



The Planning Act 2008

East Anglia One North (EA1N) and East Anglia Two (EA2) Offshore Wind Farms

**Planning Inspectorate Reference: EA1N – EN010077 &
EA2 – EN010078**

Deadline 5 - 3 February 2021

**East Suffolk Council's Response to Additional
Information Submitted by Applicants at Deadline 4**

Review of Additional Information Submitted by Applicants at Deadline 4

1. Introduction

1.1. East Suffolk Council (ESC) has noted that the following additional documents were submitted by the Applicants at Deadline 4 which are of relevance to the Council's responsibilities:

- EA1N and EA2 Deadline 4 Project Update Note (REP4-026)
- EA1N and EA2 Substations Design Principles Statement (REP4-029)
- EA1N and EA2 Deadline 4 Onshore Ecology Clarification Note (REP4-005)
- EA1N and EA2 Noise Modelling Clarification Note (REP4-043)
- EA1N and EA2 Applicant's Comments on Councils' Deadline 3 Submission (REP4-025)
- EA1N and EA2 Traffic and Transport Deadline 4 Clarification Note (REP4-027)
- EA1N and EA2 Outline Landscape Mitigation Plan (REP4-015)
- EA1N and EA2 Landscape and Visual Impact Assessment Addendum (REP4-031)
 - Appendix 1 Viewpoint 1 (REP4-032)
 - Appendix 2 Viewpoint 2 (REP4-033)
 - Appendix 3 Viewpoint 3 (REP4-034)
 - Appendix 4 Viewpoint 4 (REP4-035)
 - Appendix 5 Viewpoint 5 (REP4-036)
 - Appendix 6 Viewpoint 6 (REP4-037)
 - Appendix 7 Viewpoint 8 (REP4-038)
 - Appendix 8 Viewpoint 9 (REP4-039)
- EA1N and EA2 Heritage Assessment Addendum (REP4-006)
 - Appendix 1 CHBP2 (REP4-007)
 - Appendix 2 CHVP3 (REP4-008)
 - Appendix 3 CHVP4 (REP4-009)
 - Appendix 4 CHVP5 (REP4-010)
 - Appendix 5 CHVP7 (REP4-011)
 - Appendix 6 CHVP8 (REP4-012)

1.2. The Council has reviewed these documents and provided comments where relevant in the table on page 4. The comments relate to both East Anglia One North (EA1N) and East Anglia Two (EA2) projects.

1.3. The comments contained within this document are from ESC. The Council continues to work closely with SCC on these projects but to avoid repetition, each Council will lead on specific topic areas as set out in the Councils joint Local Impact Report.

1.4. The Council notes that a number of documents have been submitted which are directly relevant to Suffolk County Council's (SCC) responsibilities as Lead Local Flood Authority and Local Highway Authority and therefore we will defer the SCC on these matters.

- EA1 and EA2 Outline Drainage Management Plan (REP4-003)
- EA1N and EA2 Clarification Note SuDS Infiltration Note (REP4-044)
- EA1N and EA2 Traffic and Transport Deadline 4 Clarification Note (REP4-027)

The table below details ESC’s comments in relation to additional information submitted by the Applicants at Deadline 4.

Document submitted at Deadline 4		East Suffolk Council’s Comments
EA1N and EA2 Deadline 4 Project Update Note (REP4-026)		
1.2.1 Noise Limit Compliance Locations		ESC welcomes the inclusion of an additional noise monitoring location within Requirements 26 and 27 of the draft DCOs at SSR3. This ensures that there is a monitoring location to the north of the substations.
1.2.2 Revised Noise Limits		<p>ESC welcomes the reduction in the proposed operational noise limits and considers this a step in right direction but maintains that the operational noise limits should be set at the rating level equal to a truly representative background noise level as discussed in Appendix 4 of the Council’s Local Impact Report (REP1-132).</p> <p>ESC has provided further detailed comments in this table (page 10 onwards) on noise matters in response to the Noise Modelling Clarification Note (REP4-043).</p>
1.3 A12/A1094 Junction (Friday Street Junction)		ESC welcomes the alterations proposed to the A12/A1094 junction during the projects’ construction periods and will defer to SCC as the local highway authority for more detailed comments on this matter. ESC has raised a question in relation to the implications of the these works for air quality in the table below (page 29) in response to the Traffic and Transport Deadline 4 Clarification Note (REP4-027) where the works proposed to the Friday Street junction are set out in further detail.
1.4 Additional Planting at National Grid Substation		The additional planting to the north of the National Grid substation is noted and provides more effective screening of the eastern section of the developments. Further consideration of the effect of this planting is provided in this table below in connection with ESC’s comments on the Heritage Assessment Addendum (REP4-006) and discussion of Little Moor Farm and CHVP3 (REP-008) in the table on page 30 onwards.

