

Appendix H1-5

Noise Glossary (H1)

Graphs of baseline survey results (H2)

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Traffic noise assessment (H4)

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Appendix H1: Glossary

Term	Definition
Ambient noise	Ambient noise is the total sound in a given situation at a given time usually composed of sound from many sources, near
A-weighting	In addition to its non-linear amplitude response, the human ear has a non-linear frequency response; it is less sensitive at low and high frequencies and most sensitive in the mid range frequencies. NOTE 1: The A-weighting is applied to measured sound pressure levels so that these levels correspond more closely to the subjective response. NOTE 2: A-weighted noise levels are often expressed in dB(A).
Baseline scenario	A description of the state of the environment without implementation of the project.
Basic noise level	Calculations are undertaken by using traffic flow, speed and HGV percentage to calculate a reference noise emission from the road link, as set out in CRTN
Calculation of road traffic noise	The technical memorandum that describes the procedures for calculating noise from road traffic CRTN
Construction noise assessment	An assessment which compares predicted noise levels from construction tasks to ambient noise levels at nearby noise sensitive receptors.
Construction vibration assessment	An assessment of magnitude of predicted vibration from construction activities.
Decibel	The unit of measurement used for sound pressure levels and noise levels quoted in decibels (dB). NOTE 1: The decibel scale is logarithmic rather than linear; the threshold of hearing is zero decibels while, at the other extreme, the threshold of pain is about 130 decibels. NOTE 2: These limits are seldom experienced and typical levels lie within the range of 30 dB(A) (a quiet night time level in a bedroom) to 90 dB(A) (at the kerbside of a busy road).
Do-minimum	Scenario without the project.
Do-something	Scenario with the project.
Facade sound level	Sound level that is determined 1 metre (m) in front of a window or door in a facade.
Free-field sound level	The sound level which is measured or calculated, in the open, without any reflections from nearby surfaces except the ground.

L_{A10}	The A-weighted sound level, in dB, that is exceeded 10% of the measurement period. NOTE: This is the standard index used within the UK to describe traffic noise.
L_{A10,18hr}	The noise level, in dB, that is exceeded 10% of the time between 0600 and 2400.
L_{Aeq}	The equivalent continuous sound level (L _{Aeq}) is the level of a notional steady sound, which at a given position and over a defined period of time, would have the same A-weighted acoustic energy as the fluctuating noise.
L_{Amax}	The maximum A-weighted level measured during a given time period.
L_{night}	A facade noise index derived from the L _{A10,18hr} using the TRL conversion method TRL PR/SE/451/02.
L_{night,outside}	For the purpose of night-time noise assessment, the L _{night,outside} is the equivalent continuous sound level L _{Aeq,8hr} for the period 23:00 to 07:00 hours assessed outside a dwelling and is free-field.
Long-term	Noise change based on the +15 year assessment (for example Do-minimum opening year scenario (DMOY) against Do-minimum future year scenario (DMFY) and DMOY against Do-something future year scenario (DSFY)).
Lowest observed adverse effect level	Level above which adverse effects on health and quality of life can be detected.
Noise	Unwanted sound.
Noise mapping	The production of computer software generated maps showing how the predicted levels of outdoor noise vary with location.
Noise modelling	Software to predict noise levels. NOTE: This can be undertaken either by specialist software to provide a 3D representation of the project and nearby noise sensitive receptors or a simple spreadsheet.
Noise monitoring	Measurement of noise levels.
Noise sensitive receptor	Receptors which are potentially sensitive to noise.
Non-project noise change	Noise change based on the DMOY against DMFY scenario, with no project implementation.
Sensitive buildings or Sensitive Receptor	Dwellings, including those that are listed, hospitals, healthcare facilities, education facilities or other buildings where noise or vibration can cause disturbance to people using the buildings.

Opening year	The first year of operation.
Operational noise assessment	An assessment to determine the operational noise impacts and effects of a road project.
Short-term	Noise change based on parallel assessment year (for example DMOY against Do-something opening year scenario (DSOY)).
Significant observed adverse effect level	The level above which significant adverse effects on health and quality of life occur.
Vibration	A to-and-fro motion which oscillates about a fixed equilibrium position.
Vibration sensitive receptor	Receptors which are potentially sensitive to vibration. NOTE: Examples include dwellings, hospitals, healthcare facilities, education facilities, community facilities, buildings containing vibration sensitive equipment and cultural heritage assets.

