



East Anglia TWO Offshore Windfarm

Chapter 29 Landscape and Visual Impact Assessment

Environmental Statement Volume 1

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Chapter 29 Landscape and Visual Impact appendices are presented in **Volume 3: Appendices** and listed in the table below.

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Appendix 29.1	LVIA Consultation Responses
Appendix 29.2	LVIA Methodology
Appendix 29.3	Landscape Assessment
Appendix 29.4	Visual Assessment
Appendix 29.5	Cumulative Assessment

Glossary of Acronyms

AONB	Area of Outstanding Natural Beauty
AIS	Air Insulated Switchgear
CA	Conservation Area
CIA	Cumulative Impact Assessment
CCS	Construction Consolidation Sites
DAS	Design and Access Statement
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EPP	Evidence Plan Process
ETG	Expert Topic Group
ES	Environmental Statement
GIS	Geographical Information System
GIS (building)	Gas Insulated Switchgear (building)
GLVIA	Guidelines for Landscape and Visual Impact Assessment
HDD	Horizontal Directional Drilling
HE	Historic England
HVAC	High Voltage Alternating Current
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LCU	Landscape Character Units
LI	Landscape Institute
LVIA	Landscape and Visual Impact Assessment
NCA	National Character Areas
NP	National Park
NPS	National Policy Statement
NE	Natural England
OCOCP	Outline Code of Construction Practice
OLEMS	Outline Landscape and Ecology Management Strategy
OS	Ordnance Survey
PEIR	Preliminary Environmental Information Report
PRoW	Public Rights of Way
RPG	Registered Park and Garden
SNH	Scottish Natural Heritage
SoS	Secretary of State
SuDS	Sustainable Drainage System
WCA	Worst Case Assumption

Glossary of Terminology

Applicant	East Anglia TWO 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 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.
East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and the information required to support HRA.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Jointing bay	Underground structures constructed at intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
Link boxes	Underground chambers within the onshore cable route housing electrical earthing links.

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.
Natura 2000 site	A site forming part of the network of sites made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive.
Onshore cable corridor	The corridor within which the onshore cable route will be located.
Onshore cable route	This is the construction swathe within the onshore cable corridor which would contain onshore cables as well as temporary ground required for construction which includes cable trenches, haul road and spoil storage areas.
Onshore cables	The cables which would bring electricity from landfall to the onshore substation. The onshore cable is comprised of up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
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
Transition bay	Underground structures at the landfall that house the joints between the offshore export cables and the onshore cables.

29 Landscape and Visual Impact

29.1 Introduction

1. This Landscape and Visual Impact Assessment (LVIA) forms part of the Environmental Statement (ES) and assesses the likely significant effects on landscape character and visual amenity arising as a result of the onshore infrastructure associated with the proposed East Anglia TWO project. It has been authored by chartered landscape architects at Optimised Environments (OPEN). The chapter provides an overview of the existing baseline of the LVIA study area, followed by an assessment of the potential effects associated with the construction, operation, and decommissioning of the proposed East Anglia TWO project, with consideration of embedded landscape mitigation. LVIA guidance uses the term “effect” rather than impact, so this is used throughout the chapter in order to be compliant with policy and guidance.
2. The assessment also considers cumulative impacts of other proposed projects. The proposed methodology adhered to for the Environmental Impact Assessment (EIA) and Cumulative Impact Assessment (CIA) is presented in **section 29.4**.
3. The assessment has been prepared with regard to National Policy Statements (NPSs) with specific reference to Overarching NPS for Energy (NPS EN-1) (July 2011) and Guidelines for Landscape and Visual Impact Assessment (GLVIA3) (Landscape Institute 2013).
4. This chapter should be read in conjunction with the maps and visualisations presented on **Figures 29.1 to 29.45** as these form an integral part of the assessment.
5. The detailed methodology, preliminary assessments and technical landscape, visual and cumulative assessments are provided separately in the following appendices:
 - **Appendix 29.1: Consultation Responses;**
 - **Appendix 29.2: Methodology;**
 - **Appendix 29.3: Landscape Assessment;**
 - **Appendix 29.4: Visual Assessment;** and
 - **Appendix 29.5: Cumulative Assessment.**

6. These appendices assess, in full technical detail, the likely significant effects of the proposed East Anglia TWO onshore infrastructure. This chapter provides a summary of the significant effects identified in the technical assessments contained within **Appendix 29.3 – 29.5**.
7. This chapter should also be read in conjunction with **Chapter 28 Offshore Seascape, Landscape and Visual Amenity**, **Chapter 22 Onshore Ecology** and **Chapter 24 Archaeology and Cultural Heritage** due to the close association between seascape, landscape and visual considerations, onshore ecology and cultural heritage. These inter-relationships are also described in **section 29.8**.

29.1.1 Impact Assessment Scenarios

8. The LVIA provides a project alone assessment of the landscape and visual impact of the proposed East Anglia TWO onshore infrastructure. The landscape and visual effects of the proposed East Anglia TWO onshore substation and National Grid infrastructure are assessed together in the LVIA.
9. Cumulative impact assessment scenarios for the construction of the proposed East Anglia TWO and proposed East Anglia One North projects are assessed separately in **Appendix 29.5** in two scenarios:
 - Scenario 1 – East Anglia TWO and East Anglia ONE North projects are constructed at the same time.
 - Scenario 2 – East Anglia TWO project is built entirely and land is re-instated, then East Anglia ONE North project is constructed.
10. The operational phase cumulative landscape and visual impact will be the same irrespective of the construction scenario and assesses the impact of the operation of the East Anglia TWO substation, East Anglia ONE North substation and National Grid substation.

29.1.2 Matters Scoped out of the EIA

11. The Planning Inspectorate (2017) has provided comments in their scoping opinion on matters that can be scoped out of the EIA and has agreed that the following landscape and visual matters can be scoped out of the assessment:
 - Landscape and visual impacts of the landfall during operation.
 - Landscape and visual impact of the onshore cable route during operation (with the exception of the removal of woodland at the Aldeburgh Road crossing which is assessed as an operational impact following consultation through the LVIA Expert Topic Group).

12. In both cases, following reinstatement works, the underground infrastructure at the landfall and within the onshore cable route is unlikely to result in significant effects and these matters can be scoped out of the assessment, as agreed with the Planning Inspectorate. These matters are not assessed any further in the technical assessments in **Appendix 29.3 – 29.5** and in this chapter.
13. Transboundary effects have been scoped out of the LVIA since there is no potential for transboundary landscape and visual effects to arise as a result of onshore infrastructure.

29.2 Consultation

14. Consultation is a key feature of the Environmental Impact Assessment (EIA) process, and continues throughout the lifecycle of a project, from its initial stages through to consent and post-consent.
15. To date, consultation with regards to LVIA has been undertaken via Expert Topic Group (ETG) meetings, described within **Chapter 5 EIA Methodology**, with meetings held between September 2017 and July 2019 and through the East Anglia TWO Scoping Report (SPR 2017) and the Preliminary Environmental Information Report (PEIR) (SPR 2019). Feedback received through this process has been considered in preparing the ES where appropriate and this chapter has been updated for the final assessment submitted with the DCO application. The responses received from stakeholders with regards to the Scoping Report, PEIR, as well as feedback to date from the LVIA ETGs, are summarised in **Appendix 29.1**, including details of how these have been taken account of within this chapter.
16. Ongoing public consultation has been conducted through a series of Public Information Days (PIDs) and Public Meetings. PIDs have been held throughout Suffolk in November 2017, March 2018, June / July 2018 and February / March 2019. A series of stakeholder engagement events were also undertaken in October 2018 as part of phase 3.5 consultation. Details of the consultation phases are discussed further in **Chapter 5 EIA Methodology**.
17. **Table 29.1** shows public consultation feedback pertaining to LVIA. Full details of the proposed East Anglia TWO project consultation process are presented in the Consultation Report (document reference 5.1), which is provided as part of the DCO application.

Table 29.1 Public Consultation Relevant to LVIA

Topic	Response / where addressed in the ES
Phase 1	
<ul style="list-style-type: none"> • Visual impact of the substation and consideration in site selection • Concerns over light pollution (associated with construction works and onshore infrastructure) • Consideration of Special Landscape Areas (SLA) during the LVIA • Implications of localised woodland losses • Character and beauty of the AONB 	<p>Visual impact of the substation and consideration in site selection is detailed in Appendix 4.4 Summary Note on Landscape and Visual Impact and Mitigation. Visual impact assessment for the substation are given in section 29.6.1.3.2.</p> <p>Lighting effects associated with the construction works and onshore infrastructure have been taken into account within the assessment methodology. More detail is provided in Appendix 29.2 Operational impacts (including lighting) are considered in section 29.6.2</p> <p>Consideration of Special Landscape Areas is included within definition of the existing environmental within section 29.5.3. In particular, this is in reference to the Hundred River Valley Special Landscape Area.</p> <p>Implications of localised woodland losses is considered in Chapter 22 Onshore Ecology.</p> <p>Character and beauty of the Suffolk Coast and Heath AONB is addressed in section 29.5.3.1, including the consideration of the special qualities of the AONB.</p>
Phase 2	
<ul style="list-style-type: none"> • Substation proximity to houses • Visual impact of proposed substation on Friston – screening requirements • Lighting should be minimised • Minimise height of any installations, adopt appropriate colour schemes and reducing the building footprints • Visual impact should be minimised by selecting sites that minimise the requirement for additional overhead lines 	<p>Visual impact assessment for the substation are given in section 29.6.1.3.2, including consideration of residential dwellings as visual receptors.</p> <p>The Outline Landscape and Ecological Management Strategy (OLEMS) provides details of the landscape and ecological mitigation proposals included as part of the proposed East Anglia TWO project, including the screening afforded by landform, woodlands, trees and hedgerows as part of the design of the onshore substation site.</p> <p>Lighting requirements, building footprints and height of installations is detailed in Chapter 6 Project Description; including the design process undertaken to achieve the Rochdale Envelope for assessment.</p> <p>Site selection considerations, including the consideration of appropriate colour schemes, are detailed further in Chapter 4 Site Selection and Assessment of Alternatives. The site chosen for the proposed East Anglia TWO project onshore substation minimises the requirement for additional overhead lines due to the proximity to existing overhead lines.</p>
Phase 3	
<ul style="list-style-type: none"> • Concern over light pollution at substation and landfall • Flat landscape increasing impacts 	<p>Lighting effects associated with the construction works and onshore infrastructure have been taken into account within the assessment methodology. More detail is provided in Appendix 29.2. Operational impacts (including lighting) are considered in section 29.6.2.</p>

Topic	Response / where addressed in the ES
<ul style="list-style-type: none"> Impact on rural setting Visual impact and height of substation Impact on views from church and village green Visual disturbance of construction traffic at landfall Visual impact of cable routing – areas of high landscape quality should be avoided Visual impact of construction compounds and road widening 	<p>Lighting requirements, building footprints and height of installations is detailed in Chapter 6 Project Description; including the design process undertaken to achieve the Rochdale Envelope for assessment.</p> <p>Visual impact assessment for the substation are given in section 29.6.1.3.1 for consideration of the rural setting. Visual impact assessment for the substation are given in section 29.6.1.3.2 for views from St Mary the Virgin Church and Friston village green.</p> <p>Visual impact assessment for the visual disturbance of construction traffic at the landfall (and all other visual impacts associated with the landfall) are given in section 29.6.1.1.</p> <p>Visual impact assessment for the visual disturbance of construction along the onshore cable route and its potential impact on areas of high landscape quality (e.g. the AONB) are given in section 29.6.1.2.</p>
Phase 3.5	
<ul style="list-style-type: none"> Visual impact of re-routing power lines Substation will ruin village scenery Unsympathetic to natural landscape, substation on rising ground Light pollution (including construction) Current minimal light pollution around Friston Screening will not be effective for years. Impact on flat landscape Unprecedented development in open countryside Visual impact of haul roads Visual impact of substation from the church and village green Impact on views from Friston Moor 	<p>Visual impact assessment for the substation and National Grid infrastructure (including potential works to overhead lines and views from Friston Moor) are given in section 29.6.1.3.2. Changes in the historical landscape of Friston Moor are discussed further in Appendix 24.7 of Chapter 24 Archaeology and Cultural Heritage.</p> <p>Lighting effects associated with the construction works and onshore infrastructure have been taken into account within the assessment methodology. More detail is provided in Appendix 29.2. Operational impacts (including lighting) are considered in section 29.6.2.</p> <p>The Outline Landscape and Ecological Management Strategy (OLEMS) provides details of the landscape and ecological mitigation proposals included as part of the proposed East Anglia TWO project, including the screening afforded by landform, woodlands, trees and hedgerows as part of the design of the onshore substation site.</p> <p>Visual impact assessment for the visual disturbance of construction along the onshore cable route, including the visual impact of the onshore cable route haul road, are given in section 29.6.1.2.</p> <p>Visual impact assessment for the substation are given in section 29.6.1.3.1 for consideration of the rural setting. Visual impact assessment for the substation are given in section 29.6.1.3.2 for views from St Mary the Virgin Church and Friston village green.</p>
Phase 4	
<ul style="list-style-type: none"> Concerns over substation master planning visual impacts 	<p>Visual impact assessment for the substation and National Grid infrastructure (including potential works to overhead lines) are given in section 29.6.1.3.2. These visual impacts have taken into</p>

Topic	Response / where addressed in the ES
<ul style="list-style-type: none"> • Change to historical landscape • Site is too close to Friston for any screening to be fully effective • Loss of features associated with tranquillity • Light pollution during construction and operation 	<p>account the substation masterplan, including consideration of impacts pre and post-15 year growth of screening planting.</p> <p>Changes in the historical landscape are discussed further in Appendix 24.7 of Chapter 24 Archaeology and Cultural Heritage.</p> <p>Screening details are provided in further detail in the Outline Landscape and Ecological Management Strategy (OLEMS), submitted with this DCO application.</p> <p>Lighting effects have been taken into account within the assessment methodology. More detail is provided in Appendix 29.2</p>

29.3 Scope

29.3.1 Study Area

18. The LVIA study area extends to a 3km buffer from the onshore development area as shown on **Figure 29.1**. The LVIA study area defines a limit, based on professional judgement, beyond which it is considered unlikely for significant effects to arise. This judgement is based on knowledge of similar projects, and an understanding of the character of the local landscape and the scale of the construction and development proposed.
19. Offsite highway improvements are part of the onshore preparation works which may take place prior to the commencement of main construction. Therefore, detailed assessment of these works does not form part of the assessment of construction impacts presented in **section 29.6**. These works are to allow larger construction vehicles to access and navigate certain parts of the public road network. Any modifications to roads would be undertaken in consultation with and in accordance with the requirements of the local Highways Authority in accordance with the requirements of the draft DCO. Further details of the works required are presented in **Chapter 6 Project Description**.
20. The offsite highway improvements at the A1094 / B1069 and A12 / A1094 junctions would involve the temporary moving of street furniture and temporary local widening of the highway (or creation of overrun areas). Offsite highway improvements at Marlesford Bridge would additionally require temporary laydown areas for structural works to accommodate abnormal indivisible loads.
21. The offsite highway improvements will not require a notable quantity of plant and equipment and the works will have a small footprint, largely within the existing highway boundary. Given the relatively small footprint and temporary nature of these works, and the limited intrusive elements, along with adherence to best

practice detailed in **section 29.3.3**, it is considered that the offsite highway improvements will not give rise to a landscape and visual impact.

29.3.2 Worst Case Scenarios

22. This section identifies the realistic worst case parameters associated with the proposed East Anglia TWO project alone. This includes all onshore infrastructure for the proposed East Anglia TWO project and the National Grid infrastructure that the proposed East Anglia TWO project will require for ultimate connection to national electricity grid.
23. **Table 29.2** identifies those realistic worst case parameters of the onshore infrastructure that are relevant to potential impacts on LVIA during construction, operation and decommissioning phases of the proposed East Anglia TWO project. Please refer to **Chapter 6 Project Description** for more detail regarding specific activities, and their durations, within the construction phase. Areas provided for onshore infrastructure are maximum footprints with indicative dimensions provided in brackets.
24. As described in **Chapter 5 EIA Methodology**, there are two co-located onshore substation locations for either the proposed East Anglia TWO project or the proposed East Anglia ONE North project. It should be noted that the draft DCOs for both the proposed East Anglia TWO and East Anglia ONE North projects have the flexibility for either project to use either onshore substation location.
25. In this chapter, the project alone assessment in **section 29.6** is based on the intended development strategy of the proposed East Anglia TWO project using the eastern onshore substation location. However, **section 29.6.4** is provided in order to present the project alone impacts in the eventuality that the onshore substation for the proposed East Anglia TWO project used the alternative onshore substation location, as allowed for in the draft DCO.

Table 29.2 Realistic Worst Case Scenarios

Impact	Parameter	Notes
Construction		
Impacts related to the landfall	HDD temporary working area: 7,000m ² (70m x 100m) Transition bay temporary working area (for 2 transition bays): 1,554m ² (37m x 42m) Landfall Construction Consolidation Site (CCS) (x1): 7,040m ² (88m x 80m)	This chapter assess the effect on landscape character and visual amenity owing to the presence and construction of the onshore infrastructure at landfall.

Impact	Parameter	Notes
Impacts related to the onshore cable route	<p>Onshore cable route: 290,912m² (9,091m x 32m)</p> <p>Jointing bay temporary working area: 570m² (30.6m x 18.6m). Total for 38 jointing bays: 21,660m² (570m² x 38)</p> <p>HDD (retained as an option to cross SPA / SSSI):</p> <ul style="list-style-type: none"> Entrance pit temporary working area (x1): 6,300m² (90m x 70m) Exit pit temporary working area (x1): 2,700m² (90m x 30m) <p>Onshore cable route large CCS (1): 16,500m² (165m x 100m).</p> <p>Onshore cable route medium CCS (2): 14,080m² total (88m x 80m per each medium CCS)</p> <p>Onshore cable route small CCS (2): 6,000m² total (60m x 50m per each small CCS)</p> <p>Total footprint of all onshore cable route CCS: 36,580m²</p> <p>Onshore cable route laydown area: 1,000m²</p> <p>Onshore cable route haul road between landfall and Snape Road (7,331m in length x 4.5m wide with additional 4m for passing places at approximately 90m intervals): 40,435m²</p> <p>Onshore cable route and substation access haul road (1,570m in length x 9m wide): 14,130m²</p> <p>Temporary access roads (957m in length x 4.5m wide with additional 4m for passing places at approximately 90m intervals): 5,231m</p>	<p>This chapter assess the effect on landscape character and visual amenity owing to the presence and construction of the onshore infrastructure along the onshore cable route.</p> <p>Refer to section 29.3.3 for instances of onshore cable route adopting a narrower width</p>
Impacts related to the onshore substation	<p>Onshore substation CCS: 17,100m² (190m x 90m)</p> <p>Permanent footprint (used as CCS during construction): 36,100m² (190m x 190m)</p> <p>Substation operational access road: 13,600m² (1,700m x 8m)</p> <p>Emerging presence of onshore substation with building height up to 15m, electrical infrastructure height up to 18m (such as shunt reactors, transformers, harmonic filters etc)</p>	<p>This chapter assess the effect on landscape character and visual amenity owing to the presence and construction of the onshore substation.</p>

Impact	Parameter	Notes
	<p>Emerging presence of up to 6 lightning masts within onshore substation – each a single steel tubular mast up to 25m in height</p> <p>Construction of a Sustainable Drainage System (SuDS) pond will be required to provide a sustainable drainage solution for the onshore substation.</p>	
<p>Impacts related to the National Grid Infrastructure</p>	<p>National Grid CCS: 23,350m²</p> <p>National Grid operational substation (AIS technology) (used as a CCS during construction): 44,950m² (310m x 145m)</p> <p>Temporary pylon/mast temporary working area (x4): 10,000m² (2,500m² per each temporary pylon)</p> <p>Permanent pylon permanent footprint (x4): 1,600m² (400m² per each permanent pylon)</p> <p>Permanent pylon temporary working area (x4): 8,400m² (2,100m² per each permanent pylon)</p> <p>Overhead line realignment temporary working area: 5,000m²</p> <p>Cable sealing end/Cable sealing end (with circuit breaker) compounds permanent footprint: 10,000 m² (total for three compounds)</p> <p>Cable sealing end/Cable sealing end (with circuit breaker) compounds temporary working area: 30,000m² (for three compounds)</p> <p>Temporary access road (for pylon works): (1,100m in length x 4.5m wide with additional 4m for passing places at approximately 90m intervals): 5,629m²</p> <p>Permanent access road to sealing end compound: 1,850m² (500m x 3.7m)</p> <p>Emerging National Grid substation with Air Insulated Switchgear (AIS) building up to 6m in height</p> <p>Presence of temporary pylons or masts to facilitate the temporary overhead line diversion. Up to two temporary guyed masts or up to two temporary pylons the up to 42m and up to 59.2m above ground level respectively. A temporary pylon will be of similar appearance as the existing pylons along the overhead lines.</p>	<p>This chapter assess the effect on landscape character and visual amenity owing to the presence and construction of the National Grid infrastructure.</p> <p>The option of a National Grid substation with GIS electrical infrastructure up to 16m in height is deemed not the worst case due to the reduced footprint (120m x 140m) compared to the AIS electrical infrastructure. For comparison, a set of visualisations from agreed Viewpoints with the National Grid substation with GIS electrical infrastructure have been produced in Figure 29.33 to Figure 29.45. These are for information purposes only to enable comparison of National Grid substation options.</p> <p>Further detail regarding construction footprints are provided in Chapter 6 Project Description.</p>

Impact	Parameter	Notes
	The construction of a SuDS pond will be required to provide a sustainable drainage solution for the National Grid substation	
Operation		
Impacts related to the onshore cable route	No above ground infrastructure Loss of 0.9ha of mature woodland as a result of the onshore cable route at woodland north of Fitches Lane.	It should be noted that jointing bays will be underground – there will be no surface infrastructure.
Impacts related to the onshore substation	Onshore substation with buildings up to 15m in height and electrical infrastructure up to 18m and occupying a site of 36,100m ² (190m x 190m) Up to 6 lightning masts within onshore substation – each a single steel tubular mast up to 25m in height Substation operational access road: 13,600m ² (1,700m x 8m) The establishment of substantial areas of new woodland planting around the onshore substation, as described in section 29.3.3.1 and shown in the landscape mitigation plan (Figure 29.11a-b and Figure 29.12).	This chapter assesses the effect on landscape character and visual amenity owing to the presence of the onshore substation
Impacts related to the National Grid Infrastructure	Presence of the National Grid substation with Air Insulated Switchgear (AIS) building up to 6m in height; Presence of up to two cable sealing end compounds and one cable sealing end (with circuit breaker) compound, Permanent realignment of the existing overhead lines; including the reconstruction or replacement of up to three existing overhead pylons in proximity to the National Grid substation and the addition of up to one new pylon in close proximity to the existing overhead pylons. New or replacement pylons will be of similar appearance as the existing pylons along the overhead lines (maximum height 59.2m).	This chapter assesses the effect on landscape character and visual amenity owing to the presence of the National Grid infrastructure The option of a National Grid substation with GIS electrical infrastructure up to 16m in height is deemed not the worst case due to the reduced footprint (120m x 140m) compared to the AIS electrical infrastructure. For comparison, a set of visualisations from agreed Viewpoints with the National Grid substation with GIS electrical infrastructure have been produced in Figure 29.33 to Figure 29.45 . These are for information purposes only to enable comparison of National Grid substation options.
Decommissioning		

Impact	Parameter	Notes
<p>No decision has been made regarding the final decommissioning policy for the onshore infrastructure as it is recognised that industry best practice, rules and legislation change over time. An Onshore Decommissioning Plan will be provided, secured under the requirements of the draft DCO. The onshore substation will be likely removed and be reused or recycled. It is anticipated that the onshore cable would be decommissioned (de-energised) and either the cables and jointing bays left <i>in situ</i> or removed depending on the requirements of the Onshore Decommissioning Plan approved by Local Planning Authority. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.</p>		

26. The onshore substation assessed in the LVIA (and shown in the visualisations in **Figures 29.13 – 29.26**) is based on a Rochdale Envelope defined by a Rochdale Envelope 3D model, as shown in **Plate 29.1**. The Rochdale Envelope and assessments are also informed by the maximum parameters of the electrical infrastructure (18m), as represented by a dashed line in **Plate 29.1**. The photomontage visualisations in **Figures 29.13 – 29.26** also show the requirement for up to 6 lightning masts (25m) which has also informed the assessment.
27. The same 3D model is used for both the East Anglia TWO and East Anglia ONE North onshore substations in the cumulative assessment presented in **section 29.7**. During detailed design post consent, the final arrangement of buildings and infrastructure may change but will be within the parameters of the Rochdale Envelope 3D model used in this assessment.

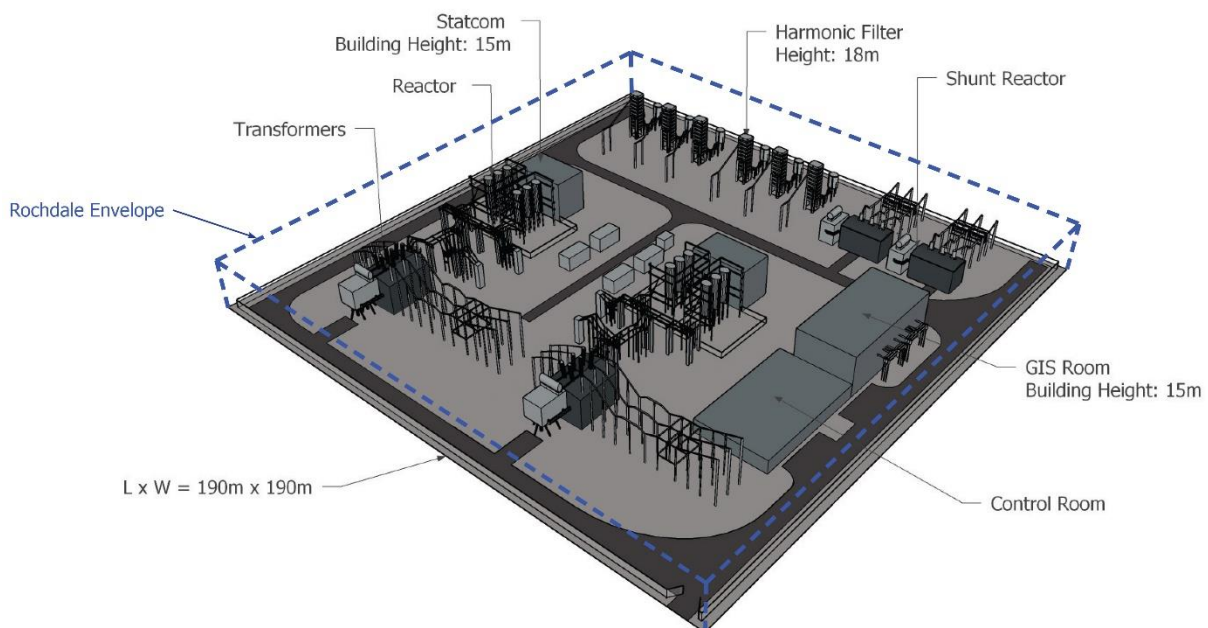


Plate 29.1 East Anglia TWO Rochdale Envelope 3D Model

28. The National Grid substation shown in the photomontage visualisations **Figures 29.13 – 29.26** and assessed in the LVIA is based on a Rochdale Envelope defined by a Rochdale Envelope 3D model representation of the National Grid substation with AIS, as shown in **Plate 29.2**, which has a footprint of 310m x 145m. During detailed design post consent, the final arrangement of buildings and infrastructure may change but will be within the parameters of the Rochdale Envelope 3D model used in this assessment.

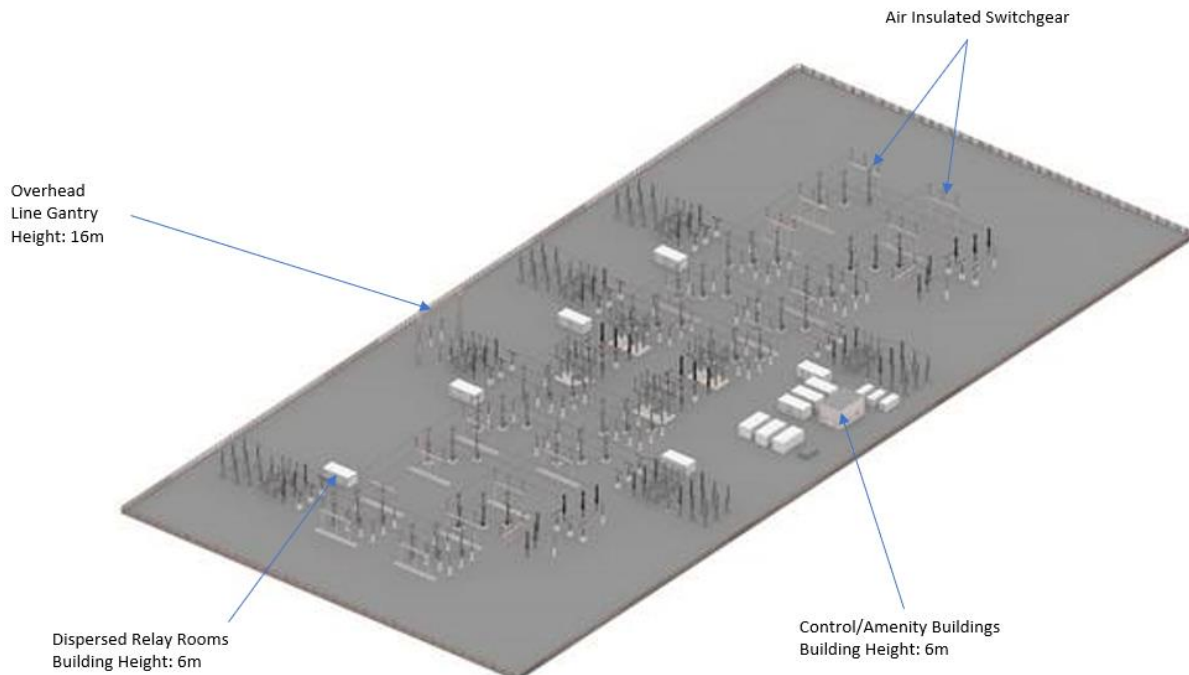


Plate 29.2 National Grid Substation Rochdale Envelope AIS 3D Model

29. The option of a National Grid substation with GIS electrical infrastructure up to 16m in height is deemed not to be the worst case due to the reduced footprint (120m x 140m) (with a 24m x 60m building) compared to the larger footprint of the AIS electrical infrastructure (310m x 145m). For comparison, a set of visualisations with the National Grid substation with GIS electrical infrastructure have been produced in **Figures 29.33 - 29.45**. These are for information purposes only to enable comparison of National Grid substation options.

