Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

Applicant's Response to Deadline 4 Submissions [part 11 – Response to Mr Moore and Dr Moore]

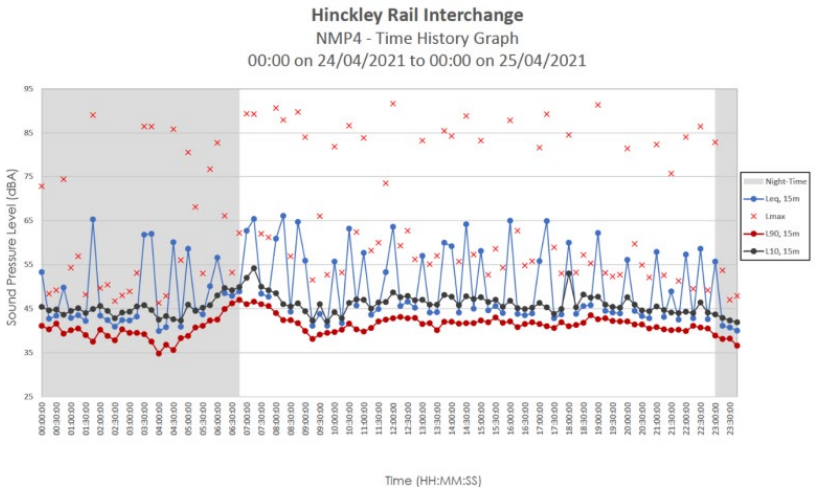
Document reference: 18.17

Revision: 01

9 February 2024

Planning Act 2008

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

	Matter	Applicant's Response
1	**David Moore** The applicant has submitted a document titled Written Statement of Oral Case ISH3 [Appendix F - Noise Assessment Update Note]. In a roundabout way, the applicant's document attempts to justify the absence of attenuation corrections to the sound of train pass bys measured by NMP4. Rail noise dominates NMP4's ambient sound levels The ambient sound levels measured by NMP4 are utterly dominated by sound of extremely close proximity train pass bys with far lower sound levels when trains aren't passing by, i.e. almost all the time. Overwhelming evidence of this is contained within the summary results pages for NMP4, as explained below in points 1-4. An example summary results page is included in Figure 1, below.  	A response to this question was provided at Deadline 3 and is detailed within Written Statement of Oral Case ISH3 [Appendix F - Noise Assessment Update Note] (document 18.7.6, REP3-061). The response is summarised below. The latest available DEFRA noise mapping data for the rail line has been reviewed and aligns with the noise levels measured at NMP4.

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	1. The LAeq sound levels repeatedly spike up and down throughout the daytime and night-time by ~15-20 dB from the low-mid forties, up to 55-65 dB. These spikes are caused by the sound of extremely close proximity train pass bys. Distant road noise would not cause these repeated spikes.	To provide context around the likely existing noise levels from road traffic on the surrounding roads, the baseline 2019 noise model has been reviewed which is based on 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. Using these two sources, it is possible to determine the ambient noise levels in the vicinity of receptors located further away from the railway line, by essentially logarithmically summing the noise level from the rail line with the noise level as a result of road traffic. The results of this calculation are shown in Table 4 within Written Statement of Oral Case ISH3 [Appendix F - Noise Assessment Update Note] (document reference: 18.7.6, REP3-061) This analysis indicates that as distance increases from the rail line, road traffic from surrounding roads becomes more dominant. The predicted cumulative noise levels from these sources are within an acceptable range (1dB) of noise levels used within the assessment, and therefore the results and conclusions stated within Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039), remain valid.
	2. If these high LAeq sound levels were caused by the distant road noise we would always see the LA10 levels spiking along with the LAeq levels, but we don't because they're caused by train pass bys and train pass bys are inherently brief.	
	3. If these spikes were caused by changes in the distant road noise, we would see significant changes up and down in LA90 levels, but we don't because they're caused by train pass bys and train pass bys are inherently brief. This is why there's a gap of 20 dB between the weekday daytime background sound level in the report and the weekday daytime ambient sound level in the report. The train pass bys have no impact on the measured background sound levels, which contain the distant road noise. This is why NMP4's measured background sound levels can simply be copied to NSRs 1-8 & 24-26.	
	4. The spread between the LA90 levels, LAeq levels, and LA10 levels is very tight in those 15 minute periods which don't contain spikes in LAeq levels. This is because these time periods are dominated by the distant road noise in the low-mid forties dB. The gap between the LA90 levels and the LA10 levels remains stable during periods with spikes in LAeq levels because the distant road noise is stable.	

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		Notwithstanding this, the crux of the matter appears to be whether the ambient noise levels used within the context assessment at receptors in the vicinity of NMP4 are representative, and the above analysis shows that they are.
	We end up with weekday daytime ambient sound levels used in the report for NMP4 of almost 60 dB, which are then applied to NSRs 1-8 & 24-26. This isn't because of distant road noise, it's because of the sound of extremely close proximity train pass bys.	It is not appropriate to simply apply a distance correction to noise from the rail line in isolation as this does not take into account the contribution of road traffic noise at distances further away from the rail line.
	The applicant's perverse response The applicant hasn't attempted to mount any direct technical defence of the failure to apply attenuation corrections to the measured sound of train pass bys. There is no attempt to claim that the sound of the train pass bys measured ~12 metres from the railway line are the same at the NSRs. Instead, the applicant attempts to introduce two new, "indicative" contours, neither of which are levels measured on the ground. No one asked the applicant to do this and there was no reason for the applicant to do this. The sound levels measured by NMP4 are not - and never have been - in dispute. The applicability of the measured levels to NSRs 1-8 & 24-26 is not in dispute, with the exception that attenuation corrections need to be applied to the measured sound of train pass bys. The applicant has repeatedly been made aware of this, and has had almost two years since the PEIR consultation to correct the problem	As stated above, it is not appropriate to simply apply a distance correction to noise from the rail line in isolation as this does not take into account the contribution of road traffic noise at distances further away from the rail line. Further analysis has shown that the ambient noise levels adopted within the context assessment are representative and therefore the results and conclusions of the Noise and Vibration assessment remain valid.
	The applicant makes claims about road noise at the NSRs and tries to use this to justify not attenuating NMP4's train pass bys The applicant is now attempting to claim that the ambient sound levels at NSRs 1-8 & 24-26 are 56.2 dB during the daytime and 54.8 dB during the	The Applicant does not agree that the additional analysis provides an incoherent position. To be clear, the position is that the noise levels measured at NMP4 are representative of the ambient noise levels at receptors due to the reasons

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	night-time, dominated not by rail noise, but by road noise of 55 dB during the daytime and 53 dB during the night-time. The claimed rail noise is 50 dB. Presumably these claimed noise levels apply to both weekdays and weekends. This is the first time the applicant has ever acknowledged rail noise attenuation. Knowingly or not, the applicant is attempting to argue that no attenuation corrections need to be applied to NMP4's rail noise dominated ambient sound levels, because the applicant's road noise contours supposedly show the area experiencing sort of similar road noise levels to NMP4's rail noise dominated ambient sound levels. Think it through, it's an intellectually incoherent position.	outlined above, and the results and conclusions of the Noise and Vibration assessment remain valid.
	There is voluminous evidence that the applicant's road noise contours overstate road noise levels versus those measured by NMPs and should not be used in lieu of NMP measurements 1. The applicant's own report states that the applicant's road noise model's sound levels are in excess of those measured by NMPs, as shown in the report's Table 10.51 and Paragraphs 10.226-10.228. For the purposes which the applicant was using their road noise model for at that time, that may have meant a robust assessment case. However, if the applicant attempts to use their road noise model to make definitive claims about ambient road noise levels, then the applicant's model doesn't present a robust assessment case, simply an incorrect one. The applicant was aware of that. 1.1. The applicant's operational noise assessment uses the lowest day of background or ambient sound levels measured during each time period. Table 10.51 doesn't use the lowest day, which means the difference between the predicted level and the day with the lowest level is greater than the differences shown in Table 10.51. E.g. The	The long-term noise levels measured at NMP1 and NMP2 are within 3 dB of the noise levels predicted by the 2019 baseline road traffic noise model. This is within accepted tolerances and shows good correlation between the measured and predicted noise levels. For reasons set out within paragraph 10.226, noise levels measured at NMP5 and NMP6 are less reliable.

