

Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

Written Statement of Oral Case ISH3 [Appendix F - Noise Assessment Update Note]

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Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
Regulation 5(2)(q)

Issue Specific Hearing 3 Response

Project	Hinckley Rail Freight Interchange		
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This technical note has been prepared by BWB Consulting Ltd to respond to the request for further information on questions raised on noise and vibration during the Issue Specific Hearing 3 (ISH3), which took place on Wednesday 1st November 2023 as part of the examination process for Hinckley NRFI.

This response relates specifically to item 5 on the agenda for ISH3, which includes the following;

- a. Environmental Statement Chapter 10.
- b. Noise Survey Method Statement
- c. Statutory Nuisance.

The clarification points are reproduced below, shown in blue, and BWB's response is shown in grey. Those statements which are numbered relate to the Action Points provided by PINS. The remaining points are other clarification points raised in ISH3 Item 5 relating to noise and vibration.

AP.85 Provision of signposting to other SRNFI sites where noise source data has been used to form the basis of the operational noise assessment.

The plant and equipment selection for the operational noise assessment has been based on the noise and vibration impact assessments undertaken to support the DCO applications for:

- Northampton Gateway Rail Freight Interchange, (Doc ref 6.2.10.6 ES Appendix 10.6 "Appendix 8.5 – Summary of assumptions for SRNFI operational activities"); and
- East Midlands Gateway Rail Freight Interchange (Doc ref 6.2.10.8 ES Appendix 10.8 East Midlands Gateway – Rail Freight Terminal – Noise Assessment).

Noise data from these developments was used on the basis of the clarity and comprehensiveness of the data available.

AP.86 Clarification on approach to the assessment of ground-borne vibration during the construction phase.

As specific detail relating to the exact plant and techniques to be adopted during the construction phase is unknown at this stage, a qualitative assessment has been undertaken to determine the potential impact from ground-borne vibration during the construction phase.

Ground-borne vibration calculations were performed for typical site preparation/construction activities/machinery based on the empirical prediction procedures presented within BS 5228-

2:2009¹ and Transport Research Laboratory RR 246 Traffic induced vibrations in buildings² (applicable to HGV induced vibration) at set distances.

Such predictions were performed in order to determine the possible distances at which the adopted magnitude of effect criteria may be registered. The predicted ground-borne vibration levels applicable to typical vibration generating site preparation/construction activities is detailed in Table 10.29 within the Noise and Vibration ES Chapter (Document Reference: 6.1.10).

AP.87 Provision of information regarding the work being undertaken to reduce train noise, including an indication of the certainty that this would be in place to enable this to be relied upon as mitigation.

The change in noise level as a result of the additional rail movements has been calculated based on the existing and proposed train movements. The results of this assessment indicate that the highest change is predicted to be +1.8dB during the night-time period. Therefore, the effect is likely to be permanent, negligible adverse, which is not significant and does not require mitigation.

It is important to note at this stage that the additional trains using the line are not dependant on the HNRFI being brought forward and the capacity and running of the trains will be managed by third parties. With the Proposed Development in place, the additional trains will stop at the HNRFI instead of continuing on the line. As speed is a determining factor in the noise level produced by the train, (i.e. a lower speed results in a lower noise level), it is likely that the Proposed Development will provide a betterment in noise compared to a train continuing at speed on the line.

For train movements on the proposed sidings within the Proposed Development, mitigation has been recommended in the form of acoustic barriers as shown on Figure 10.10 (Document Ref. 6.3.10.10) to reduce noise levels at the receptors located to the north of the HNRFI. This is secured by Requirements 4 and 28.

AP.88 Clarification of the noise at Acorns Café and play area.

Acorn Coffee Shop is located within the administrative area of Hinckley and Bosworth Borough Council. It is adjacent to one of the main accesses to Burbage Common, an outdoor play area and E Taylor Metal Recycling and Skip Hire. The resultant operational noise levels associated with the HNRFI have been predicted at this receptor, together with noise from the A47 Link Road, with mitigation in place and with noise associated with the gantry cranes, as a worst-case. The resultant noise levels are detailed below in **Table 1** and the noise contours are shown on Figure 10.15 of the Noise and Vibration chapter submitted with the application. As this receptor is not sensitive during the night-time, only the daytime noise levels are reported.