<p>1.5 Grid Connection Dates</p>		<p>ESC notes the new grid connection dates for EA2 and submission to National Grid by the Applicants of an application to amend the Connection Agreement for EA1N.</p>
<p>EA1N and EA2 Substations Design Principles Statement (REP4-029)</p>		
<p>Paragraph 3: <i>This substations design principles statement should be read in conjunction with the Outline Landscape and Ecological Mitigation Strategy (OLEMS) (REP3-030).</i></p>		<p>It is considered that this paragraph should include reference to the Design and Access Statement (DAS) (APP-580) in addition to the OLEMS unless the document is updated to include the matters contained in the DAS.</p>
<p>Paragraph 5 and Section 1.2 DCO Requirement 12</p>		<p>ESC notes that this document will supersede the outline design principle statements and the draft DCOs will be updated to reflect this. The Council fully support the holistic approach to the design of the substations site.</p>
<p>Paragraph 27: <i>The Use of locally appropriate native woodland and hedging species.</i></p>		<p>The choice of tree and hedgerow species remains under discussion. The issue of appropriate plant association needs to be more fully considered before woodland mixes in particular can be approved.</p> <p>The summary of the issues that the OLEMS address is noted and accepted, but it also needs to be considered that the mitigation planting proposals in their own right have the potential to alter the visual receptors experience of the local landscape in certain views.</p>
<p>Paragraph 29</p>		<p>It is noted and accepted that the latest versions of the substations design have the potential to reduce adverse landscape and visual effects of the projects.</p>

<p>Section 5 Substation Design Principles Table 5.1</p>		<p>ESC considers that the Applicants should make a clear commitment within the design principles to make every reasonable effort during the design refinement process, to further reduce the dimensions of the onshore substations. It is accepted that the draft DCOs provide maximum dimensions for the projects, but these are based on Rochdale envelope/worst case scenario assessments. The Applicants should, as far as reasonably possible, be seeking to achieve best case design outcomes in order to minimise the impacts of the projects. It is essential this commitment is made in relation to both the EA1N and EA2 substations but also the National Grid substation. It is not considered that such a commitment would impede the discharge of requirement process. ESC is disappointed that National Grid have not taken the opportunity to engage with their supply chain and secure reductions in the maximum envelope of their development.</p>
		<p>ESC support SCC in their recommendation that an additional design principle be included within the document to reflect the need for the design of the projects to have regard to policy changes and technological advancements which may occur in between consent and detailed design work. It is understood that SCC has provided some suggested wording within their Deadline 5 submission.</p>
<p>Section 5.2 Design Champion</p>		<p>ESC welcomes the commitment to provide a design champion who will ensure effective design coordination between the developments. It is important that the design champion is appointed as a priority post-consent (if the DCOs are granted).</p>
<p>Section 6.1 Finished Ground Levels Section 6.2 Onshore Substation Height Reductions Section 6.3 Maximum Visual Envelope</p>		<p>ESC welcomes the reductions in the finished floor levels and heights of the infrastructure associated with EA1N and EA2 substations. It is noted that the Applicants wish to retain a degree of flexibility in relation to the finished ground level and therefore have provided a maximum visual envelope expressed in AOD for the substations. This does provide a greater level of certainty regarding the maximum visual envelope however ESC still considers that</p>

		providing a maximum finished ground level would be beneficial to help minimise the impacts of the projects.
Appendix 1 – Engagement Strategy		The integrated approach to the design of the substations site is supported. The coordination between the design of the substations is of vital importance and therefore the design refinement and engagement process need to be undertaken jointly.
Paragraph 23 – <i>...Whilst the height of building and external equipment will not be subject of consultation as the maximum heights will be set out in the DCO, the Applicant will outline the rationale for the heights of key buildings and external equipment heights.</i>		There is insufficient commitment from the Applicants to take all reasonable steps to explore opportunities to reduce the parameters of the substations post consent. Reference here to the maximum heights set out in the DCOs which have been drafted based on a ‘worst case’ scenario is of concern. This concern is reinforced as National Grid are yet to undertake any design refinement work. It is essential that the ‘outline of the rationale for the heights of key buildings and external equipment heights’ includes detailed explanation as to how the final parameters have been reached.
Paragraph 26 - <i>...A suitably experienced chair/facilitator will make noted and ensure that discussions run to time.</i>		It is recommended that the community engagement events are run by a neutral chair/facilitator.
Paragraph 34 - Timescales		It is important that the Landscape Masterplan and Architectural Framework should remain in an early drafting form prior to the granting of the DCOs to enable the community to have the ability to genuinely influence aspects of the design.
EA1N and EA2 Deadline 4 Onshore Ecology Clarification Note (REP4-005)		
Section 2.2 Onshore Ecology		In relation to onshore ecology, the Deadline 4 Clarification Note concludes that it is <i>“highly unlikely that operational noise will interfere with the behaviour of any sensitive receptors which utilise Laurel Covert or other surrounding habitats”</i> (paragraph 13). This is based on the ecological receptors recorded in the area during pre-application surveys and the noise levels

predicted to occur during the operation of the substations. We have a number of comments to make on this conclusion:

Ecological Receptors Recorded

Whilst the Clarification Note correctly identifies that no bat species considered to be particularly vulnerable to increased noise levels (particularly brown long-eared bat (*Plecotus auritus*) and Natterer's bat (*Myotis nattereri*)) were recorded in the vicinity of the substations (Environmental Statement (ES) Appendix 22.6 Bat Survey Report - APP-507), it appears that no brown long-eared bats were recorded at any survey point (either static detector or transect) in the entire red line boundary.

We consider that this is highly likely to be an under recording, rather than a complete absence, as this species is one of the more common in the UK (Bat Conservation Trust [BCT Brown long-eared pdf](#) (accessed 26/01/2021)) and is considered to be common and widespread in Suffolk (Suffolk Bat Group [Bats in Suffolk Distribution Atlas](#) (accessed 26/01/2021)). Historic records for this species also exist from Sternfield church approximately 2.2km to the west of the substation site. It is known that brown long-eared bats echolocate very quietly (or not at all in certain situations) and therefore are often not recorded by electronic bat detecting equipment even when present. We therefore do not consider that it is correct to conclude that this species is completely absent from the substations area.

