The Great Grid Upgrade

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Preliminary Enviromental Information Report

Volume: 2

Part 2 Suffolk Onshore Scheme

Appendix 2.10.C Suffolk Preliminary Operational Noise Assessment

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2.10.C Suffolk Preliminary Operational Noise Assessment

2.10.C.1 Introduction

2.10.C.1.1 This appendix presents results of the operational noise assessment conducted as part of the Suffolk Onshore Scheme. The assessment considers the potential effects of operational noise from the proposed Saxmundham Converter Station at nearby noise sensitive receptors (NSR).

2.10.C.1.2 The Suffolk Onshore Scheme also includes a proposed substation at Friston. However there are no notable sources of operational noise (e.g. transformers) from the proposed Friston substation, with plant items being auxiliary and emergency back up items which are scoped out of assessment.

2.10.C.1.3 The assessment draws on the findings of noise survey data detailed in **Appendix 2.10.A Suffolk Noise Survey Data**.

2.10.C.2 Assessment Methodology

2.10.C.2.1 The assessment of operational noise has been conducted in accordance with British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142) (Ref 2.10.C.1). The assessment methodology was discussed and agreed with the environmental health department of East Suffolk Council.

3.10.C.2.2 BS 4142 is used to assess the potential significance of effects by comparing the 'rating sound level' of an industrial source to the typically representative ‘background sound level’ at the location of nearby NSR. Certain acoustic features can increase the potential for a sound to attract attention, and therefore increase its relative significance than that expected from a simple comparison between the specific sound level and the background sound level. In particular, BS 4142 identifies noise that contains audible tonality, impulsivity and/or intermittency and recommends that a correction be added to the specific sound level. The specific sound level along with any applicable correction is referred to as the 'rating level'. It should be noted that the penalties can be additive (i.e., if they have a combination of tonal (e.g. whistling or humming), impulsive (e.g. hammering or banging), and intermittent (e.g. regularly turning on and off) acoustic characters).

2.10.C.2.3 Where tonality is audible at a receptor a penalty of between 0 and 6 dB may be applied. Subjectively, a 2 dB penalty may be applied where a tone is just perceptible, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.

2.10.C.2.4 The greater the difference between the rating level and the background sound level; the greater the likelihood of complaints. The assessment criteria given by BS 4142 are as follows:

- A difference of +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

- A difference of +5 dB could be an indication of an adverse impact, depending on the context.

2.10.C.2.5 The lower the rating level is relative to the measured background sound level, the less likely it is that there will be an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact (in BS 4142 terminology), depending on the context.

2.10.C.2.6 The assessment should also consider the context of the sound. Where the initial estimate of the impact needs to be modified due to the context, all pertinent factors should be considered, including:

- the absolute level of the sound;
- the character and level of the residual sound compared to the character and level of the specific sound; and
- the sensitivity of the receptor, including whether dwellings already incorporate design measures that secure good internal and/or outdoor conditions, such as: façade insulation treatment, ventilation and/or cooling that will reduce the need to have windows open to provide rapid or purge ventilation and acoustic screening.

2.10.C.2.7 With regards to the absolute level of the sound, BS 4142 states that where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background, particularly at night. Guidance in this matter is provided by the Association of Noise Consultants (ANC) BS 4142:2014+A1:2019 Technical Note (Ref 2.10.C.2), 2020 and BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (BS 8233) (Ref 2.10.C.3).

2.10.C.2.8 The noise rating level will be compared to the background sound level to magnitude of impact. The magnitude of impact of operational noise is determined against the criteria detailed in Table 2.10.C.1.

Table 2.10.C.1 Magnitude of impact of operational noise

Magnitude	**Comparison of sound rating level and background sound level**
Large	Rating level ≥ 10 dB above the background sound level (significant observed adverse effect level (SOAEL))
Medium	Rating level between 5 and 9 dB above background sound level (lowest observed adverse effect level (LOAEL))
Small	Rating level between 0 and 4 dB above background sound level
Negligible	Rating level below background sound level

2.10.C.2.9 Although the above criteria will be used to assess the magnitude of impact, it is standard practice to aim for a sound rating level not to exceed the background sound level, such that the impact is ‘low’ (as defined in BS 4142 (Ref 2.10.C.1)), or negligible in terms of the impact magnitude definition defined in Table 2.10.C.1 above. Additionally, the local authority aim is for the rating level to be at least 5 dB below the background sound level, where feasible.