Table 1: Noise levels as a result of proposed operations and A47 Link Road

Description	Acorns Coffee Shop	Play Area
Operational noise (dB LAeq,1h) and A47 Link Road (dB LAeq,16h) with mitigation	50 dB LAeq,T	49 dB LAeq,T

1 British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites parts 2: Vibration (BS 5228).

2 Transport Research Laboratory RR 246 Traffic induced vibrations in buildings

In the absence of specific criteria to be achieved for communal outdoor areas, the criteria as referenced in BS8233³ and WHO Guidelines⁴ for outdoor amenity areas has been adopted. An outdoor play area is likely to be less sensitive to noise effects than an outdoor amenity area and will generate a variable amount of noise. The above indicates that during the daytime, the noise levels at the play area, as a worst case - achieves (is below) the lower guideline value of 50dB $L_{Aeq,T}$ for outdoor amenity areas. Furthermore, assuming a 15dB loss through a partially opened window as per guidance contained within BS 8233, this would result in internal levels of 35dB $L_{Aeq,T}$ within the Coffee Shop.

The sensitivity of Acorn Coffee Shop would be medium, in line with Table 15 of the Noise and Vibration ES Chapter, which is lower than a residential receptor. On this basis, the predicted noise levels as a result of the proposed operations are not considered to be significant.

AP.88 Clarification on why some receptors are only considered sensitive during the daytime period.

The night-time period has not been considered at NSRs 5, 9, 18 and 19. NSRs 18 and 19 relate to Aston Firs SSSI and Burbage Common Woods. In accordance with BS8233 and WHO Guidelines, outdoor amenity is protected for the daytime period (0700-2300), with set criterion to be achieved. No reference is made within these documents to the night-time period.

NSRs 5 and 9 do not appear to have any residential elements associated with them and have therefore not been included within the night-time assessment. However, for completeness, a night-time assessment at NSRs 5 and 9 is included below in Table 2. This includes mitigation and excludes noise from the gantry cranes, in line with the 'with mitigation' operational noise assessment detailed within the Noise and Vibration ES Chapter (Document Reference: 6.1.10).

Table 2: Operational noise assessment – Weekday and weekend night-time, with mitigation

Description	Weekday Night-time (23:00 – 07:00), dB		Weekend Night-time (23:00 – 07:00), dB		Relevant BS 4142 Clause
	NSR5	NSR9	NSR5	NSR9	
Specific sound level ($L_{Aeq,T}$)	43	46	43	46	7.3.5
Acoustic feature correction	-				9.2
Rating level ($L_{Ar,T}$)	43	46	43	46	9.2
Background sound level ($L_{A90,T}$)	38	46	37	41	8
Excess over background	+5	0	+6	+5	-
Magnitude of Impact	Medium	Low	Medium		-

³ British Standards Institute (2014), BS8233 Guidance on noise insulation and noise reduction for buildings.

⁴ World Health Organisation (WHO) (1999), Guidelines for Community Noise.

During the night-time on a weekday and weekend period, with mitigation in place, noise levels associated with the operation of the HNRFI are between +0 and +6 dB above the measured background noise levels, dependent on the NSR.

The mitigated effect of operational noise associated with the HNRFI is likely to be a permanent, moderate adverse at worst for NSR 5 during the night-time on a weekday and weekend, dependent on context, as set out below. For NSR9, the resultant effect is predicted to be permanent, minor adverse during the night-time on a weekday and moderate adverse during the night-time on a weekend, dependent on context.

In line with the Noise and Vibration ES Chapter (Document Reference: 6.1.10), the impact is dependent on context, and therefore the sound rating levels have been compared to the existing noise climate at each receptor detailed above, for the night-time for both the weekday and weekend periods in Table 3.