In addition to the above, it is also noted that the static bat detector at survey point 1B (on the edge of Laurel Covert) failed on two out of four of its deployments. This further reduces the confidence in the conclusion that vulnerable bat species are absent from the substation location.

Predicted Noise Levels

Whilst the Clarification Note considers noise levels to be generated during substation operation in relation to published evidence on the impacts of these on certain ecological receptors, it does not appear to consider whether there will be any ultrasonic component to the noise generated. Bats in particular are potentially disproportionately impacted by ultrasonic noise and therefore this must be assessed before it can be concluded that operational noise will not result in a significant adverse impact on all ecological receptors.

Also, whilst the Clarification Note considers the impact arising from the operation of the EA1N and EA2 substations, it does not include the National Grid substation which also forms part of the DCOs. It is therefore unknown whether this substation will exert a similar level of impact, therefore pushing the zone of impact further north, or whether it may even have a greater impact therefore affecting ecological receptors over a wider area.

Conclusion

Given the importance of bats as an ecological receptor (an ecological receptor of “High” importance under the EIA definition – ES Chapter 22 Onshore Ecology APP-070) we consider that the precautionary principal must be applied when considering likely impacts on them. Considering the uncertainties with the submitted assessment set out above, we consider it likely that the operation of the substations will have an adverse impact on certain bat species where habitats suitable for them are in the vicinity of the substations (within at least 60m as identified in the research quoted in the Clarification Note (REP4-005). This is likely to cause these species to either avoid these areas or to suffer increased foraging times, therefore expending more energy to forage for the same amount of prey when compared to the absence of the substations. This in turn will result in an adverse impact on populations of these species in this location.

<p>Section 2.3 Onshore Ornithology</p>		<p>Whilst we agree that barn owl (<i>Tyto alba</i>) is the ornithological receptor most likely to be impacted by substation operational noise, we do not consider that the evidence presented in the Clarification Note fully supports the conclusion that the noise generated will not “give rise to any change in activity within the local barn owl population”. The research quoted relates to distances at which human activity disturbed barn owls, not distances at which barn owls continued to behave as before when a permanent, new, increased noise source was introduced. Although the research indicates that barn owls may habituate, or at least tolerate, increased levels of disturbance from anthropogenic sources, nevertheless given that a large part of their hunting strategy relies on hearing their prey we consider it likely that the increased noise levels generated by the substations will mean that this species avoids the area.</p> <p>Barn owl were recorded nesting in relatively close proximity to the substations area (ES - Figure 23.8 - Other Scheduled 1 Target Species Records - APP-291). The noise generated by the substations may result in the abandonment of this nesting area or may result in the avoidance of the area around the substations, including the new landscaping proposed as part of it, which will result in the loss of foraging area from the territory. Whilst this impact is undesirable, we accept that it is assessed in the ES (Chapter 23 Onshore Ornithology - APP-071).</p>
<p>EA1N and EA2 Noise Modelling Clarification Note (REP4-043)</p>		
<p>Paragraph 3: <i>In addition, the Applicants have also committed to an additional noise sensitive location, within the vicinity of SSR3 (Little Moor Farm) being included within Requirement 26 and 27 of the draft DCO (REP3-011). The</i></p>		<p>ESC welcome inclusion of SSR3 into the monitoring locations as requested and the downward direction of travel for the noise rating limit, but as discussed elsewhere, 31 dB LAr is not accepted as an appropriate limit for operational noise to prevent adverse impact at this or the other assessment locations.</p>

<p><i>maximum operational noise rating limit applied to SSR3 is 31dBA. The draft DCO (REP3-011) will be updated and submitted at Deadline 5 to reflect these changes.</i></p>		
<p><i>Paragraph 15: The Applicants confirm that humidity was not considered within Chapter 25 of the ES (APP-073), given this is not standard practice within the BS4142:2014 +A1:2019. However, consultation with National Grid Electricity Transmission (NGET) since submission of the Applications has identified that corona discharge noise from overhead transmission lines occurs only under very specific meteorological conditions, including (but not limited to) periods of high humidity or damp or drizzly weather.</i></p>		<p>The Applicants’ background noise surveys are clearly affected by one of more local noise sources which were not present when ESC officers and the Council’s consultants visited the site on 7/8 November 2019.</p> <p>The Applicants identify noise from existing overhead transmission lines as a potential noise source in the ES (see Paragraph 30, Appendix 25.3 – APP-524). ESC’s consultant’s experience of surveys in and around National Grid transmission equipment is that overhead lines can generate significant levels of noise under some environmental conditions but not others. Noise from the existing overhead lines is therefore a likely candidate for the unexplained variations in noise levels within noise survey data. If this is not the case, it remains that the Applicants’ survey data if affected by an unknown and unexplained noise source or sources. It is not possible to determine whether the measured levels are representative without understanding what caused these variations or under what conditions they occur.</p>
<p><i>Paragraph 16: Damp and drizzly weather occurring during the background noise surveys would have been recorded by the in-situ weather station. Any baseline noise survey measurements recorded during such periods would have fallen outside the scope of suitable weather conditions (as described in BS4142:2014</i></p>		<p>The reference to local roads as potential causes of these variations in measured background noise levels in not accepted. Given the short duration of any vehicle passes in comparison to the 15-minute assessment period, there would have to be a very large number of vehicle movements on the surroundings roads in a night-time survey period (23:00 – 07:00) to generate constant traffic noise and have an effect on the overall LAF90 figure. This is not considered likely and is not consistent with our visits to the site.</p>

+A1:2019 and BS7445:2003) and been omitted from analysis of the baseline noise data to derive the background noise level.

