



SCOTTISHPOWER
RENEWABLES

East Anglia ONE North and East Anglia TWO Offshore Windfarms

Updated Photomontages Clarification Note

Applicants: East Anglia ONE North Limited and East Anglia TWO Limited

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Applicable to **East Anglia ONE North** and **East Anglia TWO**



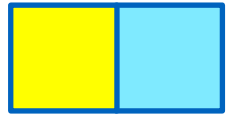
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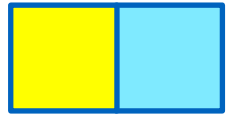
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Glossary of Acronyms

DCO	Development Consent Order
ES	Environmental Statement
ESC	East Suffolk Council
GLVIA	Guidelines for Landscape and Visual Impact Assessment
IEMA	Institute of Environmental Management and Assessment
LIR	Local Impact Report
LMP	Landscape Management Plan
LVIA	Landscape and Visual Impact Assessment
NSIP	Nationally Significant Infrastructure Project
OLEMS	Outline Landscape and Ecology Management Strategy
OLMP	Outline Landscape Management Plan
PEIR	Preliminary Environmental Information Report
PRoW	Public Rights of Way
SCC	Suffolk County Council
SoCG	Statement of Common Ground
SuDS	Sustainable Drainage System
TGN	Technical Guidance Note
VNS	Visual Nature Studio



Glossary of Terminology

Applicant	East Anglia TWO Limited / East Anglia ONE North Limited.
Cable sealing end compound	A compound which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Cable sealing end (with circuit breaker) compound	A compound (which includes a circuit breaker) which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Construction consolidation sites	Compounds associated with the onshore works which may include elements such as hard standings, lay down and storage areas for construction materials and equipment, areas for vehicular parking, welfare facilities, wheel washing facilities, workshop facilities and temporary fencing or other means of enclosure.
Development area	The area comprising the onshore development area and the offshore development area (described as the 'order limits' within the Development Consent Order).
East Anglia TWO / East Anglia ONE North project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
Mitigation areas	Areas captured within the onshore Development Area specifically for mitigating expected or anticipated impacts.
National electricity grid	The high voltage electricity transmission network in England and Wales owned and maintained by National Grid Electricity Transmission
National Grid infrastructure	A National Grid substation, cable sealing end compounds, cable sealing end (with circuit breaker) compound, underground cabling and National Grid overhead line realignment works to facilitate connection to the national electricity grid, all of which will be consented as part of the proposed East Anglia TWO project Development Consent Order but will be National Grid owned assets.
National Grid overhead line realignment works	Works required to upgrade the existing electricity pylons and overhead lines (including cable sealing end compounds and cable sealing end (with circuit breaker) compound) to transport electricity from the National Grid substation to the national electricity grid.
National Grid overhead line realignment works area	The proposed area for National Grid overhead line realignment works.



National Grid substation	The substation (including all of the electrical equipment within it) necessary to connect the electricity generated by the proposed East Anglia TWO project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia TWO project Development Consent Order.
National Grid substation location	The proposed location of the National Grid substation.
Onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, landscaping and ecological mitigation areas, temporary construction facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.
Onshore infrastructure	The combined name for all of the onshore infrastructure associated with the proposed East Anglia TWO project from landfall to the connection to the national electricity grid.
Onshore preparation works	Activities to be undertaken prior to formal commencement of onshore construction such as pre-planting of landscaping works, archaeological investigations, environmental and engineering surveys, diversion and laying of services, and highway alterations.
Onshore substation	The East Anglia TWO substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia TWO project.
SuDS – Sustainable Drainage System	Approaches to manage surface water that take account of water quantity (flooding), water quality (pollution) biodiversity (wildlife and plants) and amenity



1 Introduction

1. This clarification note has been prepared by East Anglia TWO Limited and East Anglia ONE North Limited (the Applicants). It provides clarification on refinements that have been made to elements of the East Anglia ONE North and East Anglia TWO projects (the Projects).
2. Suffolk County Council (SCC) and East Suffolk Council (ESC) (the Councils) provided comments on **Chapter 29 Landscape and Visual Impact Assessment** (LVIA) (APP-077) in their Section 56 response and these were discussed at a Statement of Common Ground (SoCG) meeting with the Applicants on 3rd March 2020. The Councils also provided comments on the photomontages in Appendix 3 to their **Joint Local Impact Report** (LIR) (REP1-132). This clarification note seeks to resolve any matters within the Councils comments regarding the visualisations provided as part of **Chapter 29** (APP-077), for any clarifications to be set out, or for updates to be made to visualisations where required.
3. This document is applicable to both the East Anglia ONE North and East Anglia TWO DCO applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's procedural decisions on document management of 23rd December 2019 (PD-004). Whilst this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it for the other project submission.

1.1 Purpose

4. The Applicants have provided submissions at Deadline 3 in relation to the onshore substations and National Grid substation, including updated substation arrangements, updated details of finished ground levels and reductions in substation equipment heights. The details of these refinements are set out in the **Onshore Substations Update Clarification Note** (document reference ExA.AS-11.D3.V1).
5. The Applicants have also provided an updated **Outline Landscape and Ecological Management Strategy** (OLEMS) at Deadline 3 (document reference 8.7) which describes and illustrates changes to the Outline Landscape Mitigation Plan (OLMP) to allow for the updated substation arrangements.
6. The purpose of this clarification note is therefore two-fold:



- To provide clarification with regard to the photomontage principles, and updated photomontages addressing the Councils comments, particularly in relation to the appearance of the planting; and
 - To provide updated photomontages showing the updated preferred substation arrangements, finished ground levels, reductions in substation equipment heights and updates to the OLMP.
7. Photomontages from a selection of key LVIA and cultural heritage viewpoints that address these changes are provided in **Appendix 3**. These photomontages include the following:
8. LVIA Viewpoint Photomontages:
- Viewpoint 1 – Public Right of Way (PRoW) near Friston House (**Figure 29.13-Update**);
 - Viewpoint 2 – Friston, Church Road (**Figure 29.14-Update**); and
 - Viewpoint 9 – B1121 Aldeburgh Road, south of Friston (**Figure 29.21-Update**).
9. Cultural Heritage Viewpoint Photomontages:
- CHVP3 – PRoW between Moor Farm and Little Moor Farm (**Appendix 24.7, Figure 8-Update**);
 - CHVP4 – PRoW to east of Little Moor Farm (**Appendix 24.7, Figure 9-Update**); and
 - CHVP5 – PRoW at Woodside Farm (**Appendix 24.7, Figure 10-Update**).



2 Overview of Photomontage Production Methodology

2.1 Guidance

10. The LVIA methodology presented in **Appendix 29.2 (section 29.2.7 Visual Representations)** (APP-566) describes the production methodology and limitations of the onshore substation photomontage visualisations (shown in **Figures 29.13 - 29.26** (APP-404 to APP-417)).
11. The photomontages have been produced in accordance with relevant guidance and to best practice standards.
12. Photomontages for substations serving the Projects have been produced in accordance with accepted guidelines used by developers and landscape architects and to best practice standards within Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (Landscape Institute and Institute of Environmental Management and Assessment (IEMA), 2013).
13. Guidance on Visual Representation of Development Proposals Technical Guidance Note (TGN) 06/19 (Landscape Institute, 2019) was published in September 2019, just prior to submission of the Applications, however the visual representations comply with the principles of TGN 06/19 and the superseded 2017 guidance (TGN 02/17).
14. Within the updated photomontages provided in **Appendix 3**, the Applicants have added a baseline photograph at the same size as the photomontage (53.5° field of view) to allow direct comparison, as recommended in Landscape Institute TGN 06/19 (published in September 2019).
15. The viewpoints from which the visual representations are shown were agreed through consultation with the Councils.
16. Limitations of the visual representations are set out in the methodology and acknowledged in guidance. They are used as tool to inform the assessment. Judgements on impact assessments are informed by the photomontages but also made with the benefit of field survey and all available information.

2.2 Rochdale Envelope Shown in Visual Representations

17. The Rochdale Envelope for the onshore substations shown in the updated visual representations is described in the **Onshore Substations Update Clarification Note** submitted at Deadline 3 (document reference ExA.AS-11.D3.V1) and illustrated in **Plate 1** (East Anglia ONE North and East Anglia TWO) below. The



National Grid substation is shown in **Plate 29.2** of **Chapter 29** (APP-077) and has not changed.