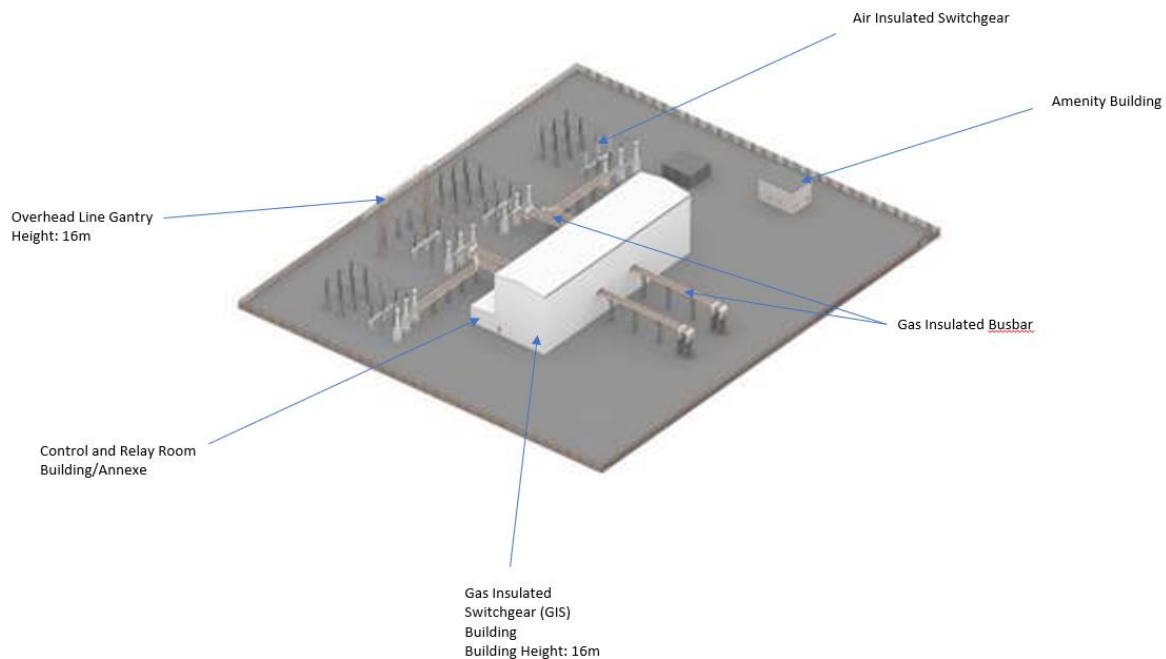


Plate 29.3 National Grid Substation GIS 3D Model

30. The photomontage visualisations in **Figures 29.13 – 29.26** also show the proposed National Grid overhead line realignment works based on a 3D model of the overhead line provided by National Grid. This is representative of the worst-case for the National Grid overhead line realignment works and involves the permanent realignment of the existing overhead lines; constituting of reconstruction or replacement of up to three existing overhead pylons in proximity to the National Grid substation and the addition of up to one new pylon in close proximity to existing overhead pylons.

29.3.3 Embedded Mitigation and Best Practice

31. Embedding mitigation into the proposed East Anglia TWO project design is a type of primary mitigation and is an inherent aspect of the EIA process. **Table 29.3** below outlines the key embedded mitigation relevant for the LVIA, which are embedded in the assessment of landscape and visual impacts of the onshore infrastructure.
32. Where further landscape mitigation measures have also been developed into the design of the onshore infrastructure, with specific regard to potential effects on landscape character and visual amenity, these are described in **section 29.3.3.1** and assessed in the Technical Assessment presented in **Appendix 29.3, 29.4** and **29.5**. Any further mitigation measures suggested within this section are therefore considered as additional to the embedded mitigation described in **Table 29.3**.

33. The sensitivity of the landscape and visual receptors in the LVIA study area has been a key consideration in the siting and design of the onshore infrastructure. Furthermore, the capacity of the landscape to accommodate the onshore infrastructure has been assessed in relation to the natural screening afforded by landform, woodlands, trees and hedgerows. An Outline Landscape and Ecological Management Strategy (OLEMS) has been prepared and is included as part of the DCO application. The OLEMS sets out in full the suitable landscape and ecological mitigation proposals included as part of the proposed East Anglia TWO project.

Table 29.3 Embedded Mitigation Measures and Best Practice for LVIA

Parameter	Mitigation Measures Embedded into the proposed East Anglia TWO Project Design	Notes
General		
Onshore substation and National Grid infrastructure site selection	<p>National Grid's Guidelines on Substation Siting and Design (The Horlock Rules) have been taken into consideration during the site selection process. Those relevant to the LVIA include the following;</p> <p>To avoid landscape designations including National Parks and AONBs.</p> <p>To protect areas of local amenity value including ancient woodland and historic hedgerows.</p> <p>To take advantage of screening provided by landform and existing features.</p> <p>The selected onshore substation location avoids all international, national, county and local landscape designations. It does not affect any ancient woodland and mitigation measures ensure hedgerow loss which would occur is compensated for in new planting around the onshore substation. The site benefits from existing natural screening provided by Grove Wood and Laurel Covert, as well as other smaller tree blocks and hedgerows surrounding the site. These landscape features provide screening principally from the east and create a wooded backdrop in views from other directions, below which the height of the onshore substation and National Grid substation will be contained and in so doing, contribute to the mitigation of landscape and visual effects.</p>	<p>Constraints mapping and sensitive site selection to avoid a number of impacts, or to reduce impacts as far as possible, is a type of primary mitigation and is an inherent aspect of the EIA process. The Applicant has reviewed consultation received to feed into the site selection process (including local communities, landowners and regulators) and in light of the feedback, has made a number of decisions in relation to the siting of the onshore infrastructure. The site selection process is set out in Chapter 4 Site Selection and Assessment of Alternatives.</p>
Undergrounding of onshore cables	<p>The decision to use underground cable systems for the onshore cables, avoids the requirement to construct new overhead lines. The mitigation embedded in this approach would lead to notably reduced impacts on landscape and visual receptors during the construction phase and practically no impacts during the operational phase. It also notably reduces the potential for the onshore cable route to contribute to significant cumulative effects. The construction works for the onshore cables would be notably smaller scale than those required to install new overhead lines and post</p>	n/a

Parameter	Mitigation Measures Embedded into the proposed East Anglia TWO Project Design	Notes
	<p>construction the onshore cable route would have a negligible impact on landscape and visual receptors as the components for the onshore cables would be buried under ground.</p>	
Landscape mitigation	<p>Mitigation measures associated with the onshore substation and National Grid infrastructure form part of a strategic approach to enhancing landscape character and bio-diversity in the local area. The OLMP in Figure 29.11a-b and Figure 29.12 includes embedded mitigation which will be delivered in order to mitigate landscape effects, contribute to the wider landscape structure of the area, screen the onshore project substation and help consolidate green corridors for wildlife. Details of the OLMP are presented in section 29.3.3.1. The OLMP is presented in the OLEMS submitted with this DCO application. A final detailed Landscape Management Plan (LMP) will be produced post-consent in order to discharge the relevant DCO requirements, prior to construction of the proposed East Anglia TWO project, and will be in line with the OLEMS.</p>	See section 29.3.3.1 .
Landfall site selection	<p>The selection of the landfall site between Sizewell and Thorpeness followed a number of key design principles where practical, the following being relevant to LVIA.</p> <p>To avoid the most sensitive landscapes of the AONB selecting a location strongly influenced by existing agricultural practices and energy infrastructure (e.g. Sizewell B).</p> <p>To avoid populated areas as far as possible.</p> <p>To avoid areas of high amenity value as far as possible. No areas of common land (notably Thorpeness Common) are within the onshore development area.</p> <p>To set back sufficiently from the coastal edge and adjacent residential areas.</p> <p>The location of the transition bays will be suitably set back from the coastal cliffs would reduce visual impacts along the coast, particularly the Suffolk Coastal Path.</p> <p>The location of the transition bays, buried to ground or just below ground level, would ensure landscape and visual effects would only occur during the construction phase and not the operational phase.</p> <p>The final landfall construction methodology will be detailed within the Landfall Construction Method Statement produced post-consent to discharge the requirements of the draft DCO.</p>	n/a

Parameter	Mitigation Measures Embedded into the proposed East Anglia TWO Project Design	Notes
Onshore cable route site selection	<p>The selection of the onshore cable route has followed a number of key design principles, where practical, the following being relevant to LVIA;</p> <p>Wherever possible to locate the onshore cable route through open agricultural land.</p> <p>To avoid landscape designations including Registered Parks and Gardens (RPGs).</p> <p>To avoid areas of woodland and trees as far as possible.</p> <p>To minimise the number of hedgerow crossings and utilise existing gaps in field boundaries if possible.</p> <p>To avoid proximity to residential dwellings and settlements.</p> <p>The onshore development area has been refined so that woodland is retained acting as screening between residential properties on Fitches Lane and the onshore cable route and also between the onshore cable route and Aldringham Court Nursing Home.</p> <p>The mitigation is embedded in the selection of a route which minimises effects on natural heritage designations (SSSI/SPA/SAC/Ramsar/NNR), minimises the effects on the AONB and physical effects on hedgerows and trees.</p>	n/a
Onshore substation building height	Commitment to external harmonic filters and therefore a significant reduction in building height of the onshore substation from 21m to 15m.	n/a
Lighting	The onshore substation has been designed so that it does not require to be permanently lit at night, with passive lighting (passive infra-red). Task and vehicle lighting used in the hours of darkness during approved working hours.	n/a

29.3.3.1 Outline Landscape and Ecological Management Strategy (OLEMS) - Onshore Substation and National Grid Infrastructure

34. The extent of embedded mitigation planting incorporated into the design is shown in the Outline Landscape Mitigation Plan (OLMP) figures, which are presented and described in detail within the OLEMS submitted with this DCO application and also shown in **Figure 29.11a-b** and **Figure 29.12**. A final detailed Landscape Management Plan (LMP) will be produced post-consent in order to discharge the relevant DCO requirements, prior to construction of the proposed East Anglia TWO project, and will be in line with the OLEMS.
35. The onshore substation location and National Grid infrastructure benefits from the presence of some substantial existing hedgerows and woodland blocks within

the local area, in particular Grove Wood and Laurel Covert. The woodland at Grove Wood/Laurel Covert will provide substantial screening of the area north of Grove Wood, particularly in views from the east (Knodishall area), north (Knodishall Hall / Saxmundham Road) and south (Snape Road/public right of way (PRoW) between Knodishall and Friston). The extent and height of this mature woodland at Grove Wood/Laurel Covert would provide mitigation of landscape and visual effects from the outset, together with other policy woodlands around Friston House, which provide screening in views from parts of Friston, and shelterbelts at Long Covert and those associated with individual farmsteads. The presence of substantial hedgerow field boundaries and hedgerow trees provide further screening, particularly those to the south-west between the onshore substation and Friston, all of which would contribute to reducing prominence of the onshore substation and National Grid infrastructure from local receptors.

36. There are notable opportunities for deliverable and effective mitigation of the landscape and visual impacts of the onshore substation and National Grid infrastructure in the form of new woodland planting. The extent of mitigation planting incorporated into the design is presented in the OLMP (**Figure 29.11a-b and Figure 29.12**). The landscape and visual effects of the onshore substation and National Grid substation are assessed with the OLMP as an embedded part of the project design. The design approach in the OLMP has been developed with extensive consultation with the technical working group, including Suffolk County Council, East Suffolk Council, Natural England and Historic England. The design of the OLMP combines areas of substantial woodland planting near the onshore substation, set back from the main visual receptors (such as Friston) to provide screening while also retaining the open rural setting; supplemented by smaller characteristic 'covert' woodland blocks, new hedgerow planting along historic hedgerow field boundaries and individual tree line/hedgerow tree planting, to provide a layered screening approach.
37. The OLMP includes the planting of native woodlands around the onshore substation and National Grid infrastructure. The OLMP proposes four types of woodland planting, as shown in **Figure 29.11a**, consisting of a core native woodland, native edge woodland, native wet woodland and native screening woodland. These types of woodland planting are summarised as follows, with full proposed species mixes provided in the OLEMS:
- Native core woodland (W1) – consisting of oak, birch, lime, maple, beech, rowan and alder, planted within the central part of woodland planting areas, forming core woodland. Mix of native species, typical to the area and is intended to provide long-term screening as well as providing habitat and biodiversity.

- Native edge woodland (W2) – consisting of smaller native trees and shrubs, such as hawthorn, elder, hazel, dogwood and blackthorn to form graduated edges around woodland planted areas.
 - Native screening woodland (W3) – consisting of quicker growing species with some evergreens to provide year round screening, including alder, rowan, birch, black poplar, and scots pine. These are generally faster growing species and the intention is for this mix to provide earlier visual screening and also to act as a “nursery crop” for the core woodland species.
 - Native wet woodland (W4) – small area of wet woodland around the SuDS, planted in soils likely to be in wetter ground, including alder, willow, birch, osier and elder. The tree species chosen are able to withstand wetter ground conditions.
 - Native hedgerows – areas of mixed native hedgerow planting.
38. The appearance of the onshore substation and National Grid infrastructure will be influenced by the establishment and growth of these areas of woodland planting over time. Recently planted cell-grown trees and hedgerows are likely to have limited screening effect until they become established. Photomontage visualisations in **Figures 29.13 – 29.26** show the predicted view of the onshore substation and National Grid infrastructure with recently planted trees, in the first year of planting as the ‘without mitigation’ scenario.
39. In the early years of growth, young trees will be establishing, and are assumed to have good vigour, but likely to have limited screening effects in the landscape. Woodland planted areas are assumed to be well established between 5 to 10 years post-planting, with young trees growing in height, having increasing landscape significance and providing some screening of the onshore substations. Between 10 to 15 years post-planting, fully established trees are assumed to be generally retaining good vigour and starting to achieve good height with tree crowns spreading and are assumed to provide notable screening of the onshore substation and National Grid infrastructure.
40. At 15 years post-planting, trees within the proposed woodland planting areas (**Figure 29.11a**) are assumed to be within the following height ranges:
- 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.
41. These tree heights are assumed for the ‘with embedded mitigation’ impact assessments in this LVIA (at 15 years post-planting) and are shown in the Year 15 ‘with embedded mitigation’ photomontages in **Figures 29.13 – 29.26**. These photomontages are produced using a 3D model which accurately shows the height and extent of woodland areas. A range of tree heights within the upper and lower height ranges are shown in the photomontages and are assumed for the ‘with embedded mitigation’ impact assessments in **Section 29.6** of this LVIA. 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, for example 7.8m for core woodland, are only applied for a minority proportion of the overall mix as represented in the photomontages, with a range of tree heights shown to represent the range of likely growth of different trees within the planting mixes proposed.
42. Heights of taller trees at 15 years post-planting are based on an assumption of planting 60cm cell-grown plants, with an average annual growth rate of 30cm per year for the first 5 years and 50cm per year for the next 10 years, based on relevant guidance (IEMA 2019), research of relevant published literature (Skinner 1987) and plant nurseries, and are comparable to precedents established by other NSIP projects. 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.
43. In addition to areas of new woodland planting, the OLMP includes substantial lengths of new native hedgerow planting and the reinstatement of existing gappy hedgerows around the onshore substations, shown in **Figure 29.11a-b** and **Figure 29.12**. Historic hedgerow field boundaries have been lost, over time, to agricultural intensification. The landscape used to feature more hedges and tree lined field edges and there were also large blocks of woodland present, which remain today. The OLMP proposals seek to be historically appropriate, with proposals to re-establish lost field boundaries and seek to achieve screening through multiple lines of planting, with a mix of blocks, belts, tree lines and hedges. The reinstatement of gappy hedges and new field trees are proposed to north of Friston, to give layered screening in views from this village.

44. The proposals focus on reinstatement of historic field boundary hedgerows/tree lines and tree blocks set back from farmhouses in the form of locally characteristic 'Covert' woods, in order to retain, insofar as possible, the open setting of existing farms and villages, while providing additional visual screening in the landscape. Hedgerows will combine with the woodland planting areas to integrate the substations into the landscape, both in terms of providing screening of the onshore infrastructure and as an extension of an element that is characteristic in the local landscape. The arrangement of hedgerows provides connectivity with existing and proposed woodlands and hedgerows in the surrounding landscape.
45. In locations where it is possible to achieve advanced woodland and hedgerow planting this would be implemented at the start of the construction phase or prior to construction as part of onshore site preparation works. This would mean these areas would already have had approximately three years of growth prior to completion of construction and commencement of operation. Areas of pre-construction planting (as part of onshore site preparation works) are shown in **Figure 29.12**. It is proposed to establish pre-construction planting and reinstatement of gappy hedgerows to the south of the substations, to establish as early as possible, screening between the substation site and Friston. Pre-construction planting will also take place to the north of the overhead line near Fristonmoor/Little Moor Farm.
46. Adverse landscape and visual effects can be mitigated over the longer term with the implementation of the OLMP, which offers potential to connect existing mature woodland blocks with further woodland planting, strengthen the existing hedgerow network and provide for changes in hedgerow management to retain higher hedgerows. It is considered that full or effective landscape mitigation could be secured and is capable of being delivered and effective over the long-term (10-15 year post planting).
47. Landscape mitigation measures are described and illustrated further in the OLEMS and will be designed in detail post-consent as part of the discharge of the requirements of the draft DCO.
48. The landscape and visual effects of the onshore substation and National Grid substation are assessed with the OLMP as an embedded part of the project design, with this mitigation provided by the OLMP being delivered and incorporated as embedded mitigation in the assessment of landscape and visual effects.

29.3.3.2 Onshore Cable Route and Landfall Location

49. The onshore cable route has been designed to follow a route that avoids and minimises the felling of hedgerows, stands of woodlands/shelterbelts and

patches of heathland vegetation, as far as possible. There are however, locations along the cable route where the onshore cable route construction will breach existing hedgerows, resulting in felling of some sections of hedgerow. Where possible, replacement hedgerow and tree planting will be undertaken at the end of the construction stage to reinstate hedgerows and trees within the onshore cable route.

50. Where sections of hedgerow are to be felled, replacement planting will be undertaken along the original hedgerow field boundary line, using a bespoke hedgerow planting mix that is appropriate to each location. Bespoke hedgerow and tree replanting locations will be identified in the landscape mitigation plan and planting mixes specified in the planting schedule as part of the OLEMS. The bespoke hedgerow replanting will include a range of hedgerow species, with the planting mix tailored to each location according to the existing hedgerow species present, the character of the hedgerow.
51. Hedgerow replacement planting over the cable trenches is acceptable as hedgerow roots are typically 800mm deep and the cables a typical 1.25m depth to the top of the cables. High impact, polyethylene polymer cable protection covers will also be laid within the cable trench and will also afford protection against hedgerow roots.

29.3.4 Monitoring

52. Post-consent, the final detailed design of the proposed East Anglia TWO project will refine the worst-case parameters assessed in this ES. It is recognised that monitoring is an important element in the management and verification of the actual impacts based on the final detailed design. Where monitoring is proposed for LVIA, particularly in regard to the monitoring and maintenance of the proposed planting, this is described in the OLEMS submitted with this DCO application (document reference 8.7). Final details of monitoring will be agreed post-consent with the Local Planning Authority and relevant stakeholders.

29.4 Assessment Methodology

29.4.1 Guidance

53. There are a number of pieces of legislation, policy and guidance applicable to LVIA. The following sections provide detail on international treaty and key UK legislation, policy and guidance which are relevant to this chapter.

29.4.1.1 Legislation and Policy

29.4.1.1.1 European Landscape Convention (ELC)

54. The ELC is devoted exclusively to the protection, management and planning of all landscapes in Europe. Landscape is described as *"an area, as perceived by people, whose character is the result of the action and interaction of natural and/*

or human factors" (ELC 2000). The definition applies to all urban and peri-urban landscapes, towns, villages, rural areas, the coast and inland areas. In addition, it applies to ordinary or even degraded landscape as well as those areas that are of outstanding value or protected.

55. The ELC is binding in the UK. As a signatory, the UK Government has therefore undertaken to adopt general policies and measures to protect, manage and plan landscapes as follows:
- To recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity;
 - To establish and implement landscape policies aimed at landscape protection, management and planning through the adoption of the specific measures. These include awareness-raising, training and education, identification and assessment of landscapes, definition of landscape quality objectives and the implementation of landscape policies;
 - To establish procedures for the participation of the general public, local and regional authorities, and other parties with an interest in the definition and implementation of the landscape policies mentioned above; and
 - To integrate landscape into regional and town planning policies and in cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape.
56. Landscape policy in the UK is already closely aligned with the Convention, and before UK ratification a Regulatory Impact Assessment had demonstrated that existing procedures and practice (through the work over many years of Government agencies, Local Government and Non-Governmental Organisations (NGOs) such as the National Trust) are compliant with its formal requirements. Given the UK's adoption of the ELC and its aims, the ELC gives an appropriate basis for the importance placed on the UK landscape.

29.4.1.1.2 National Policy Statements

57. The assessment of potential effects on the landscape and visual receptors has been made with reference to relevant NPSs, as discussed in **Chapter 3 Policy and Legislative Context**. The relevant NPSs to this assessment are:
- Overarching National Policy Statement for Energy (NPS EN-1 July 2011);
 - National Policy Statement for Renewable Energy Infrastructure (NPS EN-3 July 2011); and

- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5 July 2011).

58. The specific assessment requirements for landscape and visual receptors, as detailed in the NPSs, are summarised in **Table 29.4**.

Table 29.4 NPS Assessment Requirements

NPS Requirement	NPS Reference	ES Reference
EN-1 Overarching NPS for Energy		
<p>Paragraph 5.9.5 of EN-1 advises that the applicant should carry out a landscape and visual assessment and makes reference to the following documents:</p> <p>Landscape Institute and Institute of Environmental Management and Assessment (2002, 2nd edition): Guidelines for Landscape and Visual Impact Assessment; and</p> <p>Land Use Consultants (2002): Landscape Character Assessment – Guidance for England and Scotland.</p>	Paragraph 5.9.5	<p>‘The Guidelines for Landscape and Visual Impact Assessment’ (GLVIA) (2002, 2nd edition) has been superseded by GLVIA Version 3.</p> <p>Landscape Character Assessment – Guidance for England and Scotland has been superseded by Natural England’s ‘An Approach to Landscape Character Assessment’.</p> <p>This LVIA has been prepared following the updated versions of these documents which are referred to in Appendix 29.2.</p>
<p><i>“The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant’s assessment should also take account of any relevant policies based on these assessments in local development documents in England.”</i></p>	Paragraph 5.9.5	Published character assessments for the study area and policies are referred to in section 29.5 of the LVIA.
<p><i>“The applicant’s assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character.”</i></p>	Paragraph 5.9.5	The effect on landscape components and landscape character during construction and operation are assessed in section 29.6 of the LVIA and Appendix 29.3 .
<p><i>“The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity.”</i></p>	Paragraph 5.9.7	The visual effect of the proposed East Anglia TWO project during construction and operation are assessed

NPS Requirement	NPS Reference	ES Reference
		in section 29.6 of the LVIA and Appendix 29.4 .
<p><i>“Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a project on landscape. Virtually all nationally significant energy infrastructure projects will have effects on the landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.”</i></p>	Paragraph 5.9.8	The quality, value and capacity of the landscape to accommodate change are considerations of the landscape assessment. The design of the proposed East Anglia TWO project has considered the potential impact on the landscape and includes embedded mitigation in the OLEMS (Figure 29.11a-b and Figure 29.12) which will be delivered in order to minimise harm by mitigation of landscape effects as presented in section 29.6 and Appendix 29.3 .
<p><i>“The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints.’ ... and paragraph 5.9.13 advises ‘The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent.”</i></p>	Paragraph 5.9.12 and 5.9.13	The potential for the proposed East Anglia TWO project to affect the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB), The Broads National Park (NP) and Registered Parks and Gardens (RPG), has been considered in section 29.6 of the LVIA and Appendix 29.3 .
<p><i>“Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England has policies based on landscape character assessment, these should be paid particular attention. However, local landscape designations should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.”</i></p>	Paragraph 5.9.14	The value of the local landscape is a consideration within the LVIA and assessed in respect of each landscape receptor in section 29.6 and Appendix 29.3 .
<p>In reaching a judgement <i>“The IPC [now the Planning Inspectorate and the Secretary of State] should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other</i></p>	Paragraph 5.9.17	Chapter 4 Site Selection and Assessment of Alternatives of the ES sets out the iterative process that has

NPS Requirement	NPS Reference	ES Reference
<i>relevant constraints, to minimise harm to the landscape, including by reasonable mitigation.”</i>		influenced the design of the proposed East Anglia TWO project. The mitigation of landscape and visual effects has been carefully considered in the LVIA, to minimise ‘harm to the landscape’ where possible.
<i>“It may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors. This may assist the IPC in judging the weight it should give to the assessed visual impacts of the proposed development.”</i>	Paragraph 5.9.19	East Anglia ONE and East Anglia THREE are examples of existing permitted onshore infrastructure which may have comparable landscape and visual impacts.
<i>“Within a defined site, adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within that site, design including colours and materials, and landscaping schemes, depending on the size and type of the proposed project. Materials and designs of buildings should always be given careful consideration.”</i>	Paragraph 5.9.22	Mitigation through detailed landscape proposals will be a consideration in terms of the mitigation of landscape and visual effects. These are presented in section 29.3.3.1 .
EN-3 NPS for Renewable Energy Infrastructure		
<i>“Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology.”</i>	Paragraph 2.4.2	Project design has avoided sensitive features where possible. Embedded mitigation measures are presented in section 29.3.3 .
EN-5 NPS for Electricity Networks Infrastructure		
<i>“New substations, sealing end compounds and other above ground installations that form connection, switching and voltage transformation points on the electricity networks can also give rise to landscape and visual impacts. Cumulative landscape and visual impacts can arise where new overhead lines are required along with other related developments such as substations, wind farms and/or other new sources of power generation.”</i>	Paragraph 2.8.2	The potential effects of the onshore substation, National Grid substation and overhead line modification have been assessed in the LVIA in section 29.6 and Appendices 29.3 and 29.4 .
<i>The impacts and costs of both overhead and underground options vary considerably between individual projects (both in absolute and relative terms). Therefore, each project should be assessed individually on the basis of its specific circumstances and taking account of the fact that Government has</i>	Paragraph 2.8.9	The potential effects of the onshore substation, National Grid infrastructure on the character of the AONB have been assessed in

NPS Requirement	NPS Reference	ES Reference
<p><i>not laid down any general rule about when an overhead line should be considered unacceptable. The IPC should, however only refuse consent for overhead line proposals in favour of an underground or sub-sea line if it is satisfied that the benefits from the non-overhead line alternative will clearly outweigh any extra economic, social and environmental impacts and the technical difficulties are surmountable. In this context it should consider:</i></p> <ul style="list-style-type: none"> <i>The landscape in which the proposed line will be set, (in particular, the impact on residential areas, and those of natural beauty or historic importance such as National Parks, AONBs and the Broads.</i> 		<p>the LVIA in section 29.6 and Appendix 29.3.</p>

29.4.1.2 Assessment Guidance

59. This methodology has been specifically devised by OPEN for the assessment of energy developments and accords with Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3). The following publications have been used for guidance and reference in preparation of the LVIA:

- The Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope;
- Landscape Institute and IEMA (2013) - Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3);
- Landscape Institute (2017). Visual Representation of Development Proposals;
- Natural England (2014). An Approach to Landscape Character Assessment; and
- Scottish Natural heritage (SNH) (2017) - Visual Representation of Wind Farms, Guidance (Version 2.2) (herein referred to as ‘SNH Visual Representation’).

29.4.2 Data Sources

60. Data has been gathered from official, reliable and the most up-to-date sources. This includes Ordnance Survey map-based data, as well as data on landscape characterisation, landscape designations and other Governmental and local authority data of relevance, including:

- EDF Energy, Suffolk Coast and Heaths AONB Partnership, Suffolk County Council, Suffolk Coastal District Council and Waveney District Council (2016) Suffolk Coast and Heaths AONB - Natural Beauty and Special Qualities Indicators.

- LDA Design (April 2018) Suffolk, South Norfolk and North Essex Preliminary Seascape Character Assessment.
- Ordnance Survey (2017) Terrain 50 DTM; Terrain 5 DTM; 1:50,000 scale colour raster.
- Suffolk Coast & Heaths AONB (2013) Suffolk Coast & Heaths AONB Management Plan 2013 – 2018.
- Suffolk Coast and Heaths AONB (2012) Touching the Tide Landscape Character Assessment.
- Suffolk County Council (2011) Suffolk Landscape Assessment.
- Waveney District Council (2008) Waveney District Landscape Character Assessment.

61. The full list of sources is set out in **Appendix 29.2**.

62. The desk study also utilises Geographic Information System (GIS) software to explore the potential visibility of the onshore infrastructure associated with the proposed East Anglia TWO project. The resultant ZTV diagrams provide an indication of which landscape and visual receptors are likely to be key in the assessment.

29.4.3 Impact Assessment Methodology

63. The methodology for the assessment of landscape and visual impacts of the proposed East Anglia TWO onshore project is set out in full in **Appendix 29.2**. A brief summary of the LVIA methodology is provided within this chapter as follows. The LVIA provides a project alone assessment of the landscape and visual impact of the proposed East Anglia TWO onshore infrastructure (and National Grid infrastructure) in **Appendix 29.3** (Landscape Assessment) and **Appendix 29.4** (Visual Assessment) and are summarised in **section 29.6** of this chapter.

64. The cumulative landscape and visual effects of the East Anglia TWO onshore infrastructure and East Anglia ONE North onshore infrastructure are assessed in **Appendix 29.5** and are summarised in **section 29.7** of this chapter.

29.4.3.1 Whole Project Impacts

65. The assessments presented in **Chapter 28 Seascape, Landscape and Visual Impact Assessment** and **Chapter 29 Landscape and Visual Impact Assessment** of the ES together provide a whole project assessment of the seascape, landscape and visual effects of the proposed East Anglia TWO project i.e. of both the offshore infrastructure and the onshore infrastructure.

66. The effect of the offshore infrastructure on specific offshore receptors (coastal viewpoints, seascape character areas etc) is assessed in **Chapter 28 Seascape, Landscape and Visual Impact Assessment**. The effect of the onshore infrastructure on specific onshore receptors (inland viewpoints, landscape character areas etc) is assessed in **Chapter 29 Landscape and Visual Impact Assessment**. **Chapter 28 Seascape, Landscape and Visual Impact Assessment** refers primarily to effects of the offshore infrastructure, while **Chapter 29 Landscape and Visual Impact Assessment** refers primarily to effects of the onshore infrastructure and should be read together as the de-facto whole project assessment of the proposed East Anglia TWO project. A further assessment of inter-related impacts in **section 28.11** of **Chapter 28 Seascape, Landscape and Visual Impact Assessment** assesses any areas where the offshore infrastructure and onshore infrastructure combine, or inter-relate, to have an impact e.g. on views from the coastal area near the landfall (between Sizewell and Thorpeness) and the combined effects of the offshore infrastructure and onshore infrastructure on the character of the Suffolk Coast and Heaths AONB.