Table 3: Predicted increase in ambient noise levels with mitigation, weekday and weekend

NSR	Weekday Night-time (23:00 – 07:00), dB				Weekend Night-time (23:00 – 07:00), dB			
	Rating Level	Ambient Level	Rating + Ambient	Increase	Rating Level	Ambient Level	Rating + Ambient	Increase
5	43	56.2	56.4	+0.2	43	50.1	50.9	+0.8
9	46	52.5	53.4	+0.9	46	49.6	51.2	+1.6

Table 3 indicates that for the night-time period, the increase in ambient noise levels are between +0.2 dB and +1.6dB.

As discussed within the Noise and Vibration ES Chapter (Document Reference: 6.1.10), this level of change is considered marginal, and would barely be perceptible to the human ear with changes of 3dB only just perceptible under normal conditions. This relates to noise that is continuous and similar in nature to the existing noise, however using the rating level, rather than the specific level accounts for this. As such, an increase of +1.6 dB is considered low, which is likely to result in a permanent, minor adverse effect, when context is taken into consideration, which is not a significant effect.

AP.89 Further Cumulative and in-combination effects as a result of the proposed development.

A cumulative and in-combination effects assessment is included within the Noise and Vibration ES Chapter (Document Reference: 6.1.10). This considers the construction and operational phases.

For construction, no cumulative effects are anticipated. The proposed crematorium (18/00751/DEEM) and Rear of Gamekeepers Lodge (19/01303/FUL) have previously been identified; however, it is anticipated that both of these developments would be completed prior to construction starting on the HNRFI and Link Road.

The assessment has considered the cumulative effects of road traffic at NSRs, and the assessment indicates that there will be no significant effects at the majority of receptors. A major, adverse effect is likely at NSR1 due to noise from the A47 Link Road, but this falls within the Significant Observed Adverse Effect (SOAEL) Level and Lowest Observed Adverse Effect Level (LOAEL) following the implementation of mitigation.

In line with the Noise Policy Statement England⁵, noise levels between the LOAEL and SOAEL should be mitigated and minimised as far as is practicable, which has been achieved.

The assessment also considers that part of the site could be operational while the wider site is being built out. However, as stated within the Noise and Vibration ES Chapter (Document Reference: 6.1.10), it is considered that the cumulative effects associated with this will be minor adverse, which is not significant.

Notwithstanding the above, Figure 6.3.10.15 submitted to support the DCO application, shows the noise propagation across the site from operational noise and the A47 Link Road, with mitigation in place.

[Confirmation on the scope of the construction traffic assessment and whether this has been agreed with National Highways.](#)

The construction phase traffic assessment has been undertaken based on the principles of the Design Manual for Roads and Bridges LA111 Revision 2⁶ (DMRB) using traffic data provided by BWB Consulting for the peak year 2026.

LA 111 details a methodology for assessing and managing the noise and vibration effects associated with the construction, improvement, use and maintenance of all major trunk roads. Although not strictly relevant to the Proposed Development, the principles of the guidance have been adopted as a basis for the assessment in the absence of any other, specific guidance. It is worth noting that the guidance also aligns with the IEMA Guidelines.

Road traffic noise levels in terms of $L_{A10,18h}$ over the daytime period (06:00-24:00 hours) have been predicted based on traffic data provided by the project's transport consultant, and in line with guidance contained within the CRTN⁷.

The magnitude of change has been assessed in general accordance with the guidance contained in LA111, in particular Table 3.17 Magnitude of impact at receptors, found within the guidance document.

On this basis, the assessment has used the principles of the DMRB guidance but has not been undertaken in strict accordance with DMRB. Therefore, consultation was not considered warranted with National Highways on this matter.

Notwithstanding the above, the most recent relevant representations provided by National Highways did not include any comments in relation to the assessment methodology, nor did the Scoping Opinion include any noise specific comments from National Highways (TR050007-000057). The assessment was carried out in consultation with the Environmental Health Departments at both Blaby District Council and Hinckley and Bosworth Borough Council and in accordance with the SoS's Scoping Opinion.

[Clarification and justification on the 10 dB reduction for electric cranes.](#)

The noise and vibration assessment has assumed worst-case plant selection for the gantry cranes i.e. rubber tyre gantry (RTG) cranes which are diesel powered. This presents a robust assessment methodology for the "without mitigation" assessment.

