




F I V E 
ESTUARIES
OFFSHORE WIND FARM

FIVE ESTUARIES
OFFSHORE WIND FARM
PRELIMINARY ENVIRONMENTAL
INFORMATION REPORT

VOLUME 3, CHAPTER 2: LANDSCAPE AND
VISUAL IMPACT ASSESSMENT

Document Reference 004685506-01
Revision A
Date March 2023





Project	Five Estuaries Offshore Wind Farm
Sub-Project or Package	Preliminary Environmental Information Report
Document Title	Volume 3, Chapter 2: Landscape and Visual Impact Assessment
Document Reference	004685506-01
Revision	A

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Revision	Date	Status/Reason for Issue	Originator	Checked	Approved
A	Mar-23	Final for PEIR	OpEn	GoBe	VE OWFL



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DEFINITION OF ACRONYMS

Term	Definition
AONB	Area of Outstanding Natural Beauty
CA	Conservation Areas
CEMP	Construction Environmental Management Plan
CoCP	Code of Construction Practise
DCO	Development Consent Order
EACN	East Anglia Connection Node
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
ES	Environmental Statement
ESNZ	Energy, Security and Net Zero
ETG	Expert Topic Group
GIS	Gas Insulated Switchgear (substation technology)
GLVIA	Guidelines for Landscape and Visual Impact Assessment
HDD	Horizontal Directional Drilling
LCAs	Landscape Character Areas
LEDPP	Landscape and Ecology Design Principles Plan
LVIA	Landscape and Visual Impact Assessment
LEMP	Landscape and Ecological Management Plan
MDS	Maximum Design Scenario
NGET	National Grid Electricity Transmission
NLCAs	National Landscape Character Areas
NSIP	Nationally Significant Infrastructure Project
OLEMP	Outline Landscape and Ecological Management Plan
OnSS	Onshore Substation
OPEN	Optimised Environments
PEI	Preliminary Environmental Impact
PEIR	Preliminary Environmental Impact Report
PINS	The Planning Inspectorate
PRoW	Public Right of Way



Term	Definition
RHPG	Registered Historic Park and Gardens
SoS	Secretary of State
SLAs	Special Landscape Areas
TCC	Temporary Construction Compound
TDC	Tendring District Council
TJB	Transition Joint Bay
UKPN	UK Power Network
ZTV	Zone of Theoretical Visibility



GLOSSARY OF TERMS

Term	Definition
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape effects	Effects on the landscape as a resource in its own right.
The Project / VE	Refers to the Five Estuaries Offshore Wind Farm including the offshore and onshore components.
Visual amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating or travelling through an area.
Visual effects	Effects on specific views and on the general visual amenity experienced by people.



2 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

2.1 INTRODUCTION

- 2.1.1 This chapter of the Preliminary Environmental Impact Assessment (PEIR) presents the Landscape and Visual Impact Assessment (LVIA) for the onshore elements of the proposed Five Estuaries Wind Farm (VE OWF), hereafter referred to as VE. The onshore elements of VE assessed in the LVIA are described in Volume 3, Chapter 1: Onshore Project Description.
- 2.1.2 The key onshore elements of VE include the proposed substation (OnSS), onshore export cable corridors (onshore ECC) and the landfall (where the offshore export cables will meet the onshore export cables). At PEIR stage, there are two search areas being considered for the location of the OnSS. For the purpose of the assessment, an indicative footprint location has been established within each of these search areas. The location of the OnSS will be further refined for the Development Consent Order (DCO) Application. The landfall for the purpose of this chapter refers to the intertidal area (Mean Low Water to Mean High Water Springs).
- 2.1.3 The LVIA has been undertaken by Chartered Landscape Architects at Optimised Environments (OPEN), in accordance with the LVIA methodology set out in sections 2.4 and 2.5.
- 2.1.4 This chapter has been informed by the following ES chapters:
- > Volume 1, Chapter 3: Environmental Impact Assessment Methodology;
 - > Volume 1, Chapter 4: Site Selection and Consideration of Alternatives; and
 - > Volume 3, Chapter 1: Onshore Project Description.
- 2.1.5 This chapter should be read in conjunction with the following ES documents:
- > Volume 2, Chapter 10: Seascape, Landscape and Visual Impact Assessment (SLVIA);
 - > Volume 3, Chapter 4: Onshore Biodiversity and Nature Conservation; and
 - > Volume 3, Chapter 7: Onshore Archaeology and Cultural Heritage.
- 2.1.6 The LVIA is supported by plan graphics and visual representations within Volume 6, Annex 2.1: LVIA Figures and Volume 6, Annex 2.2: Visualisations. LVIA figures include Zone of Theoretical Visibility (ZTV) maps; reference photography; outline landscape mitigation and visual representations, including baseline panorama views, wirelines and photomontages.