29.4.3.2 Overview of Approach to LVIA

67. The LVIA deals with the effects of changes resulting from the proposed East Anglia TWO project on landscape as a resource, the views available to people and their visual amenity. The LVIA is undertaken using the following steps:

- The features of the onshore infrastructure associated with the proposed East Anglia TWO project that may result in landscape and visual effects are described;
- The overall scope of the assessment is defined, including the LVIA study area and range of possible landscape and visual effects, through the scoping report/process and through stakeholder consultation meetings with the LVIA ETG;
- The landscape baseline is established using landscape character assessment and the ZTV of the onshore infrastructure associated with the proposed East Anglia TWO project, to identify landscape receptors that may be affected and their key characteristics and values;
- The main LVIA in **Appendix 29.3** and **Appendix 29.4** considers effects of the proposed East Anglia TWO onshore infrastructure with a baseline that includes the Sizewell nuclear power stations, the Greater Gabbard and Galloper substations and the double rows of high voltage electrical pylons which extend west from Sizewell across the countryside within the LVIA study area;

- The visual baseline is established by identifying the extent of possible visibility (ZTV), identifying the people who may be affected and identifying visual receptors and selecting viewpoints;
 - A preliminary assessment is undertaken of landscape and visual receptors using site study, desk based study and ZTV analysis, to identify which landscape and visual receptors are and are not, likely to be significantly affected by the onshore infrastructure of the proposed East Anglia TWO project, and therefore require to be assessed in full;
 - Interactions are identified between the onshore infrastructure associated with the proposed East Anglia TWO project and landscape and visual receptors, to predict potentially significant effects arising and propose measures to mitigate effects;
 - An assessment of the susceptibility of landscape and visual receptors to specific change and the value attached to landscape receptors and views is undertaken, these judgements are combined to assess the sensitivity of the landscape and visual receptors to the onshore infrastructure of the proposed East Anglia TWO project;
 - An assessment of the size and scale of landscape effect, the degree to which landscape elements are altered and the extent to which the effects change the key characteristics of the landscape is undertaken, combining these judgements to assess the magnitude of change on the landscape receptor;
 - An assessment is undertaken of the size and scale of visual effect, the extent to which the change would affect views, whether this is unique or representative of a wider area, and the position of the onshore infrastructure associated with the proposed East Anglia TWO project in relation to the principal orientation of the view and activity of the receptor. These judgements are combined to assess the magnitude of change on the visual receptor; and
 - The assessments of sensitivity to change and magnitude of change is combined to assess the significance of landscape and visual effects.
68. The magnitude of change is then assessed (at 15 years post planting) as presented in **section 29.3.3.1** which results in the assessment of residual impact significance.

29.4.3.3 Defining Impact Significance

69. The objective of the assessment is to predict the likely significant effects of the proposed East Anglia TWO project on the landscape and visual resource. In accordance with the EIA Regulations, landscape and visual effects are assessed to be either significant or not significant. The LVIA does not define intermediate levels of significance as the EIA Regulations do not provide for these.

70. The significance of the effect on each landscape character receptor is dependent on all of the factors considered in the **sensitivity of the receptor** and the **magnitude of change** resulting from the proposed East Anglia TWO onshore infrastructure. Factors which influence levels of sensitivity and magnitude of change assessed in the LVIA are set out in full in **Appendix 29.2**.
71. Judgements on sensitivity and magnitude of change are combined to arrive at an overall assessment as to whether the proposed East Anglia TWO project would have an effect that is significant or not significant on each landscape and visual receptor. An assessment of the factors considered in the evaluation of the sensitivity of each landscape and visual receptor and the magnitude of the change resulting from the proposed East Anglia TWO project is presented, in order that the relevant considerations which have informed the significance can be considered transparently. The matrix in **Table 29.5** helps to inform the threshold of significance when combining sensitivity and magnitude to assess significance.

Table 29.5 Impact Significance Matrix

		Magnitude of change					
		High	Medium-high	Medium	Medium-low	Low	Negligible
Sensitivity	High	Significant	Significant	Significant	Significant or not significant	Not significant	Not significant
	Medium-high	Significant	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant
	Medium	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant
	Medium-low	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant	Not significant
	Low	Significant or not significant	Not significant	Not significant	Not significant	Not significant	Not significant

29.4.3.4 Geographical Extent

72. The geographic extent over which the landscape and visual effects would be experienced is also assessed, which is distinct from the size or scale of effect. This evaluation is not combined in the assessment of the level of magnitude, but instead expresses the extent of the receptor that would experience a particular magnitude of change and therefore the geographical extents of the significant and non-significant effects.

73. The extent of the effects varies depending on the specific nature of the onshore infrastructure and is principally assessed through analysis of the extent of perceived changes through visibility of the onshore infrastructure.

29.4.3.5 Duration and Reversibility

74. The duration and reversibility of landscape and visual effects is based on the period over which the onshore substation, onshore cable route and landfall of the proposed East Anglia TWO project are likely to exist and the extent to which they would be removed, and their effects reversed at the end of that period. Duration and reversibility are not incorporated into the overall magnitude of change and are stated separately in relation to the assessed effects. Long-term, medium-term and short-term landscape and visual effects are defined as follows:

- Long-term – more than 10 years.
- Medium-term – 5 to 10 years.
- Short-term – 1 to 4 years.

75. Landscape and visual effects are assessed as either permanent or temporary. Permanent effects are those which are irreversible, such as the permanent or long-term (>10 years) land take as a result of development or the physical removal of existing landscape elements that cannot be reinstated. Temporary effects are those which are reversible, such as the short to medium-term (<10 years) effects, occurring during construction, or where the physical removal of landscape elements can be reinstated, or a temporary visual effect that occurs over the short to long-term, until it is ultimately mitigated by the growth/height of new woodland planting.

76. OPEN's methodology does not include duration and reversibility as part of magnitude of change, as there is potential that the reversibility aspect could alter or reduce potentially significant effects even though they are long-term. Duration and reversibility are not incorporated into the assessment of magnitude of change, but are stated separately in relation to the assessed effects (i.e. as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

29.4.4 Cumulative Impact Assessment

77. In accordance with guidance (SNH 2012), the cumulative LVIA undertaken in this ES assesses the combined landscape and visual effect of a set of developments taken together.

78. The cumulative LVIA in **Appendix 29.5** and summarised in this chapter considers the effects of the proposed East Anglia TWO onshore infrastructure cumulatively with the proposed East Anglia ONE North onshore infrastructure. The cumulative effects assessment focuses on the combined (or total) effect of the proposed East Anglia TWO and East Anglia ONE North onshore infrastructure since the applications for both projects are being submitted at the same time and it is the combined effect of both projects that is likely to be of interest to stakeholders (rather than the additional/incremental effect of the proposed East Anglia TWO project being assessed, on top of a baseline with the other project).
79. Construction stage cumulative impact assessment scenarios of the East Anglia TWO onshore infrastructure and East Anglia ONE North onshore infrastructure are assessed in **Appendix 29.5** and summarised in **section 29.7** of this chapter in two scenarios:
- Scenario 1 – East Anglia TWO and East Anglia ONE North onshore infrastructure are constructed at the same time.
 - Scenario 2 – East Anglia TWO onshore infrastructure is built entirely and the land re-instated, then East Anglia ONE North onshore infrastructure is constructed.
80. A further cumulative scenario is then assessed in **Appendix 29.5** and summarised in **section 29.7** of this chapter – the effects of the proposed East Anglia TWO and East Anglia ONE North onshore infrastructure with Sizewell C, EDF Energy's proposals for a new nuclear power station.
81. The operational phase cumulative landscape and visual impact will be the same irrespective of the construction scenario and assesses the impact of the operation of the East Anglia TWO onshore substation, East Anglia ONE North onshore substation and National Grid infrastructure.

29.4.5 Transboundary Impact Assessment

82. Transboundary effects have been scoped out of the LVIA since there is no potential for transboundary landscape and visual effects to arise as a result of the onshore infrastructure of the proposed East Anglia TWO project.

29.4.6 Visual Representations

83. The methodology for the production of visual representations (photomontages and Zone of Theoretical Visibility (ZTVs)) of the onshore substation and National Grid infrastructure is set out in full in **Appendix 29.2**.
84. Photomontages of the onshore substation and National Grid infrastructure have been produced in accordance with SNH Visual Representation of Windfarms

Guidance (SNH February 2017) and the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA 3) (Landscape Institute and IEMA 2013).

85. The Rochdale envelope 3D model representations of the onshore substation and National Grid substation shown in the photomontage visualisations are discussed in **section 29.3.2**.
86. The photomontage visualisations in **Figures 29.13 – 29.26** show the predicted view of the onshore substations and National Grid infrastructure with recently planted trees, in the first year of planting as the ‘without mitigation’ scenario. The photomontages also provide a visual representation of the onshore substations and National Grid infrastructure together with proposed woodland mitigation planting proposed in the OLMP (**Figure 29.11a-b** and **Figure 29.12**) at approximately 15 years post planting with fully established trees across the woodland planted areas as described in **section 29.3.3.1**, coming into maturity and providing screening of the onshore substation and National Grid infrastructure. The methodology, assumptions and limitations of these photomontage visualisations is described in full in **Appendix 29.2**.

29.5 Existing Environment

87. An understanding of the existing environment, combined with an overview of the sensitivities of receptors to the proposed East Anglia TWO project, act to identify those receptors that are susceptible to being significantly affected and, this has assisted in defining the scope of the LVIA as set out in the Preliminary Assessments (**Appendix 29.3** and **Appendix 29.4**). For those landscape and visual receptors, identified in the Preliminary Assessment to have the potential to undergo significant effects, a detailed baseline description for each receptor is presented in the Technical Assessments (**Appendix 29.3** and **Appendix 29.4**).
88. The detailed baseline descriptions provide an understanding of the landscape in the area that may be affected – its constituent elements, its character, distinctiveness, condition and value, and the way this varies spatially. The key characteristics and value of each relevant receptor is set out, covering key features and patterns of the landform, land-cover and land-use that make the landscape or views of these areas distinctive.
89. The baseline also describes current pressures that may cause change in the landscape in the future, in particular drawing on information for developments that are not yet present in the landscape but are at other stages in the consenting process. Operational and under construction developments will be regarded as part of the baseline landscape character of the area. Any changes resulting from

the onshore infrastructure of the proposed East Anglia TWO project are assessed with consideration of this context.

90. This section presents an overview of the landscape elements, landscape character types, landscape designations and visual receptors that make up the LVIA study area, in order to 'set the scene' for the assessment. Desk-based studies have been supplemented with on-site observations to verify the documented landscape and visual receptor descriptions and boundaries.

29.5.1 Landscape Elements

91. Landscape elements are the physical components which make up the site, for example the agricultural land, heathland or woodland that covers the site, as well as other features such as hedgerows, shelter belts or watercourses. The assessment considers the direct impacts on the landscape elements of the site as a result of the onshore infrastructure, such as the removal of trees or alteration to ground cover.
92. As the site covers an elongated area from the landfall, along the onshore cable route to the onshore substation and National Grid infrastructure, a variety of landscape elements would be affected, in particular, during the construction phase. The careful routing of the onshore cable route ensures that the majority of the route will pass through agricultural land. As this land has been modified through cultivation for many centuries, it is not as sensitive to the construction impacts of the onshore cable route as land that remains natural or semi-natural, such as the heathlands nearer the coast. The routing also avoids where possible the sensitive landscape elements of woodland, hedgerows, shelter-belts and watercourses.
93. The potential effects on the landscape character of the main landscape elements, resulting from the onshore infrastructure, are assessed in **Appendix 29.3**, with the findings summarised in **section 29.6** of this chapter.

29.5.2 Landscape Character

94. Effects on landscape character arise either through the introduction of new elements that physically alter the pattern of elements that makes up landscape character, or through visibility of the proposed East Anglia TWO project, which may alter the way in which the pattern of elements is perceived. Landscape character principally applies to terrestrial areas lying to the landward side of the high-water mark. There is a hierarchy of published Landscape Character Assessments (LCAs) that describe the baseline landscape character of the landscape in the LVIA study area, at the national, county and district level.

95. The English landscape is classified at the national level by 159 National Character Areas (NCAs) originally identified by the Countryside Agency. This mapping and the associated descriptions have been revised and developed by Natural England into NCA profiles (Natural England, 2014), which provide a recognised, national, spatial framework. The eastern part of the LVIA study area is located within the Suffolk Coast and Heaths NCA (82) and the western part is located in the South Norfolk and High Suffolk Claylands NCA (83) as shown on **Figure 29.2**.
96. The Suffolk Coast and Heaths NCA (82) is located on the North Sea coast, forming a long, narrow band of coast, heath and farmland landscape that extends inland from the coast. The shingle beaches and cliffs of the coast and the lowland heaths form distinctive features, although traditional heath is now highly fragmented. Farming now utilises much of the total land area. Sizewell A and B Nuclear Power Stations are located on the coast within the NCA, immediately to the north of the onshore cable route. The contrast is distinctive between these landscapes shaped by people for farming and energy generation, with areas of coast, heathland and plantation woodland that are valued highly for their ecology and wildlife.
97. The Norfolk and High Suffolk Claylands (83) is located to the west and adjacent to the inland edge the Suffolk Coast and Heaths NCA (82), covering the western part of the LVIA study area to the west of Leiston. Above all, this is a farming landscape, with a strong utilitarian and rural character, evoked in its irregular field patterns. It is a long-settled landscape, with nucleated villages intermixed with dispersed hamlets and farmsteads. Large areas of woodland are relatively scarce, but the extent of scattered smaller woodlands, hedges and hedgerow trees are still notable elements in the landscape, often confining views.
98. Landscape Character Types (LCTs) defined in the Suffolk County Council Landscape Character Assessment (Suffolk County Council, 2008/2011) define the baseline for the LVIA study area, as agreed during ETG consultations, and are shown in **Figure 29.2**. The LVIA study area is comprised of a number of LCTs from the Suffolk County LCA, but the onshore infrastructure is located within four LCTs, as shown in **Figure 29.2**:
- Ancient Estate Claylands – onshore substation and National Grid substation;
 - Coastal Dunes and Single Ridges – landfall;
 - Coastal Levels – onshore cable route crossing of the Hundred River Valley; and
 - Estate Sandlands – landfall, onshore cable route and partially the National Grid substation.

99. The Ancient Estate Claylands LCT covers the eastern part of the LVIA study area where part of the onshore cable route, the onshore substation and National Grid substation would be located. The LCT comprises a broad and generally flat plateau landscape. The rivers draining east and south through this part of the Suffolk landscape, have dissected the edge of the claylands plateau into a series of 'fingers'. The Ancient Estate Claylands LCT is mostly used as farmland with medium to large fields enclosed by hedgerows, hedgetrees and trees, with also intermittent blocks of woodland. While the plateau landform ensures some longer and more open views occur, a much more intimate character is created by the enclosed nature of much of this landscape. Small villages and town occur across this landscape.
100. The Coastal Dunes and Shingle Ridges LCT occurs as a narrow band along the coastal edge of the LVIA study area. The LCT is characterised by flat or gently rolling shingle ridges and coastal dunes, formed through coastal erosion and longshore drift. There is little vegetation and the coastal landscape is open, with expansive views seaward and also often landward. Sea defence structures on the shingle beaches and military defence structures in the sand dunes, stand out as apparent interventions in this otherwise, simple and natural landscape.
101. The Coastal Levels LCT occurs in one small area in the south of the LVIA study area, associated with Hundred River. While this LCT is principally characterised by the flat and low-lying, marshland associated with the coast and estuaries, the area that occurs in the LVIA study area has mostly been reclaimed for farming. The fields are small and geometric with drainage ditches and occasional dykes and used mostly for grazing livestock. Woodland and settlement occur along the edge of the Hundred River making views typically enclosed.
102. The Estate Sandlands LCT covers most of the LVIA study area, extending from the east to the west. This LCT covers much of the coastal area and is characterised by flat or gently undulating plateaux. The natural vegetation of this LCT is heathland or acid grassland, suited to the freely-draining sandy soils and the general absence of watercourses. The use of irrigation gradually enabled this landscape to be converted into arable farmland, with also widespread wooded shelter-belts and plantations. While settlement is generally sparse, Sizewell Nuclear Power Station forms a distinctive industrial feature.
103. The Suffolk Coastal LCA (Suffolk Coastal District Council, 2018) provides a more detailed appraisal of landscape character areas within the LCTs identified in Suffolk County LCA. The key characteristics of landscape character areas from the Suffolk Coastal LCA are also referred to in the LVIA, in order to further describe the sense of place and distinctiveness of the Suffolk County LCTs, particularly those in which the onshore substation and National Grid substation

are located. The Suffolk Coastal LCA identifies the landscape character areas in which the onshore substation and National Grid substation are located, as the Heveningham and Knodishall Estate Claylands (L1) and the Aldringham and Friston Sandlands (K3). The key characteristics that are locally distinctive in the Friston area (in the area around the onshore substations), are described as follows, with reference to field surveys undertaken as part of the LVIA and the Suffolk Coastal LCA:

- The characteristic arrangement of the parish consisting of Friston village, church, village green and detached parishes, such as Fristonmoor, which is typical in Suffolk.
- The visual relationship between the detached parish of Fristonmoor and the village to the south, which is visually connected in views to Friston church and through the existing public right of way (PRoW) between the village and parish.
- Areas of land that have the appearance of common on the village edge provide texture and interest.
- The network of small-scale fields to the north of Friston, with strong hedgerow field boundaries and scattered mature deciduous field boundary trees are locally distinctive features. The enclosure pattern is generally ancient, but the field patterns tend to be straight and regularised.
- Quiet farmland, with a simple, rural character but a strong sense of agri-business land use evident amongst the medium to large fields towards Fristonmoor and Little Moor Farm.
- A network of historic green lanes, most of which have been lost to agricultural intensification and PRoWs through the field systems.
- Scattered listed farm building buildings, some of which with local vernacular architecture of dark weatherboard and red pantiles, contribute to the sense of place.
- There are several ancient farms with 'Hall' or 'Manor' in their names, including Friston Hall and Manor Farm. Friston House is a grade II listed building set in mature woodland on the northern edge of the village.
- There are large-scale modern agricultural buildings in the local landscape, particularly those at Redhouse Farm.
- Gently undulating landform, formed by relatively flat fields to the west of Grove Road/north of Friston, which rises gradually to the north towards Fristonmoor.
- Some variety in visual experience, from more open areas around Fristonmoor with views south to Friston, compared to more enclosed areas in and around the edges of Friston and parts of Grove Road, where strong hedgerows and mature woodland provides visual containment.

- Woodland, roadside trees, hedges and field boundary vegetation are often present and form a notable component of the tree cover.
 - Woodland blocks are also present and numerous. In particular the ancient woodland at Grove Wood (and the adjoining Laurel Covert) provides a distinctive wooded backdrop in the setting of Friston and the surrounding agricultural fields.
 - Double row of overhead pylons and electrical lines crosses the landscape between the village of Friston and Fristonmoor, form notable visual elements in the local setting and due to their larger vertical scale and form tend to distort the sense of scale in the landscape.
 - The boundary of Ancient Estate Claylands and Estate Sandlands to the north of Friston is not definitive but suggests a transition in character.
104. More detailed baseline descriptions of these four LCTs are presented in the Technical Assessments contained in **Appendix 29.3**, along with the assessment of potential effects on the landscape character, resulting from the onshore infrastructure. The findings are summarised in **section 29.6** of this chapter. Geographic units within these Suffolk County LCTs (Ancient Estate Claylands; Estate Sandlands; Coastal Dunes and Shingle Ridges; and Coastal Levels) are also identified in the assessment e.g. Area 1a, 1b etc, in order to differentiate between different types/levels of effect occurring within each LCT.

29.5.3 Landscape Designations

105. There are two landscape designations which are of relevance to the LVIA and which all lie partly within the LVIA study area, as shown on **Figure 29.3**:
- Suffolk Coast and Heaths AONB; and
 - Hundred River Valley Special Landscape Area (SLA).
106. The Suffolk Heritage Coast is largely within the AONB and its protection policies are now incorporated into the AONB Management Plan. It is considered in this LVIA within the assessment of the AONB and as part of this 'landscape designations' section, although it should be noted that the Suffolk Heritage Coast is defined, not designated, and is subject to management agreements between Natural England and Local Authorities, as described in **section 29.5.3.2**.

29.5.3.1 Suffolk Coast and Heath AONB

107. The eastern part of the LVIA study area is located within the nationally designated Suffolk Coast and Heaths AONB, as shown on **Figure 29.3**. The AONB largely covers the Suffolk Coast and Heaths NCA (82) between Lowestoft and

Felixstowe, but within the LVIA study area covers land along the River Alde and the coast between Aldeburgh, Thorpeness, Sizewell and Dunwich.

108. The unique character of the AONB is a product of its underlying geology, shaped by the effects of the sea and the interaction of people with the landscape. It is a mainly flat or gently rolling landscape, often open but with few commanding viewpoints. In many places, and especially near the coast, habitats and landscape features lie in an intimate mosaic, providing great diversity in a small area.
109. The AONB comprises mainly farmland. Other main components of the landscape are forestry plantations, low-lying freshwater marshes, intertidal estuaries, heathland, the coast, small villages and iconic coastal market towns. The area is probably best known for the particularly distinctive features of the coast and lowland heath which give the AONB its name. Where it joins the sea, the AONB consists of predominantly shingle beaches, often extensive in nature, and backed in places by sandy cliffs. The coastline is interrupted by five river estuaries (Blyth, Alde/Ore, Deben, Orwell and Stour) with extensive wildlife-rich intertidal areas of mudflat and saltmarsh. In some places, old estuary mouths have become blocked, creating large areas of brackish or freshwater marshland of significant wildlife value. Centuries old river walls were created to reclaim intertidal areas from the estuaries. These areas claimed from the sea are now important for agriculture.
110. The area's heathland, known locally as the Sandlings and now much fragmented, follows the line of the coast. Large areas that were once Sandlings heath have been converted to farmland, planted as coniferous forests or developed for housing or military airfields, particularly during the 20th century. The Suffolk Coast and Heaths AONB remains a lightly populated, undeveloped area, popular for outdoor recreation and tourism. The area is valued for its tranquillity, the quality of the environment and culture and for its wildlife.
111. The main LCTs that make up the Suffolk Coast and Heaths AONB are:
 - Coastal Dunes and Shingle Ridges (LCT 05);
 - Coastal Levels (LCT 06);
 - Open Coastal (LCT 08) and Wooded Fens (LCT 29);
 - Estate Sandlands (LCT 07);
 - Estate Farmlands (LCT 11 and 15);
 - Rolling Estate Sandlands (LCT 16);
 - Saltmarsh and Intertidal Flats (LCT 20); and
 - Valley Meadowlands (LCT 26).

112. A landscape baseline of the Suffolk Coast and Heaths AONB is described in full in **Appendix 29.3**, referring to these LCTs from the Suffolk Landscape Assessment, the AONB Management Plan and the AONB Special Qualities report (EDF Energy, Suffolk Coast and Heaths AONB Partnership, Suffolk County Council, Suffolk Coastal District Council and Waveney District Council, 2016). A full baseline description of the AONB, its special qualities and the potential effects from the onshore infrastructure, are assessed in the Technical Assessment of **Appendix 29.3**, with the findings summarised in **section 29.6** of this chapter.
113. For the purpose of the assessment presented in **section 29.6**, the AONB has been divided into three 'Areas' in order to demonstrate the difference in effects that may occur at different locations within the AONB. These 'Areas' are shown on **Figure 29.8** and are as follows:
- Area A – AONB between Thorpeness, Sizewell and Leiston;
 - Area B – AONB between Thorpeness, Aldeburgh and Snape; and
 - Area C – AONB between Sizewell and Dunwich Forest.

29.5.3.2 Suffolk Heritage Coast

114. The Suffolk Heritage Coast is located within the LVIA study area and is largely contained within the AONB. The Technical Assessment in **Appendix 29.3** describes and assesses the effects of the onshore infrastructure of the proposed East Anglia TWO project on the special characteristics and qualities of the Suffolk Heritage Coast as part of the assessment of the AONB.
115. The Suffolk Heritage Coast is located within the LVIA study area, as shown on **Figure 29.3**. The Suffolk Heritage Coast was defined in 1973 and is largely contained within the AONB. It runs from Kessingland to Felixstowe and incorporates the Blyth, Alde/Ore and lower Deben estuaries. There are no statutory requirements or powers associated with the Heritage Coast definition, however it is noted that it includes objectives for conserving the environmental health and biodiversity of inshore waters and beaches, and to extend opportunities for recreational, educational, sporting and tourist activities that draw on, and are consistent with, the conservation of their natural beauty and the protection of their heritage features. The purpose of Heritage Coast is similar to that of an AONB. As its geographic area is largely within the AONB and its protection policies are now incorporated into the AONB Management Plan, the effects on the Suffolk Heritage Coast are considered as integral to this assessment of the AONB.

29.5.3.3 Hundred River Valley SLA

116. Special Landscape Areas (SLAs) are a county wide designation under “saved” policy AP13 of the Suffolk Coastal District Plan, which provides policy protection to areas within Suffolk with special landscape attributes which are particularly vulnerable to change. They include some river valleys which still have traditional grazing meadows and marshes with their hedgerows, dykes and associated flora and fauna and Historic Parklands. The valleys of the Rivers Alde, Blyth, Deben, Fynn, Hundred, Mill, Minsmere, Ore and Yox together with their tributaries have been identified as SLAs. All of these are located outside the onshore LVIA study area, with the exception of the Hundred River Valley SLA, which is located along the Hundred River through Aldringham, as shown in **Figure 29.3**.
117. A baseline description of the Hundred River Valley SLA and the potential effects resulting from the onshore infrastructure, are assessed in the Technical Assessment of **Appendix 29.3**, with the findings summarised in **section 29.6** of this chapter.

29.5.4 Visual Receptors and Views

29.5.4.1 Zone of Theoretical Visibility

118. Visual effects occur where the onshore infrastructure change or influence the visual amenity and views experienced by people in the LVIA study area. ZTVs of the onshore substation and National Grid infrastructure are shown on **Figure 29.7** to **29.9**. The ZTVs show the main areas in which the onshore substation and National Grid infrastructure would theoretically be visible. The ZTVs help to highlight those visual receptors that may be affected and assist in the identification of viewpoints. Actual visibility is typically more limited in extent owing to further screening effects of hedgerows, tree cover and built form which may not be taken into full account in the production of the ZTV. Field work has been undertaken to verify which viewpoints actual visibility would be experienced from.
119. ZTVs have not been produced for the landfall and onshore cable route owing to the predominantly subterranean or temporary nature of the infrastructure being constructed. The generally limited vertical scale of the construction works, combined with the extent of hedgerow and woodland enclosure across much of the LVIA study area means that the extent of visibility, of the onshore cable route in particular, is relatively limited and contained to the onshore cable route and its immediate periphery. Field work has informed an understanding of the extent to which the landfall and onshore cable route would be visible.

29.5.4.2 Views and Visual Receptors

120. The visual receptors most susceptible to visual effects arising as a result of the onshore infrastructure, occur within the LVIA study area and in particular, in the

vicinity of the onshore substation and National Grid infrastructure. They include people within settlements, and those driving on roads, visitors to tourist facilities or historic environment assets, and people engaged in recreational activities such as walking and cycling. Principal visual receptors are shown on **Figure 29.4**.

121. The Preliminary Assessment (**Appendix 29.4**), identifies those visual receptors with potential to undergo significant effects as a result of the onshore infrastructure. Baseline descriptions of these visual receptors are presented in the Technical Assessments (**Appendix 29.4**), along with the assessment of potential effects on the visual amenity resulting from the onshore infrastructure. The findings are summarised in **section 29.6** of this chapter. Presented below is an overview of the existing environment and principal visual receptors which occur in the LVIA study area.
122. Views experienced within the LVIA study area are influenced by the landform and features such as woodlands and built development. Views tend to be open, but with few commanding viewpoints or longer distance views, due to the gently undulating landform. The exceptions to this occur in views from the Suffolk Coastal Path, which affords panoramic views out to sea and along the coast. Within the LVIA study area, these views are influenced by the contrasts between coastal features, shingle beaches, cliffs, heathlands and plantation woodlands, with distinctive built elements including Sizewell A and B Nuclear Power Stations. The domed roof of Sizewell B is a landmark in views both along the coast, and towards the coast from inland areas. The double rows of high voltage electrical pylons which extend west from Sizewell also form notable features in views across the countryside within the LVIA study area. Views are often relatively contained by large woodland plantations, smaller scattered woodland, hedges and hedgerows trees, which combine to provide enclosure and containment along with the undulating landscape and existing built development.
123. The settlement of Leiston is located adjacent to the northern edge of the LVIA study area, with a ribbon of urban development extending south to Aldringham and Knodishall. Saxmundham is another town located out with the western edge of the LVIA study area. The tourist destinations of Thorpeness and Aldeburgh are located on the Suffolk coast in the east of the LVIA study area, and the rural village of Friston is located in the south-west.
124. The construction works associated with the landfall would be viewed in a coastal context within the immediate area of coastline within the LVIA study area, between Sizewell and Thorpeness. In respect of the landfall, the principal visual receptors will be people walking on the Suffolk Coastal Path and Sandlings Walk, between Sizewell and Thorpeness, people visiting Sizewell Beach and Sizewell

Hall, and potentially residents at dwellings such as Dower House, Ness House and on the northern edges of Thorpeness.

125. The construction and operation of the onshore infrastructure would be viewed by these visual receptors near the coast, between Sizewell and Thorpeness, together with visual receptors located further inland within the LVIA study area. In respect of the onshore infrastructure, the principal visual receptors would be people walking on the Suffolk Coastal Path, the Sandlings Walk and other public rights of way in close proximity. Views of the onshore infrastructure may also be experienced by residents of settlements such as Leiston, Aldringham, Knodishall, Thorpeness and Friston, residents of scattered individual farm houses and estates, and by motorists travelling on the network of 'B' roads within the LVIA study area including the B1353, B1069 and B1122 as shown on **Figure 29.4**.
126. The assessment presented in **Appendix 29.4** provides a full description of the principal visual receptors with potential to undergo significant effects as a result of the onshore infrastructure.