⁵ Department for Environment, Food and Rural Affairs (2010); Noise Policy Statement for England (NPSE)

⁶ Highways England (2019) Design Manual for Roads and Bridges (DMRB) LA111 Noise and vibration Revision 2

⁷ Department for Transport/Welsh Office (1998), Calculation of Road Traffic Noise (CRTN)

Due to the height of the gantry cranes, a barrier of significant height would be required to remove line of sight to the nearest NSRs. Mitigating the noise at source is the most effective option, and this has been considered within the 'with mitigation' assessment.

The noise reduction afforded by electric cranes has been taken from Proof of Evidence of Simon Stephenson on Noise (Appendix 6.2.10.7). This has been used to demonstrate the concept that there are solutions available on the market to allow noise from gantry crane operations to be minimised, and to what feasible extent. This was presented at public inquiry for a proposed commercial development on Daw Mill Colliery site, Arley, North Warwickshire.

In addition, Northampton Gateway Rail Freight Interchange (Doc ref 6.2.10.6 ES Appendix 10.6 "Appendix 8.5 – Summary of assumptions for SRNFI operational activities") included electric gantry crane noise data, which presented a sound power level of around 10dB lower than that assumed in this assessment (99dBA compared with 109dBA). Therefore, a 10dB reduction in noise level when considering electric cranes is considered reasonable and achievable.

A 10dB reduction has not been applied to the $L_{AF,max}$ levels associated with the spreader impacts as the use of an electric crane would not influence the $L_{AF,max}$ levels.

Notwithstanding this, 'soft dock' technology would be implemented on reach stackers and gantry cranes which allows containers to be positioned accurately using cameras and gentle positioning onto stacks and trailers.

This will significantly reduce noise levels associated with container placement, compared with what has been assessed.

[Noise monitoring approach at NMP5.](#)

The most recent written representations raised at Deadline 1 from National Highways, which a response was provided for at Deadline 2 (Document reference 18.3 Revision 01 Dated 24th October 2023), did not include any comments in relation to the noise survey or assessment methodology, nor did the Scoping Opinion include any noise specific comments from National Highways (TR050007-000057). Notwithstanding this, further detail has been provided below.

The noise measurements have been undertaken at NMP5 in accordance with the shortened procedure detailed within the CRTN. The daytime noise measurement undertaken at NMP5 has only been used to calibrate the traffic noise model for the base year 2019 and has no bearing on the assessment of development generated road traffic as a result of the Proposed Development.

As reported in the Noise and Vibration Chapter, given that the predicted noise levels within the baseline model are equal to or greater than those which were measured at the stated locations, it is considered that the predicted noise levels within the model represent a robust assessment case. The modelled noise levels have been used to inform the development generated road traffic assessment.

[Noise survey methodology and ambient noise levels used within the context assessment.](#)

Noise associated with the operational phase of the HNRFI has been assessed in accordance with BS4142:2014+A1:2019⁸. The background $L_{A90,T}$ noise levels measured at NMP4 have been

⁸ British Standards Institute (2014+A1:2019), BS4142 Methods for rating and assessing industrial and commercial sound.

utilised for the BS4142 assessment for receptors off Billington Road East. The background $L_{A90,T}$ noise levels at NMP4 are considered representative of these receptors and this is not in dispute.

BS4142:2014+A1:2019 states that an effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. The absolute level of sound should be considered as part of any contextual assessment, which has been undertaken and is detailed within the Noise and Vibration ES chapter.

BS4142 states that "for a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low."

To place operational noise into the context in which the noise will occur, the rating level has been logarithmically added to the ambient noise level to determine the change in the ambient noise level that may be experienced in the future. The absolute noise level as a result of the proposed development has also been considered.

During ISH3, a query was raised on whether the ambient $L_{Aeq,T}$ noise levels measured at NMP4 are representative of the existing ambient $L_{Aeq,T}$ noise levels at NSRs located to the north of the rail line off Billington Road East, which are located further away from the rail line to NMP4.

To provide some further context to this, the latest available DEFRA noise mapping data for the rail line, and noise modelling outputs from baseline traffic data for the year 2019 have been considered.