2.2 STATUTORY AND POLICY CONTEXT

- 2.2.1 This section includes a summary of national and local policy of particular relevance to landscape and visual amenity that have been taken into account in this chapter. For broader legislation driving the overall PEIR, please refer to Volume 1 Chapter 2: Policy and Legislation.
- 2.2.2 The National Policy Statements (NPS) are the principal policy for determining Nationally Significant Infrastructure Projects (NSIP). As such, this assessment has made explicit reference to the relevant NPS requirements.



- 2.2.3 Those relevant to the landscape and visual aspects of the onshore elements of VE are:
- > Overarching National Policy Statement for Energy (EN-1, (DECC 2011));
 - > National Policy Statement for Renewable Energy Infrastructure (EN-3 (DECC, 2011)).
 - > National Policy Statement for Electricity Networks Infrastructure (EN-5 (DECC 2011)).
- 2.2.4 The NPSs provide the main policy tests in relation to the Proposed Development. The NPSs are currently being revised and draft versions were published for consultation in 2021. In addition to the current NPS, the draft NPSs have therefore also been reviewed in Table 2.1 to determine the emerging expectations and changes from previous iterations of the NPSs. This includes the Draft Overarching NPS EN-1 (DBEIS, 2021), Draft NPS EN-3 (DBEIS, 2021) and Draft NPS EN-5 (DBEIS, 2021). Draft policies are included in the table where they differ from the extant policy.

Table 2.1: Legislation and policy context

Legislation/ Policy	Key Provisions	Section Where Comment Addressed
National Policy Statement for Energy (NPS EN-1) (DECC, 2011)	Paragraph 4.2.5 advises that when considering cumulative effects, the ES should provide information on how the effects of the applicant’s proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence).	Cumulative landscape and visual effects of the onshore infrastructure considered in section 2.13.
NPS EN-1 (DECC, 2011)	Paragraph 4.2.7 advises that ‘In some instances it may not be possible at the time of the application for development consent for all aspects of the proposal to have been settled in precise detail. Where this is the case, the applicant should explain in its application which elements of the proposal have yet to be finalised, and the reasons why this is the case.’ At paragraph 4.2.8 it is stated that, where this is the case, the need to ensure that the likely worst-case environmental effects are set out and assessed.	Volume 3, Chapter 1: Onshore Project Description sets out the details of the project and which areas are and are not settled in precise detail. Section 2.8 sets out the maximum design parameters that have been defined to ensure that the worst-case landscape and visual effects are assessed.
NPS EN-1 (DECC, 2011)	In relation to the topic of ‘Criteria for Good Design for Energy Infrastructure’ Paragraph 4.5.1 advises that ‘The visual appearance of a	Volume 1, Chapter 4: Site Selection and Consideration of



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
	<p>building is sometimes considered to be the most important factor in good design. But high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object — be it a building or other type of infrastructure — including fitness for purpose and sustainability, is equally important. Applying “good design” to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.’</p>	<p>Alternatives sets out how VE responds to design in respect of responsive site selection. The LEDPP considers the integral role of mitigation planting in the design of the Project. Matters relating to the design of the Project will be further developed in the DCO Application.</p>
<p>NPS EN-1 (DECC, 2011)</p>	<p>In relation to Good Design, paragraph 4.5.3 advises that <i>‘the IPC should satisfy itself that the applicant has taken into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located) as far as possible’</i></p>	<p>Section 2.9 of this Chapter sets out the embedded mitigation that is included for VE and section 2.12 assesses visual impacts. Matters relating to the design of the Project will be further developed in the DCO Application.</p>
<p>NPS EN-1 (DECC, 2011)</p>	<p>In relation to Good Design, paragraph 4.5.4 sets out that the applicants should be able to demonstrate how the design process was conducted, and how the design evolved and design decisions were made. This is in order for the Secretary of State (SoS) to consider the application. In doing so the SoS <i>‘should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy’</i>.</p>	<p>The evolution of the design is set out Volume 1, Chapter 4: Site Selection and Alternatives and Volume 3, Chapter 1 - Onshore Project Description. How the design has evolved in relation to landscape impacts is included in section 2.9 of this Chapter. The duration of LVIA effects is explained in section 2.5.</p>