29.5.4.3 Viewpoints

127. Consultations with the LVIA ETG has led to the agreement of viewpoint locations for use in the LVIA of the onshore substation and National Grid infrastructure, as listed in **Table 29.6** and shown on **Figure 29.4**.
128. Representative viewpoints are selected to represent the experience of different types of visual receptor where larger numbers of viewpoints cannot all be included. Full written analysis of visual effects from these representative viewpoints is undertaken in the Technical Assessment (**Appendix 29.4**) for those viewpoints that may experience significant visual effects, while other viewpoints are scoped out in the Preliminary Assessment where no potential for significant effects has been identified. Visual representations of the onshore substation and National Grid substation have been produced, in **Figures 29.13 – 29.26** which show the location and baseline view panorama from each of the agreed viewpoints.
129. Illustrative viewpoints are included and listed in **Table 29.6** to demonstrate wider views or specific issues. These viewpoints were requested in consultations with the technical working group, and demonstrate the limited visibility of the onshore substation and National Grid substation from the wider study area. Baseline view panoramas are presented from these illustrative viewpoints in **Figures 29.27 - 29.32**.

130. Viewpoints and photomontage visualisations have not been produced for the landfall or onshore cable route, owing to their underground location during the operational period.

Table 29.6 Viewpoints Included in Onshore LVIA

Viewpoint		Grid Reference	Distance from the East Anglia TWO onshore substation (km)	Distance from the National Grid substation (km)
Representative viewpoints				
1	Public Right of Way near Friston House	E641169 N260794	0.4	0.35
2	Friston, Church Road	E641319 N260543	0.54	0.6
3	Grove Road, near Pear Tree Farm	E641657 N261801	0.5	0.45
4	Friston, Grove Road	E641498 N260531	0.54	0.67
5	Public Right of Way, near Moor Farm	E640884 N261654	0.65	0.47
6	Friston, Village Green	E641198 N260337	0.78	0.81
7	Public Right of Way, east of Friston	E641877 N260560	0.64	0.85
8	B1121 Saxmundham Road, north of Friston	E640477 N260862	0.96	0.77
9	B1121 Aldeburgh Road, south of Friston	E641458 N259905	1.15	1.25
10	B1119 Saxmundham Road	E641095 N262490	1.24	1.1
11	Knodishall Hall	E642535 N261903	1.17	1.21
12	Knodishall Common	E642952 N260979	1.33	1.52
13	B1069 Snape Road	E642372 N259880	1.48	1.68
14	Grove Road	E641619 N261025	0.11	0.33
Illustrative viewpoints				
Illustrative viewpoints demonstrate wider views or specific issues; baseline view panoramas are produced, but written analysis of the impacts not required for LVIA.				

Viewpoint		Grid Reference	Distance from the East Anglia TWO onshore substation (km)	Distance from the National Grid substation (km)
A	Aldringham Court	E644564 N260581	2.99	3.18
B	Watch Walk Whin, PRow near Coldfair Green	E642614 N260605	1.13	1.33
C	Sandlings Walk, South of the Old School	E642515 N261097	0.87	1.06
D	Saxmundham Road B1119, Junction with PRow	E642031 N262769	1.53	1.48
E	Sloe Lane, Sandlings Walk to west of Friston Hall	E639871 N260043	1.9	1.74
F	PRow to east of Wood Farm, Saxmundham	E639803 N262527	2.04	1.84

29.5.5 Anticipated Trends in Baseline Condition

131. The baseline character of the landscape in the LVIA study area is likely to change in the future as a result of the effects of climate change, land use policy, environmental improvements and development pressures, regardless of whether the proposed East Anglia TWO project progresses to construction or not.
132. A range of policies impact on the management of the landscape, ranging from European Directive, national policy and regulation, through to community strategies and development frameworks. Landscape planning policies covering the coastal landscape within the study area, such as the AONB, generally seek to conserve and enhance the natural beauty of the area, while recognising the need to adapt to inevitable change over time, particularly in such a dynamic coastal landscape shaped by coastal processes, and the need to respond to development pressures that reflect the changing needs of society.
133. There is overwhelming evidence that global climate change is occurring. Any notable change in climate is likely to present potential changes to the coastline of the study area in a variety of ways. The legislative framework already exists to ensure that no net loss of internationally important habitat occurs, but there remains a need to increase understanding of the potential effects of climate change on the characteristic landscapes of the study area and to develop longer term strategies that will mitigate any adverse effects of climate change.

134. Suffolk County Council has produced 'Suffolk Climate Action Plan 3' (2017) which presents a summary of the County's climate change strategy. The Action Plan states *'Extremes of weather are fast becoming the 'new normal', which presents particular challenges to this, the most vulnerable region in the UK to the impacts of climate change, and the most low-lying with up to 30 per cent of land below sea level.'* In respect of the study area associated with East Anglia TWO, higher sea levels may affect the Suffolk coastline, with some coastal areas predicted to be lost to the sea. Droughts and flooding may affect the productivity of agricultural land and the stability of farm businesses, while woodlands and other semi-natural landscapes, may be affected both in dry periods and wet periods, with long-term water-logging in low-lying parts presenting a particular problem.
135. The nationally designated AONB landscape within the LVIA study area is subject to changes implemented from the aims and objectives of the Suffolk Coast and Heaths AONB Management Plan (Suffolk Coast and Heaths AONB 2013 - 2018). The baseline conditions of this AONB landscape are likely to change gradually over time in response to the implementation of actions set out in the AONB Management Plan (Section 5).
136. Recent development management decisions / planning decision precedent has established and accepted landscape change from offshore windfarm development in the seascape just outside the LVIA study area and is creating pressure for onshore infrastructure required to connect these large scale offshore windfarms. Greater Gabbard and Galloper substations are operational and located near to Sizewell. There are other offshore windfarms under construction or proposed in the offshore waters outside the LVIA study area. The proposed East Anglia TWO project fits with the current approach to accommodate energy generation and transmission in the landscape.
137. EDF Energy's proposals for a new nuclear power station, Sizewell C, to north of Sizewell B are within the onshore study area and may have a notable change to the baseline landscape and visual conditions of the area to the north of the existing Sizewell Power Station, with proposals for a new nuclear power station, accommodation campus, new road and rail access and beach landing facility outlined in the Stage 2 consultation summary document (EDF 2016).
138. Further development pressures which may change the baseline conditions, include suburbanisation and increased tourist development influences, particularly around the coastal landscapes and established coastal towns within the study area, which have potential to increase the developed influence and reduce perceived naturalness of the coastline.

29.6 Potential Effects

29.6.1 Potential Effects during Construction

139. The potential effects during construction would occur in relation to the construction of the landfall, onshore cable route, onshore substation and National Grid infrastructure and will include potential effects on the landscape character and visual amenity. The impacts would relate principally to the construction process, and presence of associated plant, materials, infrastructure and temporary structures, as well as the presence of emerging onshore substation and National Grid infrastructure structures, where they would be visible above ground.
140. **Appendix 29.3** and **Appendix 29.4** set out a Preliminary Assessment followed by the Technical Assessments of the potential for landscape and visual receptors within the LVIA study area to be significantly affected as a result of the onshore infrastructure associated with the proposed East Anglia TWO project. In respect of potential effects during the construction phase, the summarised findings of these assessments are presented below in this chapter.

29.6.1.1 Potential Effects During Construction - Landfall

141. The landfall would be located close to the Suffolk Coast, on an inland area to the north of Thorpeness and south of Sizewell. The construction works at the landfall would comprise a landfall CCS, HDD temporary working area and two transition bays. The commitment to a landfall HDD would mean that all of the construction works would be offset inland from the coastal edge. No above ground works or access would be required to the dunes / shingle beach below the low cliffs, such that the recreational use and visual amenity would be protected.

29.6.1.1.1 Landscape Effects – Landfall

142. The construction of the landfall will result in **not significant** effects on the landscape character of the Coastal Dunes and Shingle Ridges LCT or the Estate Sandlands LCT as a whole, however there would be a **short-term significant** effect in the very localised landscape within and immediately around the landfall. There is potential for direct changes to the physical landscape elements of this localised area of the Estate Sandlands LCT and the Suffolk Coast and Heaths AONB (as detailed in **Appendix 29.3**), resulting from the HDD temporary working area, landfall CCS and construction of transition bays, to the north of Thorpeness. There is likely to be a physical loss of hedgerow within the footprint of the landfall CSS and HDD temporary working area. In the setting of the low coastal cliffs at the landfall, the addition of elements (temporarily during the construction period) will change the simple landscape composition and result in some changes to the sense of isolation at the coastal edges of this localised area of the Estate

Sandlands LCT and Suffolk Coast and Heaths AONB (Area A) (**Figure 29.8**) near the landfall.

29.6.1.1.2 Visual Effects - Landfall

143. The construction of the landfall will also result in **not significant**, short-term and temporary effects on the views experienced by residents of the northern and western edges of Thorpeness; and views experienced by motorists travelling on a short section of the B1353 to the west of Thorpeness. The construction of the landfall will only result in **significant**, short-term and temporary effects on views experienced by people walking on short sections of the Suffolk Coastal Path and Sandlings Walk, where the route of these paths passes in close proximity to the landfall construction works. Visible landfall construction works which are likely to result in change to views from localised areas of these footpaths consist of construction consolidation sites, installation of HDD compound and transition bays within the landfall and vehicles/machinery in use temporarily, during the construction period.
144. The visual effects of the landfall construction works will be temporary and short-term during the construction period, due to the reinstatement of the majority of the land and landscape elements at the end of the construction period.
145. The potential landscape and visual effects of the landfall during construction are summarised in **Table 29.7** below, which summarises the assessment for each landscape and visual receptor in respect of the potential effects of the landfall during construction.

Table 29.7 Summary of Potential Effects During Construction - Landfall

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Landscape Effects			
LCT05 Coastal Dunes and Shingle Ridges	Medium-high	Low	Not significant , short-term, temporary
Beach and coastal cliffs	High	Low	Not significant , short-term, temporary
LCT07 Estate Sandlands	Medium-high	Medium-high on localised area to the north of Thorpeness within landfall.	Significant , short-term, temporary
Agricultural land	Low	Medium	Not significant , short-term, temporary
Hedgerows	Medium	Medium	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Suffolk Coast and Heaths AONB (and Heritage Coast) Area A: AONB between Thorpeness, Sizewell and Leiston	Medium-high	Medium-high on localised area to the north of Thorpeness within landfall.	Significant , short-term, temporary
Suffolk Coast and Heaths AONB and Heritage Coast Area B: AONB between Thorpeness, Aldeburgh and Snape	Medium-high	Low	Not significant , short-term, temporary
Suffolk Coast and Heaths AONB and Heritage Coast Area C: AONB Sizewell and Dunwich Forest	Medium-high	Low	Not significant , short-term, temporary
Visual Effects			
Thorpeness (residents)	High	Low on views experienced from a localised area on the northern and north-western edge of Thorpeness. Negligible on views experienced from the majority of the central and southern areas of the settlement.	Not significant , short-term and temporary.
B1353 Thorpeness Road (motorists)	Medium	Low on views experienced from a short (750m) section of the B1353, to the west of Thorpeness, where the landfall is located to the north of the road. Negligible from the remainder of the B1353.	Not significant , short-term and temporary.
Suffolk Coastal Path (walkers)	High	High on views experienced over a short (1.0km) section of the route, to the north of Thorpeness, where the route of the path passes the landfall. Negligible over the remainder of the Suffolk Coastal Path.	Significant , short-term and temporary on views experienced over a short (1.0km) section of the route, to the north of Thorpeness, where the route of the path passes the landfall. Not significant , short-term and temporary over the remainder of the Suffolk Coastal Path.
Sandlings Walk (walkers)	Medium - high	High on views experienced over a short (1km) section of	Significant , short-term and temporary on views

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
		<p>the route, to the north of Thorpeness, where the route of the path passes the landfall.</p> <p>Negligible over the remainder of the Sandlings Walk.</p>	<p>experienced over a short (1km) section of the route, to the north of Thorpeness, where the route of the path passes the landfall.</p> <p>Not significant, short-term and temporary over the remainder of the Sandlings Walk.</p>

29.6.1.2 Potential Effects During Construction – Onshore Cable Route

146. The onshore cable route will connect the construction works at landfall, to the north of Thorpeness, with the onshore substation, to the north of Friston, covering a route of approximately 9km, as shown in **Figure 29.1**. The onshore cable route will mainly be routed through agricultural areas to avoid settlements and semi-natural landscapes. From the construction works at the landfall on the Suffolk Coast to the north of Thorpeness, the onshore cable route is routed north through the AONB towards Sizewell, around the northern side of ‘The Walks’, an area of semi-natural landscape including heath and woodland to the north of Thorpeness. Before reaching Sizewell Gap, the onshore cable route then takes a route south-west out of the AONB, to the south of the settlements of Leiston and Aldringham and then west, to the southern side of Coldfair Green. The route would continue across the agricultural land to the north-west to join with the onshore substation location to the north of Friston. Aerial imagery of the onshore development area is shown on **Figures 29.6a to 29.6g**.

29.6.1.2.1 Landscape Effects – Onshore Cable Route

147. The potential for direct changes to physical landscape elements within the onshore cable route occur primarily within the Estate Sandlands LCT (05), including primarily areas of agricultural land and small areas of woodland, hedgerows, scrub vegetation to be felled/cleared within the footprint of the onshore cable route which is located almost entirely within this Estate Sandlands LCT (05). Physical changes result in direct effects to landscape elements in their own right and changes to the character of the LCT’s pattern of elements.

148. The effect of the construction of the onshore infrastructure on all agricultural land within the Estate Sandlands LCT and the vast majority of hedgerows is assessed as **not significant**. In a small number of locations, where notable hedgerows and trees would be removed, localised **significant** effects would occur. The largest physical loss of mature woodland occurs at the woodland north of Fitches

Lane, where up to 0.9ha¹ of woodland will be felled to facilitate the onshore cable route crossing of Aldeburgh Road (B1122). As result, there will be **significant** direct effects resulting from the loss of woodland and localised **significant** but short-term and temporary effects on the perceived landscape character of the Estate Sandlands LCT and Hundred River Valley SLA resulting during the construction of the onshore cable route. Potential impacts related to heritage setting of the listed building (Raidsend) at this location are presented in **Chapter 24 Archaeology and Cultural Heritage**.

149. Within and immediately adjacent to the onshore cable route within the LCT, the perceived character of the Estate Sandlands LCT is likely to be changed at a local level due to the onshore cable route construction activity, including a period of fencing, topsoil strip and storage, haul road construction and usage; a period of trench construction, cable/duct installation and trench backfilling; and a period of jointing bay and (in the event of ducting having been laid) cable installation. The changes to the character of the Estate Sandlands LCT would, in the most part, be highly localised through the LCT. The changes will be most notable from close range during short periods of peak construction activity when there have been changes to the landcover and there are active construction works occurring. Between these short periods of peak construction activity of the onshore cable route construction, there will be periods when there is very little construction activity except for the HGVs using the haul road in section 4 of the onshore cable route to the west of Snape Road during the substation construction, or during the 12 months landfall construction in section 1 of the onshore cable route. The key, ongoing changes along the onshore cable route would be to the landform, as a result of topsoil mounds which would be seeded, covered or fenced; and the landcover, through the removal of vegetation and the replacement of a section of it with the haul road. Such changes would only be distinguishable from the arable land use at very close range.
150. The magnitude of change to the landscape character of the Estate Sandlands LCT, as a result of the onshore cable route construction, is assessed as varying between the different sections of the route, depending on the construction activities and the characteristics of the receiving landscape. Potential changes are assessed to be of medium-low magnitude within and immediately adjacent to sections 2 and 3 of the onshore cable route between Snape Road and the western edge of the AONB; and medium magnitude within and immediately adjacent to the onshore cable route over section 4 to the west of Snape Road, where the construction activity is likely to be more intensive and of longer duration due to the HGV access along the substation haul road during the construction

¹ This is based on a precautionary calculation of an onshore cable route length of 550m and a working width of 16.1m (and rounded to the nearest decimal).

period. Areas of the Estate Sandlands LCT within and immediately adjacent to the onshore cable route over section 1 and the eastern parts of section 2, where the onshore cable route is within the AONB and to the east of the dismantled railway, are assessed as experiencing a medium magnitude of change due to the increase in construction/development influence being at variance to some of the key characteristics in these parts of the LCT (such as its scenic qualities, backdrop of Sandlings Heaths and Forest, and open views), as well as the nature of the construction activities which may include a HDD crossing of the Sandlings SPA with a prolonged construction period; and landfall construction access in section 1 of the onshore cable route with increased vehicular access to the landfall.

151. Significant construction stage landscape effects on the Estate Sandlands LCT and AONB, will primarily be experienced over several separate short 2-3 month periods of peak construction activity and not continuously throughout the construction phase, as set out in the construction programme in **Section 6.10** of the project description. Over the majority of the construction stage, the relevant sections of the onshore cable route will not be subject to these key construction works and the onshore cable route will primarily consist of installed infrastructure and stripped topsoil to be reinstated, during which time the effects are considered **not significant** due to the limited construction activity.
152. The magnitude of change drops notably with increasing distance from the onshore cable route, such that the effects on the wider landscape character of the Estate Sandlands LCT, resulting from the onshore cable route construction, is assessed as **not significant**, short-term and temporary during the construction period.
153. The effects of the construction of the onshore cable route on the special qualities of the AONB is assessed in full in **Appendix 29.3 (Section 29.3.2)**. The effects of the onshore cable route are considered in relation to areas of the AONB that are defined as follows and shown in **Figure 29.8**:
 - Area A - AONB between Thorpeness, Sizewell and Leiston;
 - Area B - AONB between Thorpeness, Aldeburgh and Snape; and
 - Area C – AONB between Sizewell and Dunwich Forest.
154. The onshore cable route is located entirely within Area A, between Thorpeness, Sizewell and Leiston, with no sections of the onshore cable route located in Areas B and C.
155. Within Area A of the AONB (**Figure 29.8**), the construction of the onshore cable route will introduce new elements within the AONB during the construction period,

which will temporarily change the character of the landscape and pattern of elements within the onshore cable route. The construction of the onshore cable route will increase the influence of construction works on the character of this relatively contained area of the AONB, within and immediately adjacent to the onshore cable route due to the onshore cable route construction activity, including a period of fencing, topsoil strip and storage, haul road construction and usage; a period of trench construction, cable/duct installation and trench backfilling; and a period of jointing bay and (in the event of ducting having been laid) cable installation, during certain periods of peak construction activity during the construction phase and within the less sensitive areas of this section of the AONB. Physical changes to the pattern of landscape elements are likely to occur only in Area A of the AONB, due to the clearance of agricultural land-cover, hedgerow field boundaries and scrub vegetation within the onshore cable route. Direct changes to areas of heath and woodland within this area of the AONB will be avoided. The construction of the onshore cable route will lead to some changes in the perceived landscape/scenic quality and relative wildness/tranquillity of this area of the AONB within and adjacent to the onshore cable route, assessed as being medium in magnitude. The construction of the onshore cable route within this area of the AONB will generally occur within intensively farmed arable land within the AONB, where active farming practices including agricultural fleece/polythene and outdoor pig rearing already influence the perceived quality, wildness and tranquillity of the AONB, with indirect changes resulting from its juxtaposition with surrounding Sandlings heaths and forests.

156. **Significant**, short-term, temporary construction stage effects on the landscape/scenic quality and wildness/tranquillity special qualities of Area A of the AONB (**Figure 28.9**) will primarily be experienced over several separate short 2-3 month periods of peak construction activity and not continuously throughout the construction phase. Over the majority of the construction stage, the relevant section of the onshore cable route will not be subject to these key construction works and the onshore cable route will primarily consist of installed infrastructure and stripped topsoil to be reinstated, during which time the effects on these AONB special qualities are considered **not significant** due to the limited construction activity. Given its route primarily through farmland and avoiding features of natural heritage value, the construction of the onshore cable route is assessed as having **not significant** effects on the natural heritage features of the AONB.
157. After exiting the AONB, the onshore cable route then takes a route which runs parallel to the western edge of the AONB between Leiston and Aldringham. In this area, out with the AONB, there will be no direct effects from construction of the onshore cable route on the landscape elements/physical features of the AONB (Area B). There will be **no significant** effects on the landscape and scenic

quality of the setting, relative wildness, tranquillity, natural and cultural heritage features of the AONB as a result of visibility of the construction of the onshore cable route when it is in close proximity to the AONB boundary.

158. To the south of Aldringham, the onshore cable route extends west away from the coastal areas of the AONB towards the onshore substation, becoming increasingly distant from the coastal part of the AONB, while running parallel to, and approximately 1km north of the area of AONB covering the River Alde estuary. The construction of the onshore cable route over this section will have **no significant** effects on the special qualities of the AONB.
159. The effect of the onshore cable route during construction is therefore only assessed as having **significant**, short-term and temporary on the character of the AONB within a localised area of the onshore cable route between Thorpeness, Sizewell and Leiston (Area A) but is assessed as **not significant**, short-term and temporary on the wider AONB within the LVIA study area (Areas B and C).

29.6.1.2.2 Visual Effects – Onshore Cable Route

160. The construction of the onshore cable route will also result in visual effects, temporarily during the construction period, when the construction works will be seen by local residents, motorists using roads and walkers using footpaths crossing the onshore cable route. The onshore cable route construction is assessed as having **significant**, short-term and temporary visual effects on views experienced by residents from the very edges of Aldringham, Coldfair Green and Friston that are adjacent to and are likely to have views of the construction of the onshore cable route. However, the majority of the residential areas of these settlements will have no direct views of the onshore infrastructure and experience **not significant** effects. Significant construction stage visual effects have only been identified on views experienced by residents of three very localised areas on the edges of settlements in close proximity to particular sections of the onshore cable route construction (Aldringham Road, Snape Road and Grove Road). These significant construction stage visual effects do not extend to be significant on views from these settlements of Aldringham, Coldfair Green and Friston as a whole.
161. In terms of views from roads, **significant**, short-term and temporary visual effects are assessed as occurring to views experienced by motorists over very short sections (between 250-500m) of the B1353 Thorpeness Road, B1122 Aldeburgh Road and the B1069 Snape Road, which may come in close proximity to the CCS and onshore cable route, while effects would be **not significant** on all remaining parts of these roads and other roads and railways. The visual effects of the construction of the onshore cable route are also assessed as being **significant**

on views experienced by walkers over short sections of the Suffolk Coastal Path, the Sandlings Walk and the Suffolk Coastal Cycle Route where these recreational routes cross the onshore cable route, while the effects on remaining sections of these recreational routes would be **not significant**. Although there are short, local sections of these transport and recreational routes with significant effects on views, immediately next to the onshore cable route construction, the visual effect of the onshore cable route construction will be not significant on the views experienced from these receptors as a whole, where there will often be no direct views of the onshore cable route construction, due to screening by the built environment and intervening vegetation within and around the edges of these settlements.

162. **Significant** construction stage visual effects will primarily be experienced by local receptors over several separate short 2-3 month periods of peak construction activity and not continuously throughout the construction phase, as set out in the construction programme in **Section 6.10** of the project description. Over the majority of the construction stage, the relevant sections of the onshore cable route will not be subject to these key construction works and the onshore cable route will primarily be viewed as installed infrastructure and stripped topsoil to be reinstated, during which time the effects are considered **not significant** due to the limited construction activity.
163. The potential landscape and visual effects of the onshore cable route during construction are assessed in full in **Appendix 29.3** and **Appendix 29.4** and summarised in **Table 29.8** below.

Table 29.8 Summary of Potential Effects During Construction – Onshore Cable Route

Receptor	Sensitivity to change	Magnitude of change (construction)	Significance of Effect (construction)
Landscape Effects			
LCT 01 Ancient Estate Claylands Area 1A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road	Medium-high	Low, the onshore cable route is not located within this area of the LCT and is assessed as having a low to negligible change to its character	Not significant , short-term and temporary
LCT 01 Ancient Estate Claylands Area 1B East of Saxmundham	Medium-high	Negligible	Not significant , short-term, temporary
Ancient Estate Claylands LCT (01)	Medium-high	Low magnitude to landscape character of this area of the LCT, with the potential for changes to	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of change (construction)	Significance of Effect (construction)
Area 1C East of Grove Wood, Knodishall		landscape character within a very small area of the LCT, to the east of Grove Road and south of Grove Wood, where a short stretch of Section 4 of the onshore cable route passes through the southern extremity of this LCT.	
Agricultural land (within Area 1C)	Low	Low	Not significant , short-term, temporary
Woodland (within Area 1C)	High	None	Not significant , short-term, temporary
Hedgerows (within Area 1C)	Medium	Low	Not significant , short-term, temporary
LCT 01 Ancient Estate Claylands Area 1D Leiston and Theberton	Medium-high	Negligible	Not significant , short-term, temporary
LCT05 Coastal Dunes and Shingle Ridges	Medium-high	Negligible	Not significant , short-term, temporary
LCT 06 Coastal Levels Area 6A Hundred River Valley, south of Aldringham	Medium	Medium	Not significant , short-term, temporary
LCT 06 Coastal Levels Area 6A Former large meare to the south of Thorpeness	Medium	None	Not significant , short-term, temporary
LCT 06 Coastal Levels Area A Marshes of the Minsmere Level	Medium	None	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7A Thorpeness to Aldringham and Friston	Medium-high	Medium-low magnitude to the pattern of landscape elements/perceived character of the Estate Sandlands LCT within and immediately adjacent to the onshore cable route during the construction period over sections 2 and 3 of the onshore cable route between Snape Road and the western edge of the AONB.	Significant , short-term, temporary within and immediately adjacent to the onshore cable route sections 1 and 2 within the AONB and section 4 to the west of Snape Road. Not significant , short-term and temporary within and immediately adjacent to the onshore cable route

Receptor	Sensitivity to change	Magnitude of change (construction)	Significance of Effect (construction)
		Medium within and immediately adjacent to the onshore cable route over section 4 to the west of Snape Road. Medium within and immediately adjacent to the onshore cable route over section 1 and parts of section 2, where the onshore cable route is within the AONB and to the east of the dismantled railway.	sections 2 and 3 between Snape Road and the boundary of the AONB, and on the wider landscape character of the Estate Sandlands LCT.
Agricultural land (within Area 7A)	Low	Medium	Not significant , short-term, temporary
Woodland (within Area 7A at woodland north of Fitches Lane)	High	Medium-high	Significant , short-term, temporary
Hedgerows (within Area 7A)	Medium	Medium	Not significant , short-term, temporary
Scrub vegetation (within Area 7A)	High	Medium-low	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7B Sizewell and north of Leiston to Dunwich Forest	Medium-high	Low	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7C Aldeburgh to Snape	Medium-high	Low	Not significant , short-term, temporary
Suffolk Coast and Heaths AONB and Heritage Coast Area A: AONB between Thorpeness, Sizewell and Leiston	High		
Landscape quality		Medium	Significant , short-term, temporary construction stage effects on the landscape/scenic quality and relative wildness/tranquillity of area A of the AONB will primarily be experienced over several separate short 2-3 month
Scenic quality		Medium	
Relative wildness		Medium	
Relative tranquillity		Medium	
Natural heritage features		Low	

Receptor	Sensitivity to change	Magnitude of change (construction)	Significance of Effect (construction)
Cultural heritage		Low	periods of peak construction activity and not continuously throughout the construction phase. Over the majority of the construction stage, the relevant section of the onshore cable route will not be subject to these key construction works and the onshore cable route will primarily consist of installed infrastructure and stripped topsoil to be reinstated, during which time the effects on landscape/scenic quality and relative wildness/tranquillity are considered not significant due to the limited construction activity.
Suffolk Coast and Heaths AONB and Heritage Coast Area B: AONB between Thorpeness, Aldeburgh and Snape	Medium-high	Low change to special qualities of landscape and scenic quality, relative wildness and tranquillity, natural heritage features and cultural heritage.	Not significant , short-term, temporary
Suffolk Coast and Heaths AONB and Heritage Coast Area C: AONB Sizewell and Dunwich Forest	Medium	Negligible change to special qualities of landscape and scenic quality, relative wildness and tranquillity, natural heritage features and cultural heritage.	Not significant , short-term, temporary
Hundred River Valley SLA Area A: Hundred River Valley, south of Aldringham	Medium	Medium-high over a local area at woodland north of Fitches Lane, due to the felling of mature woodland.	Significant , short-term, temporary
Hundred River Valley SLA Area B: Majority of the of the SLA between Aldringham and Coldfair Green	Medium	Low on the majority of the of the SLA between Aldringham and Coldfair Green.	Not significant , short-term, temporary
Visual Effects			
Leiston (residents)	High	Negligible on views experienced from the majority of the settlement.	Not significant , short-term, temporary on views

Receptor	Sensitivity to change	Magnitude of change (construction)	Significance of Effect (construction)
		Low on views experienced from localised areas along the south and eastern edge of Leiston.	experienced by residents of Leiston.
Aldringham (residents)	High	<p>Medium on views where the onshore cable route crosses the Hundred River and Aldeburgh Road, where the construction of the onshore cable route will be visible in views from nearby dwellings in the Aldeburgh Road/Fitches Lane area and felling of an area of woodland north of Fitches Lane is required.</p> <p>Low on views experienced by residents of the majority of Aldringham on its route to the east of the settlement crossing the B1353 Thorpeness Road.</p>	<p>Significant, short-term and temporary on views experienced by residents of the Aldeburgh Road/Fitches Lane area of Aldringham.</p> <p>Not significant, short-term, temporary on views experienced by residents of the majority of Aldringham.</p>
Coldfair Green (residents)	High	<p>Medium in views from a small group of dwellings on the southern edge of the settlement on Snape Road, close to where the onshore cable route crosses Sloe Lane and Snape Road.</p> <p>Negligible from the majority of the settlement where there will be no direct views of the onshore infrastructure. Low in views from a localised area around the Fitches/Buxlow Close on the southern edge of the settlement.</p>	<p>Significant, short-term and temporary on views experienced by residents of a small group of dwellings on Snape Road on southern edge of Coldfair Green.</p> <p>Not significant, short-term, temporary from the majority of the settlement.</p>
Friston (residents)	High	<p>Medium from a localised area on the northern edge of Friston.</p> <p>Negligible from the majority of central and southern areas of Friston, where there will be no direct views of the onshore cable route during construction.</p>	<p>Significant, short-term, temporary on views experienced by residents of the northern edge of Friston.</p> <p>Not significant, short-term, temporary on views experienced by residents from the majority of central and southern areas of Friston.</p>
B1353 Thorpeness Road (motorists)	Medium	High over a short 500m section of the B1353 to the	Significant , short-term, temporary on views

Receptor	Sensitivity to change	Magnitude of change (construction)	Significance of Effect (construction)
		east of Aldringham where the onshore cable route crosses the B1353. Negligible over the remainder of the B1353.	experienced by motorists over short 500m section east of Aldringham. Not significant , short-term and temporary on the B1353 as a whole.
B1122 Aldeburgh Road (motorists)	Medium	High over a short 250m section of the B1122, to the south of Aldringham, where the onshore cable route crosses the B1122. Negligible over the remainder of the B1122.	Significant , short-term, temporary on views experienced by motorists over a short 250m section of the B1122, to the south of Aldringham, where the onshore cable route crosses the B1122. Not significant , short-term, temporary on the B1122 as a whole.
B1069 Snape Road (motorists)	Medium	High over a short 500m section of the B1069, to the south of Coldfair Green, where the onshore cable route crosses the B1069. Negligible over the remainder of the B1069.	Significant , short-term, temporary on views experienced by motorists over a short 500m section of the B1069, to the south of Coldfair Green, where the onshore cable route crosses the B1069. Not significant , short-term, temporary on the B1069 as a whole.
B1121 Aldeburgh – Saxmundham Road (motorists)	Medium	Low over a short section of the B1121, in the southern part of Friston, where there will be distant views of the onshore cable route construction. Negligible over the remainder of the B1121.	Not significant , short-term, temporary
Suffolk Coastal Path (walkers)	High	High over a short 1.8km section of the route to the north of Thorpeness, where the onshore cable route crosses or is close to the Suffolk Coastal Path. Negligible over the remainder of the Suffolk Coastal Path.	Significant , short-term, temporary on views experienced by walkers over a short 1.8km section of the route to the north of Thorpeness, where the onshore cable route crosses or is adjacent to the Suffolk Coastal Path Not significant , short-term, temporary on the Suffolk Coastal Path as a whole.