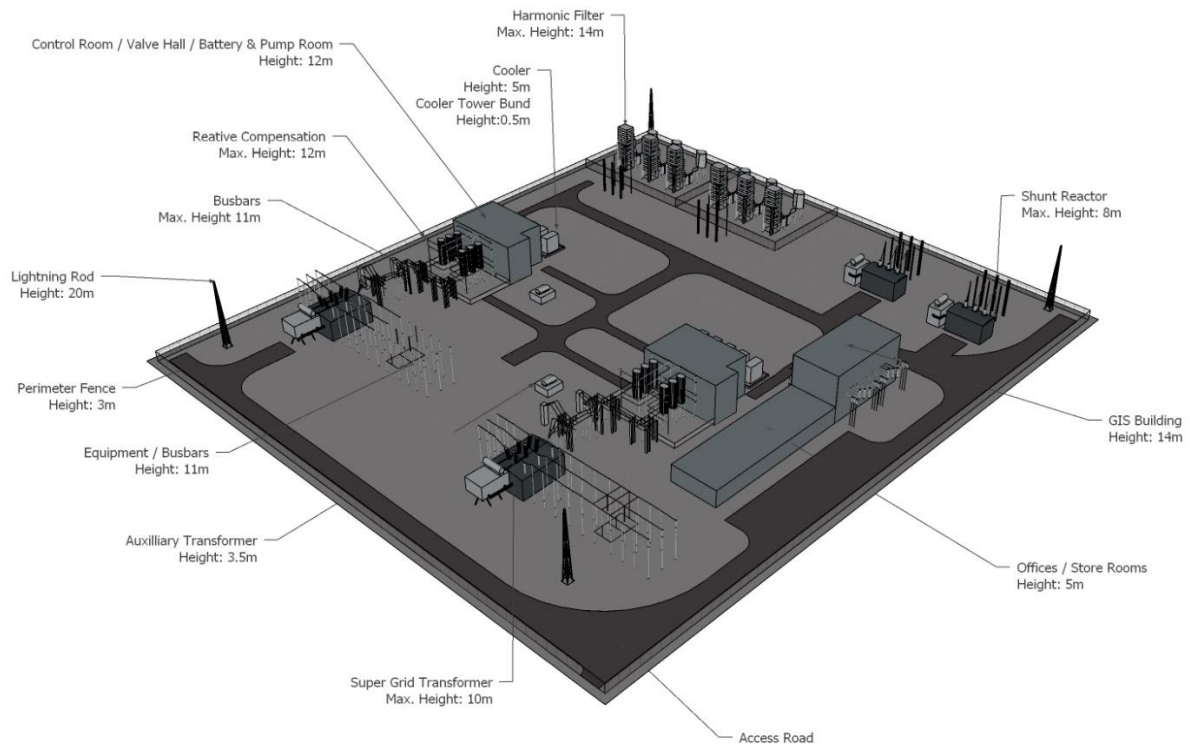
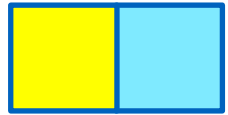


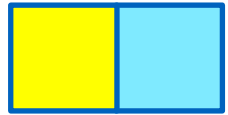
Plate 1: Updated East Anglia TWO and East Anglia ONE North Substation Rochdale Envelope 3D Model

2.3 Assumptions on Woodland Planting Shown in Visual Representations

18. The assumptions on woodland planting shown in the visual representations are described in **Appendix 29.2 (section 29.2.7.3)** (APP-566).
19. Woodland, hedgerow and individual tree planting shown in the submitted ES visual representations accords with the proposed planting shown in the OLMP (**Figure 29.11a-b** and **Figure 29.12** (APP-401, APP-402 and APP-403)). The OLMP has been informed by consultations with the Councils and feedback at public information days.
20. The Applicant has amended the OLMP from the version submitted with the DCO application, as illustrated in **Figures 3-8** of the updated OLEMS submitted at Deadline 3 (document reference 8.7) in light of the substation footprint reduction and in consultation with the Councils.



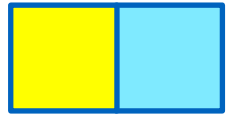
21. Updated photomontages from a selection of key LVIA and cultural heritage viewpoints that address these changes to the OLMP are provided in **Appendix 3** of this Updated Photomontages Clarification Note.
22. The locations of all proposed woodland planted areas, individual trees and hedgerows shown in the OLMP are captured in a 3D model (Visual Nature Studio (VNS)), using the species mixes proposed in the OLMP and with a range of tree sizes within the upper and lower height ranges defined (in **Appendix 29.2** and described below). Each individual tree location is attributed with a 3D tree model of a specific species and size, scaled proportionally within the defined range.
23. The accurately geo-referenced and scaled 3D model view created from VNS is then combined with the existing view photograph, to create a fully rendered photomontage, to provide a photorealistic image of the appearance of the onshore substations and National Grid substation with the ‘proposed’ landscape, including trees, woodland and hedgerows.
24. The photomontages depict a ‘without mitigation’ and ‘with mitigation’ scenario:
 - The ‘without mitigation’ scenario is illustrated with visual representations at the 1st Year of the operational phase of the substations.
 - The ‘with mitigation’ scenario is illustrated with visual representations at 15th year of the operational phase of the substations.
25. As described in **Chapter 29** (paragraph 45) (APP-077), in locations where it is possible to achieve advanced woodland and hedgerow planting this could be implemented early in the construction phase or as onshore preparation works.
26. Areas which may be suitable for early planting are shown in **Figure 3** of the updated OLEMS (OLMP – Timing of Planting) submitted at Deadline 3 (document reference 8.7).
27. The appearance of early planting in the Environmental Statement (ES) photomontages is explained further in this clarification note.
28. The updated photomontages presented in **Appendix 3** of this clarification note do not show the growth of proposed early planting areas at Year 1 of operation; or its potential additional growth at Year 15 of operation.



3 The Councils' Comments and Applicants' Response

3.1 Visual Representations

29. The Councils have raised concerns about the appearance of woodland and trees shown in the visual representations at Year 15 of the operational phase (with mitigation). In its LIR (REP1-132), and raised at the SoCG meeting, the Councils question the reliability of the submitted visualisations due to:
- *'the inclusion of areas of advanced planting which suggest the possibility of four years growth by the first year of operation, but with the risk of this advanced planting not actually being guaranteed deliverable'; and*
 - *'the representation of planting particularly that said to illustrate 15 years of growth is not accurate or reliable'.*
30. The Councils have highlighted two viewpoints in particular which illustrate these concerns, which relate primarily to the appearance of woodland/trees shown in viewpoints at close range (e.g. Viewpoint 1); the appearance of individual trees (Viewpoint 2); the inclusion of early planting growth; and the growth rates applied to the woodland areas/trees. Comments have also been made regarding the species selected for the proposed OLMP planting.
- #### 3.1.1 Early Planting Growth
31. The Councils have highlighted concerns about *'the inclusion of pre-construction planting growth'* in the LVIA visualisations. Their representations on this matter are two-fold: firstly, whether there is a suitable mechanism to deliver this early planting as part of the DCO; and secondly, whether additional early planting growth has been included in the photomontages, and also therefore influenced impacts assessed in the LVIA.
32. Early planting was shown in the OLMP (**Figure 7 Timing of Planting**) (APP-584) in order to provide indications as to where the potential existed for early planting (screening) to be undertaken to bring the date of effective screening forward (within the constraints of the construction works).
33. Although early planting may be undertaken as part of the OLMP, the Applicants can confirm that additional early planting growth is not shown in the Year 15 photomontages in the modelling of early planting woodland areas (W1-W4) or individual trees (OLMP **Figure 3**). These woodland areas and individual trees are shown at the 15 year heights set out in the LVIA methodology **Appendix 29.2 (section 29.2.7.3)** (paragraph 124) as follows:



- W1 Core and W3 Wet Woodland: 6.5m - 7.8m*
 - W2 Edge Woodland: 2m - 5m*
 - W3 Screen Woodland: 6.5m - 8.4m* (*mix of height within range - 30% upper end; 60% in the middle; 10% at lower end to form variable canopy and allow for variable growth within range).
34. Hedgerows are shown maintained at 2m in the Year 15 visual representations, in line with the height recommended for their maintenance in the OLMP.
35. In the Year 1 of operation photomontages in the submitted ES visualisations (Figures 29.13 – 29.46) (APP-404 to APP-437), early planting was included in the photomontages where it is visible (but not in the 15-year visualisations) and it is this which appears to have created confusion in the interpretation of the visual representations.
36. Early planting in the Year 1 of operation photomontages submitted with the Applications is, however, often not visible due to other existing landscape screening, or it is outside the field of view shown. Year 1 early planting (hedges, woodland areas and individual trees) with approximately 3-4 years post planting growth is only visible and shown in five of the 14 viewpoint photomontages (Viewpoints 2, 3, 4, 5 and 14). The Year 1 early planting shown in the photomontages does not provide any substantive screening or influence the impact assessments, being occasionally viewed in the foreground with views extending over a foreground planting feature to the substations beyond.
37. The updated photomontages presented in **Appendix 3** of this clarification note do not show the growth of proposed early planting areas at Year 1 of operation; or its potential additional growth at Year 15 of operation. In the updated Year 1 photomontages (**Appendix 3**), early planting areas are simply shown as recently planted cell-grown trees in tree tubes. At Year 15, they are shown within the height ranges assumed for post-construction planting areas.

3.1.2 Appearance of Woodland Trees in Close Proximity Views (Viewpoint 1)

38. In its LIR (REP1-132), and raised at the SoCG meeting, the Councils have provided the following comments with reference to Viewpoint 1 (**Figure 29.13**) (APP-404):
- The image shows significant stem diameter typical of a tree that is 40 – 50 years old.
 - Significant lateral limb growth, again typical of a tree that is 40 – 50 years old.
 - Suggestion of secondary natural regeneration not usually found in recently planted woodland of only 15 years age.



39. The Applicants consider that these comments would also apply to two other viewpoints at Year 15 – Viewpoint 3 (**Figure 29.15c**) (APP-406) and Viewpoint 14 (**Figure 29.26c**) (APP-417).
40. These three viewpoints (1, 3 and 14) are all located at very close proximity to the proposed woodland planting area i.e. where the viewpoint location/observer is positioned at very close proximity to the proposed woodland. The visual representations were intended to illustrate the full screening of the substations which is predicted from these viewpoints by the 15th year of the operational phase, with woodland planted areas located very close to the viewpoint.
41. In these three very close-up views, the appearance of the computer generated model view from Visual Nature Studio (VNS) was considered to have a ‘CGI’ appearance and that it was necessary to use more interpretation in rendering the visual representation, to create a more photo-realistic impression of a woodland at very close range, immediately in front of the viewer. The size of tree trunks and branches in this rendered image was varied, with some trees appearing to have larger stem diameters and lateral limb growth than others, to provide variation in scale, size and depth in the image and to avoid an impression of uniformity of tree size and arrangement.
42. The visual representation in **Figure 29.13c** (APP-404) is representative of the height and full screening predicted by the proposed woodland planting at very close range at 15 years. The height of the woodland has been tested further with reference to the 3D VNS model view used to inform the production of Viewpoint 1 (shown below in **Plate 3.1**). The maximum onshore substation height is illustrated by the white dashed line in the below image, with the lightning rod height (25m) shown with the red dashed line, with the substation height screened entirely behind the woodland planting (edge woodland and core woodland with heights ranging between 2m-7.8m at 15 years).

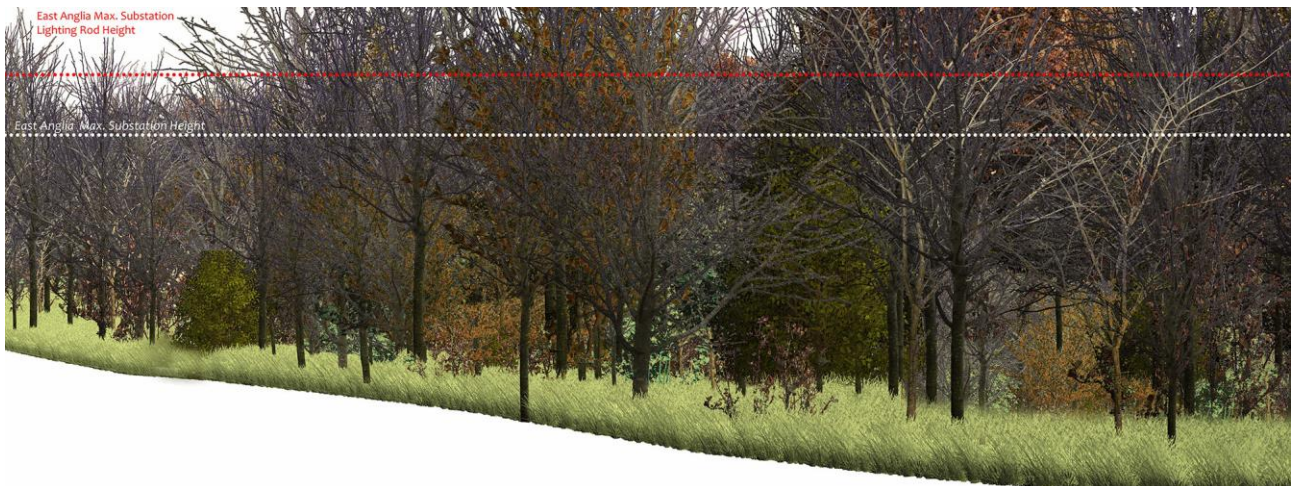


Plate 3.1: Viewpoint 1 - 3D VNS model view used to test screening in view

43. The Applicants remain convinced that the substations will be fully screened in Viewpoints 1, 3 and 14 by the height and density of the planting at year 15 of the operational phase, the proximity of the viewpoints to the woodland (within a few metres); and due to the depth of the woodland belts proposed (for example 50-100m deep between the viewpoint and substations at Viewpoint 1 and 14).
44. The relationship of the viewpoint with the proposed woodland screening and substation beyond is illustrated further by the orthographic (elevation) view in **Plate 3.2**, which is shown at larger scale in **Appendix 2**. The close proximity of Viewpoint 1 to the woodland edge is evident in the image, relative to the heights of the edge woodland and core woodland, as is the depth of the woodland planting between the viewpoint location and the substations beyond. The level of effective screening of the proposed woodland planting is illustrated by the sight lines between the viewer and the closest substation infrastructure.

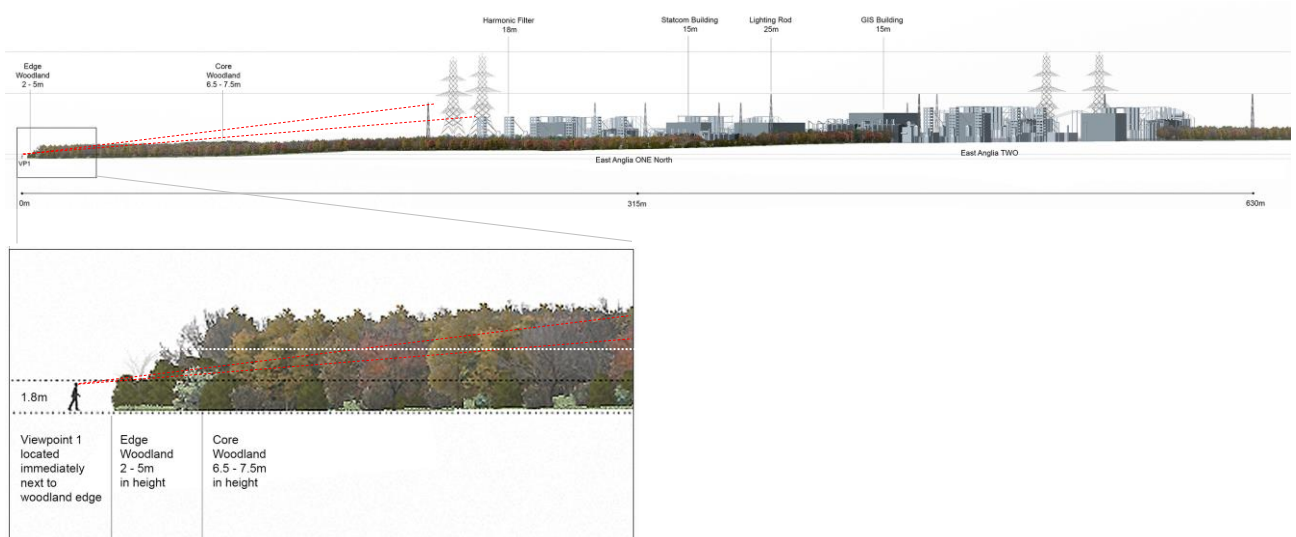
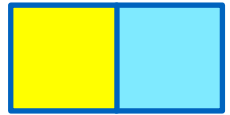