2.10.C.2.10 Consideration, will also be taken of context, as defined in BS 4142, for the final determination of significance; in particular, absolute noise levels.

2.10.C.2.11 Taking account of the guidance provided by BS 4142 (Ref 2.10.C.1), the ANC Technical Note (Ref 2.10.C.2), BS 8233 (Ref 2.10.C.3), and Planning Practice Guidance for Noise (PPGN) (Ref 2.10.C.4), where background sound levels are 'low' (less than about 30 dB L_{A90}), the SOAEL is defined as follows:

- SOAEL: rating level >34 dB $L_{Ar,Tr}$ or ≥10 dB above the background sound level, whichever is higher.

2.10.C.3 Baseline Data

Introduction

2.10.C.3.1 This section details the baseline information used within the preliminary operation noise assessment.

2.10.C.3.2 The proposed Saxmundham Converter Station location, study area, NSR locations, and noise survey location, are shown in Image 2.10.C.1.

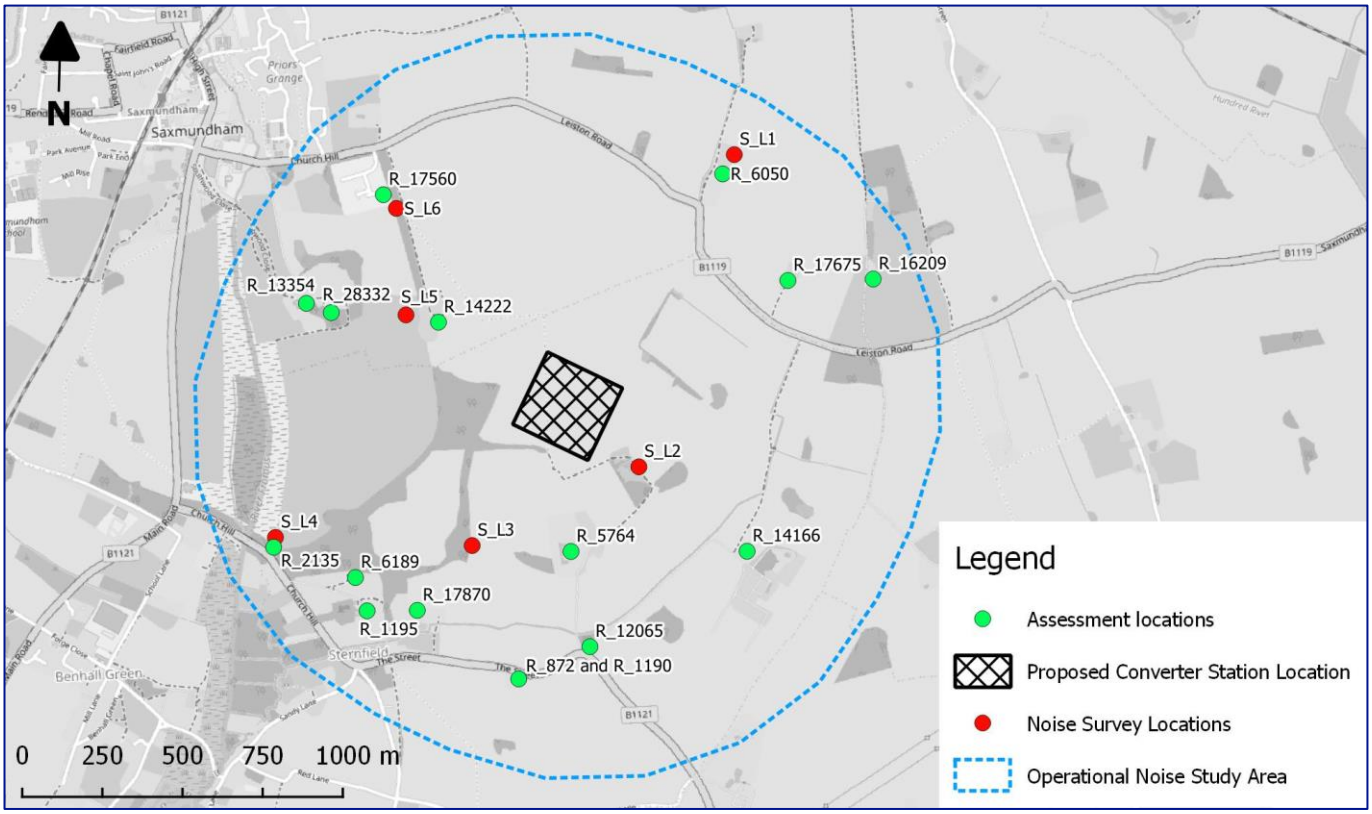

Image 2.10.C.1 Suffolk Onshore Scheme operational noise baseline information

Study Area

2.10.C.3.3 The proposed study area for operational noise effects from the converter station, based on guidance from ISO 9613-2 ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation (ISO 9613) (Ref 2.10.C.5), would include NSR within 1km of the converter station with a particular focus on the nearest NSR.

Noise Sensitive Receptors

2.10.C.3.4 The proposed Saxmundham Converter Station site is surrounded by predominantly isolated residential NSR in all directions, as shown in Image 2.10.C.1. The nearest NSR are located approximately 300 m from the proposed converter station site; R_5764 and R_14222, to the south and northwest, respectively. The nearest built-up areas are the town of Saxmundham, located approximately 600 m to the northwest (represented by R_17560 at the nearest point), and the village of Sternfield, located approximately 700 m to the southwest (represented by R_17870 at the nearest point).