Appendix H2: Baseline noise graphs

Figure 1 Baseline measurements position 1

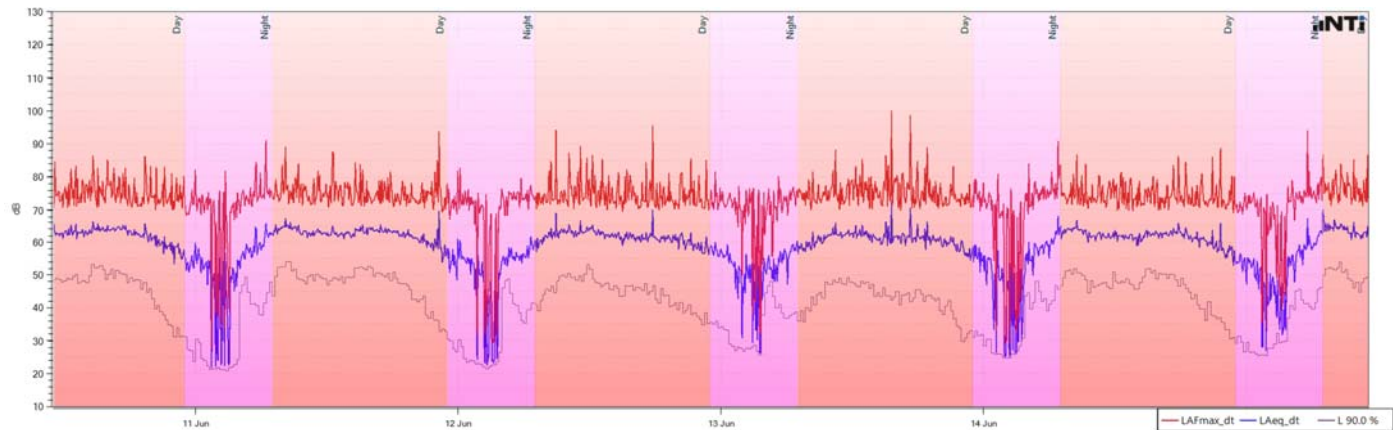


Figure 2 Baseline measurement 2

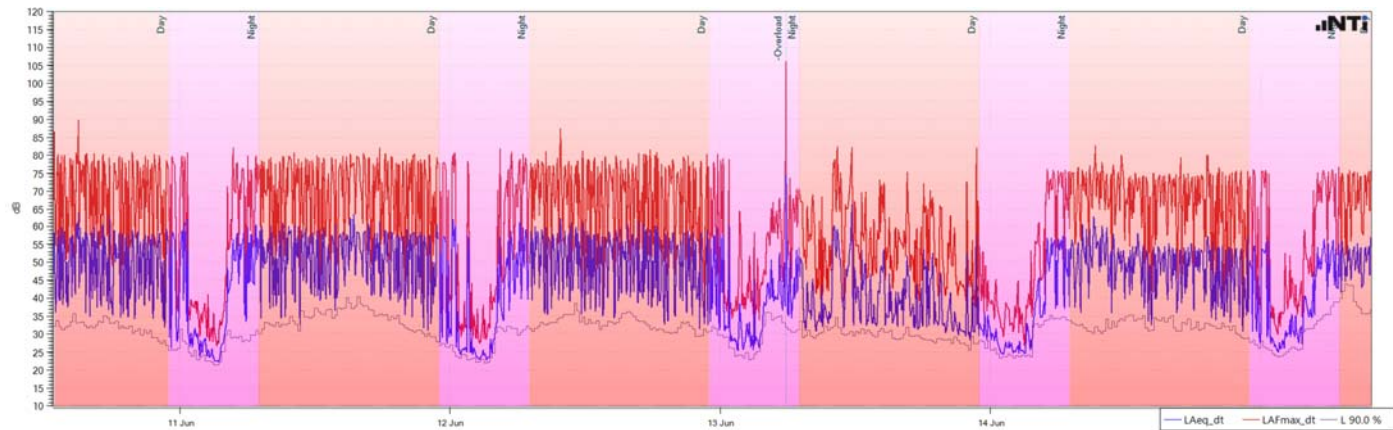


Figure 3 Baseline measurement position 3 – L_{Aeq} , L_{A90} , $L_{Amax,fast}$