Plate 3.2: Viewpoint 1 – Orthographic (elevation) view (See Appendix 2)

This section shows existing ground levels and does not apply landscape bunding, representing a worst-case scenario. Based on ES substation arrangement, layout and equipment heights



45. The Applicants have reviewed other examples of woodland planting that has been planted and growing for up to 15 years, including the example provided by the Councils from Heveringham Estate (**Plate 3.3**) and is of the opinion that some of these photographs support the assessment that full screening would be achieved by 15 years in viewpoints located immediately adjacent to such planted woodlands.
46. The Councils' example at Heveningham Estate at 15 years (**Plate 3.3**) would suggest that this level of effective screening is achievable, even if the woodland were 4-5m high at 15 years, which is supported by the orthographic (elevation) for Viewpoint 1 (where 4m height is represented by the white dashed line).



Plate 3.3: Heveningham Estate 15 years (Trees 4-5m). Viewpoint taken several metres from woodland edge, in winter.



Plate 3.4: Forth Valley Royal Hospital planting at less than 15 years. Viewpoints taken at close range, in winter.

47. The Applicants acknowledge that the appearance of several individual trees shown within the woodland in the Year 15 Visual Representations for Viewpoint 1, 3 and 14 (**Figure 29.13c** (APP-404), **Figure 29.15c** (APP-406) and **Figure 29.26c** (APP-417)) may give the impression of a somewhat larger trunk and lateral limb growth. These incidences are very few in number amongst a majority of trees of smaller stem size, as illustrated in the extracts shown below. Their presence in the image does not change the finding that the woodland planting as a whole, at Year 15 of the operational phase, would provide an effective landscape screen, as demonstrated in the above examples.



Plate 3.5: Viewpoint 1 (Figure 29.13c): Visual representation at 15th year of operational phase



Plate 3.6: Viewpoint 14 (Figure 29.26c): Visual representation at 15th year of operational phase

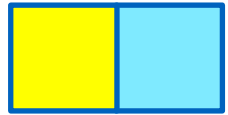
48. The Councils have commented that the visual representations include ‘*suggestion of secondary natural regeneration*’. The impression of smaller shrubs in the foreground were intended to represent the graduated woodland edge (W2 Edge Woodland) provided in the OLMP (**Figure 29.11a**) as recommended for a structurally diverse woodland edge. Smaller shrubs/trees (such as Privet and Holly) are also included within the core woodland planting (W1) to allow some understorey and provide for variation in height as well as an evergreen element within main woodland areas.

3.1.2.1 Action Taken - Woodland Trees in Close Proximity Views (Viewpoint 1)

49. In light of the comments provided from the Councils and the clarifications provided above, in order to resolve this matter and find common ground, the Applicants have produced an updated photomontage at Year 15 from Viewpoint 1 (**Figure 29.13-Update** in **Appendix 3**) (an extract of which is shown in **Plate 3.7**). Updates have been made to this visual representation to remove the two larger stemmed trees and reduce suggestions of leaf growth.



Plate 3.7: Viewpoint 1 (Figure 29.13-Update of Appendix 3): Updated Visual representation at 15th year of operational phase



3.1.3 Appearance of Individual Trees in View from Friston (Viewpoint 2)

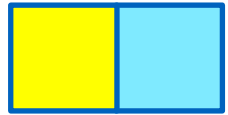
50. In its LIR (REP1-132), and raised at the SoCG meeting, the Councils have provided the following comments with reference to Viewpoint 2 (**Figure 29.14**) (APP-405):

- *Existing twin stemmed hedgerow Oak that features in the baseline photo for Viewpoint 2. This tree shows characteristics of an Oak that is 90 – 120 years old.*
- *The submitted photomontage shows trees purported to be 15 years post-planting, and yet the imagery shows trees with all the characteristics of trees that are of a similar age to the baseline tree i.e. circa 100 years old. These photomontage trees also show a limb structure that suggests that the trees on which they are based have been subject to high pollard lopping which is something that would never be characteristic of a 15 year old trees as these are also claimed to be. They also show substantial trunk diameter that is characteristic of trees that are c. 100 years old.*



Plate 3.8: Viewpoint 2 (Figure 29.14): Visual representation at 15th year of operational phase (ES)

51. Individual trees proposed to be planted along hedgerow field boundaries as part of the OLMP (**Figure 3** (APP-584)) will appear to have a larger size and trunk diameter as they are proposed to be planted as extra heavy standards (4m at planting), to provide earlier screening benefits in views from Friston. These individual extra heavy standard trees will start with a wider diameter trunk and will then have a further 15 years growth into the operational phase and would be expected to exhibit a thicker and more developed limb structure (albeit, it is acknowledged that this would not be comparable to the existing mature oak tree).
52. During the ‘rendering’ stage of the photomontage production, professional judgement was applied when the 3D model view is rendered into the photograph, with adjustments made to integrate the appearance of these individual trees in the 3D model view with the actual appearance of existing trees, taking cues from



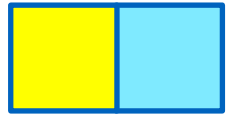
- existing trees, their form, appearance, shape, texture colour and lighting in the ‘real-world’ existing view.
53. The Applicants acknowledge that the appearance of the individual trees shown in the Year 15 Visual Representations for Viewpoint 2 (**Figure 29.14b** (APP-405)) may give the impression of a somewhat thicker and more developed trunk and limb structure than may occur at 15 years post planting, and has provided an updated visual representation in **Appendix 3 (Figure 29.14-Update)**, showing a ‘thinner’ trunk and tree branch structure (an extract of which is shown in **Plate 3.9**).
 54. The overall heights of these individual trees are shown in the ES visual representation (**Figure 29.14b**) and the updated version (**Figure 29.14-Update of Appendix 3**) within the height range specified for core native woodland (W1) at 6.5m – 7.8m, which is considered deliverable within this 15 year period for extra heavy standard trees planted at 4m in height, with appropriate maintenance.
 55. Extra heavy standard trees were proposed to be early planted, to provide specific mitigation in views from Friston to allow for earlier screening and a larger tree/canopy size over the period. This growth period would be longer and the trees taller and fuller if they are early planted as part of the onshore preparation works, as identified for these trees in **Figure 29.12** of the **OLEMS** (APP-584) (Timing of Planting).



Plate 3.9: Viewpoint 2 (Figure 29.14-Update of Appendix 3): Updated Visual representation at 15th year of operational phase

3.1.3.1 Action Taken – Appearance of Individual Trees in View from Friston (Viewpoint 2)

56. In light of the comments provided from the Councils and the clarifications provided above, in order to find common ground with the Councils, the Applicants have produced an updated photomontage from Viewpoint 2 (**Figure 29.14-Update of Appendix 3**) (an extract of which is shown in **Plate 3.9**). Updates have been made to this visual representation to change the appearance of individual



trees in the image, with individual trees showing a ‘thinner’ trunk and tree branch structure.

3.1.4 Growth Rates / Tree Heights

57. The Councils also provided further comments in their LIR (REP1-132) on likely growth rates / tree heights, with reference to new planting on the Heveningham Estate that lies to the south west of Halesworth in Suffolk, which it considers *‘likely to have comparable growing conditions to the substation’*.
58. A series of photographs are provided in the Councils’ LIR (REP1-132), showing views of woodland at 13 Years post-planting, with trees 3-4m (**Plate 3.10**); and woodland at 15 Years post-planting, with trees 4 -5m in height (**Plate 3.11**). The Councils’ comments that these are *‘in marked contrast to the images for 15 years post planting as shown in the submitted LVIA’*.