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	difference at NMP1 for the daytime would be the predicted level (59 dB in Table 10.51) minus the lowest daytime level (53.6 dB in Table 10.43). This difference is 5.4 dB, greater than the 3 dB difference between predicted and measured sound levels in Table 10.51. 2.	
	2. NMP4's Saturday night-time measurements (which the applicant wrongly expunged) had ambient sound levels due to all sources of sound of 44 dB, as shown in the report's Table 10.23. This is 9 dB below the night-time ambient sound level which the applicant is now attempting to ascribe to NSRs 1-8 & 24-26 purely due to road noise during night-time periods.	The analysis undertaken following ISH3 and detailed in Appendix F – Update to Noise Assessment Note (document reference: 18.7.6, REP3-061) provides an indication of the likely ambient noise levels in the vicinity of NSRs on Billington Road drawing on long-term data for the rail line and road traffic. This analysis shows that the noise levels measured at NMP4 are representative of the ambient noise levels at receptors and therefore the results and conclusions of the Noise and Vibration assessment remain valid.
	3. The applicant is attempting to claim that daytime ambient levels due to road noise are 16 dB above the weekday background sound levels, as shown in Table 10.55. As explained at the beginning of this document, the distant road noise generates a very small gap between the background sound level and the ambient sound level.	Notwithstanding the above, it is also worth noting that ambient noise levels used within the noise assessment are the lowest reported representative level over the assessment periods.
	4. The applicant is attempting to claim that ambient sound levels at NSRs 1-8 & 24-26 purely due to road noise are higher than the weekday ambient sound levels used in the report for NSRs 9-11, as measured by NMP1, located ~300 metres from the M69. These lower ambient sound level figures for NSRs 9-11 are shown in the report's Table 10.43. The levels in the PEIR noise report were even lower.	This is incorrect, noise levels measured on Saturday night did not include rail movements, as detailed in paragraphs 10.106 to 10.108 in Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039). Therefore, the noise levels do not include all sources of sound. Table 55 details the BS4142 assessment of operational noise with mitigation and does not reference daytime ambient noise levels.

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	5. The applicant's road noise contour map is incompatible with the DEFRA road noise contour maps, which show road noise sound levels in the area below 55 dB LAeq (the lowest displayed threshold) during the day and below 50 dB LAeq (the lowest displayed threshold) at night. An example has been included in Figure 2 at the end of this document.	This is incorrect, it is not appropriate to compare the DEFRA road noise contour maps with the applicant's road contour map. The applicant's road contour map only includes those roads within the study area and the DEFRA road noise contour maps only include roads for major roads with more than 3,000,000 vehicle passages per year. Therefore, the two are not directly comparable.
	6. Distant road noise sound levels vary significantly due to different wind directions, wind speeds and other meteorological conditions. Sound levels measured by NMPs reflect these variations.	The ambient noise levels in the area are dominated by rail movements and road traffic and therefore it is not surprising that noise levels do not fluctuate significantly across the site. The site is surrounded by the strategic road network and therefore the noise levels are unlikely to vary significantly with differing wind directions.
	7. Road and rail (particularly rail) activity can vary significantly during different days. Sound levels measured by NMPs reflect these variations.	This is incorrect, the noise levels generally vary by 3dB day-to-day which is within accepted tolerances and is not significant. Noise levels measured adjacent to the railway line are lower over a weekend period, and this has been accounted for when selecting representative noise levels for these periods.
	8. Contour maps give indications at a height of 4 metres, not the 1.5 metres measured by NMPs and used for the BS 4142 assessment	The difference in noise levels at 1.5m in height and 4m in height is negligible given the distance between source and receiver.
	What needs to happen to resolve this problem The applicant needs to be returned to the measured sound levels at NMP4 and the applicant needs to apply attenuation corrections to the measured	As stated above, it is not appropriate to simply apply a distance correction to noise from the rail line in isolation as

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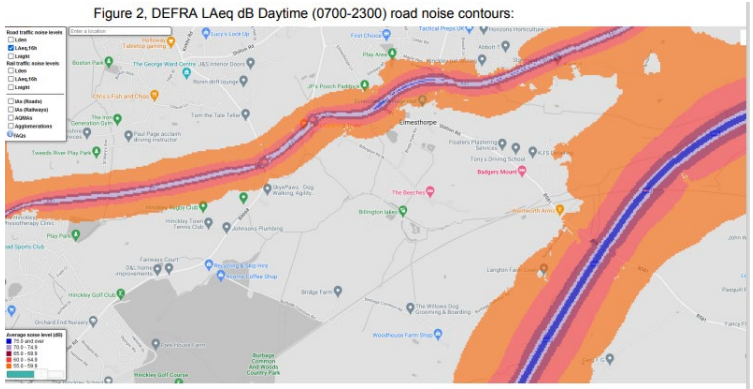
	sound of train pass bys to generate ambient sound levels at NSRs 1-8 & 24-26 during weekday daytimes, weekday night-times, weekend daytimes and weekend night-times. The situation at NMP3 and NSR 19 (Burbage Common & Woods) is very similar to the situation at NMP4. As an aside, the applicant has made a mess of Table 5 in their update note. NSRs 2, 3 & 4 aren't on Billington Road East but have been included in the table. It's disturbing but unsurprising that we are two months away from the end of the examination period and the applicant still isn't familiar with the basic matters at hand. There are other problems with the applicant's document but I have to draw the line somewhere. I'll await answers to the Examining Authority's questions. Figure 2, DEFRA LAeq dB Daytime (0700-2300) road noise contours: 	this does not take into account the contribution of road traffic noise at distances further away from the rail line. Further analysis has shown that the ambient noise levels adopted within the context assessment are representative and therefore the results and conclusions of the Noise and Vibration assessment remain valid. This is incorrect, those receptors located north of the rail line where the noise levels measured at NMP4 have been used are included within Table 5. This is with the exception of NSRs 1 and 24, where the methodology is not being questioned.
2	**David Moore** Introduction On the 10th October 2023, I submitted a Written	Introduction noted. The Applicant has provided response to the Written Representations at Deadline 2, 24th October

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	Representation to the Examining Authority regarding the Environmental Statement submitted by Tritax Symmetry (Hinckley) Ltd in respect of their proposed Hinckley National Rail Freight Interchange and with particular reference to Chapter 10: Noise and vibration. My Written Representation was a technically-based document that identified and discussed several serious failures and shortcomings in Tritax's Noise and vibration report. It ran to 38 pages and comprised 12 main Sections. On the 1st and 2nd November 2023, I attended both the Issue Specific Hearing 3 and the Open Floor Hearing 2, and at the latter I presented an Oral Submission as an Interested Party. This was necessarily very condensed at only 3 minutes long, but outlined just one of the numerous methodological shortcomings of Tritax's Noise and vibration report. I explained that this, in itself, would likely require a new Noise and vibration report. On the 14th November 2023, I further submitted to the Examining Authority my Comments on the Responses by Tritax Symmetry (Hinckley) Ltd to my Written Representation. In those Comments, which extended to 26 pages, I passed through those same 12 Sections in order, summarising what I said in my Written Representation, and providing additional detail where appropriate to reflect any (exceedingly sparse) response from Tritax, and to update on more recent events. On the 28th November 2023, the Examining Authority issued Written Questions and Request for Information ExQ1, in which Question 1.8.18 was directed to Dr David Moore and William Moore as follows: "Tabular Comparison for Noise Effects It is stated that there are a number of deficiencies in the applicant's methodology for noise assessments and corrections to dB levels are suggested accordingly. Could Dr David Moore and Mr William Moore	(document reference: 18.3, REP2-066) (Applicant's Comments on Written Representations).

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	provide a tabular comparison of the overall effects in terms of noise at NSRs between the Applicant's stated levels of effect and those predicated using suggested revised methodologies." I here make my Response to the Examining Authority's ExQ1 Question 1.8.18. For reasons of brevity, I have in this Response used "Tritax" to refer to both the contents of the Applicant's Environmental Statement and to their other Submissions. Dr David Moore MA (Cantab) PhD David Moore is a Chartered Engineer, and a Fellow of the Institution of Mechanical Engineers. He has some 25 years experience in Industrial Design Consultancy. Clients have included 3M, Procter & Gamble, GSK, London Underground, Johnson & Johnson, Ricardo, Monsanto, DePuy, AstraZeneca, BAE Systems, Unilever, Reckitt, Sanofi and Alstom. Now retired, his technical interests include Mechanical Design, Mathematical Modelling, Computational Fluid Dynamics and Digital Signal Processing.	
	Overview Stretching back to my Consultation Response of the 7th April 2022 to Tritax in respect of their PEIR Documents, I have at every opportunity advised, with I believe convincing arguments, that critical formative sections of Tritax's Noise and vibration report contain fundamental and significant methodological errors. The effects of such failures progressively accumulate within the report until you reach a point where the conditions that the report is considering, and later goes on to investigate in yet further increasing levels of detail, become fundamentally wrong. This has the effect of washing away all of the latter part of Tritax's Noise and vibration report and its results. And all of those errors would favour the Proposed Development. Despite all of this, we are now, at the time of writing, just two months away	These points are agreed with BDC and HBBC through the Statement of Common Ground - Hinckley NRFI SoCG between the Applicant and Blaby District Council (document reference: 19.1B, REP4-134). Further detailed response is provided to match the IPs matters below.