Paragraph 17: Further review of the weather data collected during the baseline noise survey indicates a wide variation in humidity. However, if corona discharge was a feature of the measured baseline noise levels it would be visible within the graphical measured baseline noise data profiles at each affected monitoring location over specific time periods, as small fluctuations over a small dB range. There are no such fluctuations that fit this description observed within the baseline noise profiles (under appropriate monitoring conditions) for any of the baseline noise monitoring locations. Therefore, noise emissions from the overhead lines associated with corona discharge is not considered to be a feature of the background noise levels, as determined from the data collected during the baseline noise survey.

<p><i>Paragraph 18: The Applicants note that the onshore substation study area is characteristically rural, with operational noise emissions being a key theme raised by stakeholders and some Interested Parties. The Applicants have committed to a maximum operational noise rating limit of 32dBA at any time at a free field location immediately adjacent to SSR2 and SSR5 NEW, and to 31dBA at any time at a Noise Modelling Clarification Note 13th January 2021 Applicable to East Anglia ONE North and East Anglia TWO Page 7 free field location immediately adjacent to SSR3 (as shown on Figure 2, Appendix 1). An updated draft DCO (REP3-011) will be submitted at Deadline 5 to reflect this.</i></p>		<p>ESC welcomes a reduction in the proposed operational noise limits as a step in the right direction but does not accept that at an industrial noise generating a noise rating level of 31 or 32 dB LA throughout the day and night in an extremely quiet rural area would not have an adverse impact. ESC maintains that operational noise limits should be set at the rating level equal to a truly representative background noise level as discussed in Appendix 4 of the Council’s Local Impact Report (REP1-132).</p>
<p><i>Paragraph 23: Section 4.4 sets out the revised model results based on the following parameters:</i></p> <ul style="list-style-type: none"> <i>• The revised onshore substation footprints for both Projects and corresponding layout presented within Figure 1, Appendix 1;</i> <i>• The revised onshore substation buildings and external equipment heights</i> 		<p>The use of lower ground absorption coefficient for the substation site within the operational model (G=0.5 as opposed 1.0) is welcomed. However, the Applicants are directed toward the guidance in <i>ISO 9613-2 ISO 9613-2:1996 Acoustics — Attenuation of sound during propagation outdoors — Part 2: General method of calculation</i> which states that a coefficient of G =0 should be used for “Hard Ground, which includes paving, water, ice, concrete and all other ground surfaces having a low porosity. Tamped ground, for example as often occurs around industrial sites, can be considered hard.” For this reason, it is considered that the Applicants use a ground absorption coefficient of G=0 within the substation compounds in their revised model.</p>

<p><i>presented within Table 1;</i></p> <ul style="list-style-type: none"> • <i>The revised estimated finished ground levels presented within Table 2;</i> • <i>A ground coefficient reflective of mixed ground providing a diffuse surface (G=0.5) within the substation compounds;</i> • <i>A ground coefficient reflective of porous (soft) ground (G=1) outside of the substation compounds; and</i> • <i>Meteorologically dry conditions, comparable with the baseline noise survey undertaken in accordance with BS4142:2014+A1:2019.</i> 		<p>The use of G=0.5 as opposed to G=0 is expected to under-report the predicted noise levels by approximately 1dB at the receptor locations.</p>
<p><i>Paragraph 24: Modelling was undertaken for both the unmitigated and mitigated operation of the following scenarios:</i></p> <ul style="list-style-type: none"> • <i>Scenario A – Eastern substation location and National Grid infrastructure operating in parallel;</i> • <i>Scenario B – Western substation location and National Grid infrastructure operating in parallel; and</i> • <i>Scenario C – Eastern and western substation and National Grid infrastructure operating in parallel</i> 		<p>ESC welcomes the inclusion of the transmission lines within the revised operation noise models but note that cumulative noise models do not include any contribution from equipment on the National Grid substation site (work item 31) as requested by ESC.</p>

<p>Paragraph 26: <i>Operation phase noise sources incorporated into the noise model have been included as A-weighted noise levels either in a single-figure or octave band format, depending on the availability of frequency data for the identified noise sources.</i></p>		<p>The Council’s consultants have previously highlighted the inconsistencies between the pre-weighted Octave Band levels in Table in 5 and the A-weighted levels in Table 4. It remains unclear which set of data is correct and which is used in the model. In practice, this could mean that the predicted noise levels are substantially lower than those which will occur in practice at the assessment locations.</p>
<p>Paragraph 33: <i>Various components of the National Grid Infrastructure were also considered within the updated noise modelling exercise. NGET have re-confirmed to the Applicants that there will be minimal reactive (winding) plant at the National Grid substation. As a consequence, minimal noise sources are considered to be present at the site. The items of National Grid substation equipment considered to be noise emitting and considered within the modelling exercise were the Air Insulated Switchgear (AIS) / GIS, the emergency generator and the realignment of overhead lines. These items are discussed below.</i></p>		<p>ESC maintains that any noise from the National Grid substation site should be included in the noise limits imposed under Requirement 27. If the Applicants believe that that there are no significant sources of noise on the substation site, it is not clear what practical issue the inclusion of the site within the cumulative limits presents to the Applicants.</p>
<p>Paragraph 35: <i>Data provided to the Applicants by National Grid regarding the activation of the switchgear at the</i></p>		<p>The information provided does not state at what distance the level of 124.6 dB LAFmax was measured and therefore how this figure was used to calculate the noise levels at the receptor locations. It is accepted that a total of 26 events within an 18-month period is not considered</p>