Receptor	Sensitivity to change	Magnitude of change (construction)	Significance of Effect (construction)
Sandlings Walk (walkers)	Medium - high	High over two sections of the route: from the edge of Friston to Sloe Lane for approximately 2.2km where the route runs close to and subsequently crosses the onshore cable route; and from the edge of Aldringham Common to Sizewell for approximately 1.7km where the route crosses through and then runs parallel to the onshore cable route. Negligible for the remainder of the route of the Sandlings Walk.	Significant , short-term and temporary on views experienced by walkers over approximately 2.2km section between Friston and Sloe Lane; and approx. 1.7km section between Aldringham Common and Sizewell. Not significant , short-term, temporary on the Sandlings Walk as a whole.
Suffolk Coastal Cycle Route (cyclists)	Medium - high	High over a short 500m section of the route, along Grove Road between Friston and Grove Wood, where the onshore cable route crosses or is close to the route of Suffolk Coastal Cycle Route. Negligible for the remainder of the route of the Suffolk Coastal Cycle Route.	Significant , short-term and temporary on views experienced by cyclists over approximately 500m section on Grove Road between Friston and Grove Wood. Not significant , short-term, temporary on the Suffolk Coastal Cycle Route as a whole.

29.6.1.3 Potential Effects During Construction – Onshore Substation and National Grid Infrastructure

164. The onshore substation and National Grid infrastructure are located to the north of the village of Friston and to the north of Grove Wood/Grove Road, as shown on **Figure 29.4**.

29.6.1.3.1 Landscape Effects – Onshore Substation and National Grid Infrastructure

165. In summary, the main area where changes to the perceived character occur as a result of the construction of the onshore substation and National Grid infrastructure is within a localised area of the Ancient Estate Claylands LCT (01) and Estate Sandlands LCT (07) to the north of Friston, between Grove Road and Fristonmoor. The physical effect of the construction of the onshore substation and National Grid infrastructure on the agricultural land, hedgerows and a small area of Laurel Covert woodland, is assessed as being **not significant**, however **significant** effects on the character of the landscape are assessed as occurring within a localised area of approximately 1km around the onshore substation and National Grid infrastructure.

166. The construction of the onshore substation and National Grid infrastructure will result in a large-scale change to the local character of this area of the LCT, during construction of the onshore substation, CCS, temporary working areas and access roads, together with the increased activity of vehicles, machinery, cranes and the stockpiling of materials that will be needed during construction. The construction works will result in changes in ground conditions/profiles, installation of substation platforms on agricultural land, and the addition of compounds, fencing and installation of electrical infrastructure, which contrast with the quiet rural setting and will change the network of hedgerow field boundaries and public rights of way that allow people to experience the character of the rural local landscape. As the onshore substation and National Grid infrastructure are constructed, the form of the buildings and external electrical infrastructure will take shape during the construction period and influence the existing landscape character, particularly resulting in changes to the local characteristic relationship of the parish between Friston and Fristonmoor. The built forms will increase the prominence of development components in the landscape through the introduction of large-scale buildings and introduce complex electrical infrastructure, in the context of the existing large scale pylons and overhead lines, increasing the influence of electrical infrastructure on the character of this area.
167. The construction of the onshore substation and National Grid infrastructure will have **not significant** effects on the character or special qualities of the AONB. The onshore substation and National Grid infrastructure are located outside the AONB and its immediate setting, approximately 1.6km to the north of the AONB at its closest point (where the AONB covers the estuary of the River Alde) and 3.7km to the west of the edge of the main 'coastal' area of the AONB (near Aldringham (Area A)). The special qualities of the AONB will not be subject to change as a result of the construction of the onshore substation and National Grid infrastructure, primarily due the distance of the construction of the onshore substation and National Grid infrastructure from the AONB, their limited visibility from within the AONB and the lack of any changes to the pattern of elements within AONB.

29.6.1.3.2 Visual Effects - Onshore Substation and National Grid Infrastructure

168. The undulating agricultural land and large woodland blocks at Grove Wood and Laurel Covert will provide notable visual containment of the onshore substation and National Grid infrastructure in the landscape. In particular, they entirely screen views of the onshore substation and National Grid substation in views from the east, such as from Knodishall/Coldfair Green, as evident in Viewpoint 7 (**Figure 29.19**), Viewpoint 11 (**Figure 29.23**) and Viewpoint 12 (**Figure 29.24**). In views from areas where the onshore substation and National Grid substation will be visible, Grove Wood and Laurel Covert provide visual containment in terms of

the spread of development vertically, since these woodlands are higher than the onshore substation and National Grid infrastructure construction works. Despite the notable screening provided in the local landscape, the construction of the onshore substation and National Grid infrastructure are assessed as having **significant** visual effects on residents of localised areas on the edges of Friston (not from Friston as a whole), as represented by Viewpoints 1, 2, 4, and 9; people walking on the local public right of way network to the north of Friston (between Friston and Fristonmoor) as represented by Viewpoints 2 and 5; residents of scattered rural dwellings near Friston, as represented by Viewpoints 5 and 8; motorists travelling on the B1121 Saxmundham Road, to the north of Friston, as represented by Viewpoint 8; and motorists/cyclists travelling on Grove Road immediately passing the onshore substation and National Grid substation, between Friston and Grove Wood/Manor Farm, as represented by Viewpoint 14.

169. These **significant** visual effects would all occur within approximately 1.2km of the onshore substation and National Grid substation, making them localised, and they will also occur temporarily over the short-term, during the construction period. These **significant** visual effects occur where the construction of the onshore substation and National Grid infrastructure will be visible at relatively close distances, generally resulting in medium to high changes to views, due to the size, extent and close proximity of the onshore substation, National Grid infrastructure and CCS, together with fencing, access road, vehicles, machinery, cranes, accommodation and the stockpiling of subsoil/topsoil needed during the construction period. During the construction period, the built form of the onshore substation and National Grid infrastructure will take shape during the construction and installation. With progress through the construction period, the built forms of the constructed infrastructure will increase the influence of buildings and infrastructure, such that electrical infrastructure becomes one of the prevailing features of these views. National Grid overhead line realignments works will also be visible during the construction period, as described in **Chapter 6 Project Description**.
170. The potential landscape and visual effects of the onshore substation and National Grid infrastructure during construction are assessed in full in **Appendix 29.3** and **29.4** and summarised in **Table 29.9** below.

Table 29.9 Summary of Potential Effects During Construction – Onshore Substation and National Grid Infrastructure

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Landscape Effects			
LCT 01 Ancient Estate Claylands	Medium-high	High on localised area to north of Friston within	Significant , short-term and temporary on localised area

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Area 1A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road		approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , short-term and temporary over remaining areas of LCT.
Agricultural land (within Area 1A)	Low	High	Not significant , short-term, temporary
Woodland (within Area 1A)	High	Low	Not significant , short-term, temporary
Hedgerows (within Area 1A)	Medium	Medium-low	Not significant , short-term, temporary
LCT 01 Ancient Estate Claylands Area 1B East of Saxmundham	Medium-high	Low	Not significant , short-term, temporary
Ancient Estate Claylands LCT (01) Area 1C East of Grove Wood, Knodishall	Medium-high	Negligible	Not significant , short-term, temporary
Agricultural land (within Area 1C)	Low	None	Not significant , short-term, temporary
Woodland (within Area 1C)	High	None	Not significant , short-term, temporary
Hedgerows (within Area 1C)	Medium	None	Not significant , short-term, temporary
LCT 01 Ancient Estate Claylands Area 1D Leiston and Theberton	Medium-high	Negligible	Not significant , short-term, temporary
LCT05 Coastal Dunes and Shingle Ridges	Medium-high	None	Not significant , short-term, temporary
LCT 06 Coastal Levels Area 6A Hundred River Valley, south of Aldringham	Medium	None	Not significant , short-term, temporary
LCT 06 Coastal Levels	Medium	None	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Area 6A Former large meare to the south of Thorpeness			
LCT 06 Coastal Levels Area 6A Marshes of the Minsmere Level	Medium	None	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7A Thorpeness to Aldringham and Friston	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , short-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , short-term and temporary over remaining areas of LCT.
Agricultural land (within Area 7A)	Low	Low	Not significant , short-term, temporary
Woodland (within Area 7A)	High	None	Not significant , short-term, temporary
Hedgerows (within Area 7A)	Medium	Low	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7B Sizewell and north of Leiston to Dunwich Forest	Medium-high	Low	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7C Aldeburgh to Snape	Medium-high	Low	Not significant , short-term, temporary
Suffolk Coast and Heaths AONB and Heritage Coast Area A: AONB between Thorpeness, Sizewell and Leiston	High		
Landscape quality		Low	Not significant , short-term, temporary
Scenic quality		Low	Not significant , short-term, temporary
Relative wildness		Negligible	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Relative tranquillity		Negligible	Not significant , short-term, temporary
Natural heritage features		None	Not significant , short-term, temporary
Cultural heritage		Negligible	Not significant , short-term, temporary
Hundred River Valley SLA	Medium	Negligible	Not significant , short-term, temporary
Visual Effects			
Viewpoint 1: Public Right of Way near Friston House	Walkers: medium-high Residents: high	High	Significant , short-term, temporary
Viewpoint 2: Friston, Church Road	Walkers: medium-high Residents: high	Medium-high	Significant , short-term, temporary
Viewpoint 3: Grove Road, near Pear Tree Farm	Motorists: medium	Low	Not significant , long-term and temporary
Viewpoint 4: Friston, Grove Road	Walkers: medium-high Residents: high Motorists: medium	Medium	Walkers and residents: Significant , short-term, temporary Motorists: Not significant , short-term, temporary
Viewpoint 5: Public Right of Way, near Moor Farm	Walkers: medium-high Residents: high	High	Significant , short-term, temporary
Viewpoint 6: Friston, Village Green	Residents: high Motorists: medium-high	Low	Not significant , short-term, temporary
Viewpoint 7: Public Right of Way, east of Friston	Walkers: medium-high	Negligible	Not significant , short-term, temporary
Viewpoint 8: B1121 Saxmundham Road, north of Friston	Residents: high Motorists: medium	Medium-high	Residents: Significant , short-term, temporary Motorists: Significant , short-term, temporary
Viewpoint 9: B1121 Aldeburgh Road, south of Friston	Residents: high Motorists: medium	Medium-low	Residents: Significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
			Motorists: Not significant , short-term, temporary
Viewpoint 10: B1119 Saxmundham Road	Motorists: medium	Medium-low	Not significant , short-term, temporary
Viewpoint 11: Knodishall Hall	Residents: high	Low	Not significant , short-term, temporary
Viewpoint 12: Knodishall Common	Walkers: medium-high	Negligible	Not significant , short-term, temporary
Viewpoint 13: B1069 Snape Road	Motorists: medium	Negligible	Not significant , short-term, temporary
Viewpoint 14: Grove Road	Motorists: medium Cyclists: medium-high	High	Significant , short-term, temporary
Friston Area A (northern part)	Residents: high	Medium-high	Significant , short-term, temporary
Friston Area B (central part)	Residents: high	Low	Not significant , short-term, temporary
Friston Area C (Aldeburgh Road)	Residents: high	Medium-low	Significant , short-term, temporary
Friston Area D (southern part)	Residents: high	Low	Not significant , short-term, temporary
B1121 Aldeburgh / Saxmundham Road Section A Saxmundham to north of Moor Farm (Saxmundham Road)	Motorists: medium	Negligible	Not significant , short-term, temporary
B1121 Aldeburgh / Saxmundham Road Section B North of Moor Farm to Friston House (Saxmundham Road)	Motorists: medium	Medium-high	Significant , short-term, temporary
B1121 Aldeburgh / Saxmundham Road: Section C Friston House through Friston (Saxmundham Road)	Motorists: medium	Low	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
B1121 Aldeburgh / Saxmundham Road: Section D South of Friston (Aldeburgh Road)	Motorists: medium	Medium-low	Not significant , short-term, temporary
Grove Road Section A Saxmundham Road to Grove Wood	Motorists: medium	Low to negligible	Not significant , short-term, temporary
Grove Road Section B Grove Wood (Manor Farm) to northern edge of Friston	Motorists: medium Cyclists: medium-high	High	Significant , short-term, temporary
Grove Road: Section C through Friston	Motorists: medium	Low	Not significant , short-term, temporary
Suffolk Coastal Cycle Route: Section A Northern edge of study area to Grove Wood	Cyclists: medium - high	Low to negligible	Not significant , short-term, temporary
Suffolk Coastal Cycle Route: Section B Grove Wood (Manor Farm) to northern edge of Friston	Cyclists: medium - high	High	Significant , short-term, temporary
Suffolk Coastal Cycle Route: Section C Grove Road through Friston	Cyclists: medium - high	Low	Not significant , short-term, temporary
Sandlings Walk: Section A Southern edge of study area at Snape to Friston (Grove Road)	Medium - high	Low	Not significant , short-term, temporary
Sandlings Walk: Section B Friston (Grove Road) to Sloe Lane (Billeaford Hall)	Medium - high	Low	Not significant , short-term, temporary
Sandlings Walk: Section C Sloe Lane (Billeaford Hall) to Aldringham Common	Medium - high	Negligible	Not significant , short-term, temporary
Sandlings Walk: Section D Aldringham Common to Sizewell	Medium - high	Low	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Sandlings Walk: Section E Sizewell to northern edge of study area south of East Bridge	Medium - high	Negligible	Not significant , short-term, temporary

171. Mitigation woodland and hedgerow planting will have been undertaken around the onshore substation and National Grid infrastructure during onshore site preparation works and at the end of the construction phase, as presented on **Figure 29.12**. In the early years of growth, recently planted cell-grown trees and hedgerows will be establishing, and are assumed to have good vigour, but are likely to have limited screening effects in the landscape.

29.6.2 Potential Effects during Operation

172. The potential effects of the onshore infrastructure during operation will relate principally to the presence of the onshore substation and National Grid infrastructure. It is anticipated that once operational, the potential effects of the landfall and onshore cable route would be **not significant** due to their presence underground. The assessment of these components during the operational phase has been scoped out of the LVIA, as agreed through the scoping process, with the exception of the removal of woodland north of Fitches Lane to facilitate the onshore cable route crossing of Aldeburgh Road (B1122) which is assessed as an operational impact in **section 29.6.2.1**.

173. **Appendix 29.3** and **Appendix 29.4** set out a Preliminary Assessment followed by the Technical Assessments of the potential for landscape and visual receptors within the LVIA study area to be significantly affected as a result of the onshore infrastructure associated with the proposed East Anglia TWO project.

29.6.2.1 Potential Effects during Operation – Onshore Cable Route

29.6.2.1.1 Landscape Effects – Onshore Cable Route

174. The largest physical loss of mature woodland as a result of the onshore cable route occurs north of Fitches Lane to facilitate the onshore cable route crossing of Aldeburgh Road (B1122), where up to 0.9ha of woodland north of Fitches Lane will be felled. At this location, the onshore cable route is routed across the woodland as this is the only identified location where the cable route can cross Aldeburgh Road (**section 4.5.5.7**). The Applicant has committed to reducing the onshore cable route to 16.1m for the proposed East Anglia TWO project alone, to retain as many trees as possible at this location. The onshore development area has been refined so that woodland is retained acting as screening between

residential properties on Fitches Lane and the onshore cable route and also between the onshore cable route and Aldringham Court Nursing Home. The physical effect of the onshore cable route arising due to the physical loss of this landscape element, the woodland north of Fitches Lane, is assessed as **significant**, short-term (first year of operation) and temporary.

175. The change to the perceived character in the vicinity of this woodland, within a localised area of the Estate Sandlands LCT and the Hundred River Valley SLA, will however be reduced through reinstatement. This section of onshore cable route, north of Fitches Lane, will be reinstated, through the establishment of heathland over the onshore cables and further woodland planting along the outer edges of the onshore cable route, outside a minimum offset distance from the onshore cables. The landscape and ecological mitigation proposals for this area are presented within the OLEMS submitted with the DCO application. The change to the perceived character in the vicinity of this woodland, within a localised area of the Estate Sandlands LCT and the Hundred River Valley SLA, is therefore assessed as being **not significant**, long-term and permanent during the operational period. The changes to the setting of the AONB during the operational period, as a result of the felling of mature woodland to facilitate the crossing of Aldeburgh Road, are assessed as **not significant**. Potential impacts related to heritage setting of the listed building (Raidsend) at this location are presented in **Chapter 24 Onshore Archaeology and Cultural Heritage**.

29.6.2.1.2 Visual Effects – Onshore Cable Route

176. The loss of woodland as a result of the onshore cable route at woodland north of Fitches Lane, will also give rise to visual effects where people experience changes in views that are currently influenced by this woodland in the baseline.
177. The felling of this area of woodland to allow for the construction of the onshore cable route will be visible in localised views from the B1122 Aldeburgh Road and will change the visual amenity experienced from a short section of the road, creating more open views from a localised section immediately passing the woodland, which is currently enclosed on either side by mature woodland. The change resulting from the felling of this area of woodland is also likely to be visible in views experienced by local residents of this local area around Aldeburgh Road and Fitches Lane. The onshore development area has been refined so that woodland is retained acting as screening between residential properties on Fitches Lane and the onshore cable route and also between the onshore cable route and Aldringham Court Nursing Home. This section of the onshore cable route, to the north of Fitches Lane, will also be reinstated through the establishment of heathland over the onshore cables and further woodland planting along the outer edges of the onshore cable route, outside a minimum offset distance from the onshore cables. The operational effect resulting from

changes to views and visual amenity experienced by motorists and residents in the vicinity of this woodland is therefore assessed as being **not significant**, long-term and permanent during the operational period.

29.6.2.2 Potential Effects during Operation – Onshore Substation and National Grid Infrastructure

29.6.2.2.1 Landscape Effects – Onshore Substation and National Grid Infrastructure

178. The main area where changes to the perceived character occur as a result of the operation of the onshore substation and National Grid infrastructure is within a localised area of the Ancient Estate Claylands LCT (01) and Estate Sandlands LCT (07) to the north of Friston, between Grove Road and Fristonmoor. The onshore substation is located entirely within the Ancient Estate Claylands LCT (01), with majority of the National Grid infrastructure also within this LCT but extending partially into the adjacent Estate Sandlands LCT (07), as shown in **Figure 29.2**.
179. The Ancient Estate Claylands LCT is assessed as having a medium value. It does not form a constituent part of the AONB, which provides some indication that this LCT is of relatively lower landscape value than the coastal landscapes of East Suffolk and that the LCT will be valued as a resource at the local, rather than national level. There are no SSSI/SAC/SPA/NNR/Ramsar designations within the LCT in the LVIA study area and it has relatively limited recreational value, other than for local rural walking and road cycling. As the largest landscape character area within East Suffolk, it has a relatively widespread/common rural landscape character, although there are pockets of locally distinctive landscapes at the parish level. Broadly, the scenic qualities of the LCT relate to its rural character, setting of semi-natural ancient woodlands and open views, however some of its scenic qualities have been influenced by considerable change through transport routes, airfields, suburbanisation, large-scale agricultural buildings and agri-business, and overhead electrical infrastructure. The local landscape in the Friston area has a strong sense of place and local distinctiveness, with value deriving from the setting of the landscape to the parish of Friston, the characteristic arrangement of this parish, the village and outlying farmsteads in the open agricultural setting with a simple, rural character, network of fields with strong hedgerow field boundaries, scattered mature deciduous field boundary trees and distinctive backdrop of ancient woodland (Grove Wood).
180. The LCT is assessed as generally having a medium-high susceptibility to changes arising from the proposed East Anglia TWO project onshore infrastructure. The LCT is most susceptible to changes arising from the onshore substation and National Grid infrastructure, which are located within this LCT in the area to the north of Friston, and from the construction of the onshore cable route, which is located partially within this LCT between Friston and Knodishall.

While the rural character of the LCT is sensitive to changes arising from large scale development, the visual containment of the LCT by extensive woodland blocks, tree belts and hedges, reduces the susceptibility of this LCT to changes arising from the onshore infrastructure. The characteristic arrangement and visual relationship of the parish, the quiet rural setting, network of hedgerow field boundaries and public rights of way are susceptible to changes arising from the construction and operation of the onshore substation and National Grid infrastructure in landscape between Friston village and Fristonmoor. However, susceptibility is reduced where the landscape is influenced by the presence of the double row of high-voltage overhead transmission lines, with changes experienced in the context of existing electrical infrastructure and large-scale elements. On balance, the LCT is assessed as having a medium-high sensitivity to changes arising from the proposed East Anglia TWO project onshore infrastructure.

181. The built forms of the onshore substation and National Grid substation will increase the prominence of development components in the landscape, which is already influenced by the presence of the existing overhead line electrical infrastructure, through the introduction of large-scale buildings and complex electrical infrastructure, increasing the influence of existing electrical infrastructure on the character of this area. The principal change to the local character will result from the contrast of the electrical infrastructure and buildings within the onshore substation and National Grid infrastructure within the predominantly agricultural and wooded setting and the scale/complexity of built forms compared to existing rural character of the area. The characteristic arrangement and visual relationship of the parish, the rural setting, network of hedgerow field boundaries and public rights of way in the local landscape between Friston and Fristonmoor will all be permanently changed as a result of the operation of the onshore substation and National Grid infrastructure. The magnitude of change is mitigated, to some degree by the location of the onshore substation and National Grid infrastructure next to the double row of high-voltage overhead transmission lines, with the changes experienced in the context of this large scale existing electrical infrastructure.
182. **Significant** effects on the character of the landscape are assessed as occurring within a localised area of approximately 1km around the onshore substation and National Grid infrastructure. The presence of the onshore substation and National Grid infrastructure will result in a large-scale change to the local character of this area of approximately 1km around the onshore substation and National Grid infrastructure within the Friston area of the Ancient Estate Claylands LCT (01).
183. **Significant** effects on the perceived landscape character of the Estate Sandlands LCT also occur from a localised area within 1km of the National Grid

substation, mainly to the south and west, where the effects on the character of this LCT are more readily experienced (compared to areas to the east and south-east, which benefit from substantial intervening screening). At the local level, the character of the Estate Sandlands LCT is not readily differentiated from the Ancient Estate Claylands LCT, with the local areas to the north of Friston forming a distinct and consistent landscape setting. The onshore substation and National Grid substation would exert a locally characterising effect in these areas in close proximity to the site, however moving outwards and away from the site, they would exert a reduced effect upon landscape character where the surrounding landscape will increase in characterising influence, reasserting its overall baseline influence on character further afield.

184. The operation of the onshore substation and National Grid infrastructure will have **not significant** effects on the character or special qualities of the AONB. The onshore substation and National Grid infrastructure are located outside the AONB and its immediate setting, approximately 1.6 km to the north of the AONB at its closest point (where the AONB covers the estuary of the River Alde) and 3.7 km to the west of the edge of the main ‘coastal’ area of the AONB (near Aldringham (Area A)). The special qualities of the AONB will not be subject to change as a result of the operation of the onshore substation and National Grid infrastructure due to the distance of the onshore substation and National Grid infrastructure from the AONB and their limited visibility from within the AONB.

29.6.2.2 Visual Effects – Onshore Substation and National Grid Infrastructure

185. The undulating agricultural land and large woodland blocks at Grove Wood and Laurel Covert will provide notable visual containment of the onshore substation and National Grid infrastructure in the landscape. In particular, they entirely screen views of the onshore substation and National Grid substation in views from the east, such as from Knodishall / Coldfair Green as evident in Viewpoint 7 (**Figure 29.19**), Viewpoint 11 (**Figure 29.23**) and Viewpoint 12 (**Figure 29.24**). In views from areas where the onshore substation and National Grid substation will be visible, Grove Wood and Laurel Covert provide visual containment in terms of the spread of development and vertically, since these woodlands are higher than the onshore substation and National Grid infrastructure. Despite the notable screening provided in the local landscape, the operation of the onshore substation and National Grid infrastructure are assessed as having **significant** visual effects on residents of parts of Friston, as represented by Viewpoints 1, 2, and 9; people walking on the local public right of way network to the north of Friston (between Friston and Fristonmoor) as represented by Viewpoints 2, 5; residents of scattered rural dwellings near Friston, as represented by Viewpoints 5 and 8; and motorists/cyclists travelling on Grove Road immediately passing the onshore substation and National Grid infrastructure, between Friston and Grove

Wood/Manor Farm, as represented by Viewpoint 14 Grove Road. Photomontage visualisations showing the predicted views of the onshore substation and National Grid infrastructure during the first year of the operational phase are shown in **Figures 29.13 – 29.26**.

186. These **significant** visual effects would all occur within approximately 1.2km of the onshore substation and National Grid infrastructure, making them localised and they will also occur over the long-term, during a 10 to 15 year period until areas of woodland planted as part of the landscape mitigation plan (**Figure 29.11a-b** and **Figure 29.12**) are expected to provide effective screening. Recently planted woodland trees either planted as part of the onshore site preparation works planting or at the end of the construction phase, will be present and are assumed to be establishing with good vigour, increasingly having an influence during the operational period, but will have limited influence as landscape components/screening features in the early stages of the operational period.
187. These **significant** localised visual effects occur where the operational onshore substation and National Grid infrastructure will be visible at relatively close distances within approximately 1.2km, resulting in medium to high magnitudes of change to views, due to the size, extent and close proximity of the onshore substation and National Grid infrastructure, together with fencing, access road and vehicles during the operational period. During the early part of the operational period, the complex built form of the onshore substation and National Grid infrastructure will have a prevailing or notable influence in these views from the local area. The National Grid overhead realignment works will also change the appearance of the overhead line and pylons in views, consisting of one new pylon and the modification or replacement of up to three existing pylons, and the diversion the northern overhead line route. The sealing end compounds will also be visible, particularly in views from the north, allowing the existing 400kV overhead electrical conductors (wires) to be brought down from the pylons up to four new sealing end compounds and then connected via underground cable to the National Grid substation.

29.6.2.2.3 Significance of Effects (15 years post construction with embedded mitigation)

188. Areas of woodland and hedgerows planted as part of the OLMP during the onshore site preparation works and at the end of the construction phase, described in **section 29.3.3.1** and shown in **Figure 29.11a-b** and **Figure 29.12** are assumed to have established and will be showing good vigour during the early part of the operational phase, providing progressive screening from an initially limited level of screening when first planted, through partial screening during establishment, to effective mitigation screening of the onshore substation and National Grid infrastructure from approximately 15 years post planting. At the

point when these areas of woodland planted as part of the OLMP provide effective screening, the effects of the operational onshore substation and National Grid substation on local landscape character will be reduced from those experienced during the construction and early operational phase. In particular, historic field boundary hedgerows/tree lines and tree blocks will be established, set back from villages in the form of locally characteristic 'Covert' woods, in order to retain, insofar as possible, the open setting of existing farms and villages, while providing additional visual screening in the landscape. New hedgerows will combine with the woodland planting areas to integrate the substations into the landscape, both in terms of providing screening of the onshore infrastructure and as an extension of characteristic elements of the local landscape. Despite these levels of mitigation and the degree of landscape integration achieved over time, the onshore substation and National Grid infrastructure are assessed as having **significant**, long-term and permanent effects on the landscape character of the localised area to the north of Friston, within approximately 1km around the onshore substation and National Grid substation, due to the fundamental and long-term change from an essentially open rural landscape, to one in which at the local level, the landscape character will be strongly influenced by the presence of the onshore substation and National Grid substation within a landscape framework of woodland blocks, tree lines and hedges.

189. The visual effects of the onshore substation and National Grid infrastructure, will however, be effectively mitigated from a number of viewpoints at approximately 15 years post-construction into the operational period. This will be achieved by the screening provided by fully established trees coming into maturity, which are assumed to be retaining good vigour and starting to achieve good height with tree crowns spreading. Effective mitigation will either be provided where significant effects assessed at Year 1 of the operational phase become not significant at Year 15, thereby entirely preventing significant effects; or where the magnitude of change, and therefore the level of effect, has been reduced over this period.
190. The visual effects of the onshore substation and National Grid infrastructure, assessed with embedded mitigation at 15 years post-planting, are assessed as becoming **not significant**, long-term and permanent on views experienced by residents of parts of Friston as represented by Viewpoint 1 (near Woodside, lane off Church Road); and on the views experienced by motorists and cyclists passing the onshore substation and National Grid substation on Grove Road/Suffolk Coastal Cycle Route, as represented by Viewpoint 14. From these locations, maturing mitigation woodland planting 15 years into the operational period is predicted to entirely screen views in the immediate foreground view towards the onshore substation and National Grid infrastructure.

191. The visual effects of the onshore substation and National Grid infrastructure will also reduce in magnitude with embedded mitigation, as woodland planting grows and provides screening during the operational period, such that at 15 years post-planting from many viewpoints there is a notable reduction in the magnitude of change (but remaining **significant**). This includes views from the northern edges of Friston (as represented by Viewpoint 2); views from the local public right of way network (as represented by Viewpoint 5); and views experienced by motorists from the local road network (as represented by Viewpoint 8 on the B1121).
192. The visual effect of the onshore substation and National Grid infrastructure will remain **not significant** at 15 years into the operational phase but will see a reduction in magnitude of change in views from the northern edges of Friston (Viewpoint 4), central areas of Friston (viewpoint 6) and views experienced by motorists (Viewpoint 3 on Grove Road and Viewpoint 10 on the B1119).
193. In many of the other views assessed, where existing screening in the landscape is such that the visual effects are **not significant** at Year 1 or Year 15, including views from Knodishall Hall (Viewpoint 11); the local public right of way network to the east of Friston (as represented by Viewpoint 7 and 12); and views from the local road network (as represented by Viewpoint 13 on the B1069).
194. **Significant**, long-term visual effects are assessed as occurring on views experienced by people walking on the local public right of way network to the north of Friston, as represented by Viewpoint 2 near Church Road and Viewpoint 5 near Fristonmoor; residents of scattered rural dwellings near Friston, as represented by Viewpoints 5 near Fristonmoor and Viewpoint 8 near Moor Farm; and residents of localised parts of Friston, as represented by Viewpoint 2 near Church Road and Viewpoint 9 on Aldeburgh Road. Photomontage visualisations showing the predicted view of the onshore substation and National Grid infrastructure 15 years post-construction with embedded mitigation planting are shown in **Figures 29.13 – 29.26**.
195. The potential landscape and visual effects of the onshore substation and National Grid infrastructure during the operational period are assessed in full in **Appendix 29.3** and **29.4** and summarised in **Table 29.10**. The effects of the operation of the onshore substation and National Grid substation are summarised in **Table 29.10** at the first year of the operational phase and the residual effects with embedded mitigation (at 15 years post construction), when the landscape mitigation described in **section 29.3.3.1** is predicted to provide effective screening.