Measured Noise Levels

2.10.C.3.5 The operational noise assessment has been informed by noise survey data obtained from a location representative of nearby NSR. A background noise level survey was conducted at a location representative of the nearby NSR, as detailed in Image 2.10.C.1. The survey duration was eight days in June 2023. Details of the baseline survey are presented in **Appendix 2.10.A Suffolk Noise Survey Data**.

2.10.C.3.6 The sound level meter measured a range of parameters including the following:

- $L_{Aeq,T}$ – The A-weighted equivalent continuous sound pressure level over the measurement period T, representative of the 'average' sound pressure level over a given period, in this case 15 minutes;
- $L_{AFmax,T}$ –the maximum A-weighted noise level during the sample period, measured using a fast time weighting; and
- $L_{A90,T}$ – The A-weighted noise level that is exceeded for 90% of the measurement period, and is usually regarded as a descriptor of the background noise level.

2.10.C.3.7 A summary of the measured sound levels is provided in Table 2.10.C.2.

Table 2.10.C.2 Summary of measured sound levels – Suffolk

Time period	Survey location	Average sound level, dB $L_{Aeq,15min}$	Maximum sound level, dB $L_{AFmax,15min}$	Background sound level, dB $L_{A90,15min}$
Day	S_L1	Range: 29 - 65 Average: 45	Range: 42 - 81 Typical: 56	Range: 21 - 52 Average: 34 Mode: 32
	S_L2	Range: 27 - 64 Average: 45	Range: 39 - 95 Typical: 64	Range: 23 - 47 Average: 35 Mode: 38
	S_L3	Range: 29 - 62 Average: 46	Range: 43 - 90 Typical: 55	Range: 22 - 49 Average: 36 Mode: 37
	S_L4	Range: 35 - 59 Average: 47	Range: 48 - 85 Typical: 59	Range: 23 -51 Average: 38 Mode: 38
	S_L5	Range: 27 - 55 Average: 43	Range: 35 - 81 Typical: 52	Range: 22 - 47 Average: 34