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	from the end of the Statutory Examination Period, yet Tritax's Noise and vibration report still stands unchanged. It is against this backdrop that the Examining Authority now request that I should provide a tabular comparison of the overall effects of deficiencies in Tritax's methodology for noise assessments. Well, given the circumstances, I will do what I can.	
	The Centrepiece of the Noise and vibration report for the HNRFI must surely be the Table where the Baseline Conditions at the NSRs are compared with the Proposed Additional Noise Sources at those same NSRs. In that Table the two halves are brought together to form the basis for the comparison. Their juxtaposing also allows Rating penalties to be applied to the Additional Noise Sources to reflect their intrusiveness, as gauged from their excess over the Baseline Conditions, and considering too their impulsivity, tonality, and intermittency. Now, in Tritax's Noise and vibration report there are four such Tables, each of which is based upon Tritax's different assumptions with regard to Baseline Conditions (either Background or Ambient) and the Additional Noise Sources (either Unmitigated or Mitigated). In all of their four Tables, Tritax consider only one Additional Noise Source (which they misleadingly term the "Completed Development Noise"). Taking first the Baseline Conditions, although in theory it is possible to compare Tritax's various Tables by simply scrolling up and down their Noise and vibration pdf document, in practice it is extremely difficult to build up a picture of their differing Baseline Conditions. Further, there are serious errors and omissions that I have identified but which Tritax have done nothing to correct. So a simple Table that directly compares all of these Baseline Conditions and corrects lingering errors would be very useful here. This is considered further in Section 1 below, and appropriate Tables are	The modelling inputs are agreed with BDC and HBBC through the Statement of Common Ground (Appendix F document reference: 19.1B, REP4-134).

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	presented. Regarding the Additional Noise Sources too, it would again clearly be an advantage to have a simple Table showing, for example, the Unmitigated and the Mitigated conditions for direct comparison. However, the situation with these various Additional Noise Sources is very different from the Baseline Conditions.	
	In terms of structure, I have indicated in Section 6 of both my Written Representation and my Comments Document that Tritax should Accumulate together all of the Additional Noise Sources (these being variously their "Completed Development Noise", the Off-Site Train Noise, the Off-Site Road Noise, the Gantry Crane Noise and the Construction Noise etc.) before making the comparison with the Baseline Conditions and then going on to establish Rating penalties for the Accumulated Additional Noise Sources. This Accumulation can be very easily be done by simple Logarithmic Summation of the contributions of the Additional Noise Sources at the individual NSRs. However, the deeper issue is that few, if any, of those Additional Noise Sources appear to have been resolved to the level where their contributions at the individual NSRs is known. For this reason it is very difficult for me to go forward and derive a complementary second Table in the way that the Examining Authority have requested. For example, in Section 4 of both my Written Representation and my Comments Document, I indicated that the Tritax's "Completed Development Model" should not be set to G=0.5 (50% acoustically absorptive ground) as Tritax have done, but instead should be set to G=0.0. However, Tritax have made no response to this, and without access to Tritax's CadnaA model I have no way of applying the effect this would have upon their "Completed Development Noise" at the individual NSRs.	The Applicant maintains that there is sufficient information within the ES Chapter to understand contributions from different noise sources at NSRs, and that cumulative impacts have been assessed. The example given regarding ground absorption co-efficient, the Applicant maintains that appropriate settings have been adopted for the noise model and that this is a Matter Agreed with BDC and HBBC.

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	For the Off-Site Road Noise, Tritax have released very little other than coarse Noise Contour maps which are quite unsuited to this present purpose. For the Gantry Crane Noise, there is considerable ongoing dispute, and Tritax's treatment of Construction Noise is both rudimentary and obviously wrong. However, on the positive side there is one Additional Noise Source for which I am well able to make a contribution, and that is Off-Site Train Noise. I have previously discussed this in Section 7 and Section 8 of both my Written Representation and my Comments Document, and have been doing some further work on it since then. So in the following Section 2 of this document, I have included a further discussion of Off-Site Train Noise and have generated some additional data for use in the subsequent Section 3. In Section 3, I then go on to develop a Table that Accumulates together just two of the Additional Noise Sources, these being Tritax's "Completed Development Noise" in its present (un-amended) form, and the Off-Site Train Noise derived in Section 2. Obviously, contributions from amended and other Additional Noise Sources can be included as they become available.	There is no technical basis for the statements provided. The construction phase noise assessment has been undertaken in accordance with BS5288-1:2009A1:2014 Code of practice for noise and vibration control on construction and open sites. The construction phase noise assessment criteria and assessment methodology are agreed with BDC and HBBC through the Statement of Common Ground (Appendix F 19.1B). As stated within Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039) and confirmed by Network Rail, there is capacity on the existing line to run the additional trains. These routes could be used by Network Rail at any time regardless of whether HNRFI comes forward. Notwithstanding this, the assessment shows that the effect of additional trains using the existing line is likely to be permanent, negligible adverse and therefore not significant. However, there is no requirement for noise and/or vibration from off-site rail movements to be a material consideration of this development, and an assessment has been provided within Chapter 10 (document reference: 6.1.10A, REP4-039) for completeness
	1. Baseline Conditions Table 1 shows Baseline Conditions in three Columns and is largely self-explanatory. Table 1	The reasoning for disregarding the noise levels measured on the Saturday night-time are provided in Paragraphs 10.106 and 10.108 of Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039). Furthermore, the operational noise assessment methodology is agreed

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	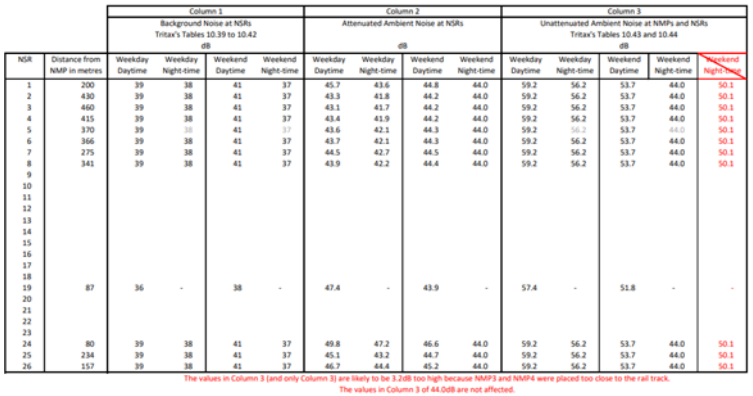	through the Statement of Common Ground with BDC and HBBC.

		Column 1				Column 2				Column 3				
		Background Noise at NSRs Tritax's Tables 10.39 to 10.42 dB				Attenuated Ambient Noise at NSRs dB				Unattenuated Ambient Noise at NMPs and NSRs Tritax's Tables 10.43 and 10.44 dB				
NSR	Distance from NMP in metres	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekend Night-time
1	200	39	38	41	37	45.7	43.6	44.8	44.0	59.2	56.2	53.7	44.0	50.1
2	430	39	38	41	37	43.3	41.8	44.2	44.0	59.2	56.2	53.7	44.0	50.1
3	460	39	38	41	37	43.1	41.7	44.2	44.0	59.2	56.2	53.7	44.0	50.1
4	415	39	38	41	37	43.4	41.9	44.2	44.0	59.2	56.2	53.7	44.0	50.1
5	370	39	38	41	37	43.6	42.1	44.3	44.0	59.2	56.2	53.7	44.0	50.1
6	366	39	38	41	37	43.7	42.1	44.3	44.0	59.2	56.2	53.7	44.0	50.1
7	275	39	38	41	37	44.5	42.7	44.5	44.0	59.2	56.2	53.7	44.0	50.1
8	341	39	38	41	37	43.9	42.2	44.4	44.0	59.2	56.2	53.7	44.0	50.1
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19	87	36	-	38	-	47.4	-	43.9	-	57.4	-	51.8	-	-
20														
21														
22														
23														
24	80	39	38	41	37	49.8	47.2	46.6	44.0	59.2	56.2	53.7	44.0	50.1
25	234	39	38	41	37	45.1	43.2	44.7	44.0	59.2	56.2	53.7	44.0	50.1
26	157	39	38	41	37	46.7	44.4	45.2	44.0	59.2	56.2	53.7	44.0	50.1

The values in Column 3 (and only Column 3) are likely to be 3.2dB too high because NMP3 and NMP4 were placed too close to the rail track.
The values in Column 3 of 44.0dB are not affected.

