

Annex S - Noise

January 2023



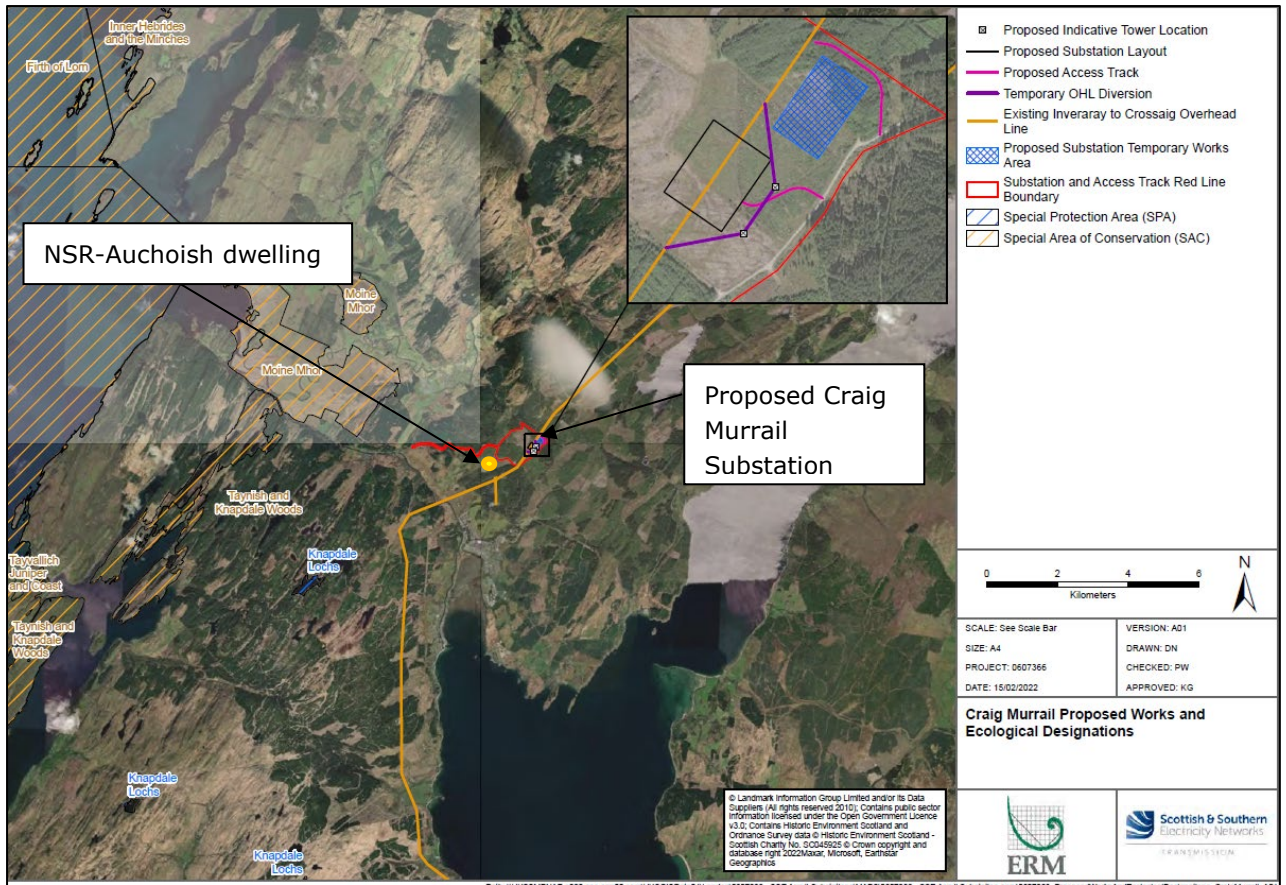
GLOSSARY OF TERMS AND ABBREVIATIONS

Term/Abbreviation	Expanded Term/Definition
dB (decibel)	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value and the scale on which sound pressure level is expressed. Sound pressure level is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2×10^{-5} Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq,T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A-weighted sound pressure level measured over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{Aeq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' time weighting.
L_{10} & L_{90}	If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
Fast	A time weighting with a 125 millisecond time constant
Slow	A time weighting with a 1000 millisecond time constant.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Façade Level	A sound field determined at a distance of 1 m in front of a large sound reflecting object such as a building façade.
Ambient Noise Level	The all-encompassing noise level measured in $L_{Aeq,T}$. The Ambient Noise Level incorporates background sounds as well as the industrial source noise under consideration.
Residual Noise Level	The Ambient Noise Level in the absence of the industrial source noise under consideration, measured in $L_{Aeq,T}$.
Specific Noise Level	The noise level measured in $L_{Aeq,T}$ attributed to the industrial noise source under consideration alone.



Term/Abbreviation	Expanded Term/Definition
Background Noise Level	The noise level in the absence of the industrial source noise under consideration, measured in L_{A90} .

APPENDIX A – SITE LOCATION PLAN



APPENDIX B – TRAFFIC DATA

Table B.1 Average Annual Daily Flow

Site	Year	Count Method	Pedal Cycles	Two wheeled motor vehicles	Cars and Taxis	Buses and Coaches	Light Goods Vehicles	Heavy Good Vehicles	All motor vehicles
A816	2019	Automatic Counter	12	21	3404	55	990	284	4753

Table B.2 Monthly Estimate of Construction Vehicle Numbers for the Proposed Development

Task	Month																		Total		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		Months 19 to 30	
Earthworks Platform							800	800	800												2400
Earthworks Site Compound	300	300																			600
Concrete										84	84	84	84	84	84						504
Building/ Civils work										15	15	15	15	15	15	15	15	15			135
Electrical Equipment													25	25	25	25	25	25		25 per month	425
Transformer																	1	1			2
Total HGVs (Two-way trips)	300	300					800	800	800	99	99	99	124	124	124	40	41	41		25 per month	4,066
Car/ Light Goods Vehicle	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320		1320 per month	39,600
Total Vehicles (Two-way trips)	1620	1620	1320	1320	1320	1320	2120	2120	2120	1419	1419	1419	1444	1444	1444	1360	1361	1361		1345 per month	43,691

Table B.3 Estimate of General Construction Vehicle Numbers for the Associated Development

Construction Task	Vehicle Type	Approximate No. of Loads
Earthworks Access Tracks and Tower Compounds	20T Tipper lorry	20
Concrete for foundations	Concrete wagon (6m ³ carry capacity)	60
Excavation plant/ tower steelwork/ Cable drums/ equipment	HGV Trailer	60
Personnel to and from site	Car / Light Goods Vehicles	440
Total No. of HGVs and LGVs (Two-way trips)		580

APPENDIX C – PLANT NOISE SPECTRUM

Plant	Sound Power Level SWL (dBA)	Octave Band Sound Power Level SWL (dB)							
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
1no. new 120MVA 275/33kV grid transformer at 50% load	78	70	93	77	67	66	56	49	38
1no. new 120MVA 275/33kV grid transformer at 100% load	89.5	82	105	89	79	78	68	61	50
1no. transformer coolers	83	56	68	84	78	78	77	72	64

APPENDIX D – SOUND PROPOGATION MODELLING PLOTS

Figure C.1 Sound Propagation Plot Scenario 1



Figure C.2 Sound Propagation Plot Scenario 2

