A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010041

6.8 Environmental Statement – Appendix 6.3 Noise and Airborne Vibration Nuisance Assessment

Part B

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

June 2020

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

The A1 in Northumberland: Morpeth to Ellingham Development Consent Order 20[xx]

Environmental Statement - Appendix

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TABLES

NOISE AND AIRBORNE VIBRATION NUISANCE ASSESSMENT

TRAFFIC NOISE NUISANCE ASSESSMENT METHODOLOGY

1.1.1. The Design Manual for Roads and Bridges (DMRB) HD 213/11 notes that the nuisance caused by road traffic noise mainly affects people in their homes. Nuisance is measured in terms of the percentage of the population as a whole that is bothered 'very much' or 'quite a lot' by virtue of a specific traffic related noise level. The correlation between specific levels and the percentage population bothered for the purposes of the assessment has been developed from studies that focused on reported nuisance where traffic related noise has changed over a relatively long period of time.

1.1.2. In line with the DMRB HD 213/11, the noise nuisance assessment considers:

a. The degree of bother based on a 'steady state' or 'before noise change' level (DMRB HD 213/11 Figure A6.1)
b. The abrupt change in bother that arises from a change in noise level (DMRB HD 213/11 Figure A6.2).

1.1.3. The noise nuisance assessment considers both the do-minimum and do-something long-term comparisons, with the noise nuisance level changes being directly calculated from the predicted noise level changes.

1.1.4. For the long-term do-minimum assessment, the following approach has been adopted in accordance with DMRB HD 213/11:

a. Determine the percentage bothered in the do-minimum opening year using the steady state Figure A6.1 and the predicted noise level in the do-minimum opening year
b. Determine the percentage bothered in the do-minimum future year using the steady state Figure A6.1 and the predicted noise level in the do-minimum future year
c. Determine the change in percentage bothered by subtracting the do-minimum bothered in the opening year from the do-minimum bothered in the future year and report this value.

1.1.5. For the do-something assessment the following approach has been adopted in accordance with DMRB HD 213/11:

a. Determine the percentage bothered in the do-minimum opening year using the steady state Figure A6.1 and the predicted noise level in the do-minimum opening year
b. Determine the percentage change in bother from the predicted change in noise between do-minimum opening year and do-something opening year using the abrupt change Figure A6.2 and add this to do-minimum percentage bothered to derive the total percentage bothered in the do-something opening year
c. Determine the percentage bothered in the do-something future year using the steady state Figure A6.1 and the predicted noise level in the do-something future year

d. Select the highest level of bother from steps two and three and report the change arising relative to the percentage bothered in the do-minimum opening year.

TRAFFIC AIRBORNE VIBRATION NUISANCE ASSESSMENT METHODOLOGY

1.1.6. As required by DMRB HD 213/11, the predicted residential receptor noise levels have also been used as the basis for an appraisal of the change in airborne vibration nuisance that would arise as a result of the A1 in Northumberland: Alnwick to Ellingham (Part B). This assessment has been undertaken for all residential receptors within 40 m of Part B and any other, affected routes within the 1 km boundary.

1.1.7. The assessment has been undertaken applying the DMRB HD 213/11 guidance which states that the percentage of people bothered by airborne vibration is 10% lower than for noise, with, on average, traffic induced vibration nuisance tending to zero at a noise level of 58 dB $L_{A10,18h}$.

TRAFFIC NOISE NUISANCE ASSESSMENT RESULTS

1.1.8. **Table 6-1** presents the traffic noise nuisance changes for all receptors within the calculation area for Part B without mitigation.

Table 6-1 - Traffic Noise Nuisance

Change in nuisance level		Do-minimum	Do-something
		Number of dwellings	Number of dwellings
Increase in nuisance level	< 10%	75	14
	10 < 20%	0	34
	20 < 30%	0	4
	30 < 40%	0	0
	> 40%	0	0
No change	0%	2	7
Decrease in nuisance level	< 10%	0	18
	10 < 20%	0	0
	20 < 30%	0	0
	30 < 40%	0	0
	> 40%	0	0

TRAFFIC AIRBORNE VIBRATION ASSESSMENT RESULTS

1.1.9. **Table 6-2** presents the traffic vibration nuisance changes for all receptors within 40 m of Part B without mitigation.

Table 6-2 - Traffic Airborne Vibration Nuisance

Change in nuisance level		Do-minimum	Do-something
		Number of dwellings	Number of dwellings
Increase in nuisance level	< 10%	6	2
	10 < 20%	0	0
	20 < 30%	0	0
	30 < 40%	0	0
	> 40%	0	0
No change	0%	2	6
Decrease in nuisance level	< 10%	0	0
	10 < 20%	0	0
	20 < 30%	0	0
	30 < 40%	0	0
	> 40%	0	0

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