Table 1a

		Column 1				Column 2				Column 3			
		Background Noise at NSRs Tritax's Tables 10.39 to 10.42 dB				Attenuated Ambient Noise at NSRs when no train passing by dB				Unattenuated Ambient Noise at NMPs and NSRs when no train passing by dB			
NSR	Distance from NMP in metres	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time
1	200	39	38	41	37	42	41	44	44	42	41	44	44
2	430	39	38	41	37	42	41	44	44	42	41	44	44
3	460	39	38	41	37	42	41	44	44	42	41	44	44
4	415	39	38	41	37	42	41	44	44	42	41	44	44
5	370	39	38	41	37	42	41	44	44	42	41	44	44
6	366	39	38	41	37	42	41	44	44	42	41	44	44
7	275	39	38	41	37	42	41	44	44	42	41	44	44
8	341	39	38	41	37	42	41	44	44	42	41	44	44
9													
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12													
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16													
17													
18													
19	87	36	-	38	-	39	-	41	-	39	-	41	-
20													
21													
22													
23													
24	80	39	38	41	37	42	41	44	44	42	41	44	44
25	234	39	38	41	37	42	41	44	44	42	41	44	44
26	157	39	38	41	37	42	41	44	44	42	41	44	44

Table 1a Baseline Conditions when No Trains are Passing By (i.e. 96% of the time!)

Table 1 Column 1 shows the Background Noise levels at the NSRs, and is taken directly from Tritax's Tables 10.39 to 10.42.

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	Table 1 Column 2 shows the Attenuated Ambient Noise levels at the NSRs. The necessary Attenuation calculations were performed in an Excel Spreadsheet and follow the example I included in Section 1 of my Comments Document. Table 1 Column 3 shows Tritax's Unattenuated Ambient Noise levels at the NSRs, and is taken directly from their Tables 10.43 and 10.44. These are essentially the same as the Ambient Noise levels measured at the Noise Monitoring Positions and shown in Tritax's Table 10.22 and 10.23. Tritax's values of 50.1dB shown in red for the Weekend night-time are wrong and I have replaced them by corrected values of 44.0dB. This is explained in more detail in Section 2. All of the NSRs I have shown relate to NMP4, with the exception of NSR19 which is on Burbage Common and relates to NMP3. I have tried to include this NSR19 because of its obvious importance, but because Tritax have not provided any night-time noise measurements for NSR19 I have been unable to complete those parts of the Table.	
	Finally, as I described in Section 1 of both my Written Representation and my Comments Document, Tritax have not indicated the distance of any of their Noise Monitoring Positions from the rail track or road and that there is strong evidence that NMP3 and NMP4 were placed too close to the rail track. The result of this is that the values in Column 3 (and only Column 3) are very likely to be 3.2db too high, as I have indicated in the Table. I decided not to introduce a fourth Column just to show that! This is discussed further in Section 2.	This is incorrect. The noise level meters were set-up by competent persons as defined by the Institute of Acoustics, which the Applicant's Noise Consultants are members, and in line with relevant standards and guidance.
	With reference to Table 1, it is easy to see that, by using Unattenuated Ambient levels rather than Background levels, Tritax gain an immediate advantage for themselves of approximately 20.2dB. This 20.2dB will be	As stated above, it is not appropriate to simply apply a distance correction to noise from the rail line in isolation as

	Matter	Applicant's Response
	substantially increased by the effect of Rating penalties to give Tritax an overall gain of perhaps 25dB or 30dB. For Tritax, this makes the impossible possible, and it is happening in plain sight! With reference to Table 1, it is also easy to see that, by using Attenuated Ambient levels rather than Background levels, Tritax gain only a much smaller advantage for themselves of around 4.2dB. In my Oral Submission, I described the effect of using Attenuated Ambient levels rather than Unattenuated Ambient levels, which from the above will obviously have an effect of approximately 20.2dB – 4.2dB = 16dB plus Rating penalties. Background levels are almost universally used. Please see Section 1 and Section 5 of both my Written Representation and my Comments Document for further information. Finally here, after all of this discussion of Background versus Ambient, and Attenuated versus Unattenuated, I would like to present an additional Table which indicates the Background and Ambient Noise levels ruling at the NSRs over all of the time that no trains are passing by. This actually constitutes over 96% of the total time. And this brings into focus that all of the issues we have been discussing above apply only to the remaining 4%. During this 96% of the total time, the Attenuated Ambient Noise and Tritax's Unattenuated Ambient Noise inevitably become the same, simply because there are no Train Pass Bys to attenuate. The Ambient Noise levels will therefore be very different from those shown in Table 1, and are indicated in Table 1a above.	this does not take into account the contribution of road traffic noise at distances further away from the rail line. Further analysis has shown that the ambient noise levels adopted within the context assessment are representative and therefore the results and conclusions of the Noise and Vibration assessment remain valid. Furthermore, the operational noise assessment methodology is agreed through the Statement of Common Ground with BDC and HBBC.
	These are without question the noise levels presently ruling at the NSRs for 96% or more of the time. And it is against these values that the Accumulated	This is incorrect. If this was the case, and there were no train passbys 96% of the time, then this would have been

	Matter	Applicant's Response
	Additional Noise Sources caused by the Proposed Development will inevitably be judged, both by the residents at the NSRs, and by visitors to Burbage Common and the surrounding amenity areas. Should this Proposed Development be approved on the basis of the very different Baseline Criteria advocated by Tritax, the ramifications for those residents and for recreational visitors to Burbage Common and its surroundings are not difficult to predict, and will not be long in coming.	picked up in the baseline noise survey, which was undertaken over a 7-day period. Furthermore, the measured noise levels show good correlation with the DEFRA noise maps for the railway line, which show the annualised noise levels in the vicinity of the railway line.
	2. Off-Site Train Noise In Sections 7 and 8 of both my Written Representation and my Comments Document, I demonstrated with reference to Real Time Trains data that Tritax had wildly overstated the number of existing Freight Train movements, and also greatly underestimated the Off-Site Train Noise that would be caused by the Proposed Development. I also demonstrated, again with reference to Real Time Trains data that, contrary to Tritax's belief, it was entirely typical that no trains, neither Passenger nor Freight, ran on Saturday nights. With reference to Column 3 in my Table 1, the Ambient Noise levels shown in red of 51.1dB that Tritax have indicated in their Noise and vibration report in Table 10.44 actually relates to data they measured at NMP4 on the night of Sunday the 25th April, on the grounds that the data they measured on the night of Saturday the 24th April was "not considered typical" because there were no trains over that night-time period. Subsequently, I have gathered additional Real Time Trains data, especially with regard to Weekends and to the night-time periods. This has provided a very robust justification for the reinstatement of the data that Tritax gathered at Noise Monitoring Position NMP4 on Saturday the 24th April	As stated within Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039) and confirmed by Network Rail, there is capacity on the existing line to run the additional trains. These routes could be used by Network Rail at any time regardless of whether HNRFI comes forward. Notwithstanding this, the assessment shows that the effect of additional trains using the existing line is likely to be permanent, negligible adverse and therefore not significant. However, there is no requirement for noise and/or vibration from off-site rail movements to be a material consideration of this development, and an assessment has been provided within Chapter 10 (document reference: 6.1.10A, REP4-039) for completeness. Furthermore, the off-site rail noise and vibration assessment is agreed through the Statement of Common Ground with BDC and HBBC. This is not in dispute. However, if there are trains running 6 nights out of 7, then the 'typical conditions' are that trains run during the night-time. The one night that trains do not run is atypical and not representative of the prevailing conditions.

	Matter	Applicant's Response
	but then wrongly rejected as not being typical. The data for NMP4 on Saturday the 24th April has been recovered from Tritax's Technical Appendix 10.10 "Summary Results" [APP-184]. Because there are no trains running over the whole of the night-time period, the Attenuated and the Unattenuated Ambient Noise levels are of course the same, and are easy to establish from the "Summary Results" as 44dB. Restoring this data also serves to demonstrate that the NSRs, and indeed all those residents in both directions along those several kilometres of line, enjoy undisturbed Saturday nights. Using the additional Real Time Trains data, which I gathered during the months of September and early December 2023, I have further investigated the effects of the Additional Train Movements caused by Tritax's Proposed Development. Table 2 shows the Off-Site Train Noise as a dB Increase in a similar manner to Tritax's own Table 10.50. However, Table 2 is not confined to just the Weekday period, but indicates the dB Increase over both the Weekday and Weekend periods, and covers both daytimes and night-times. Please note that, in preparing Table 2, it has been necessary to aggregate the Train movements over both the Saturday and the Sunday night-times in order to limit the Weekend dB Increase values. The present situation is that there are no trains running on Saturday night-times, which means that the dB Increase, if calculated from Saturday night-times as the worst-case condition, would be Infinity!	