<p><i>Necton Substation, Norfolk, showed that (excluding commissioning) there were 26 activations across five items of switchgear over a period of 18 months (either planned or unplanned). The noise source data for both AIS and GIS circuit breakers are based on equipment manufactured by Siemens. To assess a worst-case scenario the louder of the two options was modelled (AIS closing) as point sources with a LAMax,F of 124.6dB.</i></p>		<p>a regular event in terms of the formal operational noise assessment. However, very loud events (however infrequent) could have a significant impact on residents if they occur in the night. Can the Applicants confirm whether routine switchgear activations associated with maintenance can be scheduled for daytime hours, when the potential for impact is lower?</p>
<p><i>Paragraph 49: The revised noise modelling has resulted in a number of changes to the impact magnitude and significance of several noise sensitive receptors when assessed against the respective background noise level as presented within Appendix 25.2 of the Environmental Statement (ES) (APP-523), summarised for Scenario C as followed:</i></p> <ul style="list-style-type: none"> <i>• The predicted noise level received at SSR2 has reduced from an assessed +1.9dBA increase upon the measured background noise level to a -1.6dBA decrease upon the measured background noise level. As such, the impact magnitude has changed from negligible to no impact and the impact significance</i> 		<p>ESC disagrees with conclusions that the predicted levels will not have an adverse impact at the receptor locations.</p>

has changed from minor to negligible at this receptor location.

- The predicted noise level received at SSR5 NEW has reduced from an assessed +1.1dBA increase upon the measured background noise level to a -2.6dBA decrease upon the measured background noise level. Therefore, the impact magnitude has changed from negligible to no impact and the impact significance has changed from minor to negligible at this receptor location.*

- When taking account of the corrected background noise level at SSR3 (26.1dBA) (as per the Applicants' Response to Appendix 4 of the Local Impact Report (REP3-071)), the predicted noise level received at SSR3 has increased from an assessed +2.7dBA (formerly -1.2dBA within Table A25.2.10 of the ES (APP-523)) increase upon the measured background noise level to a +3.0 dBA increase upon the measured background noise level. A +2.7dBA increase upon measured background noise levels would be assessed as a negligible impact magnitude and minor impact significance. A +3.0dBA increase upon*

<p><i>measured background noise levels is assessed as a minor impact magnitude and minor impact significance.</i></p>		
<p>Paragraph 52: <i>For context, the revisions to the maximum operational phase noise rating level is considered a significant change, particularly when compared to noise rating levels specified in the DCOs for other NSIPs such as:</i></p> <ul style="list-style-type: none"> • <i>Norfolk Vanguard (35dB LAeq (5minutes));</i> • <i>Dogger Bank A (formerly Dogger Bank Creyke Beck A) and Dogger Bank B (formerly Dogger Bank Creyke Beck B) (both 35dBA); and</i> • <i>Dogger Bank C (formerly Dogger Bank Teesside A) (42dBA at specified residential receptors).</i> 		<p>The impact of the introduction of a new noise source is entirely dependent on the noise climate to which it is being introduced. None of the examples raised as precedent are in a similarly quiet rural locations and are therefore not relevant to the assessment area in and around Friston:</p> <ul style="list-style-type: none"> • Norfolk Vanguard onshore substation is located at Necton in Norfolk on land adjoining the A47, the main arterial route out the county to the west. • Onshore substations for Dogger Bank A, B and C are to be located on land adjoining existing National Grid substation sites where the existing climate is expected to be dominated by noise from transformers on the existing equipment on the sites, nearby main roads or the nearby urban sources in Hull (A&B) and Middlesbrough (C).
<p>Paragraph 68: <i>Baseline noise monitoring for background noise levels along the local PRow network has not been undertaken and was not requested during the Expert Topic Group meetings prior to submission of the Applications. As such, for the assessment of operational phase noise impacts upon non-residential amenity, receptor locations along both existing and</i></p>		<p>An assessment of the impact of noise on public rights of way around the substation site is welcomed.</p>

<p><i>permanently diverted PRow routes were selected at a representative point close to noise monitoring location included within the baseline noise survey undertaken in 2018. These are shown on Figure 2, Appendix 1. This enabled the comparison and calculation of change in noise level at these locations based upon measured background noise levels and the predicted noise levels from the onshore substations</i></p>		
<p><i>Paragraph 75: The onshore substation study area, within which the onshore substation location falls, is predominantly rural in nature with limited significant background noise sources. In addition, there are a small number of individual residential properties and farmsteads located in the immediate area. The key residential area is the village of Friston to the south of the onshore substation location. There are a number of B-roads within the vicinity of the onshore substation study area along with existing National Grid infrastructure (i.e. two rows of overhead lines) in relatively close</i></p>		<p>The comments in paragraph 75 appear to identify the existing overhead power lines as a noise source which contradicts the comments in Paragraph 15 (see previous comments). Note the infrequency of traffic on these rural roads means that individual vehicles passing close to the receptor positions are not expected have a significant impact on the measured background noise levels, which are unaffected by transient events.</p>