Table 29.10 Summary of Potential Effects during Operation – Onshore Substation and National Grid Infrastructure

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Landscape Effects					
LCT 01 Ancient Estate Claylands Area A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.	Medium-high, on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and permanent on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.
LCT 01 Ancient Estate Claylands Area B East of Saxmundham	Medium-high	Low	Not significant , long-term and temporary	Low	Not significant , long-term and permanent
Ancient Estate Claylands LCT (01) Area C East of Grove Wood, Knodishall	Medium-high	Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
LCT 01 Ancient Estate Claylands Area D Leiston and Theberton	Medium-high	Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
LCT05 Coastal Dunes and Shingle Ridges	Medium-high	None	Not significant , long-term and temporary	None	Not significant , long-term and permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
LCT 06 Coastal Levels Area A Hundred River Valley, south of Aldringham	Medium	None	Not significant , long-term and temporary	None	Not significant , long-term and permanent
LCT 06 Coastal Levels Area A Former large meare to the south of Thorpeness	Medium	None	Not significant , long-term and temporary	None	Not significant , long-term and permanent
LCT 06 Coastal Levels Area A Marshes of the Minsmere Level	Medium	None	Not significant , long-term and temporary	None	Not significant , long-term and permanent
LCT 07 Estate Sandlands Area A Thorpeness to Aldringham and Friston	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.	Medium-high on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and permanent on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and permanent over remaining areas of LCT.
LCT 07 Estate Sandlands Area B Sizewell and north of Leiston to Dunwich Forest	Medium-high	Low	Not significant , long-term and temporary	Low	Not significant , short-term and permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
LCT 07 Estate Sandlands Area C Aldeburgh to Snape	Medium-high	Low	Not significant, long-term and temporary	Low	Not significant, short-term and permanent
Suffolk Coast and Heaths AONB and Heritage Coast Area A: AONB between Thorpeness, Sizewell and Leiston	Medium-high				
Landscape quality		Low	Not significant, long-term and temporary	Low	Not significant, long-term and permanent
Scenic quality		Low	Not significant, long-term and temporary	Low	Not significant, long-term and permanent
Relative wildness		Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
Relative tranquillity		Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
Natural heritage features		None	Not significant, long-term and temporary	None	Not significant, long-term and permanent
Cultural heritage		Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
Suffolk Coast and Heaths AONB and Heritage Coast Area B: Thorpeness, Aldeburgh to Snape		Medium-high			

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Landscape quality		Low	Not significant , long-term and temporary	Low	Not significant , long-term and permanent
Scenic quality		Low	Not significant , long-term and temporary	Low	Not significant , long-term and permanent
Relative wildness		Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Relative tranquillity		Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Natural heritage features		None	Not significant , long-term and temporary	None	Not significant , long-term and permanent
Cultural heritage		Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Hundred River Valley SLA	Medium	Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Visual Effects					
Viewpoint 1: Public Right of Way near Friston House	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Viewpoint 2: Friston, Church Road	Walkers: medium-high Residents: high	Medium-high	Significant , long-term, temporary	Medium	Significant , long-term, permanent
Viewpoint 3: Grove Road, near Pear Tree Farm	Motorists: medium	Low	Not significant , long-term and temporary	Negligible	Not significant , long-term, permanent
Viewpoint 4: Friston, Grove Road	Walkers: medium-high	Medium-low	Walkers and residents: Not significant ,	Low	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
	Residents: high Motorists: medium		long-term, temporary Motorists: Not significant , long-term, temporary		
Viewpoint 5: Public Right of Way, near Moor Farm	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Medium	Significant , long-term, permanent
Viewpoint 6: Friston, Village Green	Residents: high Motorists: medium-high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Viewpoint 7: Public Right of Way, east of Friston	Walkers: medium-high	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Viewpoint 8: B1121 Saxmundham Road, north of Friston	Residents: high Motorists: medium	Medium	Residents: Significant , long-term, temporary Motorists: Not significant , long-term, temporary	Medium-low	Residents: Significant , long-term, permanent Motorists: Not significant , long-term, permanent
Viewpoint 9: B1121 Aldeburgh Road, south of Friston	Residents: high Motorists: medium	Medium-low	Residents: Significant , long-term, temporary Motorists: Not significant , long-term, temporary	Medium-low	Residents: Significant , long-term, permanent Motorists: Not significant , long-term, permanent
Viewpoint 10: B1119 Saxmundham Road	Motorists: medium	Medium-low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Viewpoint 11: Knodishall Hall	Residents: high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Viewpoint 12: Knodishall Common	Walkers: medium-high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Viewpoint 13: B1069 Snape Road	Motorists: medium	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Viewpoint 14: Grove Road	Motorists: medium Cyclists: medium-high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Friston Area A (northern part)	Residents: high	Medium-high	Significant , long-term, temporary from Church Road area on northern edge of Friston. Not significant , long-term, temporary from Grove Road area of Friston.	Medium	Significant , long-term, permanent from Church Road area on northern edge of Friston. Not significant , long-term, permanent from Grove Road area of Friston.
Friston Area B (central part)	Residents: high	Low	Not significant , long-term, temporary	Low-negligible	Not significant , long-term, permanent
Friston Area C (Aldeburgh Road)	Residents: high	Medium-low	Significant , long-term, temporary	Medium-low	Significant , long-term, permanent
Friston Area D (southern part)	Residents: high	Low	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
B1121 Aldeburgh / Saxmundham Road Section A Saxmundham to north of	Motorists: medium	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Moor Farm (Saxmundham Road)					
B1121 Aldeburgh / Saxmundham Road Section B North of Moor Farm to Friston House (Saxmundham Road)	Motorists: medium	Medium	Not significant , long-term, temporary	Medium-low	Not significant , long-term, permanent
B1121 Aldeburgh / Saxmundham Road: Section C Friston House through Friston (Saxmundham Road)	Motorists: medium	Low	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
B1121 Aldeburgh / Saxmundham Road: Section D South of Friston (Aldeburgh Road)	Motorists: medium Cyclists: Medium-high	Medium-low	Not significant , long-term, temporary	Medium-low	Not significant , long-term, permanent
Grove Road Section A Saxmundham Road to Grove Wood	Motorists: medium Cyclists: Medium-high	Low to negligible	Not significant , long-term, temporary	Low to negligible	Not significant , long-term, permanent
Grove Road Section B Grove Wood (Manor Farm) to northern edge of Friston	Motorists: medium Cyclists: Medium-high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Grove Road: Section C through Friston	Motorists: medium	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
	Cyclists: Medium-high				
Suffolk Coastal Cycle Route: Section A Northern edge of study area to Grove Wood	Cyclists: medium – high	Low to negligible	Not significant , long-term, temporary	Low to negligible	Not significant , long-term, permanent
Suffolk Coastal Cycle Route: Section B Grove Wood (Manor Farm) to northern edge of Friston	Cyclists: medium - high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Suffolk Coastal Cycle Route: Section C Grove Road through Friston	Cyclists: medium – high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Sandlings Walk: Section A Southern edge of study area at Snape to Friston (Grove Road)	Medium – high	Low to negligible	Not significant , long-term, temporary	Low to negligible	Not significant , long-term, permanent
Sandlings Walk: Section B Friston (Grove Road) to Sloe Lane (Billeaford Hall)	Medium – high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Sandlings Walk: Section C Sloe Lane (Billeaford Hall) to Aldringham Common	Medium – high	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Sandlings Walk: Section D Aldringham Common to Sizewell	Medium – high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Sandlings Walk: Section E Sizewell to northern edge of study area south of East Bridge	Medium - high	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent

29.6.3 Potential Effects during Decommissioning

196. No decision has been made regarding the final decommissioning policy for the onshore infrastructure as it is recognised that industry best practice, rules and legislation change over time. An Onshore Decommissioning Plan will be provided, secured under the requirements of the draft DCO. The onshore substation will be likely removed and be reused or recycled. It is anticipated that the onshore cable would be decommissioned (de-energised) and either the cables and jointing bays left *in situ* or removed depending on the requirements of the Onshore Decommissioning Plan approved by Local Planning Authority. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.

29.6.4 Potential Effects of Alternative Onshore Substation Location

197. **Appendix 29.3** and **Appendix 29.4** present the project alone impacts in the eventuality that the onshore substation for the proposed East Anglia TWO project used the alternative onshore substation location, as allowed for in the draft DCO.

29.6.4.1 Construction of Onshore Substation Alternative Location

198. **Table 29.12** presents the summary of potential effects at receptors in proximity to the onshore substation alternative location.

199. In summary, the significance of landscape effects would be the same as those than those assessed for the intended development strategy in **section 29.6.1**. In

terms of visual effects, for most receptors, effects would be the same as those assessed for the intended development strategy in **section 29.6.1**.

Table 29.11 Summary of Potential Effects During Construction – East Anglia TWO Onshore Substation Alternative Location (and National Grid Infrastructure)

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Landscape Effects			
LCT 01 Ancient Estate Claylands Area 1A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , short-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , short-term and temporary over remaining areas of LCT.
Agricultural land (within Area 1A)	Low	High	Not significant , short-term, temporary
Woodland (within Area 1A)	High	Low	Not significant , short-term, temporary
Hedgerows (within Area 1A)	Medium	Medium-low	Not significant , short-term, temporary
LCT 01 Ancient Estate Claylands Area 1B East of Saxmundham	Medium-high	Low	Not significant , short-term, temporary
Ancient Estate Claylands LCT (01) Area 1C East of Grove Wood, Knodishall	Medium-high	Negligible	Not significant , short-term, temporary
Agricultural land (within Area 1C)	Low	None	Not significant , short-term, temporary
Woodland (within Area 1C)	High	None	Not significant , short-term, temporary
Hedgerows (within Area 1C)	Medium	None	Not significant , short-term, temporary
LCT 01 Ancient Estate Claylands Area 1D Leiston and Theberton	Medium-high	Negligible	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
LCT05 Coastal Dunes and Shingle Ridges	Medium-high	None	Not significant , short-term, temporary
LCT 06 Coastal Levels Area 6A Hundred River Valley, south of Aldringham	Medium	None	Not significant , short-term, temporary
LCT 06 Coastal Levels Area 6A Former large meare to the south of Thorpeness	Medium	None	Not significant , short-term, temporary
LCT 06 Coastal Levels Area 6A Marshes of the Minsmere Level	Medium	None	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7A Thorpeness to Aldringham and Friston	Medium-high	High on localised area to north of Friston within approximately 1km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , short-term and temporary on localised area to north of Friston within approximately 1km around the onshore substation and National Grid substation. Not significant , short-term and temporary over remaining areas of LCT.
Agricultural land (within Area 7A)	Low	Low	Not significant , short-term, temporary
Woodland (within Area 7A)	High	None	Not significant , short-term, temporary
Hedgerows (within Area 7A)	Medium	Low	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7B Sizewell and north of Leiston to Dunwich Forest	Medium-high	Low	Not significant , short-term, temporary
LCT 07 Estate Sandlands Area 7C Aldeburgh to Snape	Medium-high	Low	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Suffolk Coast and Heaths AONB and Heritage Coast Area A: AONB between Thorpeness, Sizewell and Leiston	High		
Landscape quality		Low	Not significant , short-term, temporary
Scenic quality		Low	Not significant , short-term, temporary
Relative wildness		Negligible	Not significant , short-term, temporary
Relative tranquillity		Negligible	Not significant , short-term, temporary
Natural heritage features		None	Not significant , short-term, temporary
Cultural heritage		Negligible	Not significant , short-term, temporary
Hundred River Valley SLA	Medium	Negligible	Not significant , short-term, temporary
Visual Effects			
Viewpoint 1: Public Right of Way near Friston House	Walkers: medium-high Residents: high	High	Significant , short-term, temporary
Viewpoint 2: Friston, Church Road	Walkers: medium-high Residents: high	High	Significant , short-term, temporary
Viewpoint 3: Grove Road, near Pear Tree Farm	Motorists: medium	Low	Not significant , long-term and temporary
Viewpoint 4: Friston, Grove Road	Walkers: medium-high Residents: high Motorists: medium	Medium	Walkers and residents: Significant , short-term, temporary Motorists: Not significant , short-term, temporary
Viewpoint 5: Public Right of Way, near Moor Farm	Walkers: medium-high Residents: high	High	Significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Viewpoint 6: Friston, Village Green	Residents: high Motorists: medium-high	Low	Not significant , short-term, temporary
Viewpoint 7: Public Right of Way, east of Friston	Walkers: medium-high	Negligible	Not significant , short-term, temporary
Viewpoint 8: B1121 Saxmundham Road, north of Friston	Residents: high Motorists: medium	Medium-high	Residents: Significant , short-term, temporary Motorists: Significant , short-term, temporary
Viewpoint 9: B1121 Aldeburgh Road, south of Friston	Residents: high Motorists: medium	Medium-low	Residents: Significant , short-term, temporary Motorists: Not significant , short-term, temporary
Viewpoint 10: B1119 Saxmundham Road	Motorists: medium	Low	Not significant , short-term, temporary
Viewpoint 11: Knodishall Hall	Residents: high	Low	Not significant , short-term, temporary
Viewpoint 12: Knodishall Common	Walkers: medium-high	Negligible	Not significant , short-term, temporary
Viewpoint 13: B1069 Snape Road	Motorists: medium	Negligible	Not significant , short-term, temporary
Viewpoint 14: Grove Road	Motorists: medium Cyclists: medium-high	High	Significant , short-term, temporary
Friston Area A (northern part)	Residents: high	High	Significant , short-term, temporary
Friston Area B (central part)	Residents: high	Low	Not significant , short-term, temporary
Friston Area C (Aldeburgh Road)	Residents: high	Medium-low	Significant , short-term, temporary
Friston Area D (southern part)	Residents: high	Low	Not significant , short-term, temporary
B1121 Aldeburgh / Saxmundham Road Section A	Motorists: medium	Negligible	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Saxmundham to north of Moor Farm (Saxmundham Road)			
B1121 Aldeburgh / Saxmundham Road Section B North of Moor Farm to Friston House (Saxmundham Road)	Motorists: medium	Medium-high	Significant , short-term, temporary
B1121 Aldeburgh / Saxmundham Road: Section C Friston House through Friston (Saxmundham Road)	Motorists: medium	Low	Not significant , short-term, temporary
B1121 Aldeburgh / Saxmundham Road: Section D South of Friston (Aldeburgh Road)	Motorists: medium	Medium-low	Not significant , short-term, temporary
Grove Road Section A Saxmundham Road to Grove Wood	Motorists: medium	Low to negligible	Not significant , short-term, temporary
Grove Road Section B Grove Wood (Manor Farm) to northern edge of Friston	Motorists: medium Cyclists: medium-high	High	Significant , short-term, temporary
Grove Road: Section C through Friston	Motorists: medium	Low	Not significant , short-term, temporary
Suffolk Coastal Cycle Route: Section A Northern edge of study area to Grove Wood	Cyclists: medium - high	Low to negligible	Not significant , short-term, temporary
Suffolk Coastal Cycle Route: Section B Grove Wood (Manor Farm) to northern edge of Friston	Cyclists: medium - high	High	Significant , short-term, temporary
Suffolk Coastal Cycle Route: Section C Grove Road through Friston	Cyclists: medium - high	Low	Not significant , short-term, temporary
Sandlings Walk: Section A Southern edge of study area at	Medium - high	Low	Not significant , short-term, temporary

Receptor	Sensitivity to change	Magnitude of Change (construction)	Significance of Effect (construction)
Snape to Friston (Grove Road)			
Sandlings Walk: Section B Friston (Grove Road) to Sloe Lane (Billeaford Hall)	Medium - high	Low	Not significant , short-term, temporary
Sandlings Walk: Section C Sloe Lane (Billeaford Hall) to Aldringham Common	Medium - high	Negligible	Not significant , short-term, temporary
Sandlings Walk: Section D Aldringham Common to Sizewell	Medium - high	Low	Not significant , short-term, temporary
Sandlings Walk: Section E Sizewell to northern edge of study area south of East Bridge	Medium - high	Negligible	Not significant , short-term, temporary

29.6.4.2 Operation of Onshore Substation Alternative Location

200. **Table 29.12** presents the summary of potential effects at receptors in proximity to the onshore substation alternative location.

201. In summary, the significance of landscape effects would be the same as those than those assessed for the intended development strategy in **section 29.6.2**. In terms of visual effects, for most receptors, effects would be the same as those assessed for the intended development strategy in **section 29.6.2**. Viewpoint 4 (Friston, Grove Road, walkers, cyclers and residents) would have a reduction in significance of effect from significant to not significant for the alternative substation location.

Table 29.12 Summary of Potential Effects During Operation - East Anglia TWO Onshore Substation Alternative Location (and National Grid Infrastructure)

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Landscape Effects					
LCT 01 Ancient Estate Claylands	Medium-high	High on localised area to north of Friston within	Significant , long-term and temporary on localised area	Medium-high, on localised area to north of Friston within	Significant , long-term and permanent on localised area to

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Area A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road		approximately 1km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	to north of Friston within approximately 1km around the onshore substation and National Grid substation. Not significant, long-term and temporary over remaining areas of LCT.	approximately 1km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	north of Friston within approximately 1km around the onshore substation and National Grid substation. Not significant, long-term and temporary over remaining areas of LCT.
LCT 01 Ancient Estate Claylands Area B East of Saxmundham	Medium-high	Low	Not significant, long-term and temporary	Low	Not significant, long-term and permanent
Ancient Estate Claylands LCT (01) Area C East of Grove Wood, Knodishall	Medium-high	Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
LCT 01 Ancient Estate Claylands Area D Leiston and Theberton	Medium-high	Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
LCT05 Coastal Dunes and Shingle Ridges	Medium-high	None	Not significant, long-term and temporary	None	Not significant, long-term and permanent
LCT 06 Coastal Levels Area A Hundred River Valley, south of Aldringham	Medium	None	Not significant, long-term and temporary	None	Not significant, long-term and permanent
LCT 06 Coastal Levels	Medium	None	Not significant,	None	Not significant, long-term and permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Area A Former large meare to the south of Thorpeness			long-term and temporary		
LCT 06 Coastal Levels Area A Marshes of the Minsmere Level	Medium	None	Not significant , long-term and temporary	None	Not significant , long-term and permanent
LCT 07 Estate Sandlands Area A Thorpeness to Aldringham and Friston	Medium-high	High on localised area to north of Friston within approximately 1km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and temporary on localised area to north of Friston within approximately 1km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.	Medium-high on localised area to north of Friston within approximately 1km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and permanent on localised area to north of Friston within approximately 1km around the onshore substation and National Grid substation. Not significant , long-term and permanent over remaining areas of LCT.
LCT 07 Estate Sandlands Area B Sizewell and north of Leiston to Dunwich Forest	Medium-high	Low	Not significant , long-term and temporary	Low	Not significant , short-term and permanent
LCT 07 Estate Sandlands Area C Aldeburgh to Snape	Medium-high	Low	Not significant , long-term and temporary	Low	Not significant , short-term and permanent
Suffolk Coast and Heaths AONB and	Medium High				

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Heritage Coast Area A: AONB between Thorpeness, Sizewell and Leiston					
Landscape quality		Low	Not significant, long-term and temporary	Low	Not significant, long-term and permanent
Scenic quality		Low	Not significant, long-term and temporary	Low	Not significant, long-term and permanent
Relative wildness		Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
Relative tranquillity		Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
Natural heritage features		None	Not significant, long-term and temporary	None	Not significant, long-term and permanent
Cultural heritage		Negligible	Not significant, long-term and temporary	Negligible	Not significant, long-term and permanent
Suffolk Coast and Heaths AONB and Heritage Coast Area B: Thorpeness, Aldeburgh to Snape		Medium-high			
Landscape quality		Low	Not significant,	Low	Not significant, long-term and permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
			long-term and temporary		
Scenic quality		Low	Not significant , long-term and temporary	Low	Not significant , long-term and permanent
Relative wildness		Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Relative tranquillity		Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Natural heritage features		None	Not significant , long-term and temporary	None	Not significant , long-term and permanent
Cultural heritage		Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Hundred River Valley SLA	Medium	Negligible	Not significant , long-term and temporary	Negligible	Not significant , long-term and permanent
Visual Effects					
Viewpoint 1: Public Right of Way near Friston House	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Viewpoint 2: Friston, Church Road	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Medium-high	Significant , long-term, permanent
Viewpoint 3: Grove Road, near Pear Tree Farm	Motorists: medium	Low	Not significant , long-term and temporary	Negligible	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Viewpoint 4: Friston, Grove Road	Walkers / cyclists: medium-high Residents: high Motorists: medium	Medium	Walkers, cyclists and residents: Significant , long-term, temporary Motorists: Not significant , long-term, temporary	Medium	Walkers, cyclists and residents: Significant , long-term, permanent Motorists: Not significant , long-term, temporary
Viewpoint 5: Public Right of Way, near Moor Farm	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Medium	Significant , long-term, permanent
Viewpoint 6: Friston, Village Green	Residents: high Motorists: medium-high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Viewpoint 7: Public Right of Way, east of Friston	Walkers: medium-high	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Viewpoint 8: B1121 Saxmundham Road, north of Friston	Residents: high Motorists: medium	Medium-high	Residents: Significant , long-term, temporary Motorists: Not significant , long-term, temporary	Medium	Residents: Significant , long-term, permanent Motorists: Not significant , long-term, permanent
Viewpoint 9: B1121 Aldeburgh Road, south of Friston	Residents: high Motorists: medium	Medium-low	Residents: Not significant , long-term, temporary Motorists: Not significant , long-term, temporary	Medium-low	Residents: Significant , long-term, permanent Motorists: Not significant , long-term, permanent
Viewpoint 10: B1119	Motorists: medium	Low	Not significant ,	Low	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Saxmundham Road			long-term, temporary		
Viewpoint 11: Knodishall Hall	Residents: high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Viewpoint 12: Knodishall Common	Walkers: medium-high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Viewpoint 13: B1069 Snape Road	Motorists: medium	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Viewpoint 14: Grove Road	Motorists: medium Cyclists: medium-high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Friston Area A (northern part)	Residents: high	High	Significant , long-term, temporary from Church Road area on northern edge of Friston. Not significant , long-term, temporary from Grove Road area of Friston.	Medium-high	Significant , long-term, permanent from Church Road area on northern edge of Friston. Not significant , long-term, permanent from Grove Road area of Friston.
Friston Area B (central part)	Residents: high	Low	Not significant , long-term, temporary	Low-negligible	Not significant , long-term, permanent
Friston Area C (Aldeburgh Road)	Residents: high	Medium-low	Significant , long-term, temporary	Medium-low	Significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Friston Area D (southern part)	Residents: high	Low	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
B1121 Aldeburgh / Saxmundham Road Section A Saxmundham to north of Moor Farm (Saxmundham Road)	Motorists: medium	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
B1121 Aldeburgh / Saxmundham Road Section B North of Moor Farm to Friston House (Saxmundham Road)	Motorists: medium	Medium-high	Not significant , long-term, temporary	Medium	Not significant , long-term, permanent
B1121 Aldeburgh / Saxmundham Road: Section C Friston House through Friston (Saxmundham Road)	Motorists: medium	Low	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
B1121 Aldeburgh / Saxmundham Road: Section D South of Friston (Aldeburgh Road)	Motorists: medium Cyclists: Medium-high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Grove Road Section A Saxmundham Road to Grove Wood	Motorists: medium Cyclists: Medium-high	Low to negligible	Not significant , long-term, temporary	Low to negligible	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Grove Road Section B Grove Wood (Manor Farm) to northern edge of Friston	Motorists: medium Cyclists: Medium-high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Grove Road: Section C through Friston	Motorists: medium Cyclists: Medium-high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Suffolk Coastal Cycle Route: Section A Northern edge of study area to Grove Wood	Cyclists: medium – high	Low to negligible	Not significant , long-term, temporary	Low to negligible	Not significant , long-term, permanent
Suffolk Coastal Cycle Route: Section B Grove Wood (Manor Farm) to northern edge of Friston	Cyclists: medium - high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Suffolk Coastal Cycle Route: Section C Grove Road through Friston	Cyclists: medium – high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Sandlings Walk: Section A Southern edge of study area at Snape to Friston (Grove Road)	Medium – high	Low to negligible	Not significant , long-term, temporary	Low to negligible	Not significant , long-term, permanent
Sandlings Walk: Section B Friston (Grove Road) to Sloe Lane	Medium – high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
(Billeaford Hall)					
Sandlings Walk: Section C Sloe Lane (Billeaford Hall) to Aldringham Common	Medium – high	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Sandlings Walk: Section D Aldringham Common to Sizewell	Medium – high	Low	Not significant , long-term, temporary	Low	Not significant , long-term, permanent
Sandlings Walk: Section E Sizewell to northern edge of study area south of East Bridge	Medium - high	Negligible	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent

29.7 Cumulative Effects

202. The East Anglia ONE North offshore windfarm project (the proposed East Anglia ONE North project) is in the application stage. The proposed East Anglia ONE North project has a separate DCO application that has been submitted at the same time as the proposed East Anglia TWO project. The two projects share the same landfall and onshore cable corridor and the onshore substations are co-located and connect into the same National Grid substation.

203. The proposed East Anglia TWO project CIA therefore initially considers the cumulative impact with only the East Anglia ONE North project.

204. The CIA considers the proposed East Anglia TWO project and the proposed East Anglia ONE North project under two construction scenarios:

- Scenario 1 - the proposed East Anglia TWO project and East Anglia ONE North are built simultaneously; and
- Scenario 2 - the proposed East Anglia TWO project and the proposed East Anglia ONE North are constructed sequentially.

205. The worst case scenario for each impact is then carried through to the wider CIA which considers other developments which are in close proximity to the proposed East Anglia TWO project.
206. The operational phase cumulative landscape and visual effects will be the same irrespective of the construction scenario and will assess the impact of the operation of the East Anglia TWO substation, East Anglia ONE North substation and National Grid substation. For a more detailed description of the assessment scenarios please refer to **Chapter 5 EIA Methodology**.
207. The cumulative LVIA focuses on the potential cumulative impacts relating to the onshore substation and National Grid substation. In respect of the East Anglia TWO landfall and onshore cable route, the relatively small scale of the construction processes involved to implement these components, combined with the limited residual impacts of buried cables during the operational stage, limit the potential for significant cumulative impacts to arise. Full details of the cumulative assessment are provided in **Appendix 29.5**.

29.7.1 Cumulative Impacts with the Proposed East Anglia ONE North Project

29.7.1.1 Cumulative Impacts with East Anglia ONE North during Construction

29.7.1.1.1 Assessment Scenarios

208. Details of the worst case assumptions relevant to the cumulative construction scenarios and cumulative operation of the proposed East Anglia TWO and proposed East Anglia ONE North projects are provided in **Appendix 29.5**.

29.7.1.1.2 Cumulative Impacts during Construction

209. The approach to the assessment of construction stage cumulative landscape and visual effects follows a two-stage process. Firstly, effects from the proposed East Anglia TWO project alone assessment in **section 29.6** are assessed for the potential to have significant cumulative effects with the proposed East Anglia ONE North project. Details of this preliminary assessment are included within **Appendix 29.5**. The preliminary assessment concluded that the same landscape and visual receptors have potential for significant cumulative impacts under construction scenario 1 and 2.
210. Secondly, a Technical Assessment of those receptors with potential to undergo significant cumulative impacts is presented in full in **Appendix 29.5** and summarised below. The summary of cumulative construction impacts presented in **Table 29.13** below shows the effects under scenario 2 only, as the likely worst-case scenario. It should be noted that the magnitude of effects are the same under construction scenario 1 and 2. The only difference being that under scenario 2 the effect is considered long-term for the construction of the onshore substations and National Grid infrastructure; and medium-term for the landfall

and onshore cable route due to the duration of construction activities including a gap between each project, whereas under scenario 1 the effect is assessed as short-term.

Table 29.13 Construction Stage Cumulative Effects with the proposed East Anglia ONE North project – Scenario 2

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
Landfall			
Cumulative Landscape Effects - Construction			
LCT07 Estate Sandlands	Medium-high	Medium-high on localised area to the north of Thorpeness within landfall.	Significant , medium-term, temporary
Suffolk Coast and Heaths AONB (and Heritage Coast) Area A	Medium-high	Medium-high on localised area to the north of Thorpeness within landfall.	Significant , medium-term, temporary
Cumulative Visual Effects - Construction			
Thorpeness (residents)	High	Low in views from a localised area on the northern and north-western edge of Thorpeness. Negligible from the majority of the central and southern areas of the settlement.	Not significant , medium-term and temporary.
B1353 Thorpeness Road (motorists)	Medium	Low from a short (750m) section of the B1353, to the west of Thorpeness, where the landfall is located to the north of the road. Negligible from the remainder of the B1353.	Not significant , medium-term and temporary.
Suffolk Coastal Path (walkers)	High	High over a short (1.0km) section of the route, to the north of Thorpeness, where the route of the path passes the landfall. Negligible over the remainder of the Suffolk Coastal Path.	Significant , medium-term and temporary over a short (1.0km) section of the route, to the north of Thorpeness, where the route of the path passes the landfall. Not significant , medium-term and temporary over the remainder of the Suffolk Coastal Path.
Sandlings Walk (walkers)	Medium - high	High over a short (1km) section of the route, to the	Significant , medium-term and temporary over a

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
		north of Thorpeness, where the route of the path passes the landfall. Negligible over the remainder of the Sandlings Walk.	short (1.0km) section of the route, to the north of Thorpeness, where the route of the path passes the landfall. Not significant , medium-term and temporary over the remainder of the Sandlings Walk.
Onshore Cable Route			
Cumulative Landscape Effects - Construction			
LCT 01 Ancient Estate Claylands Area 1A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road	Medium-high	Low, the onshore cable route is not located within this area of the LCT and is assessed as having a low to negligible change to its character.	Not significant , medium-term and temporary
LCT 01 Ancient Estate Claylands LCT Area 1C East of Grove Wood, Knodishall	Medium-high	Low magnitude of change to the landscape character of this area of the LCT, with the potential for change within a small area of the LCT, to the east of Grove Road and south of Grove Wood, where a short stretch of Section 4 of the onshore cable route passes through the southern extremity of this LCT.	Not significant , medium-term, temporary
LCT 07 Estate Sandlands Area 7A Thorpeness to Aldringham and Friston	Medium-high	Medium-low magnitude within and immediately adjacent to the onshore cable route during the construction period over sections 2 and 3 of the onshore cable route between Snape Road and the western edge of the AONB. Medium within and immediately adjacent to the onshore cable route over section 4 to the west of Snape Road, where the construction activity is likely to be more intensive due to	Significant , medium-term, temporary on the character of the Estate Sandlands LCT within and adjacent to the onshore cable route sections 1, part of section 2 and section 4. Not significant , medium-term, temporary on the character of the Estate Sandlands LCT within and adjacent to the onshore cable route over the majority of sections 2 and 3.