	Matter	Applicant's Response

	Off-Site Train Noise Increase dB
Weekday Daytime	4.6
Weekday Night-time	5.5
Weekend Daytime	6.9
Weekend Night-time	10.9

Table 2. Off-Site Train Noise dB Increase

Although it is interesting to compare the dB Increase values shown above in Table 2 with Tritax's results from their Table 10.50, which are much lower, it is actually of limited real use to us because it is not possible to relate that dB Increase directly to the resulting increase at the individual NSRs. What we have to do to accomplish this is to express the Off-Site Train Noise in terms of Ambient Noise Levels at the relevant Noise Monitoring Positions NMP3 and NMP4. These Off-Site Train Noise levels have therefore been calculated for both the Weekdays and Weekends periods, both daytimes and night-times, and are shown in Table 3. These values are used in the following Section 3, which Accumulates the Additional Noise Sources.

	Matter	Applicant's Response
	<table><tr><th></th><th>Off-Site Train Noise at Noise Monitoring Positions dB</th></tr><tr><td>Weekday Daytime</td><td>64.1</td></tr><tr><td>Weekday Night-time</td><td>64.0</td></tr><tr><td>Weekend Daytime</td><td>63.5</td></tr><tr><td>Weekend Night-time</td><td>63.4</td></tr></table> Table 3. Off-Site Train Noise at Noise Monitoring Positions For the avoidance of doubt, Tritax's Table 10.50 shows data for a Notional Receptor and cannot directly be compared with Table 3 above. The above calculations have all been performed in accordance with the "Calculation of Railway Noise" (CRN), published by the Department of Transport in 1995. The results I have obtained using CRN show very close agreement with the measured results obtained from Tritax's Noise Monitoring Positions NMP3 and NMP4, provided that due correction is made for NMP3 and NMP4 having been placed too close to the track (as I have previously indicated in Section 1 of both my Written Representation and my Comments Document). This is testament to the accuracy of the CRN procedures.	
	3. Accumulated Additional Noise Sources Table 4 shows, in four Columns, the Ambient Noise levels at the NSRs caused by the Accumulated Additional Noise Sources.	Content noted. All points are considered addressed.

	Matter	Applicant's Response

Accumulated Additional Noise Sources , comprising the "Completed Development Noise" **plus** Train Noise - showing the Impact at the NSRs

		Column 1 "Completed Development Noise" **without** Mitigation **plus** Attenuated Train Noise dB				Column 2 "Completed Development Noise" **with** Mitigation **plus** Attenuated Train Noise dB				Column 3 "Completed Development Noise" **without** Mitigation **plus** Unattenuated Train Noise dB				Column 4 "Completed Development Noise" **with** Mitigation **plus** Unattenuated Train Noise dB			
NSR	Distance from NMP in metres	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time	Weekday Daytime	Weekday Night-time	Weekend Daytime	Weekend Night-time
1	200	51.6	53.5	51.4	53.3	50.6	50.6	50.3	50.3	64.2	64.2	63.6	63.7	64.1	64.1	63.6	63.5
2	430	50.7	51.5	50.6	51.5	48.3	46.2	48.1	46.0	64.2	64.2	63.7	63.6	64.1	64.0	63.6	63.4
3	460	48.9	48.9	48.8	48.8	46.0	44.3	45.8	44.0	64.2	64.1	63.6	63.5	64.1	64.0	63.5	63.4
4	415	50.7	50.7	50.6	50.6	47.6	45.8	47.5	45.5	64.2	64.1	63.7	63.6	64.1	64.0	63.5	63.4
5	370	50.1	50.9	50.0	50.8	47.3	46.2	47.1	45.9	64.2	64.1	63.6	63.6	64.1	64.0	63.5	63.4
6	366	50.1	50.9	50.0	50.8	47.4	46.3	47.1	46.0	64.2	64.1	63.6	63.6	64.1	64.0	63.5	63.4
7	275	52.2	51.4	52.0	51.2	49.5	47.6	49.2	47.2	64.3	64.1	63.7	63.6	64.1	64.0	63.6	63.4
8	341	50.2	49.5	50.1	49.3	47.6	46.2	47.4	45.8	64.2	64.1	63.6	63.5	64.1	64.0	63.5	63.4
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19	87	55.1	53.4	54.7	52.8	55.1	53.4	54.7	52.8	64.2	64.0	63.7	63.4	64.2	64.0	63.7	63.4
20																	
21																	
22																	
23																	
24	80	58.8	58.7	58.6	58.5	55.4	54.7	55.0	54.2	64.8	64.8	64.4	64.3	64.2	64.1	63.7	63.5
25	234	53.2	51.1	53.1	50.9	50.0	48.4	49.8	48.0	64.3	64.1	63.8	63.5	64.1	64.0	63.6	63.4
26	157	52.4	52.4	52.1	52.1	51.0	50.7	50.6	50.3	64.2	64.1	63.6	63.5	64.1	64.0	63.5	63.4

These values will need to be updated when Tritax indicate the additional "Completed Development Noise" that will result from changing the Ground Absorption factor from G=0.5 to G=0.0

The night-time values for NSR19 on Burbage Common do not include "Completed Development Noise" as Tritax have not indicated their values

Table 4. Accumulated Additional Noise Sources – showing the Impact at the NSRs

As discussed in the Overview, these represent the Accumulated Additional Noise of just two of the Additional Noise Sources that will be caused by the Proposed Development. These are Tritax's "Completed Development Noise" and the Train Noise derived in Section 2.

Columns 1 and 2 show the Unmitigated and the Mitigated "Completed Development Noise" respectively. In each case these are Accumulated with the Attenuated Train Noise.

Columns 3 and 4 also show the Unmitigated and the Mitigated "Completed Development Noise". In each case these are Accumulated with the Unattenuated Train Noise.

You may remember that in Tritax's Noise and vibration report, the effect of the Additional Train Noise was dismissed in their Section 10.212 as being negligible. But Table 4 shows that this is by no means the case.

With reference to Table 4, by directly comparing between Column 1 and

	Matter	Applicant's Response
	Column 2, it is possible to see that the effect of Tritax's Mitigation measures upon the Ambient Noise levels experienced at the NSRs has been generally reduced to between 1.0dB and 5.5dB, depending upon the individual NSR concerned. And by comparing Column 1 and Column 2 with the Tritax's own "Completed Development Noise" levels in their Noise and vibration report, it is also possible to see that the Additional Train Noise has increased the Ambient Noise levels at the NSRs by between 0.5dB and 7.7dB. Similarly, by directly comparing between Column 3 and Column 4, it is possible to see that the effect of Tritax's Mitigation measures upon the Ambient Noise levels experienced at the NSRs has been very greatly diminished to between 0.0dB and 0.8dB. And by comparing Column 3 and Column 4 with the Tritax's own "Completed Development Noise" levels, it becomes evident that the Additional Train Noise has greatly increased Ambient Noise levels at the NSRs by between 7.3dB and 23.0dB. Clearly, these latter values in particular are not insignificant. The Ambient Noise levels in Table 4 show the combined effects of only two of the Additional Noise Sources that would be caused by the Proposed Development. The further Additional Noise Sources of the Off-Site Road Noise, Gantry Crane Noise and Construction Noise etc, can easily be Accumulated into the Noise Model as they are established and will obviously increase the Ambient Noise levels at the NSRs further. Given the circumstances, I have tried my best to provide the tabular information shown, which I hope is what you had in mind. Please see below for my final Table 4. I would be quite willing to provide additional information and guidance on	

	Matter	Applicant's Response
	these calculations if required.	
3	**Response to the Examining Authority's Written Question ExQ 1.8.18 by William David Moore** The Examining Authority's written questions and requests for information (ExQ1) contained the following: "ExQ 1.8.18. Tabular Comparison for Noise Effects It is stated that there are a number of deficiencies in the applicant's methodology for noise assessments and corrections to dB levels are suggested accordingly. Could Dr David Moore and Mr William Moore provide a tabular comparison of the overall effects in terms of noise at NSRs between the Applicant's stated levels of effect and those predicated (sic) using suggested revised methodologies?" I interpret this as a request that I attempt to correct all the deficiencies I've identified in the applicant's report which relate to stated current sound levels at the NSRs, projected noise levels at the NSRs and to create corrected impact assessments. There are many, very significant deficiencies throughout the report and the only feasible way to correct all of them would be to write a new noise report. I don't have access to the raw data measured at NMP4 & NMP3. I can't isolate the measured sound of the train pass bys and apply attenuation corrections to them to generate ambient sound levels at the NSRs. The applicant should have corrected this problem after the PEIR consultation, but in the 21 months since, the applicant has made no attempt to do so. I don't have access to all the outputs of the operational noise model. I'm constrained by the information supplied by the applicant and published	Introduction noted.