Plate 3.10: Heveningham Estate 13 years (Trees 3-4m)



Plate 3.11: Heveringham Estate 15 years (Trees 4-5m)

59. The Applicants note that the 13 year Heveringham Estate image consists mainly of slower growth Beech trees, planted at relatively wide spacing (potentially 2-3m apart) and is not representative of the species mix or denser planting proposed in the OLMP. It is also not known what the management and maintenance regime has been during the establishment of these trees.
60. The Applicants note that the woodland shown in the 15 year Heveringham Estate image (**Plate 3.13**) provides an effective landscape screen, when viewed from close proximity to the woodland edge, and would appear to support the findings of the LVIA that an effective landscape screen can be established by Year 15 after planting, to provide effective and deliverable mitigation.
61. With respect to the growth rates assumed in the LVIA, these are described in the LVIA methodology **section 29.2.7.3** within **Appendix 29.2** (paragraph 124) (APP-566) as follows:
- **Core native woodland (W1)**. Taller trees assumed to have heights between 6.5m – 7.8m and smaller trees/shrubs are assumed to have heights of 2m – 4m to form an understorey.
 - **Native edge woodland (W2)**. Trees assumed to have heights between 2m – 5m.



- **Native screening woodland (W3).** Taller trees assumed to have heights between 6.5m – 8.4m and smaller trees/shrubs are assumed to have heights of 2m – 4m to form an understorey
 - **Native wet woodland (W4).** Taller trees assumed to have heights between 6.5m – 7.8m and smaller trees/shrubs are assumed to have heights of 2m – 4m to form an understorey.
62. A range of tree heights within the upper and lower height ranges are shown in the photomontages. This provides for a representation of likely differences in growth and a more realistic appearance of the woodland areas in the photomontages, than if the trees are all shown at the same height. Trees at the upper end of the height range are only applied for a minority proportion of the overall mix as represented in the photomontages. A mix of tree height is applied within the height range, consisting 30% towards upper end; 60% in the middle of the range; and 10% at lower end. This provides for a variable canopy and allows for variable growth with a range of tree heights to represent the range of likely growth of different trees within the planting mixes proposed.
63. The heights of trees at 15 years post-planting are based on an average annual growth rate of 30cm per year for the first 5 years and 50cm per year for the next 10 years (average of 43cm per year), based on relevant guidance (IEMA, 2019¹), research of relevant published literature (Skinner, 1987) and the Woodland Trust, plant nurseries and precedents established by other national significant infrastructure projects NSIPs (see **Appendix 1**).
64. A variation tolerance of +10% to -10% has been applied to allow for some variation in growth, above and below the average, and to provide differences in canopy height in the photomontage visualisations. Plants growing at this rate, i.e. between 30-60cm per year, are considered to be medium growing². This is considered to be a reasonable assumption for the purposes of the LVIA, as opposed to particularly slow growth i.e. less than 30cm per year, or particularly fast growth i.e. of greater than 60cm per year.
65. The heights of trees at 15 years post-planting are based on an assumption of planting 60cm cell-grown plants as the baseline height of the trees at planting. This provides a worst-case base height for the impact assessment, but it is likely that during the detailed design (detailed Landscape Management Plan (LMP)), a mix of tree sizes could be specified to include some feathered trees and light standards in the most critical areas, which would provide a higher base height and quicker screening.

¹ IEMA (2019). EIA Quality Mark Article - Predicting the growth of tree and hedge planting when determining the effectiveness of mitigation.

² Manual of Woody Landscape Plants (Michael A. Dirr, 1998)



66. Although some of the main woodland areas (W1-W4) shown within the OLMP (**Figure 7 Timing of Planting**) are proposed to be early planted as part of the onshore preparation works, these main woodland areas and individual trees shown in the Year 15 visual representations do not include any potential additional early planting growth and therefore represent a worst-case scenario in terms of the assumed duration of growth.
67. Establishing a robust worst-case scenario for the purposes of assessment is a particular challenge where there is a large degree of uncertainty, which is the case with tree growth, which can vary considerably depending on a variety of factors and local weather conditions. Growth rate, as is true for size, is influenced by numerous variables such as soil, drainage, water, fertility, light, exposure and other factors. In order to reduce some of this uncertainty and ensure that the landscape planting mitigation and likely significant environmental effects from the Proposed Development are appropriately assessed and presented in the ES, the Applicants engaged in extensive pre-application consultation on the design of the OLMP with the Councils, including the assumed growth rates and heights of trees to be shown in the photomontages for the ‘with mitigation’ scenario.
68. The Applicants noted s42 comments provided on the height and growth rates shown in the LVIA photomontages in the Preliminary Environmental Information Report (PEIR) and accordingly, reduced the growth rates and size of woodland trees shown in the LVIA included in the ES, compared to those shown in the PEIR.
69. The Councils initially advised (8th May 2019) that ‘30cm per annum is probably a good working average starting point’, and that ‘30-40cm in the early years is probably realistic’. Suggestions of 60-70cm growth were considered by the Councils to ‘only be realistic with a notably warm and wet spring and early summer’. Thereafter, the Applicants adopted growth rates at 30cm per year for the first 5 years and 50cm per year for the next 10 years (based on the IEMA Quality Mark article² and the Councils’ initial advice). At this point in the consultation process, the Applicants considered that there was common ground on the growth rates and potential tree/woodland heights to be used in the LVIA.
70. When formalising its advice on growth rates, the Councils went on to provide further advice (31st May) on the matter. While recognising again that a growth rate of 30cm per annum was a sensible starting point, the Councils suggested adjusting the IEMA² figures to represent a worst-case, advising ‘Year 1-5 should have a growth rate of 15cm and year 5-15 should be 25cm’ (per annum) (an average of 21.6cm per year). Plants growing at this rate (less than 30cm) would be considering slow growing³. Based on the available evidence, precedents and guidance, the Applicants considered that these growth rates represent an overly cautious ‘worst case’.



71. Applying these cautious, slow growth rates suggested by the Councils, trees planted as 60cm cell-grown plants would have a height of 3.85m after 15 years. The Councils have identified examples of planting in the local area (Heveringham Estate) with notably taller trees at 4-5m after 15 years.
72. The Councils recognise the potential to develop a scheme which would perform better than their suggested worst-case growth rates, by ensuring careful handling and preparation of soil and the site, appropriate species and stock selection and the quality of planting and aftercare, including watering. The LVIA has assumed that these measures would be embedded in the delivery of the mitigation and that faster growth rates (than the Councils worst-case) can broadly be delivered, in order to achieve the tree height ranges assumed in the LVIA and shown in the photomontages.
73. The Applicants are engaging with the Councils on maintenance and aftercare measures that it could adopt in order to reduce the concerns that the Councils have expressed in relation to the growth rates and deliverability of mitigation in a timely manner. These are described further in the updated **OLEMS** submitted at Deadline 3 (document reference 8.7).
74. The Applicants consider that there is no reason to suppose that an effective and deliverable landscape screen cannot be established, subject to approval of the detailed LMP design and appropriate preparation of soil, species, stock selection and quality of planting and aftercare.

3.1.5 Woodland Species

75. The Councils noted in its LIR (REP1-132) that the species set out in the **OLEMS** (APP-584, p25-26) *'although substantially agreed, should remain open for discussion and final agreement when the Landscape Management Plan (LMP) is agreed at requirements discharge'*.
76. The Applicants note this substantial agreement on the species set out in the **OLEMS** (APP-584) and agrees that species mixes should be finalised in the LMP at requirements discharge.



4 Changes to Onshore Substations

4.1 Outline of Changes to Onshore Substations

4.1.1.1 Onshore Substations Update Clarification Note

77. The Applicants have provided submissions at Deadline 3 in its **Onshore Substations Update Clarification Note** (document reference ExA.AS-11.D3.V1) in relation to the onshore substations and National Grid substation. This outlines the following key refinements:

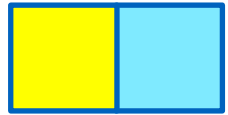
- Reduction in the footprint of each of the onshore substations and their resulting relocation (as summarised in the **Project Update Note** (REP2-007) submitted at Deadline 2);
- Lowering of the finished ground levels at the locations of the eastern onshore substations and National Grid substation (as summarised in the **Project Update Note for Deadline 3** (document reference ExA.AS-6.D3.V1); and
- Reduction in the maximum heights of the buildings and external equipment at both onshore substations (as summarised in the **Project Update Note for Deadline 3** (document reference ExA.AS-6.D3.V1).