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
NPS EN-1 (DECC, 2011)	Paragraph 5.9.1 notes that landscape and visual effects will be varied and that <i>'references to landscape should be taken as covering seascape and townscape where appropriate.'</i>	The varied nature of landscape and visual receptors is explained in section 2.7.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.5 advises that the applicant should carry out a landscape and visual assessment and makes reference to the following documents: Landscape Institute and Institute of Environmental Management and Assessment (2002, 2nd edition): Guidelines for Landscape and Visual Impact Assessment; and Land Use Consultants (2002): Landscape Character Assessment – Guidance for England and Scotland.	Since NPS EN-1 was published the Guidelines for Landscape and Visual Impact Assessment' (GLVIA) (2002, 2nd edition) has been superseded by GLVIA Version 3. Reference is made to the updated GLVIA Version 3 and Landscape Character Assessment – Guidance for England and Scotland in section 2.5, along with more recent reference documents, relevant to LVIA.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.5 advises that 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 and local development plans in Wales.	Published landscape character assessments and associated studies for the study area are referred to in section 2.7 of this chapter.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.6 of EN-1 advises – <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>	The effect on landscape components and landscape character are assessed in the LVIA in section 2.11.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.7 advises that the assessment should include the visibility and conspicuousness of the project during its construction and operation and potential impacts on views and visual amenity.	The visual effects resulting from the onshore elements of VE during construction and operation are assessed in the LVIA in section 2.12.



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
NPS EN-1 (DECC, 2011)	Paragraph 5.9.8 advises that 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.	The quality, value and capacity of the landscape to accommodate change are considerations of the landscape assessment set out in section 2.11 where they inform the assessment of effects of the onshore infrastructure on the landscape.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.8 advises that <i>‘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>	The design of VE has considered and addressed the potential effects on landscape in order to minimise potentially significant effects through mitigation. See section 2.9 of this chapter.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.14 of EN-1 advises – <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 or a local development plan in Wales 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>	The value of the local landscape is a consideration within the LVIA. See sections 2.10 and 2.11.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.17 advises that <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 relevant constraints, to minimise harm to the landscape, including by reasonable mitigation.’</i>	Volume 1, Chapter 4: Site Selection and Alternatives sets out the iterative process that has influenced the design of VE. The mitigation of landscape effects set out in section 2.9 has been considered in the LVIA, to minimise “harm to the landscape” where possible.



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
NPS EN-1 (DECC, 2011)	Paragraph 5.9.18 relates to visual effects and in addition to those included in the current NPS EN-1 notes that <i>‘Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast.’</i>	The visual effects resulting from the onshore elements of VE during construction and operation are assessed in the LVIA in section 2.12.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.21 advises that <i>‘reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design of a proposed energy infrastructure project may result in a significant operational constraint and reduction in function – for example, the electricity generation output. There may, however, be exceptional circumstances, where mitigation could have a very significant benefit and warrant a small reduction in function. In these circumstances, the IPC may decide that the benefits of the mitigation to reduce the landscape and/or visual effects outweigh the marginal loss of function.’</i>	The balance between mitigation of visual and landscape effects and significant operational constraints / reduction in function is considered in Volume 1, Chapter 4: Site Selection and Alternatives.
NPS EN-1 (DECC, 2011)	Paragraph 5.9.22 of EN-1 advises – <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>	As described in Volume 3, Chapter 1 – Onshore Project Description, the refinement of the OnSS and onshore ECC has been carefully considered alongside the potential for landscape and visual effects and mitigation. See also section 2.9
National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (DECC 2011)	Paragraph 2.4.2 of NPS EN3 advises – <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>	The mitigation of landscape and visual effects through good design are considered within the LVIA. See section 2.9.