	Matter	Applicant's Response
	by the Planning Inspectorate. I will do what I can with the available information where it is realistic to do so.	
	Operational noise assessment - Weekend, night-time (2300-0700) **Specific and background levels** The specific noise levels have been taken from the report's Table 10.42. The background sound level has been taken from the report's Table 10.42. **Impulsive rating penalties** Impulsive rating penalties have been allocated by applying the method disclosed and used in the West Midlands Rail Freight Interchange Environmental Statement On Noise and Vibration, as listed in my Written Representation. Using this method, an LAFmax level due to an impulsive element of at least 10 dB above the current ambient sound level is required for a +9 dB impulsive penalty. The ambient sound level of 44 dB has been taken from the report's Table 10.23. To perform these calculations, the LAFmax levels due to impulsive noise have been taken from the report's Table 10.47.	It is not appropriate to take the lowest measured level from a long-term data set. If there are trains running 6 nights out of 7, then the 'typical conditions' are that trains run during the night-time. The one night that trains do not run is atypical and not representative of the prevailing conditions. Based on the above, the analysis for the ambient sound levels and predicted LAFmax levels is not correct and does not take into account the typical ambient and LAF max levels in the area.
	Impulsive Penalty Allocation - Weekend, night-time (2300-0700)	The table is based on the incorrectly applied penalty which has been applied without taking account of any factors such as distance and screening. For example, the dwelling associated with NSR1 is located approximately 260m from the proposed development and is screened by the existing farm buildings. Therefore, impulsivity associated with the proposed development will not be highly perceptible at NSR1, particularly given how

	Matter	Applicant's Response
	<table><tr><th>NSR</th><th>Ambient sound level (dB)</th><th>Predicted LAFmax noise level (dB)</th><th>Impulsive rating penalty (dB)</th></tr><tr><td>1</td><td>44</td><td>64</td><td>+9</td></tr><tr><td>2</td><td>44</td><td>61</td><td>+9</td></tr><tr><td>3</td><td>44</td><td>58</td><td>+9</td></tr><tr><td>4</td><td>44</td><td>61</td><td>+9</td></tr><tr><td>5</td><td>44</td><td>-</td><td>-</td></tr><tr><td>6</td><td>44</td><td>61</td><td>+9</td></tr><tr><td>7</td><td>44</td><td>64</td><td>+9</td></tr><tr><td>8</td><td>44</td><td>61</td><td>+9</td></tr><tr><td>24</td><td>44</td><td>70</td><td>+9</td></tr><tr><td>25</td><td>44</td><td>64</td><td>+9</td></tr><tr><td>26</td><td>44</td><td>65</td><td>+9</td></tr></table> **Tonal rating penalties** As I explained in my written representation, the applicant has not provided any predicted LAFmax levels due to tonal elements (including reversing alarms and crane alarms) so I can't perform similar calculations to apply tonal rating penalties. I have therefore had to take the report's tonal rating penalties from Paragraph 10.157. I have used the report's numbers but I	quickly point sources attenuate with distance. Similarly, at NSR2, impulsivity associated with the proposed development will not be highly perceptible as it is located approximately 460m away from the proposed development. Furthermore, the operational phase noise assessment is agreed with BDC and HBBC through the Statement of Common Ground.

	Matter	Applicant's Response
	don't have confidence in them so they're followed by a question mark Operational noise assessment - Weekend, night-time (2300-0700)	

NSR	Specific noise level (dB)	Impulsive rating penalty (dB)	Tonal rating penalty (dB)	Rating level (dB)	Background sound (dB)	Excess over background sound (dB)	Magnitude of impact
1	52	+9	+2?	63	37	+26	High
2	51	+9	+2?	62	37	+25	High
3	48	+9	+2?	59	37	+22	High
4	50	+9	+2?	61	37	+24	High
5	-	-	-	-	-	-	-
6	50	+9	+2?	61	37	+24	High
7	50	+9	+2?	61	37	+24	High
8	48	+9	+2?	59	37	+22	High
24	57	+9	+4?	70	37	+33	High
25	49	+9	+2?	60	37	+23	High
26	49	+9	+2?	60	37	+23	High

	Operational noise assessment - Weekend, night-time (2300-0700) **Assessment Outcome & Context** The highest rating level without mitigation is 70 dB, which is 33 dB above the background sound level, these are major adverse impacts which are significant. Applying a 12 dB reduction in rating levels due to a partially open window results in an internal rating level of 58 dB, this is 28 dB above the night-time limit for bedrooms expressed as the WHO's guideline level for a good night's sleep. BS 8233 contains a similar limit.	Notwithstanding the points detailed above, this is a pre-mitigated impact based on the atypical noise levels measured when no trains were running. The results of the noise and vibration assessment show that with mitigation in place and once context is taken into account, the resultant impacts will be low.

	Matter	Applicant's Response
	The current ambient sound level is 44 dB, with the noise climate dominated by distant road noise and natural sources eg. birdsong. There is currently no industrial noise. The applicant's proposed operational noise would cause the village to be dominated by industrial noise. The character of the village would be utterly transformed, the noise would be extremely intrusive, causing extensive changes in behaviour, regular sleep disturbance and likely health problems.	
	Operational noise assessment, with mitigation - Weekend, night-time (2300-0700) Specific and background levels Turning now to the scenario with mitigation, the specific noise levels with mitigation have been taken from the report's Table 10.57. As the report's Paragraph 10.284 makes clear, the report's predicted specific noise levels with mitigation do not include the gantry cranes. This means I'm having to use specific noise levels which are known to be too low because not all operational noise sources are included. The background sound levels have been taken from the report's Table 10.57.	As detailed above, it is not appropriate to take the lowest measured level from a long-term data set. If there are trains running 6 nights out of 7, then the 'typical conditions' are that trains run during the night-time. The one night that trains do not run is atypical and not representative of the prevailing conditions. Based on the above, the analysis for the ambient sound levels and predicted LAFmax levels is not correct and does not take into account the typical ambient and LAF max levels in the area.
	Impulsive rating penalties have been applied using the same method as in the pre-mitigation scenario, but with mitigated impulsive noise levels taken from Table 10.61. With mitigation applied, the applicant has not applied impulsive rating penalties at any NSR. **Impulsive Penalty Allocation, with mitigation - Weekend, night-time (2300-0700)**	The table is based on the incorrectly applied penalty which has been applied without taking account of any factors such as distance, screening and mitigation. Furthermore, 'Soft dock' technology will be implemented on the scheme which allows containers to be positioned accurately using cameras and gentle positioning onto stacks and trailers. This is the mitigation strategy for reducing maximum noise levels associated with spreader impact and

	Matter	Applicant's Response
		container placement.

NSR	Ambient sound level (dB)	Predicted LAFmax noise level (dB)	Impulsive rating penalty (dB)
1	44	64	+9
2	44	60	+9
3	44	no data	+9 (deduced)
4	44	59	+9
5	44	-	-
6	44	60	+9
7	44	63	+9
8	44	61	+9
24	44	68	+9
25	44	62	+9
26	44	65	+9

Tonal rating penalties

As I explained in my written representation, the applicant has not provided any predicted LAFmax level due to tonal elements so I can't perform similar calculations to apply tonal rating penalties. With mitigation applied, the

	Matter	Applicant's Response
	report does not apply tonal rating penalties at any NSR. A tonal LAFmax level of 39 dB would be required for a 2 dB tonal penalty. A tonal LAFmax level of 44 dB would be required for a 4 dB tonal penalty. A tonal LAFmax level of 54 dB would be required for a 6 dB tonal penalty. I have left question marks in the tonal rating penalty column. Operational noise assessment, with mitigation - Weekend, night-time (2300-0700)	

NSR	Specific noise level (dB)	Impulsive rating penalty (dB)	Tonal rating penalty (dB)	Rating level (dB)	Background sound (dB)	Excess over background sound (dB)	Magnitude of impact
1	47	+9	?	56	37	+19	High
2	44	+9	?	53	37	+16	High
3	41	+9 (deduced, data not provided)	?	50	37	+13	High
4	43	+9	?	52	37	+15	High
5	-	-	-	-	-	-	-
6	43	+9	?	52	37	+15	High
7	43	+9	?	52	37	+15	High
8	42	+9	?	51	37	+14	High
24	47	+9	?	56	37	+19	High
25	43	+9	?	52	37	+15	High
26	44	+9	?	53	37	+16	High