The DEFRA noise mapping for the rail line for the daytime and night-time periods is shown below in Figures 1 and 2. The noise level is calculated at 4m in height.

Figure 1: Daytime noise levels from rail traffic, dB $L_{Aeq,16h}$

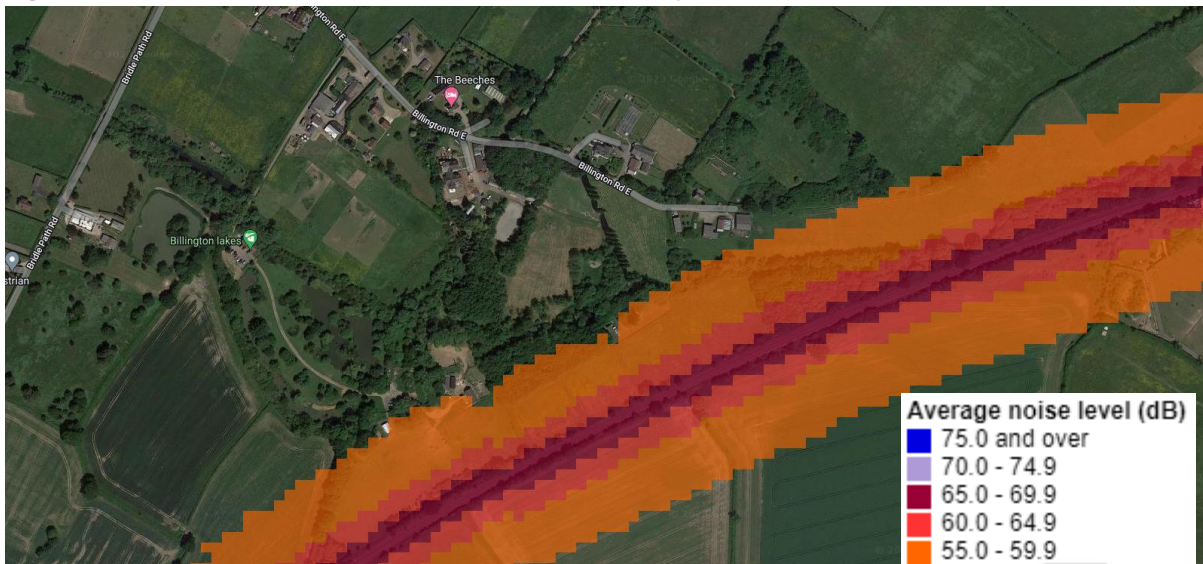
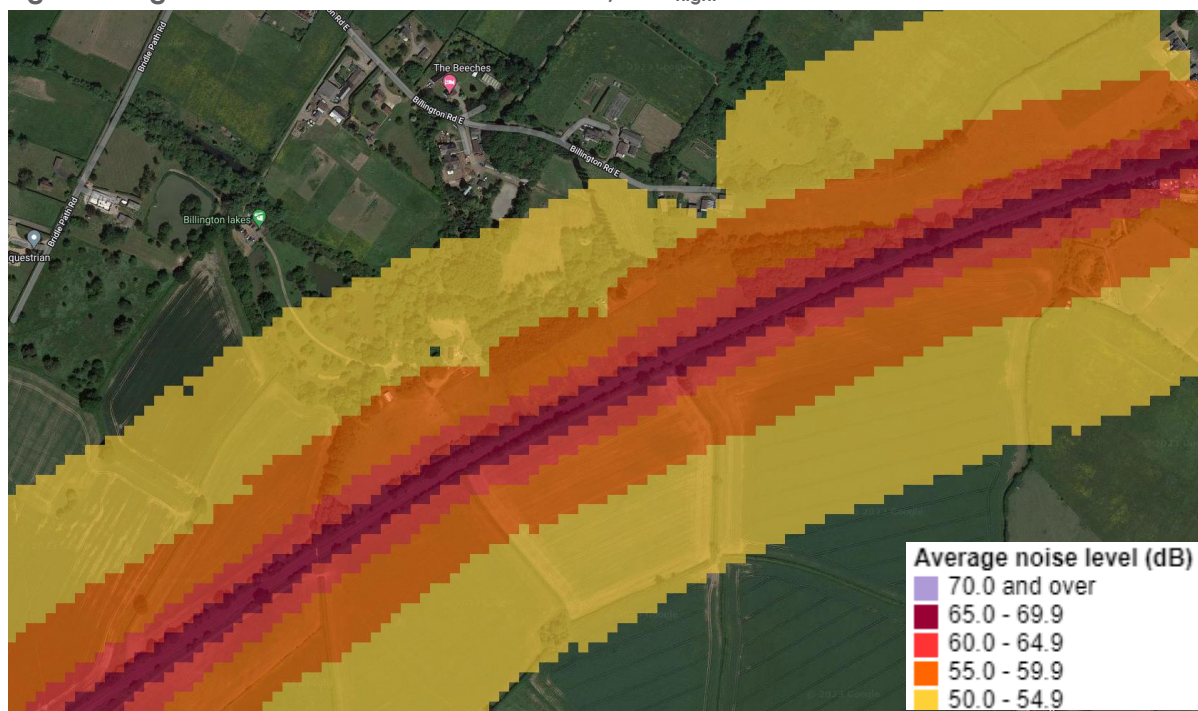