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
		the HGV access along the substation haul road. Medium within and immediately adjacent to the onshore cable route over section 1 and parts of section 2, where the onshore cable route is within the AONB and to the east of the dismantled railway.	
Woodland (within Area A at woodland north of Fitches Lane)	High	Medium-high	Significant , medium-term, temporary
Suffolk Coast and Heaths AONB and Heritage Coast Area A: AONB between Thorpeness, Sizewell and Leiston	High		
Landscape quality		Medium	Significant , medium-term and temporary construction stage effects on the landscape/scenic quality and relative wildness/tranquillity of Area A of the AONB will primarily be experienced over several separate short 2-3 month periods of peak construction activity and not continuously throughout the construction phase. Over the majority of the construction stage, the relevant section of the onshore cable route will not be subject to these key construction works and the onshore cable route will primarily consist of installed infrastructure and stripped topsoil to be reinstated, during which time the effects on landscape/scenic quality and relative wildness/tranquillity are considered not
Scenic quality		Medium	
Relative wildness		Medium	
Relative tranquillity		Medium	
Natural heritage features		Low	
Cultural heritage		Low	

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
			<p>significant due to the limited construction activity.</p> <p>Natural heritage features: Not significant, medium-term, temporary</p> <p>Cultural heritage: Not significant, medium-term, temporary</p>
<p>Suffolk Coast and Heaths AONB and Heritage Coast</p> <p>Area B: AONB between Thorpeness, Aldeburgh and Snape</p>	Medium-high	Low change to special qualities of landscape and scenic quality, relative wildness and tranquillity, natural heritage features and cultural heritage.	Not significant , medium-term, temporary
<p>Hundred River Valley SLA</p> <p>Area A: Hundred River Valley, south of Aldringham</p>	Medium	Medium-high over a local area, due to the felling of woodland north of Fitches Lane.	Significant , medium-term, temporary
Cumulative Visual Effects - Construction			
Aldringham (residents)	High	<p>Medium on views experienced where the onshore cable route crosses the Hundred River and Aldeburgh Road, where the construction of the onshore cable route will be visible in views from nearby dwellings in the Aldeburgh Road/Fitches Lane area and felling of an area of woodland north of Fitches Lane is required.</p> <p>Low on views experienced by residents of the majority of Aldringham on its route to the east of the settlement crossing the B1353 Thorpeness Road</p>	<p>Significant, medium-term and temporary on views experienced by residents of the Aldeburgh Road/Fitches Lane area of Aldringham.</p> <p>Not significant, medium-term, temporary on views experienced by residents of the majority of Aldringham.</p>
Coldfair Green (residents)	High	Medium in views experienced from a small group of dwellings on the southern edge of the settlement on Snape Road,	Significant , medium-term and temporary on views experienced by residents of a small group of dwellings on Snape Road

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
		<p>close to where the onshore cable route crosses Sloe Lane and Snape Road.</p> <p>Negligible from the majority of the settlement where there will be no direct views of the onshore infrastructure. Low in views from a localised area around the Fitches/Buxlow Close on the southern edge of the settlement.</p>	<p>on southern edge of Coldfair Green.</p> <p>Not significant, medium-term, temporary from the majority of the settlement.</p>
Friston (residents)	High	<p>Medium from a localised area on the northern edge of Friston.</p> <p>Negligible from the majority of central and southern areas of Friston, where there will be no direct views of the onshore cable route during construction.</p>	<p>Significant, medium-term, temporary on views experienced by residents of the northern edges of Friston.</p> <p>Not significant, medium-term, temporary on views experienced from the majority of central and southern areas of Friston.</p>
B1353 Thorpeness Road (motorists)	Medium	<p>High over a short 500m section of the B1353 to the east of Aldringham where the onshore cable route crosses the B1353.</p> <p>Negligible over the remainder of the B1353.</p>	<p>Significant, medium-term, temporary on views experienced by motorists over 500m section east of Aldringham.</p> <p>Not significant, short-term and temporary on the B1353 as a whole.</p>
B1122 Aldeburgh Road (motorists)	Medium	<p>High over a short 250m section of the B1122, to the south of Aldringham, where the onshore cable route crosses the B1122.</p> <p>Negligible over the remainder of the B1122.</p>	<p>Significant, medium-term, temporary on views experienced by motorists over a short 250m section of the B1122, to the south of Aldringham, where the onshore cable route crosses the B1122.</p> <p>Not significant, medium-term, temporary on the B1122 as a whole.</p>
B1069 Snape Road (motorists)	Medium	<p>High over a short 500m section of the B1069, to the south of Coldfair Green, where the onshore cable route crosses the B1069.</p>	<p>Significant, medium-term, temporary on views experienced by motorists over a short 500m section of the B1069, to the south of Coldfair Green, where</p>

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
		Negligible over the remainder of the B1069.	the onshore cable route crosses the B1069. Not significant , medium-term, temporary on the B1069 as a whole.
Suffolk Coastal Path (walkers)	High	High over a short 1.8km section of the route to the north of Thorpeness, where the onshore cable route crosses or is close to the Suffolk Coastal Path. Negligible over the remainder of the Suffolk Coastal Path.	Significant , medium-term, temporary on views experienced by walkers over a short 1.8km section of the route to the north of Thorpeness, where the onshore cable route crosses or is adjacent to the Suffolk Coastal Path Not significant , medium-term, temporary on the Suffolk Coastal Path as a whole.
Sandlings Walk (walkers)	Medium - high	High over two sections of the route: from the edge of Friston to Sloe Lane for approximately 2.2km where the route runs parallel to and subsequently crosses the onshore cable route; and from the edge of Aldringham Common to Sizewell for approximately 1.7km where the route crosses through and then runs parallel to the onshore cable route. Negligible for the remainder of the route of the Sandlings Walk.	Significant , medium-term and temporary on views experienced by walkers over approximately 2.2km section between Friston and Sloe Lane; and over a 1.7km section between Aldringham Common and Sizewell. Not significant , medium-term, temporary on the Sandlings Walk as a whole.
Suffolk Coastal Cycle Route (cyclists)	Medium - high	High over a short 500m section of the route, along Grove Road between Friston and Grove Wood, where the onshore cable route crosses or is close to the route of Suffolk Coastal Cycle Route. Negligible for the remainder of the route of the Suffolk Coastal Cycle Route.	Significant , medium-term and temporary on views experienced by cyclists over approximately 500m section on Grove Road between Friston and Grove Wood. Not significant , medium-term, temporary on the Suffolk Coastal Cycle Route as a whole.

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
Onshore Substation and National Grid Infrastructure			
Cumulative Landscape Effects - Construction			
LCT 01 Ancient Estate Claylands Area 1A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , medium-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , medium-term and temporary over remaining areas of LCT.
LCT 07 Estate Sandlands Area 7A Thorpeness to Aldringham and Friston	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , medium-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.
Woodland (within Area 7A)	High	Medium-high due to the combined impact of felling small area of Laurel Covert woodland at the edge of the proposed East Anglia TWO project onshore substation and stand of vegetation within the proposed East Anglia ONE North project onshore substation	Significant , medium-term, temporary
Cumulative Visual Effects - Construction			
Viewpoint 1: Public Right of Way near Friston House	Walkers: medium-high Residents: high	High	Significant , medium-term, temporary
Viewpoint 2: Friston, Church Road	Walkers: medium-high	High	Significant , medium-term, temporary

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
	Residents: high		
Viewpoint 4: Friston, Grove Road	Walkers: medium-high Residents: high Motorists: medium	Medium	Walkers and residents: Significant , medium-term, temporary Motorists: Significant , long-term, temporary
Viewpoint 5: Public Right of Way, near Moor Farm	Walkers: medium-high Residents: high	High	Significant , medium-term, temporary
Viewpoint 8: B1121 Saxmundham Road, north of Friston	Residents: high Motorists: medium	Medium-high	Residents: Significant , medium-term, temporary Motorists: Significant , medium-term, temporary
Viewpoint 9: B1121 Aldeburgh Road, south of Friston	Residents: high Motorists: medium	Medium	Residents: Significant , medium-term, temporary Motorists: Not significant , medium-term, temporary
Viewpoint 14: Grove Road	Motorists: medium Cyclists: medium-high	High	Motorists: Significant , medium-term, temporary Cyclists: Significant , medium-term, temporary
Friston Area A (northern part)	Residents: high	High	Significant , medium-term, temporary
Friston Area B (central part)	Residents: high	Low	Not significant , medium-term, temporary
Friston Area C (Aldeburgh Road)	Residents: high	Medium	Significant , medium-term, temporary
Friston Area D (southern part)	Residents: high	Low	Not significant , medium-term, temporary
B1121 Aldeburgh / Saxmundham Road Section B North of Moor	Motorists: medium	Medium-high	Significant , medium-term, temporary

Receptor	Sensitivity to change	Cumulative magnitude of change East Anglia TWO and East Anglia ONE North (construction)	Significance of Cumulative Effect East Anglia TWO and East Anglia ONE North (construction)
Farm to Friston House (Saxmundham Road)			
Grove Road Section B Grove Wood (Manor Farm) to northern edge of Friston	Motorists: medium	High	Significant , medium-term, temporary
Suffolk Coastal Cycle Route: Section B Grove Wood (Manor Farm) to northern edge of Friston	Cyclists: medium - high	High	Significant , medium-term, temporary

29.7.1.2 Cumulative Effects with East Anglia ONE North during Operation

29.7.1.2.1 Cumulative Effects during Operation

211. The approach to the assessment of cumulative landscape and visual effects during operation follows a two-stage process. Firstly, effects from project alone assessment in **section 29.6** are assessed for the potential to have significant cumulative effects with the proposed East Anglia ONE North project. Details of this preliminary assessment are included within **Appendix 29.5**. Secondly, a Technical Assessment of those receptors with potential to undergo significant cumulative impacts is presented in full in **Appendix 29.5** and summarised below.
212. The potential cumulative effects during operation would occur in relation to the presence of East Anglia TWO and East Anglia ONE North onshore substations and National Grid infrastructure. The assessment considers potential cumulative effects on the landscape character and visual amenity of the site and surrounding area, taking into account the maturing of mitigation planting during the operational phase.

Table 29.14 Operational Cumulative Effects with the proposed East Anglia ONE North project

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Onshore Cable Route					
Cumulative Landscape Effects - Operation					
LCT 07 Estate Sandlands Area A Thorpeness to Aldringham and Friston	Medium-high	Medium-high within a local area of the LCT, due to the felling of woodland north of Fitches Lane. Low/negligible over the remainder of this area of the LCT.	Significant , long-term, permanent within a local area of the LCT, due to the felling of woodland north of Fitches Lane Not significant , long-term, permanent over the remainder of this area of the LCT and the LCT as a whole.	Low within a local area of the LCT, following reinstatement of area north of Fitches Lane. Low/negligible over the remainder of this area of the LCT.	Not significant , long-term, permanent.
Woodland (within Area A)	High	Medium-high due to felling of mature woodland at woodland north of Fitches Lane.	Significant, short-term, temporary due to felling of mature woodland at woodland north of Fitches Lane.	Medium-high due to felling of mature woodland at woodland north of Fitches Lane.	Not significant , long-term, permanent once replanted woodland established along the outer edges of the onshore cable route has established after 5 years .
Hundred River Valley SLA Area A: Hundred River Valley, south of Aldringham	Medium	Medium-high within a local area, due to the felling of woodland north of Fitches Lane. Low/negligible over the remainder of the SLA.	Significant , long-term, permanent within a local area of the SLA, due to the felling of woodland north of Fitches Lane. Not significant ,	Low within a local area of SLA, following reinstatement of area north of Fitches Lane. Low/negligible over the remainder of the SLA.	Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
			long-term, permanent over the remainder of the SLA and the SLA as a whole.		
Onshore Substations and National Grid Infrastructure					
Cumulative Landscape Effects - Operation					
LCT 01 Ancient Estate Claylands Area A North of Friston, between Grove Road, Fristonmoor and Saxmundham Road	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.	Medium-high, on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and permanent on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.
LCT 07 Estate Sandlands Area A Thorpeness to Aldringham and Friston	Medium-high	High on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and temporary on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and temporary over remaining areas of LCT.	Medium-high on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Low to negligible over remaining areas of the LCT.	Significant , long-term and permanent on localised area to north of Friston within approximately 1.0km around the onshore substation and National Grid substation. Not significant , long-term and permanent over remaining areas of LCT.

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Cumulative Visual Effects					
Viewpoint 1: Public Right of Way near Friston House	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Viewpoint 2: Friston, Church Road	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Medium-high	Significant , long-term, permanent
Viewpoint 4: Friston, Grove Road	Walkers: medium-high Residents: high Motorists: medium	Medium	Walkers and residents: Significant , long-term, temporary Motorists: Significant , long-term, temporary	Medium	Significant , long-term, permanent
Viewpoint 5: Public Right of Way, near Moor Farm	Walkers: medium-high Residents: high	High	Significant , long-term, temporary	Medium	Significant , long-term, permanent
Viewpoint 8: B1121 Saxmundham Road, north of Friston	Residents: high Motorists: medium	Medium-high	Residents: Significant , long-term, temporary Motorists: Significant , long-term, temporary	Medium	Residents: Significant , long-term, permanent Motorists: Not significant , long-term, permanent
Viewpoint 9: B1121 Aldeburgh Road, south of Friston	Residents: high Motorists: medium	Medium	Residents: Significant , long-term, temporary Motorists: Not significant , long-term, temporary	Medium	Residents: Significant , long-term, permanent Motorists: Not significant , long-term, permanent

Receptor	Sensitivity to change	Magnitude of Change (operation, first year of operational phase)	Significance of Effect (operation, first year of operational phase)	Magnitude of Change (operation, 15 years post construction)	Significance of Effect (operation, 15 years post construction)
Friston Area A (northern part)	Residents: high	High	Significant , long-term, temporary	Medium-high	Significant , long-term, permanent
Friston Area B (central part)	Residents: high	Low	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Friston Area C (Aldeburgh Road)	Residents: high	Medium	Significant , long-term, temporary.	Medium	Significant , long-term, permanent
Friston Area D (southern part)	Residents: high	Low	Not significant , long-term, temporary	Negligible	Not significant , long-term, permanent
Grove Road Section B Grove Wood (Manor Farm) to northern edge of Friston	Motorists: medium	High	Significant , long-term, temporary	Medium-high	Significant , long-term, permanent
Suffolk Coastal Cycle Route: Section B Grove Wood (Manor Farm) to northern edge of Friston	Cyclists: medium - high	High	Significant , long-term, temporary	Medium-high	Significant , long-term, permanent

29.7.1.2.2 Cumulative Effects during Operation – Onshore Cable Route

29.7.1.2.2.1 Cumulative Landscape Effects – Onshore Cable Route

213. The largest physical loss of mature woodland as a result of the onshore cable route occurs north of Fitches Lane. At this location, the onshore cable route is routed across the woodland north of Fitches Lane as this is the only identified location where the cable route can cross Aldeburgh Road (**section 4.5.5.7**). The Applicant has committed to reducing the cable swathe to 27.1m for East Anglia TWO and East Anglia ONE North, to retain as many trees as possible at this location. The onshore development area has been refined so that woodland is

retained acting as screening between residential properties on Fitches Lane and the onshore cable route and also between the onshore cable route and Aldringham Court Nursing Home. The physical effect of the onshore cable route arising due to the physical loss of this landscape element, the woodland at this location, is assessed as **significant**, short-term (year 1 of operation) and temporary.

214. The change to the perceived character in the vicinity of this woodland, within a localised area of the Estate Sandlands LCT and the Hundred River Valley SLA, will however be reduced through reinstatement. This section of onshore cable route, north of Fitches Lane, will be reinstated through the establishment of heathland over the onshore cables and further woodland planting along the outer edges of the onshore cable route, outside a minimum offset distance from the onshore cables. The landscape and ecological mitigation proposals for this area are presented within the OLEMS submitted with the DCO application. The change to the perceived character in the vicinity of this woodland, within a localised area of the Estate Sandlands LCT and the Hundred River Valley SLA, is therefore assessed as being **not significant**, long-term and permanent during the operational period. The changes to the setting of the AONB during the operational period, as a result of the felling of woodland to facilitate the crossing of Aldeburgh Road, are assessed as **not significant**.

29.7.1.2.2.2 Cumulative Visual Effects – Onshore Cable Route

215. The loss of woodland as a result of the onshore cable route at woodland north of Fitches Lane, will also give rise to visual effects where people experience changes in views that are currently influenced by this woodland in the baseline. The Applicant has committed to reducing the cable swathe to 27.1m for East Anglia TWO and East Anglia ONE North, to retain as many trees as possible at this location, therefore reducing effects on local views and visual amenity.
216. The felling of this area of woodland to allow for the construction of the onshore cable route will be visible in localised views from the B1122 Aldeburgh Road and will change the visual amenity experienced from a short section of the road, creating more open views from a localised section immediately passing the woodland, which is currently enclosed on either side by mature woodland. The change resulting from the felling of this area of woodland is also likely to be visible in views experienced by local residents of this local area around Aldeburgh Road and Fitches Lane. The onshore development area has been refined so that woodland is retained acting as screening between residential properties on Fitches Lane and the onshore cable route and also between the onshore cable route and Aldringham Court Nursing Home. This section of the onshore cable route, to the north of Fitches Lane, will also be reinstated through the establishment of heathland over the onshore cables and further woodland

planting along the outer edges of the onshore cable route, outside a minimum offset distance from the onshore cables. The operational effect resulting from changes to views and visual amenity experienced by motorists and residents in the vicinity of this woodland is therefore assessed as being **not significant**, long-term and permanent during the operational period.

29.7.1.3 Cumulative Effects during Decommissioning with East Anglia ONE North

217. No decision has been made regarding the final decommissioning policy for the onshore infrastructure as it is recognised that industry best practice, rules and legislation change over time. An Onshore Decommissioning Plan will be provided, secured under the requirements of the draft DCO. The onshore substation will be likely removed and be reused or recycled. It is anticipated that the onshore cable would be decommissioned (de-energised) and either the cables and jointing bays left *in situ* or removed depending on the requirements of the Onshore Decommissioning Plan approved by Local Planning Authority. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.

29.7.2 Cumulative Effects with Other Developments

218. Following a review of projects which have the potential to overlap temporally or spatially with the proposed East Anglia TWO project, two developments have been scoped into the CIA. **Table 29.15** provides detail regarding the projects.
219. The full list of projects for consideration has been developed in consultation with the Local Planning Authority. The remainder of the section details the nature of the cumulative effects against all those receptors scoped in for cumulative assessment.

Table 29.15 Summary of Projects Considered for the CIA in Relation to LVIA

Project Name	Status	Development Period	² Distance from East Anglia TWO Onshore Development Area	Project Definition	Level of Information Available	Included in CIA	Rationale
Sizewell C New Nuclear Power Station	PEIR formally submitted 04.01.19.	Application expected in 2020. Construction expected to commence in 2021.	1.4km	A new nuclear power station at Sizewell in Suffolk. Located to the north of the existing Sizewell B Power Station Complex, Sizewell C New Nuclear Power Station would have an expected electrical capacity of approximately 3,260 megawatts (MW). Full PEIR available: https://www.edfenergy.com/download-centre?keys=&tid=1380&year%5Bvalue%5D%5Byear%5D=	Tier 5 ³	Yes	Potential overlap of construction and operational phases
Sizewell B Power Station Complex	Planning application formally submitted 18.04.19. Awaiting Decision.	Construction expected to commence in 2022. Expected construction timetable of 53 months. Peak construction is expected in 2022, completion of	1.4km	The demolition and relocation of facilities at the Sizewell B Power Station Complex. In outline, demolition of various existing buildings (including the outage store, laydown area, operations training centre and technical training facility), and erection of new buildings, including a visitor centre, and the construction of new access road, footpath and amended junction at Sizewell Gap; and associated landscaping and earthworks/recontouring.	Tier 4 ⁴	No	Scoped out of the LVIA due to the form of the SZB proposals which comprises car parking/ laydown areas/ visitor centre in a location embedded

² Shortest distance between the considered project and East Anglia TWO– unless specified otherwise

³ Based on criteria set out in **section 5.7.2 of Chapter 5 EIA Methodology**

⁴ Based on the definition of Tier 4 outlined in **section 5.7.2 of Chapter 5 EIA Methodology**

Project Name	Status	Development Period	² Distance from East Anglia TWO Onshore Development Area	Project Definition	Level of Information Available	Included in CIA	Rationale
		construction expected in 2027.		Full planning application available: https://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=PQ5NVGQXJJ100			next to and within the existing SZB area, it's distance from and lack of inter-visibility with the East Anglia TWO onshore substation/National Grid infrastructure

29.7.2.1.1 Cumulative Effects with Sizewell C during Construction

220. Landscape and visual effects from the proposed East Anglia TWO project alone assessment in **section 29.6** are assessed for the potential to have significant cumulative effects with the proposed East Anglia One North project and Sizewell C New Nuclear Power Station. Details of this preliminary assessment are included within **Appendix 29.5**. Secondly, a Technical Assessment of those receptors with potential to undergo significant cumulative impacts is presented in full in **Appendix 29.5** and summarised below in **Table 29.16** and **Table 29.17**.

29.7.2.1.2 Cumulative Effects with Sizewell C during Construction

221. **Table 29.16** shows the construction stage cumulative effects with the Sizewell C New Nuclear Power Station project.

Table 29.16 Construction Stage Cumulative Effects with Sizewell C – Summary Assessment

Receptor	Sensitivity to change	Cumulative magnitude of change with Sizewell C (construction)	Significance of Cumulative Effect with Sizewell C (construction)
Landfall			
Cumulative Landscape Effects			
LCT07 Estate Sandlands	Medium-high	Low due to the distance between the landfall and Sizewell C, their visual separation by large areas of Sandlings Forest and coastline, and the relatively small scale of the construction works/footprint of the landfall.	Not significant , medium-term and temporary
Suffolk Coast and Heaths AONB (and Heritage Coast)	Medium-high	Low due to the distance between the landfall and Sizewell C, their visual separation by large areas of Sandlings Forest and coastline, and the relatively small scale of the construction works/footprint of the landfall.	Not significant , medium-term and temporary
Cumulative Visual Effects			
Suffolk Coastal Path (walkers)	Medium-high	High sequential change to views experienced over a 1km section of the route, to the north of Thorpeness and over a 5km section of the route between Sizewell and Dunwich Heath. Low over the remainder of the Suffolk Coastal Path.	Significant , medium-term and temporary sequential effect to views experienced over a 1km section of the route, to the north of Thorpeness, and over a 5km section of the route between Sizewell and Dunwich Heath.

Receptor	Sensitivity to change	Cumulative magnitude of change with Sizewell C (construction)	Significance of Cumulative Effect with Sizewell C (construction)
			Not significant , medium-term and temporary over the remainder of the Suffolk Coastal Path.
Sandlings Walk (walkers)	Medium-high	High sequential change to views experienced over a 1.0km section of the route, to the north of Thorpeness, and over a 6km section of the route between Sizewell, Minsmere Haven, Leiston Abbey and Eastbridge. Low over the remainder of the Sandlings Walk.	Significant , medium-term and temporary sequential effect to views experienced over a 1km section of the route, to the north of Thorpeness, and over a 6km section of the route between Sizewell, Minsmere Haven, Leiston Abbey and Eastbridge. Not significant, medium-term and temporary over the remainder of the Sandlings Walk.
Onshore cable route			
Cumulative Landscape Effects			
LCT 07 Estate Sandlands Area A Thorpeness to Aldringham and Friston	Medium-high	High on the character of Area A of the Estate Sandlands LCT between Thorpeness, Sizewell, Leiston and Aldringham. Low change to the landscape character to the west of Aldringham.	Significant , medium-term and temporary on the character of Area A of the Estate Sandlands LCT between Thorpeness, Sizewell, Leiston and Aldringham. Not significant , medium-term and temporary change to the landscape character to the west of Aldringham.
LCT 07 Estate Sandlands Area B Sizewell and north of Leiston to Dunwich Forest	Medium	High on the character of Area B of the Estate Sandlands LCT, primarily arising as a result of the contribution of Sizewell C construction.	Significant , medium-term and temporary on the character of Area B of the Estate Sandlands LCT, primarily arising as a result of the contribution of Sizewell C construction.
Suffolk Coast and Heaths AONB (and Heritage Coast) Area A: AONB between Thorpeness, Sizewell and Leiston	High	High on the character and special qualities of Area A the Suffolk Coast and Heaths AONB between Thorpeness, Sizewell and Leiston.	Significant , medium-term and temporary on the character and special qualities of the AONB between Thorpeness, Sizewell and Leiston. Not significant , medium-term and temporary

Receptor	Sensitivity to change	Cumulative magnitude of change with Sizewell C (construction)	Significance of Cumulative Effect with Sizewell C (construction)
		Low change to the landscape character to the west of Aldringham.	change to the landscape character to the west of Aldringham.
Suffolk Coast and Heaths AONB (and Heritage Coast) Area C: Sizewell and Dunwich Forest	Medium	High on the character and special qualities of Area C of the AONB, primarily arising as a result of the contribution of Sizewell C construction in the area near Sizewell Power station.	Significant , medium-term and temporary on the character and special qualities of Area C of the AONB, primarily arising as a result of the contribution of Sizewell C construction in the area near Sizewell Power station.
Cumulative Visual Effects			
Leiston (residents)	High	Negligible from the majority of the settlement. Low from localised areas along the eastern edges of Leiston.	Not significant , medium-term, temporary.
B1122 Aldeburgh Road (motorists)	Medium	Medium, sequential change due to views of the onshore cable corridor construction over a short 250m section of the B1122 to the south of Aldringham and views of the Sizewell C construction area over a 1.5km section of the B1122 between Leiston and Theberton. Low/negligible over the remainder of the B1122.	Not significant , medium-term and temporary sequential effect due to views of the onshore cable corridor construction over a short 250m section of the B1122 to the south of Aldringham and over a 1.5km section of the B1122 between Leiston and Theberton.
Suffolk Coastal Path (walkers)	Medium-high	High sequential change to views experienced over a 1.8km section of the route to the north of Thorpeness and over a 5km section of the route between Sizewell and Dunwich Heath, where the changes primarily arise as a result of the contribution of Sizewell C construction. Low over the remainder of the Suffolk Coastal Path.	Significant , medium-term and temporary sequential effect to views experienced over a 1.8km section of the route to the north of Thorpeness and over a 5km section of the route between Sizewell and Dunwich Heath, where the changes primarily arise as a result of the contribution of Sizewell C construction. Not significant , medium-term and temporary over the remainder of the Suffolk Coastal Path.

Receptor	Sensitivity to change	Cumulative magnitude of change with Sizewell C (construction)	Significance of Cumulative Effect with Sizewell C (construction)
Sandlings Walk (walkers)	Medium-high	High sequential change to views experienced due to visibility over three sections of the route: from the edge of Friston to Sloe Lane for approximately 2.2km; from the edge of Aldringham Common to Sizewell for approximately 1.7km; and over a 6km section of the route between Sizewell, Minsmere Haven, Leiston Abbey and Eastbridge where the changes primarily arise as a result of the contribution of Sizewell C construction. Low over the remainder of the Sandlings Walk.	Significant , medium-term and temporary sequential effect to views experienced over three sections of the route: from the edge of Friston to Sloe Lane for approximately 3.5km; from the edge of Aldringham Common to Sizewell for approximately 1.7km; and over a 6km section of the route between Sizewell, Minsmere Haven, Leiston Abbey and Eastbridge where the changes primarily arise as a result of the contribution of Sizewell C construction. Not significant , medium-term and temporary over the remainder of the Sandlings Walk.
Suffolk Coastal Cycle Route (cyclists)	Medium-high	High sequential change to views experienced over two sections of the route: a short 500m section of the route, along Grove Road between Friston and Grove Wood; and from a 2.5km section between Leiston Abbey and Eastbridge where the changes primarily arise as a result of the contribution of Sizewell C construction. Low over the remainder of the Suffolk Coastal Cycle Route.	Significant , medium-term and temporary sequential effect to views experienced over two sections of the route: a short 500m section of the route, along Grove Road between Friston and Grove Wood; and from a 2.5km section between Leiston Abbey and Eastbridge where the changes primarily arise as a result of the contribution of Sizewell C construction. Not significant , medium-term and temporary over the remainder of the Suffolk Coastal Cycle Route.
Onshore Substations and National Grid Infrastructure			
Cumulative Landscape Effects			
LCT 07 Estate Sandlands Area A	Medium-high	Low due to the long distance between the onshore substation/National Grid substation and Sizewell C,	Not significant , medium-term and temporary.

Receptor	Sensitivity to change	Cumulative magnitude of change with Sizewell C (construction)	Significance of Cumulative Effect with Sizewell C (construction)
Thorpeness to Aldringham and Friston		their visual separation by areas of woodland/urban development, and the very different geographic areas of the LCT that may be influenced by each.	
LCT 07 Estate Sandlands Area B Sizewell and north of Leiston to Dunwich Forest	Medium	Low due to the long distance between the onshore substation/National Grid substation and Sizewell C, their visual separation by areas of woodland/urban development, and the very different geographic areas of the LCT that may be influenced by each.	Not significant , medium-term and temporary.

29.7.2.1.3 Cumulative Effects with Sizewell C during Operation

222. **Table 29.17** shows the operational stage cumulative effects with the Sizewell C New Nuclear Power Station project.