	Operational noise assessment, with mitigation - Weekend, night-time	Notwithstanding the points detailed above, this is based on

	Matter	Applicant's Response
	(2300-0700) **Assessment Outcome & Context** The highest rating levels with mitigation are 56 dB, which is 19 dB above the background sound level, these are major adverse impacts which are significant. Applying a 12 dB reduction in rating levels due to a partially open window results in internal rating levels of 44 dB, this is 14 dB above the night-time limit for bedrooms expressed as the WHO's guideline level for a good night's sleep. BS 8233 contains similar limits. The current ambient sound level is 44 dB, with the noise climate dominated by distant road noise and natural sources eg. birdsong. There is currently no industrial noise. The applicant's proposed operational noise would cause the village to be dominated by industrial noise. The sound would be highly perceptible at all times and the character of the village would be utterly transformed, causing sleep disturbance and changes in behaviour	the atypical noise levels measured when no trains were running and an inflated rating level which does not take into account any factors such as distance, screening, mitigation and the existing noise climate. Notwithstanding this, with mitigation in place, the absolute noise levels predicted in garden areas at NSRs will be below the guideline value to 50dB LAeq,T during the daytime, and would only marginally exceed the internal noise level criteria of 30dB LAeq,T during the night-time. The results of the noise and vibration assessment show that with mitigation in place and once context is taken into account, the resultant impacts will be low.
	Operational noise assessment - Weekend, daytime (0700-2300) The summary results page for this time period is shown below.	A response to this question was provided at Deadline 3 and is detailed within Written Statement of Oral Case ISH3 [Appendix F - Noise Assessment Update Note] (document 18.7.6, REP3-061). The response is summarised below. The latest available DEFRA noise mapping data for the rail line has been reviewed and aligns with the noise levels measured at NMP4. To provide context around the likely existing noise levels from road traffic on the surrounding roads, the baseline 2019 noise model has been reviewed which is based on baseline 2019 traffic data provided by BWB. This does not

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	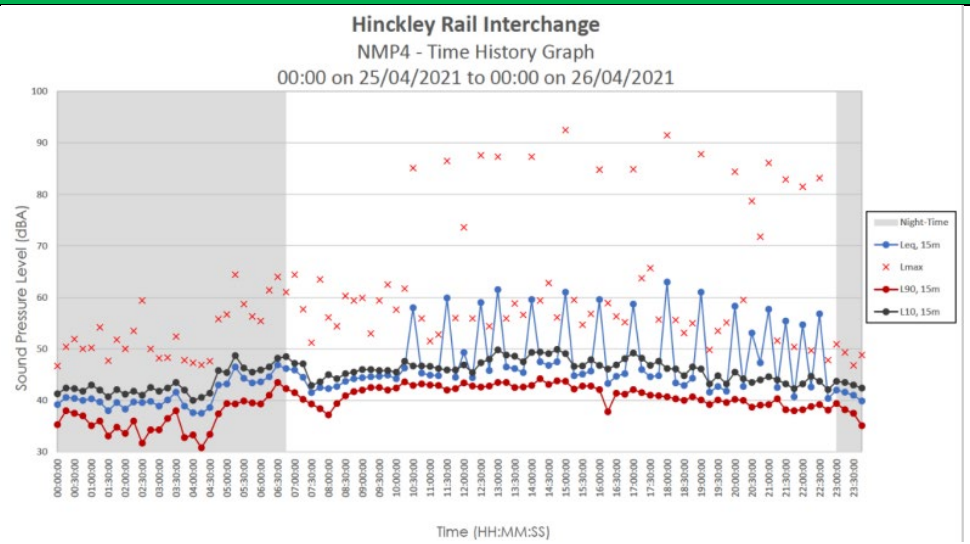 Specific and background levels The specific noise levels have been taken from the report's Table 10.41. The background sound levels have been taken from the report's table 10.41.	include any development traffic and purely relates to the existing baseline traffic for 2019. The model only includes those roads that are within the study area for noise and therefore does not include all of the surrounding roads. Using these two sources, it is possible to determine the ambient noise levels in the vicinity of receptors located further away from the railway line, by essentially logarithmically summing the noise level from the rail line with the noise level as a result of road traffic. The results of this calculation are shown in Table 4 within Written Statement of Oral Case ISH3 [Appendix F - Noise Assessment Update Note] (document reference: 18.7.6, REP3-061) This analysis indicates that as distance increases from the rail line, road traffic from surrounding roads becomes more dominant. The predicted cumulative noise levels from these sources are within an acceptable range (1dB) of noise levels used within the assessment, and therefore the results and conclusions stated within Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039), remain valid. Notwithstanding this, the crux of the matter appears to be whether the ambient noise levels used within the context assessment at receptors in the vicinity of NMP4 are representative, and the above analysis shows that they are. It is not appropriate to simply apply a distance correction to noise from the rail line in isolation as this does not take into

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		account the contribution of road traffic noise at distances further away from the rail line.
	Impulsive rating penalties Impulsive rating penalties have been allocated by applying the method disclosed and used in the The West Midlands Rail Freight Interchange Environmental Statement On Noise and Vibration, as discussed in my written representation. An LAFmax level due to an impulsive element of at least 10 dB above current ambient level is required for a +9 dB impulsive penalty. The ambient sound level of 53.7 dB has been taken from the report's Table 10.59. To perform these calculations, the LAFmax levels due to impulsive noise have been taken from the report's Table 10.47. Applying this method to the headline ambient sound level in the report of 53.7 dB for the weekend daytime would be inappropriate for two reasons: 1. The ambient sound levels contain large spikes due to the sound of unattenuated train pass bys measured ~12 metres from the railway line. These sounds would be far lower once attenuated to the NSRs. 2. The train pass bys are inherently brief; this is why LA10 levels do not spike along with the LAeq level. Their brevity means they would have no impact on the general perceptibility of impulsive or tonal noise throughout the daytime. Given the above, an ambient sound level of 45 dB has been selected, 4 dB above the background sound level of 41 dB. This is the ambient level which would be heard when there aren't trains passing by i.e. at almost all times. It is this level which would determine the perceptibility of impulsive and tonal noise. The impulsive penalties applied due to the below headline ambient sound level have been labelled with a (*). NSRs 1, 7 & 24-26 have the highest impulsive rating penalty even using the	The applicant has reviewed the comment in detail and believes it to be a repetition of the point made around impulsivity penalty allocation which the applicant has responded to above.

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	headline ambient sound level in the report and they therefore have no label. Impulsive Penalty Allocation – Weekend, daytime (0700-2300)	

NSR	Ambient sound level (dB)	Predicted LAFmax noise level (dB)	Impulsive rating penalty (dB)
1	53.7	64	+9
2	45*	61	+9*
3	45*	58	+9*
4	45*	61	+9*
5	45*	No data	Deduced +9*
6	45*	61	+9*
7	53.7	64	+9
8	45*	61	+9*
24	53.7	70	+9
25	53.7	64	+9
26	53.7	65	+9

Tonal rating penalties

As I explained in my written representation, the applicant has not provided

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	any predicted LAFmax levels due to tonal elements, so I can't perform calculations to apply tonal rating penalties. I have therefore had to take the report's tonal rating penalties from Paragraph 10.157. I have used the report's numbers but left a question mark after them. Operational noise assessment - Weekend, daytime (0700-2300)	

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NSR	Specific noise level (dB)	Impulsive rating penalty (dB)	Tonal rating penalty (dB)	Rating level (dB)	Background sound (dB)	Excess over background sound (dB)	Magnitude of impact
1	49	+9	+2?	60	41	+19	High
2	50	+9*	+2?	61	41	+20	High
3	48	+9*	+2?	59	41	+18	High
4	50	+9*	+2?	61	41	+20	High
5	49	+9* (deduced, data not provided)	+2?	60	41	+19	High
6	49	+9*	+2?	60	41	+19	High
7	51	+9	+2?	62	41	+21	High
8	49	+9*	+2?	60	41	+19	High
24	57	+9	+4?	70	41	+29	High
25	52	+9	+2?	63	41	+22	High
26	49	+9	+2?	60	41	+19	High

Operational noise assessment - Weekend, daytime (0700-2300) **Assessment Outcome & Context**	Notwithstanding the points discussed above, this is a pre-mitigated impact based on the atypical noise levels. The results of the noise and vibration assessment show that