Time period	Survey location	Average sound level, dB $L_{Aeq,15min}$	Maximum sound level, dB $L_{AFmax,15min}$	Background sound level, dB $L_{A90,15min}$
				Mode: 35
	S_L6	Range: 32 - 61 Average: 46	Range: 40 - 82 Typical: 59	Range: 25 - 48 Average: 36 Mode: 35
Night	S_L1	Range: 19 - 50 Average: 38	Range: 31 - 81 Typical: 58	Range: 17 – 38 Average: 26 Mode: 18
	S_L2	Range: 21 - 67 Average: 49	Range: 33 - 82 Typical: 38	Range: 20 - 42 Average: 26 Mode: 21
	S_L3	Range: 19 - 51 Average: 40	Range: 32 - 91 Typical: 41	Range: 16 - 50 Average: 22 Mode: 32
	S_L4	Range: 21 - 58 Average: 45	Range: 34 - 86 Typical: 49	Range: 18 - 41 Average: 27 Mode: 37
	S_L5	Range: 20 - 56 Average: 39	Range: 30 - 71 Typical: 42	Range: 17 - 38 Average: 28 Mode: 18
	S_L6	Range: 24 - 63 Average: 43	Range: 37 -85 Typical: 48	Range: 20 - 41 Average: 31 Mode: 32

Representative Background Sound Levels

2.10.C.3.8 Table 2.10.C.3 presents a summary of representative background sound levels during daytime and night-time periods at the survey location for use in the operational noise assessment.

Table 2.10.C.3 Summary of representative background sound levels

Monitoring location	Representative background sound level, dB L_{A90}	
	Daytime	Night-time
S_L1	31	20
S_L2	32	22
S_L3	34	22
S_L4	35	23
S_L5	34	22
S_L6	35	25

2.10.C.3.9 The environmental health department of East Suffolk Council have been informed of the representative background sound levels.

2.10.C.3.10 Based on the representative background sound levels presented in Table 2.10.C.4, and the locations of the NSR relative to the monitoring locations, the following effect level criteria are applied.

Table 2.10.C.4 Affect level criteria based on representative background sound levels

Monitoring location	Applicable assessment locations	Affect level for noise rating level, dB $L_{Ar,Tr}$					
		Daytime			Night-time		
		Local authority Aim	LOAEL	SOAEL	Local authority Aim	LOAEL	SOAEL
S_L1	R_16209 R_17675 R_6050	≤26	36	41	≤15	25	34
S_L2	R_12065 R_5764	≤27	37	42	≤17	27	34
S_L3	R_6189 R_17870 R_872 R_1190 R_1195	≤29	39	44	≤17	27	34
S_L4	R_2135	≤30	40	45	≤18	28	34
S_L5	R_28332 R_13354 R_14222	≤29	39	44	≤17	27	34
S_L6	R_16209	≤30	40	45	≤20	30	35

2.10.C.4 Operational Noise Assessment

Operational Plant Sound Level Data

2.10.C.4.1 An indicative 3D view of the proposed Saxmundham Converter Station is shown in Image 2.10.C.2. The location of the transformers is identified as these are the main sources of noise from the proposed converter station.

