond what is reasonable and within the uncertainty threshold.

- 7.8.2. All predicted noise levels are considered in a worst-case scenario in order to ensure no adverse impact is expected even during the loudest periods. However, as these are predictive in nature, the exact noise level in reality cannot be determined but any variance is likely to fall within the uncertainty of such a measurements and assessment.
- 7.8.3. Where empirical evidence is used to inform the assessment, such as for construction vibration, the data is based on a 95% confidence limit and is considered robust.

7.9 SUMMARY

- 7.9.1. This chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Development upon Noise and Vibration. This chapter has been produced by E3P.
- 7.9.2. A desk-based study has been undertaken in order to identify receptors around the development site. Additionally, a 3D noise model has been constructed using readily available information.
- 7.9.3. A full weekday and weekend background and ambient sound survey has been conducted in July 2025 in a position considered representative of the nearby receptors.
- 7.9.4. The following elements were scoped into the assessment:
 - Construction noise.
 - Construction vibration; and
 - Construction generated road traffic noise.
 - Proposed commercial sound impact; and
 - Changes in road traffic noise levels.
- 7.9.5. The assessment of Noise and Vibration has established that no additional mitigation measures are required.
- 7.9.6. The following residual effects have been identified:
 - For construction noise and vibration, there is likely to be a direct, temporary, medium-term negligible adverse residual effect on residential and commercial receptors (not significant).
 - For operational noise sources, there is likely to be a direct, permanent, long-term negligible adverse residual effect on residential and commercial receptors (not significant).
- 7.9.7. Consequently, there are no monitoring requirements identified.
- 7.9.8. The following environmental enhancement opportunities have been identified:
 - There is potential for environmental enhancement in relation to noise in so far as potentially planting any exposed boundaries to receptors to remove line of sight to noise sources at the development site and to, subjectively, lessen the potential impact of commercial noise.

Table 7-17 - Summary of Noise and Vibration effects

Receptor	Potential Effects	Significance of Effects Prior to Mitigation/Enhancement	Additional Mitigation	Residual Effects	Monitoring
Construction Phase					
Residential and commercial receptors	The potential effects arise from noise and vibration generation by equipment and processes as part of the earthworks and/or construction works.	Negligible Adverse (Not significant) T / D / MT	No additional mitigation is required.	Negligible Adverse (Not significant) T / D / MT	No monitoring is required.
Operational Phase					
Receptors along local road network.	The potential effects arise from increases in road traffic flows due to operational traffic dispersing across the local road network.	Negligible Adverse (not significant) P / D / LT	No additional mitigation is required.	Negligible Adverse (Not significant) P / D / LT	No monitoring is required.
Residential	The potential effects arise from operation of the site and potential commercial noise sources impacting upon existing residential receptors.	Negligible Adverse (not significant) P / D / LT	No additional mitigation is required.	Negligible Adverse (Not significant) P / D / LT	No monitoring is required.

Key to table:

P / T = Permanent or Temporary, D / I = Direct or Indirect, ST / MT / LT = Short Term, Medium Term or Long Term, N/A = Not Applicable

7.10 REFERENCES

- **Reference 7.1:** UK Government (1974) 'The Control of Pollution Act'.
- **Reference 7.1:** UK Government (1990) 'The Environmental Protection Act'.
- **Reference 7.3:** Planning Practice Guidance. [Online] accessed via <https://www.gov.uk/government/collections/planning-practice-guidance>
- **Reference 7.4:** Department of Transport Welsh Office (1988) Calculation of Road Traffic Noise.
- **Reference 7.5:** British Standards Institution (2019) Methods for rating and assessing industrial and commercial sound.
- **Reference 7.6:** British Standards Institution (2014) Control on Construction and Open Sites – Part 1: Noise.
- **Reference 7.7:** British Standards Institution (2014) Control on Construction and Open Sites – Part 2: Vibration.
- **Reference 7.8:** Highways England (2020) Design Manual for Roads and Bridges. Sustainability & Environment Appraisal. LA 111 Noise and Vibration revision 2.

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