Figure 2: Night-time noise levels from rail traffic, dB L_{night}



As the 55 – 59.9 dB $L_{Aeq,T}$ contour for the daytime and night-time periods are very similar in location, it is reasonable to assume that the 50.0 – 54.9 dB $L_{Aeq,T}$ contour would also be similar.

To provide context around the likely existing noise levels from road traffic, a noise contour grid has been produced from the noise model described in the ES Noise and vibration chapter at a resolution of 10x10m at 4m in height. This is based on the baseline 2019 traffic data provided by BWB. This does not include any development traffic and purely relates to the existing baseline traffic for 2019.

The model only includes those roads that are within the study area for noise and therefore does not include all of the surrounding roads. The daytime and night-time noise contours are shown below in Figures 3 and 4.

Figure 3: Indicative daytime noise contour for 2019 baseline traffic – dB LAeq,16h

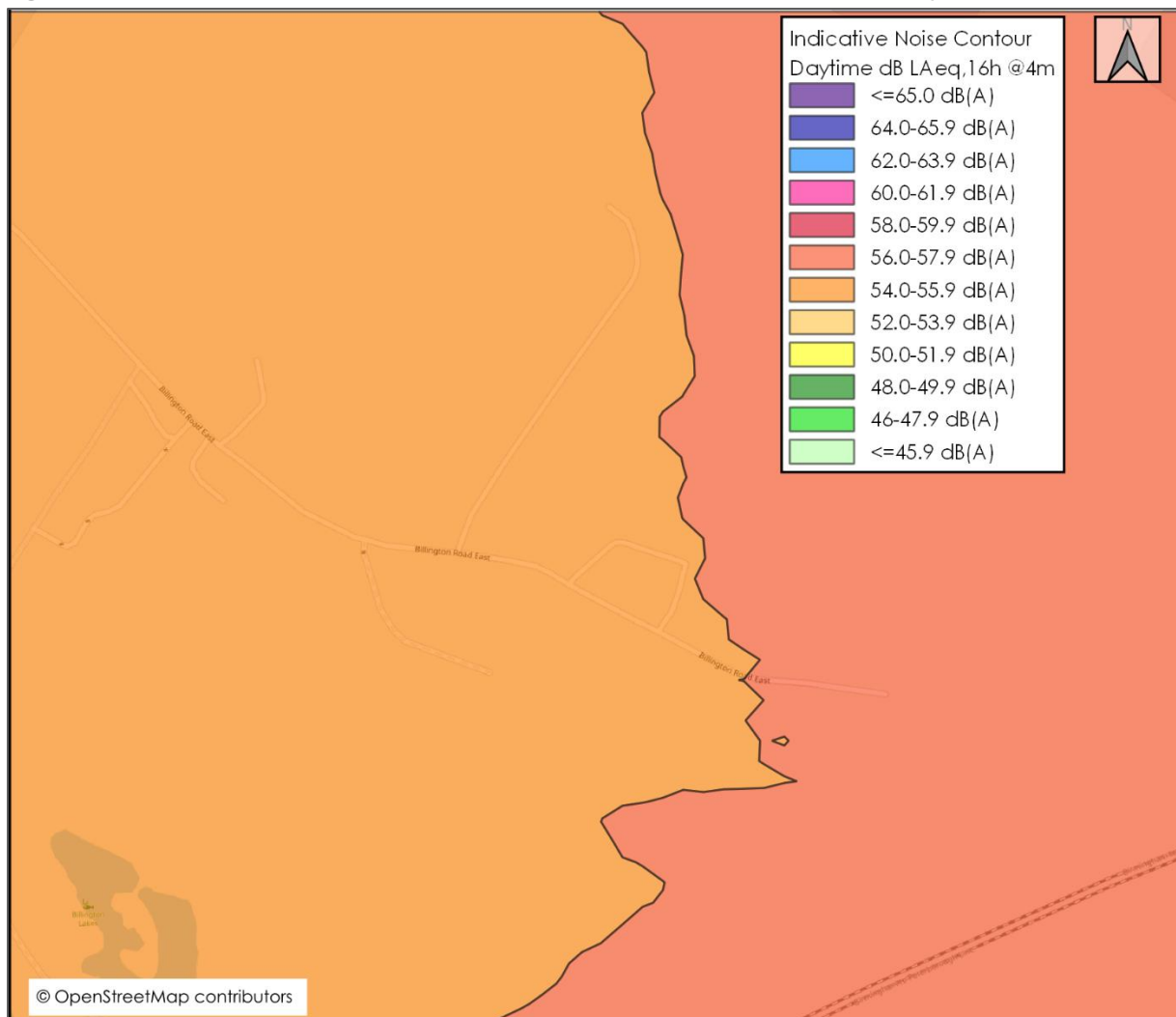
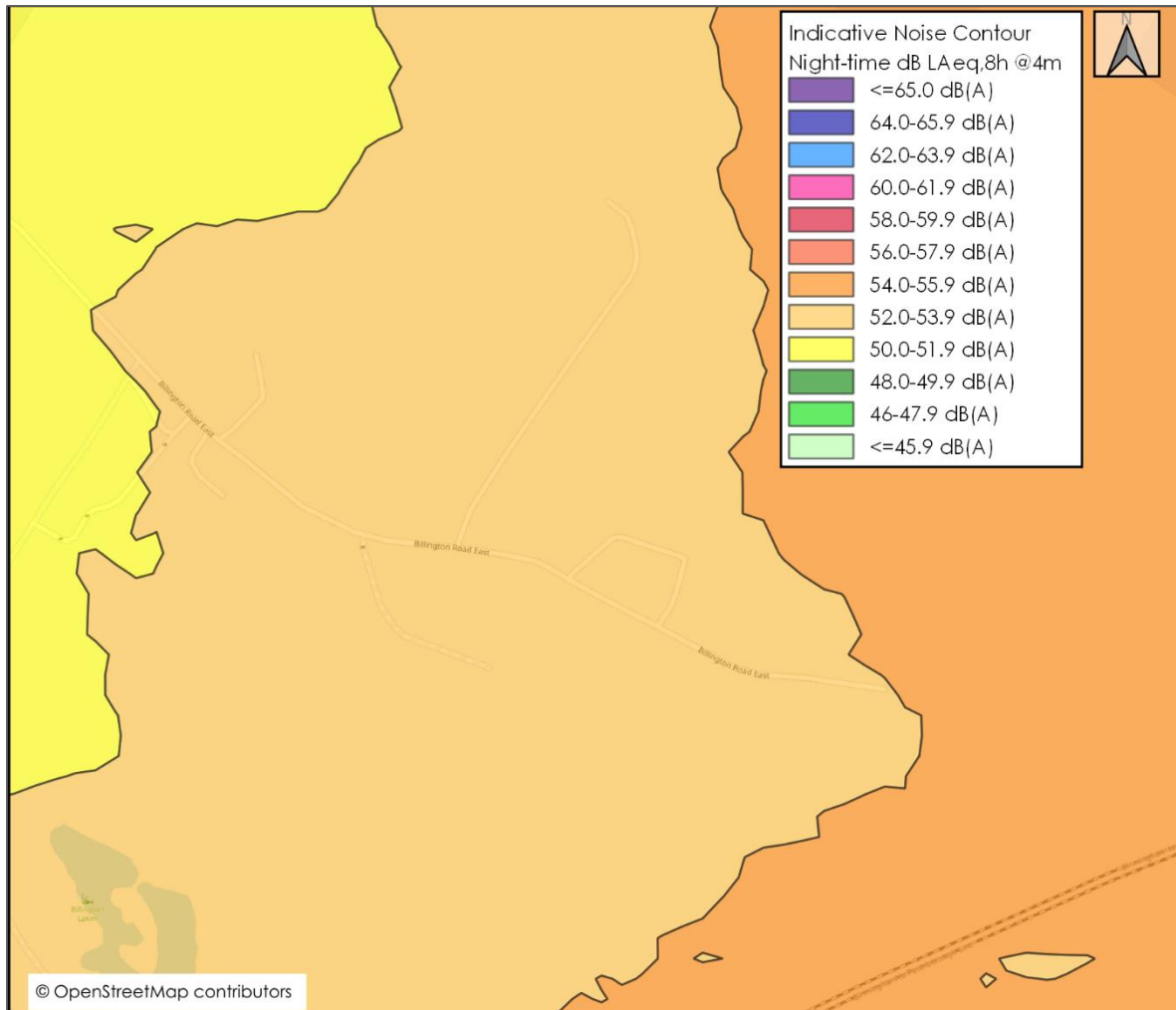