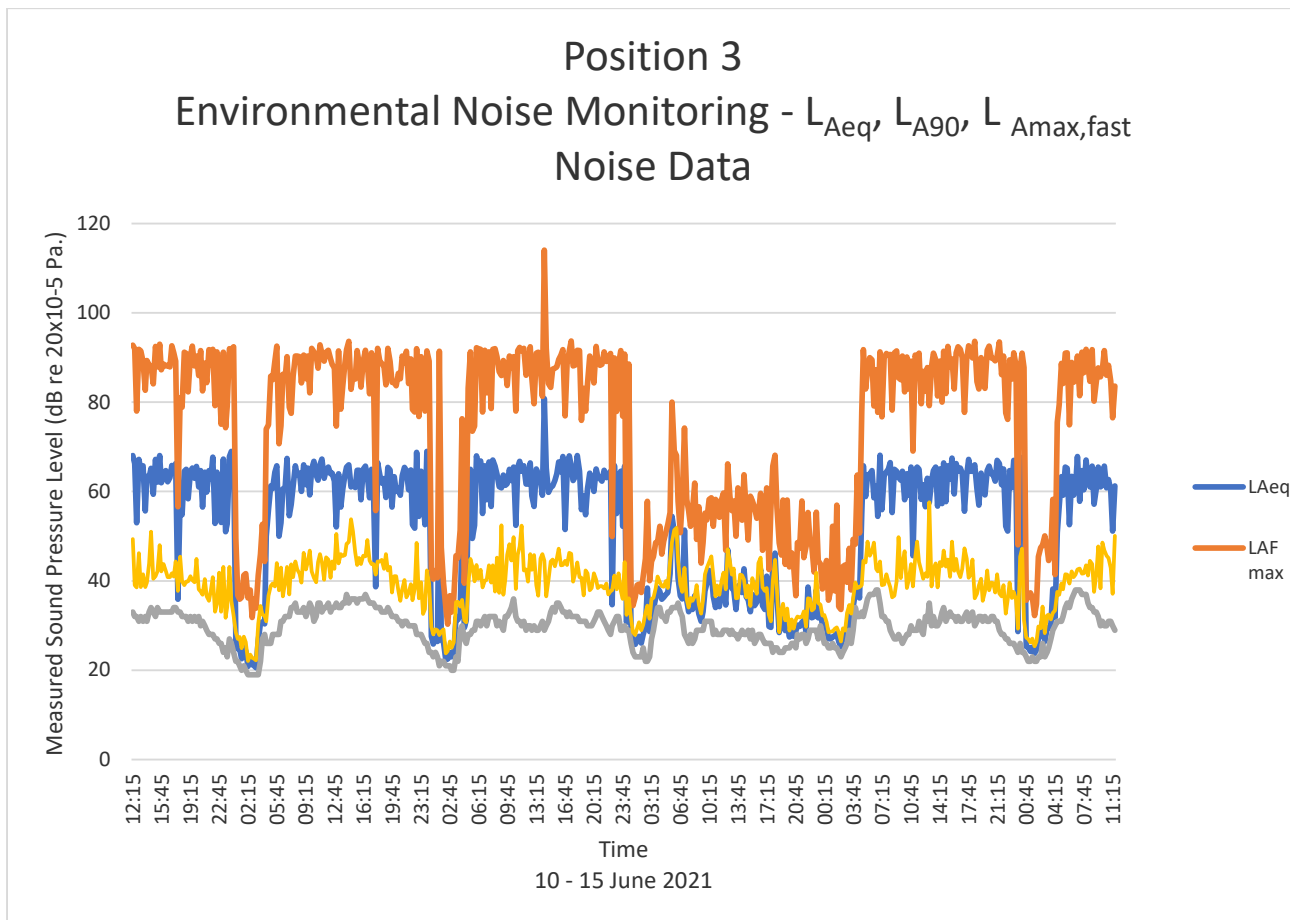
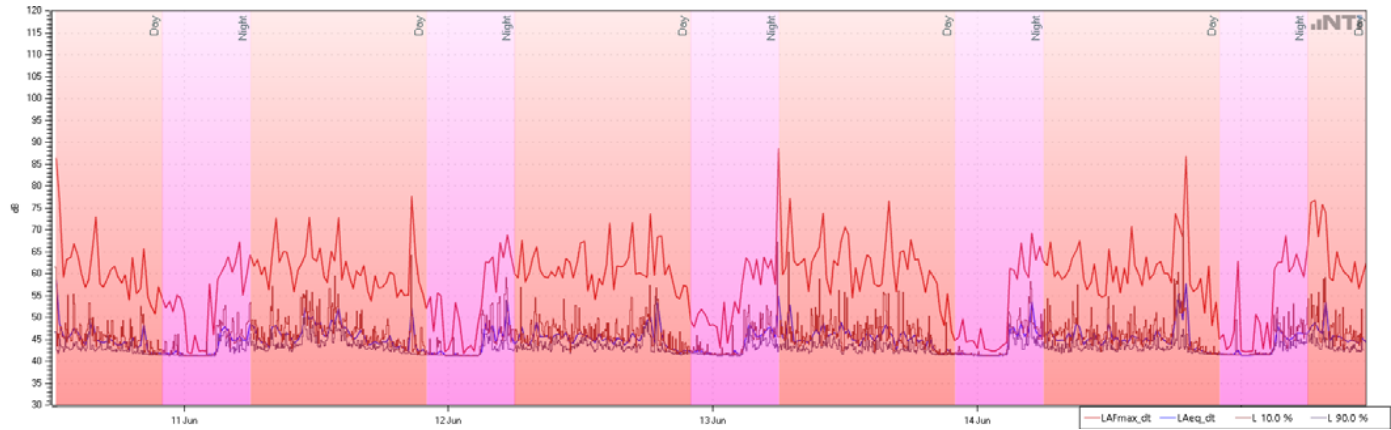


Figure 4 Baseline Noise measurement position 5*



Source: *There is not a graph for measurement position 4 as it was a short term attended survey.