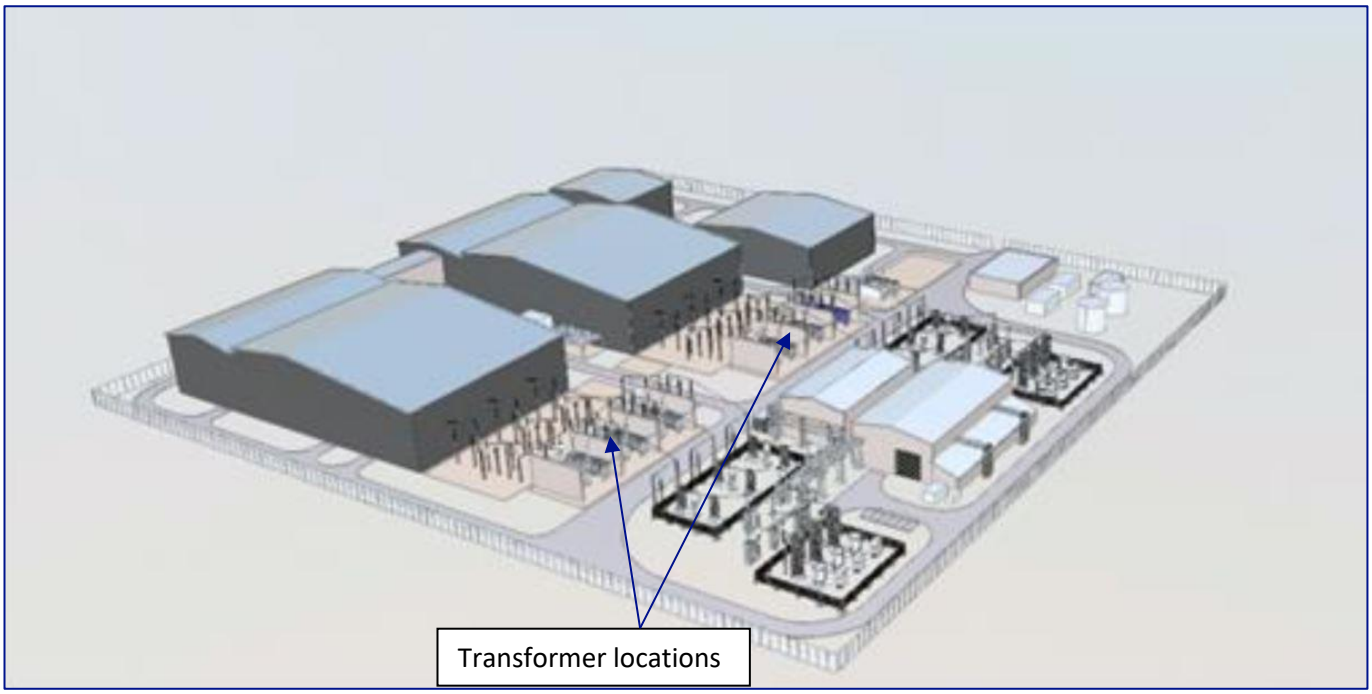

Image 2.10.C.2 Indicative 3D view of Proposed Saxmundham Converter Station

2.10.C.4.2 Table 2.10.C.5 presents indicative operational sound levels from proposed Saxmundham Converter Station plant.

Table 2.10.C.5 Indicative Saxmundham Converter Station plant sound data

Plant item	Number of	Source of information	Sound power level dBA	Sound power, dB, at octave band centre frequency, Hz							
				63	125	250	500	1k	2k	4k	8k
Reactor Hall	2	Building envelope would be designed to sufficiently control noise egress.									
Valve Hall	2										
DC Hall	2										
Valve Cooler Fans (per set)	Two sets	Celtic Interconnector Project / New England Clean Power Link	89	96	91	88	88	84	81	72	62
Transformer (355MVA 1-PH)	6	Interconnexion France-Angleterre (IFA)	106	-	-	-	-	-	-	-	-
Transformer cooling	6	Celtic Interconnector Project/ New England Clean Power Link	90	96	92	89	89	84	82	72	62
400 kV PLC Filter (AC Filter) (Capacitor)	6	Celtic Interconnector Project/ New England Clean Power Link	80	68	85	82	81	63	58	62	54
400 kV PLC Filter (AC Filter) (Reactor)	6	Celtic Interconnector Project/ New England Clean Power Link	80	68	85	82	81	63	58	62	54
400 kV Harmonic Filter (per bank)	2 banks	East Anglia One North and East Anglia Two	82	82	43	79	44	76	74	17	13
Air Handling Unit (AHU) (per set)	4 sets	Interconnexion France-Angleterre (IFA)	85	-	-	-	-	-	-	-	-

Operational Sound Propagation Modelling (Without Mitigation)

2.10.C.4.3 Specific sound levels at nearby NSR due to the proposed Saxmundham Converter Station plant have been predicted via computer noise modelling using SoundPlan software (version 8.2). The software calculates noise propagation in accordance with ISO 9613 (Ref 2.10.C.5). The resultant specific noise levels at nearby NSR are presented in Table 2.10.C.6. The specific sound levels are compared against the background sound levels to determine the worst-case affected NSR.

Table 2.10.C.6 Resultant specific noise levels at NSR (without mitigation)

NSR location	Resultant specific sound level, dB L_{Aeq}	Excess over background, dB	
		Daytime	Night-time
R_12065	41	+9	+19
R_28332	33	-1	+11
R_6189	38	+4	+16
R_17870	39	+5	+17
R_872 & R_1190	40	+6	+18
R_5764	47	+15	+25
R_13354	33	-1	+11
R_17560	35	0	+10
R_16209	38	+7	+18
R_14166	45	+13	+23
R_1195	38	+4	+16
R_2135	34	-1	+11
R_17675	40	+9	+20
R_6050	39	+8	+19
R_14222	39	+5	+17

2.10.C.4.4 The results indicate that the worst-case affected NSR, without mitigation, is R_5764, which is the closest NSR to the proposed Saxmundham Converter Station. The specific sound level at this NSR is predicted to exceed the night-time background sound level by 25 dB, without mitigation.