<p><i>proximity to identified noise sensitive receptors.</i></p>		
<p><i>Paragraph 77: The noise climate of the study area fluctuates over a range of values as demonstrated by the post-survey statistical analysis and charts which profile the baseline noise measurements for each specific measurement location over the duration of the baseline noise survey. The purpose of the survey and consultation prior to a survey is to ensure the duration and location would provide representative and repeatable background noise levels to characterise the prevailing noise levels around the study area. It is therefore considered that the data obtained during the baseline noise survey is appropriate and robust for characterising the onshore substation study area.</i></p>		<p>The graphs provided by the Applicants show that the noise climate at the site consists of a very quiet noise environment apparently affected by one of more unknown local noise sources which are not identified or discussed in the noise assessment. Unless these sources are identified, it is impossible to determine whether the measured levels are representative of typical conditions at the assessment locations.</p>
<p><i>Paragraph 81: The Councils have queried the operational phase rating noise levels secured within the draft DCO (REP3-011). It is noted that the operational phase noise rating limits secured through Requirement 26 and Requirement 27 of the draft DCO are derived from the representative background noise level</i></p>		<p>The statement the that “Applicants do not consider it appropriate to have differing noise limit levels at different receptors...” is contradicted by differing noise limit levels set by the Applicants at different receptors. ESC maintains that the operational levels should be set according to a Lowest Observed Adverse Effect Level (LOAEL) of the rating level equal to a truly representative background.</p>

<p><i>adopted for the onshore substation study area (i.e. being 3dBA above the background noise levels). The Applicants consider the representative background noise level to be robust and reflective of the existing noise climate experienced within the onshore substation study area.</i></p> <p><i>Paragraph 82: As explained within the Applicants’ Response to Appendix 4 of the Local Impact Report (REP3-071), the Applicants do not consider it appropriate to have differing noise limit levels at different receptors and that the proposed background noise level of 29dB is wholly appropriate given the context of the Projects’ specific study area (see further clarification on noise context within Section 6.1) and the results of the background noise monitoring surveys undertaken.</i></p>		<p>Analysis of the Applicants’ survey data, ignoring the unidentified noise sources which the Applicants claim were present at the time of their surveys, suggest that the following figure should be used at each monitoring location:</p> <ul style="list-style-type: none"> • SSR2 – 27 dB L_{AF90,5mins} • SSR3 - 24 dB L_{AF90,5mins} • SSR5 (NEW) - 29 dB L_{AF90,5mins} <p>If it is not practical to set differing noise limits at different receptors these should be set according to the lowest of the above figures in line with the methodology used previously.</p> <p>In the event that noise limits based on these background levels are not achievable in practice, ESC maintains that the Applicants should use the above figures to assess the impact of operational noise at the receptors to allow the Examining Authority to make an informed decision on the true impact of the proposed development.</p>
<p>Table 20</p>		<p>Table 20 shows that the noise levels modelled at receptors SSR2 and SSR5New are expected to be dominated by the Harmonic Filter banks. The octave band levels supplied by the Applicants show that that the highest levels generated by these items are in the 125 Hz Octave band. This corresponds with the 100 Hz tones generated by magnetostriction effects commonly generated by mains power transmission equipment providing a 50 Hz supply. This</p>

		<p>“hum” would normally be subject to an acoustic feature correction when assessed in accordance with BS4142.</p> <p>The Applicants have supplied details of the analysis used to conclude that the rating level should not be subject to penalty for tonality. The Councils do not accept this analysis and maintain that the rating level of operational noise should be subject to acoustic feature corrections in accordance with BS4142. There is precedent for this in other DCO applications for similar developments submitted by the Applicant and their consultants where adequate data was not available at the time of assessment.</p>
<p>Paragraph 84: <i>The Council’s Consultants have queried whether the model outputs take account of an uncertainty budget of ±3dB. The noise model has been undertaken using SoundPLAN version 8.2, which is a standard programme for modelling sound propagation and the most up to date version of the software.</i></p> <p>Paragraph 85: <i>The Applicants note that uncertainty budget is not a requirement of BS4142:2014+A1:2019 and is not a standard inclusion within noise assessments undertaken for NSIPs.</i></p> <p>86. <i>In the event a +/-3dB uncertainty budget is applied to the model results as suggested by the Councils, it is considered that there is an equal</i></p>		<p>Section 10 of BS4142 states that the assessment should “Report the level and potential effects of uncertainty”. ISO9613-2, the calculation methodology used by SoundPLAN, states an inherent results uncertainty of ±3dB.</p> <p>In this case levels 3dB below those reported by Applicants would not affect the reported outcomes. However, if the reported levels were 3 dBA higher, they would exceed the operational limits at SSR2 (32.9 dBA) and SSR3 (32.2 dBA). Ignoring the inherent uncertainty in the calculation methodology is not in accordance with the Rochdale envelope approach which requires an assessment of the worst case where there is not sufficient information at the time of the assessment.</p>

<p><i>possibility of the results being overestimated as they are underestimated. As such, the Applicants believe the operational noise predictions presented within the ES and assessment conclusions are robust irrespective of the application of this uncertainty budget. This position applies to all noise predictions presented within the ES that have been calculated by the noise model generated using SoundPLAN.</i></p>		
<p>EA1N and EA2 Applicant’s Comments on Councils’ Deadline 3 Submission (REP4-025)</p>		
<p><i>Paragraph 9: BS4142:2014+A1:2019 states that ‘a difference of around +5dB is likely to be an indication of an adverse impact, depending on the context’. Within Table 25.19, Chapter 25 of the ES (APP-073), the Applicants note that the criteria for assessing impact magnitude below a +5dB noise change includes:</i></p> <ul style="list-style-type: none"> <i>• No impact (a predicted noise change at the receptor < (LA90) background);</i> 		<p>The figures quoted from Table 25.19, Chapter 25 of the ES (APP-073) agree with ESC’s position that that the lowest level at which an adverse effect is observed (LOAEL) is where the rating level is equal to the background noise level and not +5dB above the background noise level as stated elsewhere by the Applicants.</p>