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	The highest rating level without mitigation is 70 dB, which is 29 dB above background, these are major adverse impacts which are significant. These rating levels are far in excess of the 55 dB WHO guideline level for serious annoyance. BS 8223 contains a limit of 50 dB for outdoor residential areas with an upper limit for noisier areas of 55dB. The area is not currently a noisier area. Applying a 12 dB reduction in rating levels due to a partially open window results in internal rating levels of 58 dB, this is 23 dB above the daytime limit of 35 dB for living rooms and bedrooms contained within BS 8233. The measured ambient sound level during this time period was 53.7 dB. However, the context of these ambient sound levels needs to be considered: These ambient sound levels are caused by the sound of extremely close proximity train pass bys. These ambient sound levels would be far lower once the measured sound of the train pass bys are attenuated to the NSRs. The train pass bys are also inherently brief so they would have no impact on the general perceptibility of the proposed operational noise. The proposed noise would be highly perceptible at almost all times due to current ambient sound levels of ~45 dB. There is currently no industrial noise. The applicant's proposed operational noise would cause the village to be dominated by industrial noise. It would be the dominant noise in the area, and the character of the village would be utterly transformed, the noise would be extremely intrusive and the consequent changes in behaviour would be extensive. There would likely be health problems.	with mitigation in place and once context is taken into account, the resultant impacts will be low.
	Operational noise assessment, with mitigation - Weekend, daytime (0700-2300)	The applicant has reviewed the comment in detail and believes it to be a repetition of the point made around

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	Specific and background levels Turning now to the scenario with mitigation, the specific noise levels have been taken from the report's Table 10.56. As the report's Paragraph 10.284 makes clear, the report's predicted specific sound with mitigation does not include the gantry cranes. This means I'm having to use specific sound levels which are known to be too low because not all operational noise is included. The background sound levels have been taken from the report's table 10.56. **Impulsive rating penalties** Impulsive rating penalties have been applied using the same method as in the pre-mitigation scenario, but with mitigated impulsive LAFmax noise levels taken from Table 10.61. With mitigation applied, the applicant has not applied impulsive rating penalties at any NSR. The impulsive penalties applied due to the below headline ambient sound level have been labelled with a (*). NSRs 1, 24 & 26 have the highest impulsive rating penalty even using the headline ambient sound level in the report and they therefore have no label. **Impulsive Penalty Allocation, with mitigation – Weekend, daytime (2300-0700)**	impulsivity penalty allocation which the applicant has responded to above.

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NSR	Ambient sound level (dB)	Predicted LAFmax noise level (dB)	Impulsive rating penalty (dB)
1	53.7	64	+9
2	45*	60	+9*
3	45*	No data	Deduced +9*
4	45*	59	+9*
5	45*	-	-
6	45*	60	+9*
7	45*	63	+9
8	45*	61	+9*
24	53.7	68	+9
25	45*	62	+9*
26	53.7	65	+9

Tonal rating penalties

As I explained in my written representation, the applicant has not provided any predicted LAFmax level due to tonal elements so I can't perform similar calculations to apply tonal rating penalties. A tonal LAFmax level of 40 dB would be required for a 2 dB tonal penalty. A tonal LAFmax level of 45 dB

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	would be required for a 4 dB tonal penalty. A tonal LAFmax level of 55 dB would be required for a 6 dB tonal penalty. I have left question marks in the tonal rating penalty column. With mitigation applied, the report does not apply tonal rating penalties at any NSR. **Operational noise assessment, with mitigation – Weekend, daytime (0700-2300)**	

NSR	Specific noise level (dB)	Impulsive rating penalty (dB)	Tonal rating penalty (dB)	Rating level (dB)	Background sound (dB)	Excess over background sound (dB)	Magnitude of impact
1	47	+9	?	56	41	+15	High
2	47	+9*	?	56	41	+15	High
3	44	+9* (deduced, data not provided)	?	53	41	+12	High
4	46	+9*	?	55	41	+14	High
5	45	+9* (deduced, data not provided)	?	54	41	+13	High
6	45	+9*	?	54	41	+13	High
7	47	+9*	?	56	41	+15	High
8	45	+9*	?	54	41	+13	High
24	50	+9	?	59	41	+18	High
25	47	+9*	?	56	41	+15	High
26	45	+9	?	54	41	+13	High

	Operational noise assessment, with mitigation - Weekend, daytime	Notwithstanding the points detailed above, this is based on

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	(0700-2300) **Assessment Outcome & Context** The highest rating level with mitigation is 18 dB above background, these are major adverse impacts which are significant. These rating levels are in excess of the 55 dB WHO guideline level for serious annoyance. BS 8223 contains a similar limit. Applying a 12 dB reduction in rating levels due to a partially open window results in internal rating levels of 47 dB, this is 12 dB above the daytime limit of 35 dB for living rooms and bedrooms contained within BS 8233. The measured ambient sound level during this time period was 53.7 dB. However, the context of these ambient sound levels needs to be considered: These ambient sound levels are caused by the sound of extremely close proximity train pass bys. These ambient sound levels would be far lower once the measured sound of the train pass bys are attenuated to the NSRs. The train pass bys are also inherently brief so they would have no impact on the general perceptibility of the proposed operational noise. The proposed noise would be highly perceptible at almost all times due to current ambient sound levels of ~45 dB. There is currently no industrial noise. The applicant's proposed operational noise would cause the village to be dominated by industrial noise. It would be the dominant noise in the area, highly perceptible at almost all times and the character of the village would be utterly transformed, causing serious annoyance to residents as defined by the WHO, with consequent changes in behaviour.	the atypical noise levels when no trains were running and an inflated rating level which does not take into account any factors such as distance, screening, mitigation and the existing noise climate. Notwithstanding this, with mitigation in place, the absolute noise levels predicted in garden areas at NSRs will be below the guideline value to 50dB LAeq,T during the daytime, and would only marginally exceed the internal noise level criteria of 30dB LAeq,T during the night-time. The results of the noise and vibration assessment show that with mitigation in place and once context is taken into account, the resultant impacts will be low.
	Operational noise assessment – Weekday The weekday assessment would be very similar to the weekend	The applicant has reviewed the comment in detail and believes it to be a repetition of the point made attenuating

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	assessment, with similar background and rating levels, but the current ambient sound levels become increasingly wildly overstated due to higher numbers of train pass bys and the lack of application of attenuation corrections to those train pass bys. The train pass bys are inherently brief so they would have no impact on the general perceptibility of the proposed operational noise. The proposed noise would be highly perceptible at almost all times due to current ambient sound levels in the low-mid forties.	noise levels which the applicant has responded to above.
	Burbage Common & Woods (NMP3) **Operational noise assessment** I would like to do the same for the operational noise at NMP3 and its NSR 19 (Burbage Common & Woods), but I can't. As I explained in my written representation, the applicant hasn't provided LAFmax noise levels due to impulsive and tonal elements at NSR 19. I'm sure the operational rating level would be well in excess of the report's 55dB rating level and the post-mitigation rating level of 45 dB. However, I can't do any calculations because the applicant hasn't supplied any data. As the report's Paragraph 10.284 makes clear, the report's predicted specific sound levels with mitigation do not include the gantry cranes so the report's specific sound levels do not include all operational noise.	The applicant has reviewed the comment in detail and believes it to be a repetition of the point made around impulsivity penalty allocation which the applicant has responded to above. There is no technical basis provided for the statement on operational rating level. The final statement is incorrect. The results of the assessment with operational noise from the gantry cranes is provided in paragraphs 10.311 to 10.313 of Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039)
	Tranquillity assessment This means that I also can't go through the tranquillity assessment at Burbage Common & Woods, because the operational noise forms part of projected noise. I also can't do what the report should have done in the tranquillity assessment: include all site noise and the noise of 21 additional freight	This statement is incorrect. The assessment includes on-site operational noise including the gantry cranes. As stated within Chapter 10 Noise and Vibration (document reference: 6.1.10A, REP4-039) and confirmed by Network Rail, there is capacity on the existing line to run the additional trains. These routes could be used by Network Rail at any time regardless of whether HNRFI comes

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	train pass bys during the daytime (0700-2300). The tranquillity assessment uses current and predicted LAeq levels. The applicant hasn't attenuated the measured sound of train pass bys, so the current ambient sound levels are wildly overstated. Until the sound of the train pass bys are attenuated, I can't use the ambient sound levels stated in the report.	forward, and therefore the running of the additional trains is not dependent on HRNFI coming forward. The applicant has reviewed the comment in detail and believes it to be a repetition of the point made attenuating noise levels which the applicant has responded to above.
	Cumulative Impact As I explained in my written representation, the noise report does not include a cumulative 'all in' calculation of predicted changes in sound levels at NSRs due to the cumulative effect of projected sources of sound during all time periods. These would include all noise from the site, increased road traffic noise and increased off-site rail movements. I don't have the ability to do this, but I know it hasn't been done	This statement is incorrect. Figure 6.3.10.15 shows the noise propagation across the site from operational noise including road traffic on the A47 link road, with mitigation in place.