BS 4142 Assessment (Without Mitigation)

2.10.C.4.5 The results of the BS 4142 assessment at the worst-case effected receptor (R_5764) are presented in Table 2.10.C.7.

Table 2.10.C.7 Indicative BS 4142 assessment (without mitigation)

Parameter	Value		BS 4142 clause	Commentary
	Daytime	Night-time		
Background sound level, dB L_{A90}	32	22	8.1	Representative background sound level at nearby receptors based on measured noise data
Specific sound level, dB $L_{Aeq,T}$	47	47	7.3	Calculated via noise model based on indicative plant data.
Acoustic feature correction, dB	6	6	9.2	Assumed potential tonal audibility at receptor as worst-case. In practice likely to be less.
Sound rating level, dB $L_{Ar,T}$	53	53	9	Sum of specific sound level and acoustic corrections.
Difference in rating noise level relative to background sound level, dB	21	31	11	
Assessment Outcome	Large magnitude impact, depending on context. Above SOAEL.	Large magnitude impact, depending on context. Above SOAEL.	11	Context Outcome unaffected by context Outcome – Likely **Significant effect**
Uncertainty			10	Uncertainty has been minimised through the use of noise survey data over a suitable representative period. Main uncertainty from the use of indicative plant noise data, although this is based on plant at similar sites. Likely worst-case acoustic character correction applied for tonality. In practice likely to be lower. Uncertainty unlikely to affect the outcome of the

Parameter	Value		BS 4142 clause	Commentary
	Daytime	Night-time		
				assessment. However, this assessment is indicative based on available plant noise data and further studies would be conducted as the design progresses.

Notes:

BS 4142 Clause refers to the corresponding clause in BS 4142 relating to that aspect of the assessment.

2.10.C.4.6 The assessment indicates that without mitigation, there is a potential significant adverse effect at the worst affected NSR due to operational noise from the proposed Saxmundham Converter Station. Significant adverse effects would also be expected at all other representative assessment locations within the study area. Mitigation is therefore required to avoid significant adverse effects and reduce and minimise adverse effects.

2.10.C.5 Mitigation

Introduction

2.10.C.5.1 The outcome of the initial assessment indicates that there is the potential for significant adverse effects without mitigation. Indicative plant data, based on plant used on similar projects, has been used in the assessment. The ongoing design must therefore follow the mitigation hierarchy to reduce noise levels. This section details the noise mitigation options that may be considered as part of the ongoing design.

Source Contribution

2.10.C.5.2 Table 2.10.C.8 details the contribution of noise from each type of plant item type at the worst affected NSR.

Table 2.10.C.8 Plant sound level contribution

Plant item	Contribution to resultant noise level, dB L_{Aeq}	Contribution to resultant noise level
Transformers	46	Dominant source
Transformer Cooling	28	Secondary source
PLC capacitors	25	Secondary source
Valve coolers	23	Secondary source
PLC Reactors	22	Secondary source
Harmonic Filters	17	Negligible
Air handling units	16	Negligible

2.10.C.5.3 The results indicate the main source of noise is from transformers. The contribution from other plant items is secondary and may also require mitigation.

Mitigation Hierarchy

2.10.C.5.4 The mitigation of operational noise effects from the proposed Saxmundham Converter Station would follow the mitigation hierarchy, as follows:

- Mitigation of source;
- Reducing propagation of noise;
- Administrative controls.

Mitigation of source

2.10.C.5.5 Reducing noise at source is the first consideration in the noise mitigation hierarchy. Consideration should be given to the following for reducing the noise at source:

- eliminating equipment – (e.g. determining if the equipment is required or whether other processes can perform the same operation);

- equipment selection – selecting quieter equipment where feasible; and
- fitting of manufacturer noise attenuation to equipment.