- *Negligible adverse impacts (a predicted noise change at the receptor \geq (LA90) to $<$ 3dB); and*
- *Minor adverse impacts (a predicted noise change at the receptor \geq 3dB to $<$ 5dB).*

As such, where the modelling outputs predicted an increase in operation phase noise level at receptors above the measured background noise level but below an increase of +5dB, the impact magnitude was assessed as either negligible or minor. The dB range of the impact magnitude criteria is consistent or similar with other similar noise assessments for NSIPs. It follows that impact significance is derived from consideration of the impact magnitude and receptor sensitivity, as per the Impact Significant Matrix presented within Table 25.22, Chapter 25 of the ES (APP-073). The Applicants' consider this to be a reasonable interpretation of the guidance within BS4142:2014+A1:2019 and a robust approach to assessing the associated impacts of operational noise between 0 and 5dB above measured background noise levels.

<p><i>ID12</i></p> <p><i>The Applicants note that 1/3 Octave Band data is required for a thorough assessment of audible of tones in sounds according to Annex C of BS4142:2014+A1:2019, which is not yet available. Within the assessment, the Applicants screened the Octave band spectral data and did not identify tonality within the operation phase noise emissions based upon the data available. Where the requisite data is supplied, the Applicants will review the available 1/3 Octave Band data for tonality. As per the Deadline 4 Project Update Note (document reference ExA.AS-2.D4.V1) and the Noise Modelling Clarification Note (document reference ExA.AS-8.D4.V1), the Applicants have committed to a maximum operational noise rating limit of 32dBA at any time at a free field location immediately adjacent to SSR2 and SSR5 NEW. In addition, the Applicants have also committed to an additional noise sensitive location, within the vicinity of SSR3 (Little Moor Farm) being included within Requirement 26 and 27 of the draft DCO (REP3-011). The</i></p>	<p>We note that at ISH4 the Applicants’ agreed to provide third octave data measurements at the EA1 substation site at Bramford to allow tonality to be assessed. ESC welcomes this commitment and will review the information once published.</p>
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<p><i>maximum operational noise rating limit applied to SSR3 is 31dBA. The draft DCO (REP3-011) will be updated and submitted at Deadline 5 to reflect these changes. It should be noted that, irrespective of whether tonality or other such corrections are identified or not, as per the wording of Requirement 26 and Requirement 27 of the draft DCO (REP3-011), the Applicants must ensure that the operation of the onshore substations does not exceed the maximum operational noise rating limits at the specified receptors. The risk therefore lies with the Applicants to maintain operational noise levels within the levels stipulated in Requirement 26 and Requirement 27 of the draft DCO (REP3-011) at any time at a free field location adjacent to the specified noise sensitive locations.</i></p>		
<p>ID13 <i>The Applicants note the first sentence of ESC’s comment at ID13 contradicts its position at ID12 that the determination of tonality in spectral noise data cannot be determined accurately using Octave Band data only (i.e. this assessment</i></p>		<p>There is no contradiction between the responses at ID13 and ID12. For example, the octave band data provided for harmonic filters (which are one of the main sources of noise on the site) shows that highest levels are in the 125 Hz octave band which is entirely consistent with the 100 Hz tonal “hum” generated by magnetostriction effects in equipment operating at 50 Hz.</p>

<p><i>requires 1/3 Octave Band data). The Applicants’ consultants would typically undertake an assessment for tonality where 1/3 Octave Band data is available. However, in this instance, 1/3 Octave Band data was not available. This information will be requested from suppliers post-consent during the procurement process. Where the requisite data is supplied, the Applicants will review the available 1/3 Octave Band data for tonality.</i></p>		<p>ESC maintains that it is not appropriate to determine that there is no tonality on the basis that there is no data available to test for it, and welcomes the Applicants’ offer to provide 1/3 Octave data measured on site at the EA1 substation in Bramford.</p>
<p>ID14 <i>As per the Deadline 4 Project Update Note (document reference ExA.AS-2.D4.V1) and the Noise Modelling Clarification Note (document reference ExA.AS-8.D4.V1), the Applicants have committed to a maximum operational noise rating limit of 32dBA at any time at a free field location immediately adjacent to SSR2 and SSR5 NEW. In addition, the Applicants have also committed to an additional noise sensitive location, within the vicinity of SSR3 (Little Moor Farm) being included within Requirement 26 and 27 of the draft DCO (REP3-011).</i></p>		<p>ESC maintains that a +3dB correction should be applied to the rating level in the case where no other feature corrections are applied. This is because the continuous noise generated by the substations will be industrial in nature and therefore fundamentally different in character to existing noise environment which is entirely rural. The fundamental differences between the proposed and the existing noise sources should be considered at the design and assessment stage rather than after the equipment has been installed, when it will be too late or impractical to mitigate operational noise without turning the equipment off altogether.</p>

<p><i>The maximum operational noise rating limit applied to SSR3 is 31dBA. The draft DCO (REP3-011) will be updated and submitted at Deadline 5 to reflect these changes. As previously mentioned in relation to tonality, irrespective of whether tonality or other such characteristic corrections are identified or not, as per the wording of Requirement 26 and Requirement 27 of the draft DCO (REP3-011), the Applicants must ensure that the operation of the onshore substations does not exceed the maximum operational noise rating limits at the specified receptors. The risk therefore lies with the Applicants to maintain operational noise levels within the levels stipulated in Requirement 26 and Requirement 27 of the draft DCO (REP3-011) at any time at a free field location adjacent to the specified noise sensitive locations.</i></p>		
<p>EA1N and EA2 Traffic and Transport Deadline 4 Clarification Note (REP4-027)</p>		