4.1.1.2 Updated OLEMS

78. The Applicants have also provided an updated **OLEMS** at Deadline 3 (document reference 8.7) which describes and illustrates changes to the OLMP. These changes to the OLMP have been made to address updates required for the reduction in the footprint of each of the onshore substations and their resulting relocation.

79. The changes to the OLMP are set out in full in the updated **OLEMS** (document reference 8.7) and illustrated in **Figures 3-7** of the updated OLEMS, particularly in **Figure 3** (General Arrangement), **Figure 5** (OLMP Illustrative Plan) and **Figure 7** (OLMP Timing of Planting); they can be summarised as follows with reference to these OLMP figures:

- **Reduction of each onshore substation footprint to 190m x 170m** – Results in a movement of the western boundary of the western substation by approximately 40m further to the east. As a result, the existing ‘covert’ woodland block in the former pit to the west of the onshore substation can be retained and proposed planting added to the south of this feature closer to the western side of the substations in the space created between the Sustainable Drainage System (SuDS) ponds and the western substation.
- **Movement of National Grid SuDS basin eastwards** – The National Grid SuDS basin has been moved eastwards towards the National Grid

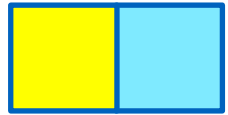


substation, allowing space for further woodland planting between the access road and SuDS basin.

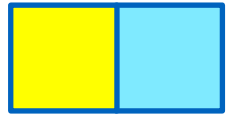
- **Additional planting to the north of the substations** – Additional planting is proposed to the north of the National Grid substation, particularly in the areas around the sealing end compounds, to provide additional screening of these compounds.
- **Covert woodland planting** – The addition of small edges of covert woodland planting alongside field boundaries to the north of Friston, to provide additional screening in views from the northern edge of the village, while retaining a ‘layered’ screening approach and open setting.
- **Additional individual tree planting** – The density of individual tree planting along hedgerow boundaries/tree lined avenues has been increased to provide more trees in these avenues at closer spacing.
- **PRoW re-alignments** – Updates to proposed planting to address updates to the route of PRoW diversions, including to the north near Fristonmoor; to the east through woodland offset from Grove Road; and through Laurel Covert.

4.2 Changes in Mitigation and Landscape and Visual Effects

80. The reduction in the footprint of each of the onshore substations and their resulting relocation, refinements to finished ground levels, reduction in substation equipment heights and updates to the OLMP have implications in terms of further mitigation provided and potential reduction in landscape and visual effects. These are considered in outline in this clarification note and any changes to landscape and visual effects resulting from the design refinements will be assessed further in Written Representations to be submitted at Deadline 4.
81. A summary of the likely key changes with reference to the photomontages in **Appendix 3** is outlined as follows.
82. The reduction in the footprint of each of the onshore substations and their resulting relocation (as summarised in the **Project Update Note** (REP2-007) submitted at Deadline 2) allows the retention of an existing area of established woodland (in a depression to the west of PRoW E-354/006/0), which would have previously been removed. The retention of this existing woodland provides additional screening of the western substation and National Grid substation in views from the south-west and west, such as Viewpoint 1 PRoW near Friston House (**Figure 29.13c-Update**). In this view, there is a notable reduction in the massing and apparent height of buildings and external equipment visible in the view, particularly within the closer western substation.
83. The reduction in the footprint of each of the onshore substations and their resulting relocation also creates an area adjacent to this retained woodland



- where additional woodland planting is now proposed adjacent to the western substation, to provide further screening.
84. The northern SuDS basin has been moved eastwards towards the National Grid substation (updated **OLEMS Figure 3**), allowing additional space for further woodland planting between the access road and this SuDS basin, providing further screening in views from the west.
 85. Additional woodland planting proposed to the north of the National Grid substation around the cable sealing end compounds provides additional screening of these compounds in views from the north such as Viewpoint 5 PRow near Moor Farm and from the west such as Viewpoint 8 B1121 Saxmundham Road. It is also likely that in this view from Viewpoint 8, the lowering of the finished ground levels and reduction in maximum heights of the buildings and external equipment result in a greater degree of visual containment provided by existing woodland (Grove Wood / Old World Wood and Laurel Covert) as a backdrop to the development.
 86. Lowering of the finished ground levels at the location of the eastern onshore substation and National Grid substation (as summarised in the **Project Update Note for Deadline 3** (document reference ExA.AS-6.D3.V1), combined with reduction in the maximum heights of the buildings and external equipment at both onshore substations, has reduced the massing, apparent height and amount of buildings and external equipment visible in a number of key views. This includes Viewpoint 2 Friston, Church Road (**Figure 29.14-Update**), where there is a notable reduction in the visibility of both onshore substations and the National Grid substation, at Year 1 and Year 15. In particular, at Year 1, there is notably reduced visibility of the eastern substation with its lower finished ground levels and equipment heights; reduced massing and height of equipment visible in the western substation; and more screening of the National Grid substation due to the retained woodland.
 87. Additional areas of small 'Covert' field edge woodland planting are proposed alongside field boundaries to the north of Friston (south of the onshore substation location) and provide additional screening in Year 15 views from the northern edge of the village, such as in Viewpoint 2 Friston, Church Road (**Figure 29.14-Update**) while retaining the open setting of the village and providing layered screening of the onshore substations.
 88. Lowering of the finished ground levels, combined with reduction in the maximum heights of the buildings and external equipment at both onshore substations, has also notably reduced the amount of the substation buildings and external equipment visible in the backdrop to Friston in the view from Viewpoint 9 - B1121 Aldeburgh Road, south of Friston (**Figure 29.21-Update**). Only limited sections



of the upper parts of the GIS substation building and harmonic filters of the western substation will be visible behind housing in Friston in the view, with notably reduced scale and massing and some screening by existing vegetation. The reduction in visibility of these elements results in less contrast with the smaller scale development and focal points such as Friston Church in the view. The colour of the substation buildings can also be designed to further mitigate visual effects in this view.

89. Overall, the combination of the reduction in the footprint of each of the onshore substations and their resulting relocation, refinements to finished ground levels, reduction in substation equipment heights and updates to the OLMP provide further mitigation which is likely to result in reductions in landscape and visual effects assessed in the ES, which have been described in outline and will be assessed further in Written Representations to be submitted at Deadline 4.

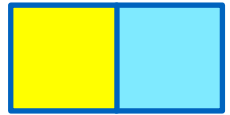


5 Summary and Actions Taken

90. The Councils have provided comments on the LVIA photomontages in their LIR (REP1-132) and at a SoCG meeting with the Applicants on 3rd March 2020.
91. The Councils highlighted concerns which relate primarily to the appearance of woodland / trees shown in viewpoints at close range (e.g. Viewpoint 1); the appearance of individual trees (Viewpoint 2); the inclusion of early planting growth; and the growth rates applied to the woodland areas/trees. The Applicants welcome comments from the Councils and engagement to resolve these matters.
92. In the period since submission of the Councils LIR (REP1-132), the Applicants have provided submissions at Deadline 3 in its **Onshore Substations Update Clarification Note** (document reference ExA.AS-11.D3.V1) in relation to the onshore substations – including an updated substation arrangement, updated details of finished ground levels and reductions in equipment height.
93. The Applicants have also provided an updated **OLEMS** at Deadline 3 (document reference 8.7) which describes and illustrates changes to the OLMP to allow for the updated substation arrangement.
94. This clarification note therefore provides clarifications with regards the photomontage principles and a suite of updated photomontages (**Appendix 3**) that address both the Councils comments and the changes to the updated substation arrangement, finished ground levels, reductions in equipment height and updates to the OLMP.
95. In relation to the matter of growth rates, establishing a robust worst-case scenario for the purposes of assessment is challenging when there is a degree of uncertainty in tree growth rates depending on a variety of factors. The LVIA has necessarily assumed that careful handling and preparation of soil and the site, appropriate species and stock selection and quality of planting and aftercare, including regular watering when required, will be embedded in the delivery of the mitigation.
96. The Applicant proposes to prepare a LMP based upon an adaptive planting maintenance scheme (dynamic aftercare). This is a landscape aftercare supervision structure that addresses the annual growth of different blocks of planting, with monitoring against agreed objectives, with the option to suspend /extend the maintenance periods for discrete areas of planting and target specific measures to improve such areas, in cases where the planting does not establish satisfactorily for any reason. The use of this adaptive planting maintenance scheme is intended to de-risk the timely delivery of planting, achieve optimum levels of plant growth and provide greater confidence that effective screening