2.10.C.5.6 Additionally, consideration should be given to the siting of the equipment and where it can:

- be located further away from NSR; and/or
- take advantage of natural screening provided by non-sensitive buildings and/or topography.

Reducing propagation of noise

2.10.C.5.7 Where adequate control of noise cannot be achieved by mitigation of the source alone, consideration should be given to reducing the propagation of noise between the source and NSR. This can typically be achieved with:

- screening; and
- enclosures.

2.10.C.5.8 Screening with noise barriers can typically achieve a reduction in noise levels of up 10 dB and as such would not be viable at this site without additional mitigation at source.

2.10.C.5.9 Enclosures (four sided and roof) can be specified to a high level of attenuation and would, acoustically, be a viable option to attenuate noise at this site. However, consideration should be given to:

- the ventilation requirements of the plant, and the noise that the ventilation plant may generate; and
- potential Noise at Work (NaW) implications within the enclosure (e.g. hearing protection zones), which are outside the scope of this assessment.

2.10.C.5.10 The initial consideration would be mitigation of source through plant selection and siting, followed by consideration of plant specific attenuation, such as enclosures. The third consideration would be through administrative controls, such as operational time limits. However, the nature of the Proposed Project makes this unviable and the focus would therefore be on the reduction of noise levels.

2.10.C.5.11 Standard transformer enclosures used by National Grid Electricity Transmission plc (National Grid) are capable of reducing noise levels by 20 dB, although higher levels of attenuation are possible through bespoke design.

Administrative controls

2.10.C.5.12 Due to the nature of proposed operation of the proposed Saxmundham Converter Station, administrative controls, such as limiting hours of operation are unlikely to be viable. As such, the focus would be on the mitigation of source and reducing the propagation of noise, as detailed above.

Indicative Mitigation options

2.10.C.5.13 This section describes indicative mitigation options that may be taken forward as the design progresses to reduce level of noise from the proposed Saxmundham Converter Station.

2.10.C.5.14 Table 2.10.C.9 provides indicative mitigation options for each plant item type, together with an estimate of the level of attenuation that may be provided.

Table 2.10.C.9 Indicative mitigation options

Plant item	Potential mitigation option	Indicative level of reduction, dB
Transformers	Plant selection and acoustic enclosure	30
Transformer Cooling	Plant selection and manufacturers attenuation	14
PLC capacitors	Enclosure	10
Valve coolers	Plant selection and manufacturers attenuation	14
PLC Reactors	Enclosure	10
Harmonic Filters	Plant selection and manufacturers attenuation	5
Air handling units	Plant selection and manufacturers attenuation	10

Residual Assessment

Operational sound propagation modelling (with mitigation)

2.10.C.5.15 The resultant noise levels at NSR with indicative attenuation as described in Table 2.10.C.10 are presented in Table 2.10.C.10. The specific sound levels are compared against the background sound levels to determine the worst-case affected NSR.

Table 2.10.C.10 Resultant specific noise levels at NSR (with mitigation)

NSR location	Resultant specific sound level, dB L_{Aeq}	Excess over background, dB	
		Daytime	Night-time
R_12065	15	-17	-7
R_28332	6	-28	-16
R_6189	12	-22	-10
R_17870	14	-20	-8
R_872 & R_1190	14	-20	-8
R_5764	22	-10	0
R_13354	6	-28	-16
R_17560	8	-27	-17
R_16209	13	-18	-7
R_14166	19	-13	-3

NSR location	Resultant specific sound level, dB L_{Aeq}	Excess over background, dB	
		Daytime	Night-time
R_1195	13	-21	-9
R_2135	9	-26	-14
R_17675	15	-16	-5
R_6050	14	-17	-6
R_14222	13	-21	-9

2.10.C.5.16 The results indicate that the worst-case affected NSR, with indicative mitigation, is R_5764, which is the closest NSR to the proposed Saxmundham Converter Station. The specific sound level at this NSR is predicted to be equal to the night-time background sound level, with indicative mitigation.

BS 4142 assessment (with mitigation)

2.10.C.5.17 The results of the BS 4142 assessment at the worst affected receptor (R_5764) are presented in Table 2.10.C.11.