Figure 4: Indicative night-time noise contour for 2019 baseline traffic – dB LAeq,8h



To provide an indication of the noise levels in the vicinity of NSRs on Billington Road East, rail noise levels and road traffic noise levels have been logarithmically summed together, which is detailed below in Table 4.

Table 4: Predicted current ambient noise levels in the vicinity of Billington Road East as a result of road and rail traffic

Period	Indicative Rail Traffic dB LAeq,T	Indicative Road Traffic dB LAeq,T	Cumulative, Indicative Road and Rail Traffic dB LAeq,T	Range of noise levels at NMP4 dB LAeq,T
Daytime	50	55	56.2	53.7 - 59.2
Night-time	50	53	54.8	50.1 – 56.2

As distance increases from the rail line, road traffic from surrounding roads becomes more dominant. The predicted cumulative noise levels are within the range of noise levels used within the assessment, as shown in Table 4.

The sound rating levels for the receptors on Billington Road East have been compared to the predicted noise climate detailed in Table 4. The results are shown below in Table 5 and indicate that any increase in noise levels are likely to be below 1dB which is not significant and is in line with Tables 10.58 and 10.59 detailed within the Noise and Vibration ES Chapter.

Table 5: Increase in noise level due to operational noise from the SRFI – Daytime and night-time

NSR	Daytime (0700-2300)				Night-time (2300-0700)			
	Rating Level	Ambient Level	Rating + Ambient	Increase	Rating Level	Ambient Level	Rating + Ambient	Increase
2	47	56.2	56.7	0.5	44	54.8	55.1	0.3
3	44	56.2	56.5	0.3	41	54.8	55	0.2
4	46	56.2	56.6	0.4	43	54.8	55.1	0.3
5	45	56.2	56.5	0.3	43	54.8	54.8	0.3
6	45	56.2	56.5	0.3	43	54.8	55.1	0.3
7	47	56.2	56.7	0.5	43	54.8	55.1	0.3
8	45	56.2	56.5	0.3	42	54.8	55	0.2
25	47	56.2	56.7	0.5	43	54.8	55.1	0.3
26	45	56.2	56.5	0.3	44	54.8	55.1	0.3

Notwithstanding the above, and as discussed within the ISH, the noise levels predicted at NSRs on Billington Road East are broadly in line with the recommended internal and external noise levels in accordance with BS8233:2014.

The use of the noise levels measured at NMP4 in the context of the existing noise environment, is considered to be appropriate.