- from the tree planted areas will be achieved before the end of the adaptive planting maintenance period.
97. It is considered that the growth rates proposed in the LVIA can broadly be delivered with these embedded measures, in order to achieve the tree height ranges assumed in the LVIA and photomontages. The updated photomontages presented in Appendix 3 therefore do not show any reduction in the assumed heights of trees and woodland planted areas at 15 years.
 98. The updated photomontages (**Appendix 3**) do however, show a range of tree heights within the ranges defined for each type of woodland, to provide for a representation of likely differences in growth and a more realistic appearance of the woodland areas in the photomontages. Trees at the upper end of the height range are only applied for a minority proportion of the overall mix as represented in the photomontages, with the majority of trees at the middle and lower end of the height range.
 99. Changes to the apparent rendered appearance of the landscape planting in the updated photomontages have been made (**Appendix 3**) to address the Councils comments, notably in changing the appearance of woodland/trees shown in viewpoints at close range (such as in Viewpoint 1) and the appearance of individual trees (such as in Viewpoint 2).
 100. The updated photomontages in **Appendix 3** also do not show the growth of proposed early planting areas at Year 1 of operation; or its potential additional growth by Year 15 of operation. In the Year 1 photomontages, early planting areas are simply shown as recently planted cell-grown trees in tree tubes. At Year 15, they are shown within the height ranges assumed for post-construction planting areas.
 101. The updated photomontages presented in **Appendix 3** have also been updated to show the updated substation arrangement, updated details of finished ground levels, reductions in substation equipment heights and updates to the OLMP.
 102. The details of these changes to the substations are set out in the Onshore Substations Update Clarification Note (document reference ExA.AS-11.D3.V1) and updates to the OLMP are described and illustrated in the updated **OLEMS** (document reference 8.7) submitted at Deadline 3.
 103. The combination of the reduction in the footprint of each of the onshore substations and their resulting relocation, refinements to finished ground levels, reduction in substation equipment heights and updates to the OLMP provide mitigation and potential reductions in the landscape and visual effects assessed in the ES, which will be assessed further in Written Representations to be submitted at Deadline 4.



Appendix 1: NSIP Examples Visualisations and Growth Rates



Introduction

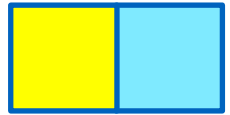
1. This Appendix provides examples of the approach to growth rates adopted for landscape mitigation of other NSIPs, either consented or having recently completed the Examination stage and expecting a decision imminently.

East Anglia ONE

2. East Anglia ONE was granted consent in 2014, so operated under the 2011 regulations. However, information on mitigation planting was included in the application. Chapter 29 Landscape Seascape and Visual Impacts of the Environmental Statement refers to a tree screening growth rate of ‘300mm per year following planting’, but also commits to installing a 5m earth mound as ‘mitigation of the operational landscape and visual impacts of Converter Station Compound’.
3. Paragraph 275 within Chapter 29 of the Environmental Statement states:
Within a 15-year assessment period the hedging would be mature and would have been managed at heights that provide effective screening. The tree screening belts and occasional hedge trees would also now be 8+ metres high.
4. East Anglia ONE Limited (EAOL) was awarded a Development Consent Order (DCO) in June 2014. A detailed landscape management plan was produced for the EA ONE onshore substation to fulfil the DCO Requirements, which a detailed landscape scheme, general arrangement drawings and planting specifications. Planting mixes included a proportion of larger light standard and feathered trees to provide earlier screening.

Hornsea Three

5. The Examining Authority issued a Recommendation Report to the Secretary of State on 2nd July 2019 in respect of the Hornsea Three project. The Secretary of State has set a new deadline for the decision for this application which is 1st June 2020.
6. The matter of growth rates and effectiveness of mitigation planting was a matter at the Examination of the project. North Norfolk District Council made reference to generally slower growth rates in North Norfolk and the Applicant was requested to provide evidence of the expected rate of growth that would be achieved throughout the anticipated lifetime of the development for the woodland planting areas.
7. In relation to hedges:
‘Based on the species and age of the woody species selected (as noted in the outline LP), this would give time for a hedge to establish to a height of approximately 2m (accounting for 40-60cm high whips planted and 30cm average



growth per year for the first 5 years, according to the IEMA quality mark article², which would provide full landscape mitigation’.

8. This IEMA quality mark article was submitted during the Examination as further evidence for the growth rates assumed for planting of hedges and woodland areas at the convertor station site. It was authored by Chris McDermott, Principal Landscape Architect (The Landmark Practice). It was not directly associated with the Applicant. This IEMA quality mark article has informed the growth rates used on the East Anglia TWO and ONE North projects, the key aspects of which are as follows:

‘To establish a good thick twiggy hedge it will be necessary to clip it annually and therefore increase height slowly. Since hedges often only need to be 2-3 m high (above head height) to provide effective mitigation, this is not necessarily problematic. Such a hedge can be achieved in 4 years in the right conditions, but 5-7 years is probably a good estimate’.

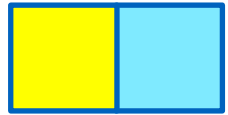
‘Newly planted stock is unlikely to have any significant screening effect in Year 1 since it is typically planted as 60-80 cm high transplants. It can be useful to include some feathered trees and standards 2-3 m in height for a more instant effect’.

‘Given that most UK mitigation planting will be of mixed natives in largely unexposed conditions, an average annual growth of 30 cm/year in the first 5 years can normally be assumed. Once established, growth rate will increase and circa 50 cm/year for the next 10 years can be anticipated. If planted as transplants, this gives a height of 2-2.5 m in the first year and 7-7.5 m after 15 years. For more exposed locations it is recommended that annual growth is calculated by taking clues from the existing trees and hedges in the locality’.*

*understood to be a typo which should read ‘fifth’ year.

Thanet Extension

9. The Examining Authority issued a Recommendation Report to the Secretary of State on 11th September 2019 in respect of the Thanet Extension project. The Secretary of State has set a new deadline for the decision for this application which is 1st June 2020.
10. The OLEMP identified measures for proposed screen planting for the substation area and was accompanied by substation area mitigation plans, showing schematic planting proposal options. Proposed screen planting was considered to be effective and deliverable on the proposed substation site. Specifically, with regard to growth rates it states that:



Whilst the specific growth rates will depend on site conditions and the detailed substation design and layout, it is assumed that screen planting would be sufficiently fast growing to provide substantial screening of the substation structures and building within between 15 and 25 years. Using an average and approximate growth rate for tree and shrub species that may be used (see below), the height of the screen planting should reach approximately 8-10 m after 15 years and 13 - 15 m after 25 years.

11. Environmental Statement Volume 6 Annex 2-2: LVIA Photomontages show the substation area as a grey transparent block model representing the maximum height of the substation building and substation area. The LVIA photomontages do not show any rendered landscape planting/woodland areas to show the appearance of planting mitigation. A dark green coloured dashed line is simply used to represent the approximate height of mitigation planting in the visualisations after 15 years (8-10m).