Table 2.10.C.11 Indicative BS 4142 assessment (with mitigation)

Parameter	Value		BS 4142 Clause	Commentary
	Daytime	Night-time		
Background sound level, dB L_{A90}	32	22	8.1	Representative background sound level at nearby receptors based on measured noise data
Specific sound level, dB $L_{Aeq,T}$	22	22	7.3	Calculated via noise model based on indicative plant data.
Acoustic feature correction, dB	0	4	9.2	Assumed potential tonal audibility at receptor is clearly audible during night-time periods. In practice likely to be less. Assumed no audible tonality during daytime-time periods.
Sound rating level, dB $L_{Ar,T}$	22	26	9	Sum of specific sound level and acoustic corrections.
Difference in rating noise level relative to background sound level, dB	-10	+4	11	

Parameter	Value		BS 4142 Clause	Commentary
	Daytime	Night-time		
Assessment Outcome	Negligible magnitude impact, depending on context. Below LOAEL and local authority aim.	Small magnitude impact, depending on context. Below LOAEL.	11	Context The context is a low specific noise level, below existing average levels of ambient noise during both daytime and night-time periods. Additionally, the specific noise level does not exceed the LOAEL during daytime or night-time periods. Outcome – Likely **Not Significant**
Uncertainty			10	Uncertainty has been minimised through the use of noise survey data over a suitable representative period. Main uncertainty from the use of indicative plant noise data, although this is based on plant at similar sites. Relatively worst-case acoustic character correction applied for tonality. In practice likely to be lower. Uncertainty is unlikely to affect the outcome of the assessment. However, this assessment is indicative based on available plant noise data and further studies would be conducted as the design progresses.
Notes: BS 4142 Clause refers to the corresponding clause in BS 4142 relating to that aspect of the assessment.				

2.10.C.5.18 The assessment indicates that with suitable mitigation, the impact of operational noise from the proposed Saxmundham Converter Station at nearby NSR would be negligible during daytime periods and small during night-time periods. Sound levels would be below the LOAEL at all NSR during both daytime and night-time periods.

2.10.C.5.19 The local authority aim would likely be met during daytime periods. However, it is considered that the local authority aim may not be practicably achievable during night-time periods at the worst-case affected NSRs. Exceedance of the local authority aim is not in itself an indication of adverse or significant adverse effect.

2.10.C.5.20 Operational noise from the proposed Saxmundham Converter Station with the inclusion of appropriate mitigation would therefore likely be **not significant**.

2.10.C.6 Conclusions

2.10.C.6.1 This appendix presents results of the operational noise assessment conducted as part of the Suffolk Onshore Scheme. The assessment considers the potential effects of operational noise from the proposed Saxmundham Converter Station at nearby NSR.

2.10.C.6.2 The assessment has been conducted in accordance with current guidance and good practice. The assessment draws on noise survey data, and indicative operational plant noise data.

2.10.C.6.3 The assessment indicates that without mitigation and based on the indicative plant data, there are potential significant adverse effects at nearby NSR due to operational noise from the proposed Saxmundham Converter Station.

2.10.C.6.4 Outline mitigation proposals have been highlighted, including plant selection, manufacture attenuation, and transformer noise enclosures. Based on the inclusion of the indicative mitigation measures, the impact of operational noise from the proposed Saxmundham Converter Station at nearby NSR would be negligible during daytime periods and small during night-time periods. The effect of operational noise would therefore be **not significant**.

2.10.C.6.5 The assessment is based on indicative plant noise data and it is anticipated that further assessment would be conducted as the design progresses. The design would seek to reduce noise levels due to the operation of the proposed Saxmundham Converter Station as far as reasonably practicable.

2.10.C.7 References

Ref 2.10.C.1 British Standard Institution. (2019). British Standard 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound.

Ref 2.10.C.2 Association of Noise Consultants. (2020). British Standard 4142:2014+A1:2019 Technical Note Version 1.0.

Ref 2.10.C.3 British Standard Institution. (2014) British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings.

Ref 2.10.C.4 hm Government. (2019) Planning Practice Guidance for Noise. [online]. Available at: https://www.gov.uk/guidance/noise--2 [Accessed 11 July 2023]

Ref 2.10.C.5 International Organisation for Standardization. (1996). ISO 9613-2 ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation.

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