Appendix H3: Construction Plant Lists

Activity	BS 5228 Plant Description	No.	% on-time	BS5228 Reference	Sound Power Level LWA
Enabling works: Site clearance/ excavation and earth works	Dozer	2	40%	C2.1	103
	Circular bench saw (petrol-cutting concrete blocks)	2	10%	C4.71	113
	Tracked excavator	2	20%	C2.3	106
	Dozer	2	40%	C2.1	103
	Tracked excavator	2	40%	C2.3	105
	Articulated dump truck	2	25%	C4.1	109
	Water tanker extracting water (vacuum pump)	1	10%	C4.89	107
Piling	Mini piling rig	1	60%	C3.17	104
	Compressor for mini piling	1	10%	C3.19	109
	Mini tracked excavator	1	40%	C3.20	100
Concrete works	Tracked excavator	2	25%	C2.15	104
	Concrete pump	1	10%	C3.26	103
	Wheeled mobile crane (idling)	2	20%	C5.38	94
	Vibratory roller	1	20%	C5.22	109
	Tower crane	2	20%	C4.48	104
	Telescopic handler	2	30%	C4.55	98
	Wheeled excavator	2	30%	C4.10	94
	Wheeled loader	2	30%	C2.28	104
	Dump truck (empty)	2	30%	C2.31	115
	Diesel generator	1	60%	C4.76	89
	Articulated dump truck	1	50%	C4.1	109
	Asphalt paver (+ tipper lorry)	1	80%	C5.30	103
Road works	Mini excavator with hydraulic breaker	1	10%	C5.2	111
	Road breaker (hand-held pneumatic)	1	5%	C5.4	114
	Road planer	1	10%	C5.7	110
	Wheeled excavator	1	10%	C5.11	101
	Dozer	1	10%	C5.12	105
	Tracked excavator	1	10%	C5.18	108
	Vibratory roller	1	60%	C5.20	103
	Electric water pump	1	20%	C5.40	96

Appendix H4: Traffic Noise Assessment

4.1 The operational traffic noise assessment is summarised in the tables below

4.2 Do Something Opening Year Vs Do Minimum Opening Year.

4.3 The opening year is the most sensitive to the local community, as such, in accordance with LA11, the basic assessment looks at links with a 1dB change in noise. Over two thousand links were assessed and only one link had an increase of traffic over 25 percent, and 1 dB noise change. This link is distant several kilometres away from the Proposed Development, near the existing A27. The impact of change was assessed as minor and the future Basic Noise level was below the SOAEL, as such there are no Significant adverse effects as a result of this scenario.

Link ID	2031 DM Total Flow (veh)	BNL DM (dB)	2031 DS Total Flow (veh)	BNL DM (dB)	%Increases DS 2031 VS DM 2031	Noise Change,dB	Impact magnitude	Is BNL above the SOAEL (68 LA10,18hr or – 55 Lnight)	Final analysis of significance
50074-50003	1118	52.5	1612	54.6	31	1.9	Minor	No	No significant adverse

4.4 Do Something Future Year Vs Do Minimum Opening Year.

4.5 This scenario requires noise increases to be at least 3dB due to the proposed scheme in its future year. Over two thousand links were assessed and no increases of noise above 3dB were found, as such there are no Significant adverse effects as a result of this scenario.

4.6 There were several links that showed reductions in traffic, with potential noise benefits, however, these were assessed to be part of the wider strategic allocation and not the Proposed Development.

4.7 Future Baseline

In relation to the assessed Proposed Developed, there could be slight increases in baseline noise at the facades of the receptors A to G facing the new A29 realignment, due to the introduction of the road. However, these increases in noise are likely to be negligible due to the combination of distance attenuation and shielding from the new residential buildings that will be situated between the proposed road and existing receptors. This has been assumed for all assessed scenarios and will be quantified in more detailed at detail design when design locations of both the road and buildings will be fixed.

Appendix H5: Figure 1 Baseline Monitoring and Assessment locations

Figure 5 Noise monitoring and noise assessment locations

Figure 1 Noise monitoring and Noise assessment locations