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
NPS EN-3 (DECC 2011)	<p>Paragraphs 2.6.42 and 2.6.43 relate to the need for flexibility in the project details owing to the complex nature of offshore wind farm development. It is recognised that this may include the location and configuration of turbines and associated development (including offshore substations), the exact turbine dimensions and the precise cable type and route.</p> <p>In accordance with Section 4.2 of EN-1 and recognising there may be a need for flexibility in the consent it is stated that ‘Where this is sought and the precise details are not known, then the applicant should assess the effects the project could have (as set out in EN-1 paragraph 4.2.8) to ensure that the project as it may be constructed has been properly assessed (the Rochdale Envelope). In this way the maximum adverse case scenario will be assessed, and the IPC should allow for this uncertainty in its consideration of the application and consent.’</p>	Section 2.8 sets out the maximum design parameters that have been defined to ensure that the worst-case landscape and visual effects are assessed.
National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (DECC 2011)	Paragraph 2.8.2 of NPS EN5 advises – <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>	The proposed onshore ECC is to be underground. The LVIA has assessed the effects of the underground onshore ECC and OnSS in section 2.10.
NPS EN-5 (DECC 2011)	Paragraph 2.8.3 recognises that <i>‘Sometimes positive landscape and visual benefits can arise through the reconfiguration or rationalisation of existing electricity network infrastructure’</i>	The proposed onshore ECC is to be underground. The LVIA has assessed the effects of the underground onshore ECC and OnSS in section 2.10.
Draft revised NPS EN-1 (BEIS, 2021)	In relation to Good Design paragraph 4.6.3 advises that <i>‘The Secretary of State should be satisfied that the applicant has taken into</i>	Volume 3, Chapter 1 - Onshore Project Description, sets out how



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
	<p><i>account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located, any potential amenity benefits, and visual impacts on the landscape or seascape) as far as possible’.</i></p>	<p>VE has considered and balanced these criteria.</p> <p>Section 2.9 of this Chapter sets out the embedded mitigation that is included for VE and section 2.12 assesses visual impacts.</p>
<p>Draft revised NPS EN-1 (BEIS, 2021)</p>	<p>Paragraph 4.6.4 sets out that the applicants should be able to demonstrate how the design process was conducted and how the design evolved and design decisions were made. This is in order for the Secretary of State (SoS) to consider the application. In doing so the SoS ‘should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy.</p> <p>Many of the wider impacts of a development, such as landscape and environmental impacts, will be important factors in the design process.’</p> <p><i>It is also noted that ‘Assessment of impacts must be for the stated design life of the scheme rather than a shorter time period.’</i></p>	<p>The evolution of the design is set out Volume 1, Chapter 4: Site Selection and Alternatives and Volume 3, Chapter 1: Onshore Project Description.</p> <p>How the design has evolved in relation to landscape impacts is included in section 2.9 of this Chapter.</p> <p>The duration of LVIA effects is explained in section 2.5.</p>
<p>Draft revised NPS EN-1 (BEIS, 2021)</p>	<p>Paragraph 5.10.5 sets out the need to carry out a landscape and visual assessment in accordance with published guides. Relevant guides are listed as The Landscape Institute and Institute of Environmental Management and Assessment: Guidelines for Landscape and Visual Impact Assessment (2013, 3rd edition); Landscape and Seascape Character Assessments – https://www.gov.uk/guidance/landscape-and-seascape-character-assessments.</p>	<p>Reference documents and guidance, relevant to the LVIA, are set out in section 2.5.</p>
<p>Draft revised NPS EN-1 (BEIS, 2021)</p>	<p>Paragraph 5.10.5 goes on to say that <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</i></p>	<p>Published landscape character assessments and associated studies for the study area are referred to in section 2.7.</p>