<p>Paragraph 4 '<i>...improve the A12/A1094 Friday Street junction during the Projects' construction period by the installation of a temporary traffic signal control (i.e. traffic lights),..'</i></p>		<p>The Applicants should clarify whether the temporary speed changes meet air quality assessment criteria for speed band change, as set out within section 2.1 of Highways England's LA105 guidance. If required, an air quality assessment should be carried out.</p>
<p>EA1N and EA2 Outline Landscape Mitigation Plan (REP4-015)</p>		
<p>Various plans showing proposed planting arrangements in respect of revised substation layout.</p>		<p>The various new planting layout proposals are noted and accepted as an improvement on previous versions. The retention of existing tree cover to the west of the substations site is welcomed as is the newly proposed planting around the sealing end compounds and to the south of Little Moor Farm (as also noted in Paragraph 23 of Deadline 4 Project Update Note – REP4-026).</p> <p>ESC remains disappointed that National Grid have not engaged with their supply chains to see if the footprints and heights of their substation infrastructure could be reduced.</p> <p>ESC welcomes the inclusion of the sealing end compounds within the scope of Requirement 12 of the DCOs. It is considered that relatively minor modifications to the siting of the infrastructure would allow the retention of existing field boundaries which would be beneficial.</p>
<p>EA1N and EA2 Landscape and Visual Impact Assessment Addendum (REP4-031) and Appendices 1-8 (REP4-032 to REP4-039)</p>		
<p>Paragraph 12</p>		<p>The changes to the Outline Landscape Mitigation Plan (OLMP) are noted and welcomed. (matters relating to PRoWs are noted but may be subject to further comment by SCC).</p>
<p>Tables 3.1-3.5</p>		<p>The findings show reductions of significance of landscape and visual effects arising from reductions in substation footprints, changes to substation positioning, reduction in heights of</p>

		structures and reductions in floor levels. The findings are noted, and the Council accepts that these changes to design parameters would appear to be beneficial in moderating the adversity of landscape and visual effects compared to as previously described. As the Council has previously recorded, these conclusions remain dependent on the successful implementation and establishment of the proposed planting measures. Unless the problems associated with establishing trees and hedgerows in eastern East Anglia are fully and adequately addressed, the potential for these amended Landscape and Visual Impact Assessment findings to be unreliable remains. The reliance on the use of Extra Heavy Standard nursery stock in certain views remains a risky strategy.
Section 3.5 Paragraphs 39-45		The contents of these conclusions are noted and accepted.
EA1N and EA2 Heritage Assessment Addendum (REP4-006) and Appendices 1-6 (REP4-007 to REP4-012)		
General comments		<p>The reduction in scale of the substations and revisions to the OLMP have made a positive difference in the visual impact of the development, in particular from medium-range viewpoints. The revisions and the updated visualisations are therefore welcomed.</p> <p>However, visual impact is only one of the factors that would lead to harm to the significance of the listed building, and therefore these revisions would not be sufficient to lower the overall levels of harm that have been identified.</p>
Table 3 Revised Assessment of Impacts		
1.2 High House Farm		We remain of the view that the magnitude of adverse impact would be medium, giving rise to an effect of moderate significance.

1.4 Woodside Farm		We remain of the view that regardless of whether only EA1N, only EA2 or both substations were to be built, the magnitude of adverse impact would be medium, giving rise to an effect of moderate significance.
1.5 Church of St Mary		We remain of the view that the magnitude of adverse impact would be medium, giving rise to an effect of major significance.
2.1 Little Moor Farm		<p>The additional planting to the north of the National Grid Substation provides more effective screening of the eastern section of the development as illustrated in CHVP3 (REP4-008). This additional planting would therefore be an improvement from this viewpoint. Nonetheless, the impact of the loss of the open setting, as well as the remaining visual impact of the rest of the development means that this improvement would not be sufficient to lower the overall level of harm which has previously been identified.</p> <p>The magnitude of adverse impact would still be medium, giving rise to an effect of moderate significance.</p>
		We remain of the view that the magnitude of adverse impact would be medium, giving rise to an effect of moderate significance.
2.4 Woodside Farm		As stated in ESC’s at Deadline 4 (REP4-059), it is difficult to assess the remaining impact on the setting of Woodside Farm due to the limitations of the viewpoint. The reduction in scale means that the visual impact of the western substation would be reduced, however based on the other updated visualisations, it is likely that the top of the substations would still be visible above the treeline at 15 years, and that the massive scale of the substations would still be notable. Additionally, as noted previously, the proposed vegetation would still be a barrier in itself, which detracts from the open agricultural setting of the listed buildings.

		<p>The magnitude of adverse impact would still be medium, giving rise to an effect of moderate significance.</p>
<p>2.5 Church of St Mary</p>		<p>In the updated visualisation of LVIA Viewpoint 2 (REP4-033) there is a visible reduction in the scale of the infrastructure for the Western Substation. LVIA Viewpoint 9 (REP4-039) shows the tops of the substation infrastructure above the treetops in the backdrop of the church, although lower than in the previous visualisation. There has therefore been a positive change in the visual impact of the development.</p> <p>Notwithstanding this, visual impact is only one of the factors leading to harm to the significance of the church; others being the interruption of important views and of the relationship between the church and the historic properties to the north and the reduction of the open rural character of its wider setting. The reduction in harmful visual impact would not be sufficient to lower the level of harm which has been previously identified.</p> <p>The magnitude of adverse impact would still be medium, giving rise to an effect of major significance.</p>