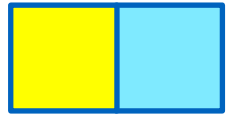
Norfolk Vanguard

12. Norfolk Vanguard has completed its Examination and expects a decision from the Secretary of State for Business, Energy and Industrial Strategy in December (delayed due to date conflict with the General Election). As per their Environmental Statement, Norfolk Vanguard adopted the following vertical growth rates for mitigation planting:
 - Core species: 250mm per annum
 - Nurse species: 350mm per annum

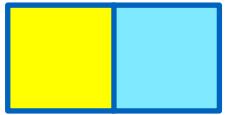
13. Although these are lower than the growth rates assumed for East Anglia TWO and ONE North, those for nurse species (35cm per year) have some parallels to the average rate assumed for East Anglia TWO and ONE North. The project landscape architects for Norfolk Vanguard considered these to be relatively low rates of growth to assume for the LVIA and recognised the potential that species could grow quicker than these assumed growth rates.

14. After 15-years of growth, these growth rates equate to 4.35m and 5.85m for core and nurse species respectively (assumed a base height of planting 60cm cell grown trees). Chapter 20 Landscape and Visual Impact Assessment of the Norfolk Vanguard Environmental Statement states the following:

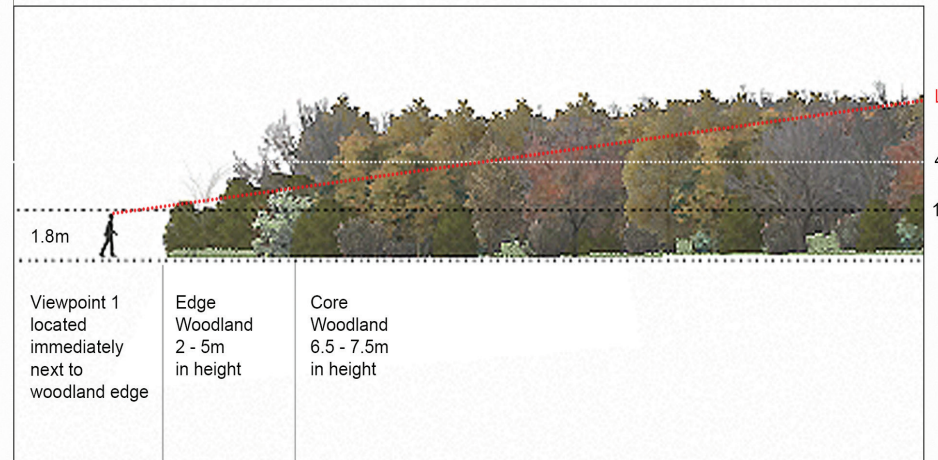
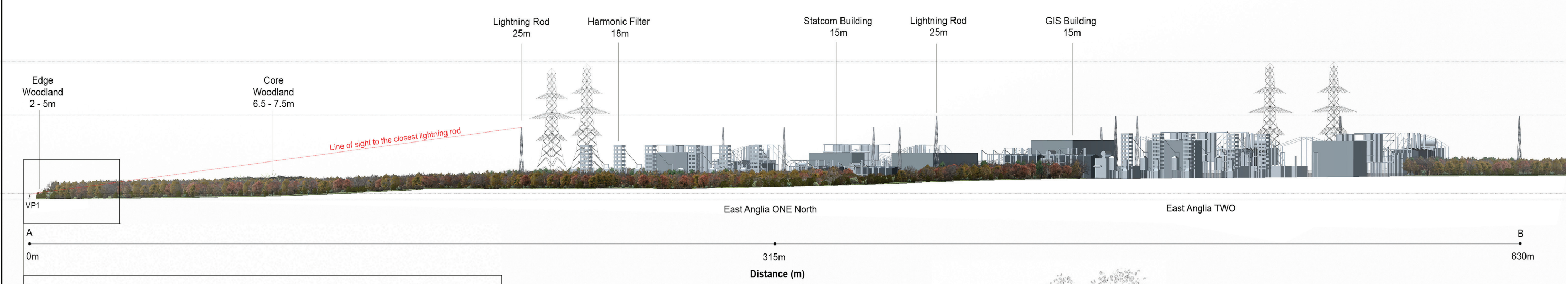
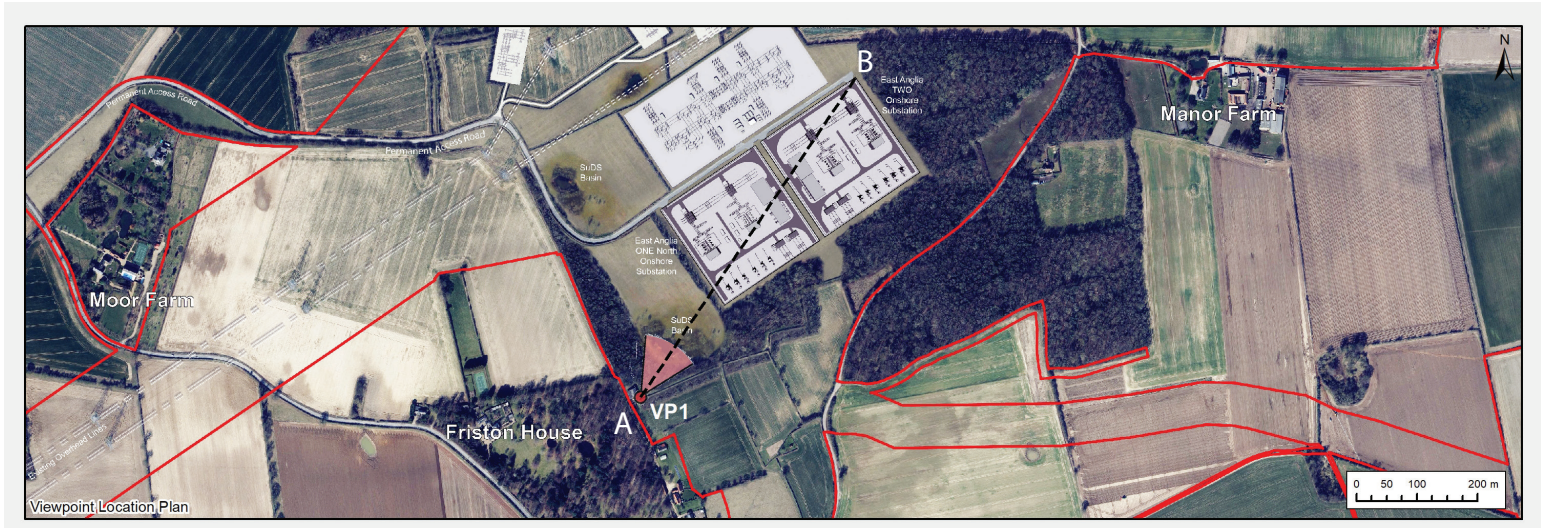
It is anticipated that 5m to 7m growth would take 20 years and the nurse species would have reached approximately 7.25m to 9.75m (assuming planting height of 1m) after 25 years. The nurse species would be sufficiently fast growing to provide substantial screening of the onshore project substation after 20 years.



Where possible, Norfolk Vanguard has committed to early planting around the site of the project substation giving an additional three years' worth of growth. In practice, this would result in an additional 1.05m (approximately) height above the base height.



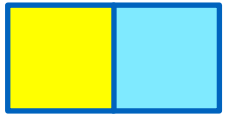
Appendix 2: Orthographic View



Profile of a structurally diverse, graduated woodland edge found along glades and ride
 Blakesley, D and Buckley (2010). Managing your woodland for wildlife (Figure 4.1)

Based on ES substation arrangement, layout and equipment heights

	4	09/04/2020	LA	Fourth Issue (OPEN)			East Anglia ONE North and East Anglia TWO Orthographic View	Drg No		Coordinate System: BNG Datum: OSGB36
	3	07/04/2020	LA	Third Issue (OPEN)	Prepared: LA	Scale @ A3		Rev	5	
	2	26/03/2020	LA	Second Issue (OPEN)	Checked: SM	<small>Source: © Crown copyright and database rights 2020. Ordnance Survey 0100031673. This map has been produced to the latest known information at the time of issue, and has been produced for your information only. Please consult with the SPR Onshore GIS team to ensure the content is still current before using the information contained on this map. To the fullest extent permitted by law, we accept no responsibility or liability (whether in contract, tort (including negligence) or otherwise in respect of any errors or omissions in the information contained in the map and shall not be liable for any loss, damage or expense caused by such errors or omissions.</small>		Date	15/12/20	
					Approved: LT			Figure		



Appendix 3: Updated Visualisations

Submitted separately due to large file size