Table 29.17 Operational Stage Cumulative Impacts with Sizewell C – Summary Assessment

Receptor	Sensitivity to change	Cumulative magnitude of change with Sizewell C (1 st year of operation)	Significance of Cumulative Effect with Sizewell C (, 1 st year of operation)	Cumulative magnitude of change with Sizewell C (15 years post construction)	Significance of Cumulative Effect with Sizewell C (15 years post construction)
Onshore Substations and National Grid Infrastructure					
Cumulative Landscape Effects					
LCT 07 Estate Sandlands Area A Thorpeness to Aldringham and Friston	Medium-high	Low	Not significant , long-term and temporary	Low	Not significant , long-term and permanent
LCT 07 Estate Sandlands Area B Sizewell & north of Leiston to Dunwich Forest	Medium	Low	Not significant , long-term and temporary	Low	Not significant , long-term and permanent

29.8 Inter-relationships

223. Inter-relationships are considered to be the effects and associated effects of different aspects of the proposed East Anglia TWO project on the same receptor. In the LVIA, these inter-related effects are considered to be receptor led effects, where specific receptors may be affected by both the proposed East Anglia TWO offshore infrastructure and the onshore infrastructure. There is potential for effects to interact, spatially and temporally, to create inter-related effects on a receptor.
224. An assessment of inter-related effects has been undertaken in **section 28.11** of **Chapter 28 Seascape, Landscape and Visual Impact Assessment** to assess any areas where the proposed East Anglia TWO offshore infrastructure and onshore infrastructure combine, or inter-relate, to have an effect, for example visibility of the proposed East Anglia TWO offshore development area and the onshore substation or cable landfall from a particular viewpoint, may interact to produce a different, or greater effect on a receptor than when the effects are considered in isolation. The combined effects of the proposed East Anglia TWO offshore infrastructure and onshore infrastructure on the character of the Suffolk Coast and Heaths AONB are assessed in **section 28.11** of **Chapter 28 Seascape, Landscape and Visual Impact Assessment**. Receptor-led effects might be short-term, temporary or transient effects, or incorporate longer term effects.
225. A description of the likely inter-related effects arising from the proposed East Anglia TWO project is provided in **section 28.11 of Chapter 28 Seascape, Landscape and Visual Impact Assessment**.
226. **Table 29.18** lists out the other inter-relationships between this chapter and other chapters within the ES.

Table 29.18 Chapter Topic Inter-relationships

Inter-relationship all Phases and Linked Chapter	Section where Addressed	Rationale
Chapter 22 Onshore Ecology	Section 29.6 (all impacts) and Appendix 29.3 (Landscape Assessment) Section 29.3.3 (embedded mitigation) and section 29.3.3.1	Both chapters consider the potential effects of hedgerow and tree removals, the LVIA considering the impact on hedgerows and trees as landscape elements, and the Onshore Ecology assessment considering the impact on hedgerows and trees as important ecological assets. Both chapters consider the mitigation of hedgerow and tree loss in respect of proposals to replant. The OLEMS set out the approach to replanting and the LVIA assesses the mitigation of landscape and visual effects.

Inter-relationship all Phases and Linked Chapter	Section where Addressed	Rationale
	(landscape mitigation)	
Chapter 24 Archaeology and Cultural Heritage	Section 29.6 (all impacts) Appendix 29.3 (Landscape Assessment) and 29.4 (Visual Assessment)	Both chapters consider the potential effects of the proposed East Anglia TWO project on designated Registered Parks and Gardens and their setting within the landscape.
Chapter 30 Tourism, Recreation and Socio- Economics	Section 29.6 (all impacts). Appendix 29.4 (Visual Assessment)	Both chapters consider the potential effects of the onshore substation, National Grid substation and onshore cable route on the visual amenity of recreational users in the local area.

29.9 Interactions

227. The impacts identified and assessed in this chapter have the potential to interact with each other, which could give rise to synergistic impacts as a result of that interaction. The areas of interaction between impacts are presented in **Table 29.19**, along with an indication as to whether the interaction may give rise to synergistic impacts. This provides a screening tool for which impacts have the potential to interact.
228. **Table 29.20** then provides an assessment for each receptor (or receptor group) related to these impacts in two ways. Firstly, the impacts are considered within a development phase (i.e. construction, operation or decommissioning) to see if, for example, multiple construction impacts could combine. Secondly, a lifetime assessment is undertaken which considers the potential for impacts to affect receptors across development phases. The significance of each individual impact is determined by the sensitivity of the receptor and the magnitude of effect; the sensitivity is constant whereas the magnitude may differ. Therefore, when considering the potential for impacts to be additive it is the magnitude of effect which is important – the magnitudes of the different effects are combined upon the same sensitivity receptor. If minor impact and minor impact were added this would effectively double count the sensitivity.
229. The receptor considered in the landscape and visual impact assessment is:
- Landscape and visual.

Table 29.19 Interaction between Effects

Potential Interactions between Impacts				
Construction	1 Changes to landscape elements	2 Changes to landscape character	3 Changes to landscape designations	4 Changes to visual amenity
1 Changes to landscape elements	-	Yes	Yes	Yes
2 Changes to landscape character	Yes	-	Yes	Yes
3 Changes to landscape designations	Yes	Yes	-	Yes
4 Changes to visual amenity	Yes	Yes	Yes	-
Operation	1 Changes to landscape elements	2 Changes to landscape character	3 Changes to landscape designations	4 Changes to visual amenity
1 Changes to landscape elements	-	Yes	Yes	Yes
2 Changes to landscape character	Yes	-	Yes	Yes
3 Changes to landscape designations	Yes	Yes	-	Yes
4 Changes to visual amenity	Yes	Yes	Yes	-

Table 29.20 Potential Interactions between Impacts on Landscape and Visual Impact Receptors

Receptor	Construction	Operational	Decommissioning	Phase Assessment	Lifetime Assessment
Landscape and visual	Not significant	Significant	Not significant	<p>No greater than individually assessed impact</p> <p>Although the assessment is broken down into different receptors based upon both physical and policy definitions (visual amenity, landscape character, seascape character and landscape designations), the actual receptor is the same in each case i.e. the people perceiving the effect. Therefore, these people will only perceive the effect in one way (visually), not via multiple pathways simultaneously.</p>	<p>No greater than individually assessed impact</p> <p>Although the assessment is broken down into different receptors based upon both physical and policy definitions (visual amenity, landscape character, seascape character and landscape designations), the actual receptor is the same in each case i.e. the people perceiving the effect. Therefore, these people will only perceive the effect in one way (visually), at one point in time, and will not experience the construction, operation and decommissioning phases simultaneously</p>

29.10 Summary

230. This section summarises the LVIA undertaken with the inclusion of all embedded mitigation and landscape mitigation (see **section 29.3.3 and section 29.3.3.1**). A signposting of the findings of the ES for LVIA, referring to tables within this chapter, is presented in **Table 29.21**.

Table 29.21 Summary of Potential Effects Identified for LVIA

Potential Effect	Signpost	Summary of Mitigation Measures
Construction		
Landfall		
Effects on landscape character	See Table 29.7.	Reinstatement of ground and landscape elements at transition bay and HDD compound at the end of construction phase.
Effects on landscape elements	See Table 29.7.	Reinstatement of landscape elements at end of construction phase.
Visual effects	See Table 29.7.	Reinstatement of ground and landscape elements at transition bay and HDD compound at the end of construction phase.
Onshore Cable Corridor		
Effects on landscape character	See Table 29.10.	Reinstatement of ground and landscape elements within onshore cable corridor at the end of construction phase.
		Establishment of heathland habitat and partial reinstatement of woodland north of Fitches Lane at the end of construction phase.
Effects on special qualities	See Table 29.10.	Reinstatement of ground and landscape elements within onshore cable corridor at the end of construction phase.
Effects on landscape elements	See Table 29.10.	Establishment of heathland habitat and partial reinstatement of woodland north of Fitches Lane at the end of construction phase.
Visual effects	See Table 29.10.	Reinstatement of ground and landscape elements within onshore cable corridor at the end of construction phase.
Onshore Substation and National Grid Infrastructure		
Effects on landscape character	See Table 29.111.	Landscape mitigation plan (Figure 29.11a-b and Figure 29.12) (section 29.3.3.1).

Potential Effect	Signpost	Summary of Mitigation Measures
Visual effects	See Table 29.11.	Landscape mitigation plan (Figure 29.11a-b and Figure 29.12) (section 29.3.3.1).
Operation		
Onshore Cable Corridor		
Effects on landscape character	See section 29.6.2.1.1.	Establishment of heathland habitat and partial reinstatement of woodland north of Fitches Lane at the end of construction phase.
Effects on landscape elements	See section 29.6.2.1.1.	
Visual effects	See section 29.6.2.1.2.	
Onshore Substation and National Grid Infrastructure		
Effects on landscape character	See Table 29.12.	Landscape mitigation plan (Figure 29.11a-b and Figure 29.12) (section 29.3.3.1).
Visual effects	See Table 29.12.	Landscape mitigation plan (Figure 29.11a-b and Figure 29.12) (section 29.3.3.1).

231. The LVIA has been undertaken within a study area defined by a 3km buffer from the onshore development area as shown on **Figure 29.1**. A precautionary approach to the methodology has been taken for the purposes of the LVIA chapter so that all potential effects are assessed for inclusion. The LVIA study area defines a limit, based on professional judgement, beyond which it is considered unlikely for significant effects to arise.
232. This LVIA chapter provides a summary of the significant effects of the proposed East Anglia TWO onshore infrastructure assessed in the full technical assessments contained within **Appendix 29.3 to 29.5**. The LVIA is based on a realistic worst-case described in **section 29.3.2** for the landfall, onshore cable route, onshore substation, National Grid substation and National Grid overhead line realignment works - the elements of the East Anglia TWO project within the onshore development area that have potential to result in landscape and visual effects. The proposed East Anglia TWO onshore substation and National Grid substation assessed in the LVIA (and shown in the visualisations in **Figures 29.13 to 29.26**) is based on a Rochdale Envelope defined by a realistic worst-case 3D model representation of the onshore substation and National Grid substation, with indicative dimensions for assessment as shown in **Plate 29.1** and **Plate 29.2**.
233. Embedding mitigation into the proposed East Anglia TWO project design is a type of primary mitigation and is an inherent aspect of the EIA process. **Table 29.3** outlines key embedded mitigation relevant for the LVIA, which are embedded in the design of the project as assessed in this the assessment of landscape and visual impacts of the onshore infrastructure. One of the primary forms of embedded mitigation for the onshore substation and National Grid infrastructure, has been the selection of the substation site outside the AONB. The site selection process indicated the onshore substation and National Grid substation could be accommodated at the Grove Wood, Friston site without significant effects on the special qualities of the AONB.
234. Where further landscape mitigation measures have also been developed into the design of the onshore infrastructure, with specific regard to potential effects on landscape character and visual amenity, these are described in **section 29.3.3.1**. The sensitivity of the landscape and visual receptors in the LVIA study area has been a key consideration in the siting and design of the onshore infrastructure. Furthermore, the capacity of the landscape to accommodate the onshore infrastructure has been assessed in relation to the natural screening afforded by landform, woodlands, trees and hedgerows.
235. The selected onshore substation and National Grid infrastructure location, benefits from some substantial existing hedgerows and woodland blocks within

the local area, in particular Grove Wood and Laurel Covert. The extent and height of mature woodland at Grove Wood/Laurel Covert will provide substantial screening in views from areas to the north-east, east and south-east of Grove Wood, providing mitigation of landscape and visual effects from the outset, together with other policy woodlands around Friston House, shelterbelts at Long Covert and some substantial hedgerow field boundaries.

236. There are notable opportunities for deliverable and effective mitigation of the landscape and visual impacts of the onshore substation in the form of new woodland planting. The extent of mitigation planting incorporated into the design is presented on **Figure 29.11a-b** and **Figure 29.12** and comprises areas of substantial native woodland planting near the onshore substation and National Grid infrastructure, set back from the main visual receptors (such as Friston) to provide screening while also retaining the open rural setting; supplemented by smaller characteristic woodland blocks, new hedgerow planting along historic hedgerow field boundaries and individual tree line/hedgerow tree planting, to provide a layered screening approach.
237. The appearance of the onshore substation and National Grid infrastructure will be influenced by the establishment and growth of these areas of woodland planting over time providing progressive screening, from an initially limited level of screening when first planted, through partial screening during establishment to effective mitigation at approximately 15 years post planting. Between 10 to 15 years post-planting, fully established trees are assumed to be retaining good vigour and starting to achieve good height with tree crowns spreading and are expected to provide significant screening of the onshore substation. Photomontage visualisations showing predicted views of the onshore substation are provided in **Figures 29.13** to **29.26** show the first year of the operational phase and 15 years into the operational phase post construction/post planting.
238. The LVIA assesses both construction stage and operational landscape and visual effects of the landfall, onshore cable route, onshore substation and National Grid infrastructure in **section 29.6.1** (construction stage) and **section 29.6.2** (operational phase).

29.10.1 Landscape and Visual Effects During Construction

239. The construction of the landfall is assessed as having **significant**, but short-term and temporary effects on the landscape character of a localised area of the Estate Sandlands LCT and the Suffolk Coast and Heaths AONB, resulting from the landfall CCS, HDD temporary working area and construction of transition bays to the north of Thorpeness. The construction of the landfall will also result in **significant**, but short-term and temporary effects on the views

experienced by people walking on short sections of the Suffolk Coastal Path and Sandlings Walk where the route of these paths passes the landfall.

240. The construction of the onshore cable route is assessed as having **significant**, but short-term and temporary effects on a limited number of hedgerows in the Estate Sandlands LCT and on woodland north of Fitches Lane, where up to 0.9ha of woodland will be felled to facilitate the onshore cable route crossing of Aldeburgh Road. As result, there will be localised significant effects on the perceived landscape character and visual amenity experienced from local residences and the B1122 Aldeburgh Road.
241. The construction of the onshore cable route is assessed as having **significant**, but short-term and temporary effects on the landscape character of the Estate Sandlands LCT, within and immediately adjacent to the onshore cable route. The construction of the onshore cable route will introduce new elements within these LCTs during the construction period, which will temporarily change the character of the landscape and pattern of elements within the onshore cable route.
242. The effects of the construction of the onshore cable route have been assessed against the special qualities of the AONB. The effects of the construction of the onshore cable route on the landscape character of the AONB are assessed as significant, but short-term and temporary between the landfall to the north of Thorpeness, Sizewell Gap Road and the edge of the AONB near Leiston (Area A). Along this localised section of the cable route during the construction period, effects are assessed as being **significant**, but short-term and temporary on the landscape/scenic quality, relative wildness/tranquillity of this localised area within the AONB. The effect of the construction of the onshore cable route on the special qualities of the wider AONB within the LVIA study area is assessed as **not significant**, short-term and temporary.
243. The onshore cable route construction is assessed as having **significant**, short-term and temporary visual effects on views experienced by residents from the localised area on the edges of Aldringham, Coldfair Green and Friston that are adjacent to and are likely to have views of the construction of the onshore cable route. **Significant**, short-term and temporary visual effects are assessed as occurring to views experienced by motorists over short sections of the B1353 Thorpeness Road, B1122 Aldeburgh Road and B1069 Snape Road; and on views experienced by walkers over short sections of the Suffolk Coastal Path, the Sandlings Walk and the Suffolk Coastal Cycle Route where these routes cross or are close to the onshore cable route. The visual effects of the construction of the onshore cable route are not significant on views experienced from the large majority of these transport and recreational routes and are

therefore considered to be **not significant** effects on the visual amenity of these transport and recreational routes as a whole.

244. Significant construction stage landscape and visual effects will primarily be experienced over several separate short 2-3 month periods of peak construction activity and not continuously throughout the construction phase, as set out in the construction programme in **Section 6.10** of the project description. Over the majority of the construction stage, the relevant sections of the onshore cable route will not be subject to these key construction works and the onshore cable route will primarily consist of installed infrastructure and stripped topsoil to be reinstated, during which time the effects are considered **not significant** due to the limited construction activity.
245. The onshore substation and National Grid infrastructure are located to the north of the village of Friston and to the north of Grove Wood/Grove Road, as shown on **Figure 29.4**.
246. The main area where changes to the perceived character occur as a result of the construction of the onshore substation and National Grid infrastructure is within a localised area of the Ancient Estate Claylands LCT (01) and Estate Sandlands LCT (07) to the north of Friston, between Grove Road and Fristonmoor. **Significant**, but short-term and temporary effects on the character of the landscape are assessed as occurring within a localised area of approximately 1km around the onshore substation and National Grid infrastructure during the construction period. The construction of the onshore substation, National Grid substation and National Grid overhead line realignment works will result in high change to the character of the landscape in this localised area to the north of Friston, where the construction will contrast with the quiet rural setting and change the local characteristic relationship of the parish between Friston and Fristonmoor.
247. The construction of the onshore substation and National Grid infrastructure will have **not significant** effects on the character or special qualities of the Suffolk Coast and Heaths AONB. The onshore substation and National Grid infrastructure are located well outside and at distance from the AONB and its immediate setting. The special qualities of the AONB will not be subject to significant effects as a result of the construction of the onshore substation and National Grid infrastructure, primarily due the distance of the construction of the onshore substation and National Grid infrastructure from the AONB and their limited visibility from within the AONB.
248. The undulating agricultural land and large woodland blocks at Grove Wood and Laurel Covert will provide notable visual containment of the onshore substation

and National Grid infrastructure in the landscape. In particular, they entirely screen views of the onshore substation and National Grid substation in views from the north-east, east and south-east, such as from Knodishall and Coldfair Green. In views from areas where the onshore substation and National Grid substation will be visible, Grove Wood and Laurel Covert provide visual containment in terms of the spread of development vertically, since these woodlands are higher than the onshore substation and National Grid infrastructure construction works.

249. Despite the notable screening provided in the local landscape, the construction of the onshore substation and National Grid infrastructure is assessed as having **significant** visual effects only on residents of localised areas on the edges of Friston (not from Friston as a whole), as represented by Viewpoints 1, 2, and 9; people walking on the local public right of way network to the north of Friston (between Friston and Fristonmoor) as represented by Viewpoints 2 and 5; residents of scattered rural dwellings near Friston, as represented by Viewpoints 5 and 8; motorists travelling on the B1121 Saxmundham Road, to the north of Friston, as represented by Viewpoint 8; and motorists/cyclists travelling on Grove Road immediately passing the onshore substation and National Grid infrastructure, between Friston and Grove Wood/Manor Farm, as represented by Viewpoint 14. These **significant** visual effects would all occur within approximately 1.2km of the onshore substation, making them localised, and they will also occur temporarily over the short-term, during the construction period.

29.10.2 Landscape and Visual Effects During Operation

250. The Planning Inspectorate (2017) has provided comments in their scoping opinion on matters that can be scoped out of the EIA and agreed that the following landscape and visual matters could be scoped out of the assessment:

- Landscape and visual impacts of the landfall during operation.
- Landscape and visual impact of the onshore cable route during operation (with the exception of the removal of woodland at the Aldeburgh Road crossing which is assessed as an operational effect following consultation through the LVIA Expert Topic Group).

251. In both cases, following reinstatement works, the underground infrastructure at the landfall and within the onshore cable route is unlikely to result in significant effects and these matters are scoped out of the LVIA, as agreed with the Planning Inspectorate.

252. The removal of woodland north of Fitches Lane assessed as an operational effect. The physical effect and effect on local landscape character of the Estate Sandlands LCT/Hundred River Valley SLA, due to the physical loss of woodland, is assessed as **significant**, short-term and temporary during the early part of the operational period, and becoming **not significant**, long-term and permanent after approximately 5 years when re-instatement of vegetation along the onshore cable route and re-instated woodland along the edges of the onshore cable route becomes established. The changes to the setting of the AONB during the operational period, as a result of the felling of woodland to facilitate the crossing of Aldeburgh Road, are assessed as **not significant**.
253. The loss of woodland as a result of the onshore cable route north of Fitches Lane will also give rise to visual effects where people experience changes in views that are currently influenced by this woodland in the baseline. The felling of this area of woodland will result in **significant**, short-term and temporary effects to views during the early part of the operational period experienced by motorists from a short section of the B1122 to the south of Aldringham and to views experienced by residents of the local area around Aldeburgh Road and Fitches Lane, resulting in more open views on either side of the road (which are currently contained by the woodland), but becoming **not significant**, long-term and permanent after approximately 5 years when re-instatement of vegetation along the onshore cable route and re-instated woodland along the edges of the onshore cable route becomes established.
254. The operation of the onshore substation and National Grid infrastructure will result in **significant**, long-term and permanent effects on the localised 'Friston area' of the Ancient Estate Claylands LCT (01) and Estate Sandlands LCT (07) to the north of Friston, between Grove Road and Fristonmoor, within a localised area of approximately 1km around the onshore substation and National Grid infrastructure.
255. The built forms of the onshore substation and National Grid infrastructure will increase the prominence of development components in the landscape through the introduction of large-scale substation buildings and introduce complex electrical infrastructure, increasing the influence of existing electrical infrastructure on the character of this area. The principal change to the local character will result from the contrast of the electrical infrastructure and buildings within the onshore substation and National Grid infrastructure within the predominantly agricultural and wooded setting and the scale/complexity of built forms compared to existing rural character of the area. The characteristic arrangement and visual relationship of the parish, the rural setting, network of hedgerow field boundaries and public rights of way in the local landscape between Friston and Fristonmoor will all be permanently changed as a result of

the operation of the onshore substation and National Grid infrastructure. The magnitude of change is mitigated, to some degree by the location of the onshore substation and National Grid infrastructure next to the double row of high-voltage overhead transmission lines, with the changes experienced in the context of this large scale existing electrical infrastructure.

256. **Significant** effects on landscape character are considered to occur within a slightly more contained area than significant visual effects (which occur to a distance of approximately 1.2km). The onshore substation and National Grid substation would exert a locally characterising effect, however moving outwards and away from the site, they would exert a reduced effect upon landscape character where the surrounding landscape would increase in characterising influence, reasserting its overall baseline influence on character further afield. A significant visual effect may still occur when a receptor of higher sensitivity is looking in the direction of that part of a view, without a significant characterising effect occurring on the area around the observer.
257. Despite the notable screening provided in the local landscape, the operation of the onshore substation and National Grid infrastructure is assessed as having **significant**, long-term and temporary visual effects during the early parts of the operational phase on residents of parts of Friston, as represented by Viewpoints 1, 2, and 9; people walking on the local public right of way network to the north of Friston (between Friston and Fristonmoor) as represented by Viewpoints 2, 5; residents of scattered rural dwellings near Friston, as represented by Viewpoints 5 and 8; and motorists/cyclists travelling on Grove Road immediately passing the onshore substation and National Grid infrastructure, between Friston and Grove Wood/Manor Farm as represented by Viewpoint 14. These **significant** local visual effects occur where the operational onshore substation and National Grid infrastructure will be visible at relatively close distances within approximately 1.2km, resulting in medium to high changes to views, due to the size, extent and close proximity of the onshore substation and National Grid infrastructure. During the early part of the operational period, the complex built form of the onshore substation and National Grid infrastructure will have a prevailing or notable influence in these views from the local area. The National Grid overhead line realignments works also contributes to the significance of effects.
258. These **significant** visual effects would all occur within approximately 1.2km of the onshore substation and National Grid infrastructure, making them localised and they will also occur over the long-term, during a 10 to 15 year period until areas of woodland planted as part of the landscape mitigation plan (**Figure 29.11a-b** and **Figure 29.12**) are expected to provide effective screening. Areas of woodland and hedgerows planted as part of the OLMP during the onshore

site preparation works and at the end of the construction phase, described in **section 29.3.3.1** and shown in **Figure 29.11a-b** and **Figure 29.12** are assumed to have established and will be showing good vigour during the operational phase, providing progressive screening from an initially limited level of screening when first planted, through partial screening during establishment, to effective mitigation screening of the onshore substation and National Grid infrastructure from approximately 15 years post planting.

259. At the point when these areas of woodland planted as part of the OLMP provide effective screening, the effects of the operational onshore substation and National Grid infrastructure on local landscape character will be reduced from those experienced during the construction and early operational phase. In particular, historic field boundary hedgerows/tree lines and tree blocks will be established, set back from villages in the form of locally characteristic ‘Covert’ woods, in order to retain, insofar as possible, the open setting of existing farms and villages, while providing additional visual screening in the landscape. New hedgerows will combine with the woodland planting areas to integrate the substations into the landscape, both in terms of providing screening of the onshore infrastructure and as an extension of characteristic elements of the local landscape.
260. Despite these levels of mitigation and the degree of landscape integration achieved over time, the onshore substation and National Grid infrastructure are assessed as having **significant**, long-term and permanent effects on the landscape character of the localised area to north of Friston, within approximately 1km around the onshore substation and National Grid infrastructure, due to the fundamental and long-term change from an essentially open rural landscape, to one in which at the local level, the local landscape character will be strongly influenced by the presence of the onshore substation and National Grid infrastructure within a substantial landscape framework of woodland blocks, tree lines and hedges. **Significant**, long-term and permanent visual effects are assessed as occurring only on views experienced by people walking on the local PRow network to the north of Friston, residents of scattered rural dwellings near Friston / Fristonmoor and localised parts of the village of Friston.
261. The visual effects of the onshore substation and National Grid infrastructure, will however, be effectively mitigated from a number of viewpoints at approximately 15 years post-construction, by the notable screening provided by fully established trees coming into maturity. Photomontage visualisations showing the predicted view of the onshore substation and National Grid infrastructure 15 years post-construction with embedded mitigation planting are shown in **Figures 29.13 – 29.26**.

262. The visual effects of the onshore substation and National Grid infrastructure, assessed with embedded mitigation at 15 years post-planting, are assessed as becoming **not significant**, long-term and permanent on views experienced by residents of parts of Friston as represented by Viewpoint 1 (near Woodside, lane off Church Road); and on the views experienced by motorists and cyclists passing the onshore substation and National Grid substation on Grove Road/Suffolk Coastal Cycle Route, as represented by Viewpoint 14. From these locations, maturing mitigation woodland planting 15 years into the operational period is predicted to entirely screen views in the immediate foreground view towards the onshore substation and National Grid infrastructure. The visual effects of the onshore substation and National Grid infrastructure will also reduce in magnitude with embedded mitigation, as woodland planting grows and provides screening during the operational period, such that at 15 years post-planting from many viewpoints there is a notable reduction in the magnitude of change (but remaining **significant**). This includes views from the northern edges of Friston (as represented by Viewpoint 2); views from the local public right of way network (as represented by Viewpoint 5); and views experienced by motorists from the local road network (as represented by Viewpoint 8 on the B1121). In many of the other views assessed, existing screening by landform, existing vegetation and buildings in the landscape is such that the visual effects are **not significant** at Year 1 or Year 15, including views from the B1119 (Viewpoint 10); Knodishall Hall (Viewpoint 11); the local public right of way network to the east of Friston (as represented by Viewpoint 7 and 12); and views from the local road network (as represented by Viewpoint 13 on the B1069).
263. The operation of the onshore substation and National Grid substation will have **not significant** effects on the character or special qualities of the AONB. The onshore substation and National Grid infrastructure are located outside the AONB and its immediate setting, approximately 1.6km to the north of the AONB at its closest point (where the AONB covers the estuary of the River Alde) and 3.7km to the west of the edge of the main 'coastal' area of the AONB (near Aldringham (Area A)). The special qualities of the AONB will not be subject to change as a result of the operation of the onshore substation and National Grid infrastructure due the distance of the onshore substation and National Grid infrastructure from the AONB and their limited visibility from within the AONB.

29.10.3 Concluding Statements

264. Having considered all of the issues, the conclusion reached in the LVIA is that in landscape and visual terms, it is considered that although the construction of the onshore infrastructure results in some significant effects on landscape character of the AONB and on visual amenity/views, these occur only from localised areas

in close proximity to the onshore infrastructure, and are of short-term and temporary duration, during the construction of the landfall, onshore cable route, onshore substation and National Grid infrastructure. Following reinstatement works, the underground infrastructure at the landfall and within the onshore cable route is unlikely to result in significant effects and these matters are scoped out of the LVIA altogether.

265. The approach taken in this LVIA chapter is precautionary. This LVIA chapter has focussed on identifying the magnitude of change in its narrowest sense to ensure that all significant effects are properly evaluated and considered (as opposed to, for example, assessing short-term construction landscape and visual effects as non-significant on the grounds of duration). This is discussed in **section 29.3.3.4** and **section 29.3.3.5** with respect to geographical extent and duration and reversibility, respectively. The evaluations of geographical extent is not combined in the assessment of the level of magnitude, but instead expresses the extent of the receptor that would experience a particular magnitude of change and therefore the geographical extents of the significant and non-significant effects. Duration and reversibility are not incorporated into the magnitude of change but are stated separately in relation to the assessed effects and are considered as part of drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement in determining significant and non-significant effects. This approach was agreed with the LVIA ETG and is viewed as ensuring a robust and effective LVIA is undertaken.
266. The effects assessed in the LVIA are also based on a seasonal worst-case in terms of the level of screening provided by existing and proposed (OLMP) vegetation during the winter. In all cases, the effects of the construction and operation of the onshore infrastructure would be reduced during the summer months when existing and proposed (OLMP) vegetation is in leaf and providing further screening.
267. The operational effects of the onshore infrastructure primarily occur as a result of the operation of the onshore substation and National Grid substation, where localised significant effects on landscape character occur within approximately 1km and significant effects on visual amenity/views occur within an area of approximately 1.2km from the onshore substation and National Grid infrastructure within the Friston area of the Ancient Estate Claylands and Estate Sandlands landscapes. There are notable opportunities for deliverable and effective mitigation of the landscape and visual impacts of the onshore substation and National Grid infrastructure on this localised area in the form of new woodland, hedgerow and tree planting, as proposed in the OLMP (**Figure 29.11a-b** and **Figure 29.12**), which have been carefully designed to be appropriate in the local landscape context, taking account of the potential impact on the landscape

and the opportunities to minimising harm through reasonable mitigation. It is considered that there is scope for the onshore infrastructure to be accommodated in the landscape, over the long-term, with the delivery of this full and effective landscape mitigation plan.

268. In coming to this conclusion, the LVIA also has regard to the following specific matters in reaching its opinion on the effects of the onshore infrastructure:

- The onshore infrastructure has been designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the onshore infrastructure minimises harm to the landscape, providing reasonable mitigation where possible and appropriate. Virtually all nationally significant energy infrastructure projects will have effects on the landscape.
- The onshore infrastructure demonstrates good design in respect of landscape and visual amenity, with appropriate landscape mitigation proposals and design of the project to mitigate landscape and visual impacts.
- The relatively contained geographic extent of significant landscape and visual effects, which are largely contained to the narrow onshore cable corridor during construction and within an area of approximately 1.2km around the onshore substation and National Grid infrastructure, such that significant effects that occur are specific to this particular area and are not widespread.
- The onshore substation and National Grid infrastructure is located within a landscape with extensive mature woodland of large scale, which provides some capacity to absorb and provide screening of the onshore infrastructure.
- The site selection has had due regard to the purposes of the nationally designated Suffolk Coast and Heaths AONB. The onshore substation and National Grid infrastructure are located at distance outside the AONB, entirely preventing significant effects on the AONB's special qualities and avoiding compromise or harm to the long-term purposes of the AONB designation.

29.11 References

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