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
	<p><i>these assessments in local development documents in England and local development plans in Wales. For seascapes, applicants should consult the Seascape Character Assessment and the Marine Plan Seascape Character Assessments, and any successors to them.'</i></p>	
<p>Draft revised NPS EN-1 (BEIS, 2021)</p>	<p>Paragraph 5.10.6 states that the ES should include assessment of the effects of the construction, the completed development and its operation on landscape components and landscape character.</p>	<p>The LVIA assesses effects at each of these development stages as highlighted in section 2.8.</p>
<p>Draft revised NPS EN-1 (BEIS, 2021)</p>	<p>At paragraph 5.10.8 the document also states that <i>'The assessment should also demonstrate how noise and light pollution from construction and operational activities on residential amenity and on sensitive locations, receptors and views, will be minimised.'</i></p>	<p>The mitigation of landscape and visual effects through good design are considered within the LVIA. See section 2.9.</p>
<p>Draft revised NPS EN-1 (BEIS, 2021)</p>	<p>Paragraph 5.10.10 introduces the potential for landscape management plans to be considered as they may help to enhance environmental assets.</p>	<p>The Landscape and Ecology Design Principles Plan (LEDPP) describes measures to be employed during construction and restoration. It also provides longer term outline landscape and habitat management of the OnSS.</p>
<p>Draft revised NPS EN-5 (BEIS 2021)</p>	<p>Paragraph 2.11.3 of Draft NPS EN-5 advises – <i>'New substations, sealing end compounds, and other above-ground installations that serve as connection, switching, and voltage transformation points on the electricity network may also give rise to adverse landscape and visual impacts. Nonetheless, government does not believe that the development of these installations is incompatible in principle with developers' statutory duty under Schedule 9 of the Electricity Act 1989.'</i></p>	<p>The proposed onshore ECC is to be underground. The LVIA has assessed the effects of the underground onshore ECC during the construction phase in section 2.10.</p>
<p>Draft revised NPS EN-5 (BEIS 2021)</p>	<p>Paragraph 2.11.4 of Draft NPS EN-5 advises – <i>'Cumulative adverse landscape and visual impacts may arise where new overhead lines are required along with other related developments such as substations, wind</i></p>	<p>Cumulative landscape and visual effects of the onshore infrastructure are considered in section 2.14</p>



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
	<p><i>farms, and/or other new sources of generation.'</i></p>	
<p>Draft revised NPS EN-5 (BEIS 2021)</p>	<p>Paragraph 2.11.5 of Draft NPS EN-5 advises – <i>'Landscape and visual benefits may arise through the reconfiguration, rationalisation, or undergrounding of existing electricity network infrastructure.'</i></p> <p>Paragraph 2.11.6 of Draft NPS EN-5 advises – <i>'Though mitigation of the landscape and visual impacts arising from overhead lines and their associated infrastructure is usually possible, it may not always be so, and the impossibility of full mitigation in these cases does not countermand the need for the infrastructure. However, in nationally designated landscapes (for instance, National Parks and Areas of Outstanding Natural Beauty) even residual impacts may well make an overhead line proposal unacceptable in planning terms.'</i></p>	<p>The proposed onshore ECC is to be underground. The LVIA has assessed the effects of the underground onshore ECC and OnSS in section 2.10.</p> <p>Section 2.9 of this Chapter sets out the embedded mitigation that is included for VE and section 2.12 assesses visual impacts.</p>
<p>National Planning Policy Framework (NPPF) Ministry of Housing, Communities and Local Government (MHCLG 2021)</p>	<p>Paragraph 174 of NPPF advises <i>'Planning policies and decisions should contribute to and enhance the natural and local environment by:</i></p> <p><i>a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);</i></p> <p><i>b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;</i></p> <p><i>c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;</i></p> <p><i>d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;'</i></p>	<p>The mitigation of landscape and visual effects through good design are considered within the LVIA. See section 2.9.</p> <p>Provision for biodiversity and ecological networks is outlined in Volume 3, Chapter 4: Onshore Biodiversity and Nature Conservation and in the LEDPP.</p>



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
NPPF (MHCLG, 2021)	Paragraph 175 of NPPF advises <i>‘Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework⁵⁸; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.’</i>	The LVIA includes consideration of effects on landscape character including landscape designations. Effects on landscape character and landscape designations are assessed in section 2.11 of this chapter.
NPPF (MHCLG, 2021)	Paragraph 176 of NPPF advises <i>‘Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks. Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.’</i>	The LVIA includes consideration of effects on landscape character including landscape designations. Effects on landscape character and landscape designations are assessed in section 2.11 of this chapter.
Tendring District Local Plan - Section 2 (2022)	Paragraph 7.3.2 of TDLP advises <i>‘The Landscape Character Assessment (2001) identified 30 areas with different landscape characteristics and highlighted key sensitivities which need to be considered when assessing development proposals in the rural area. Proposals within the rural landscape should have regard to the Landscape Character Assessment (and any subsequent updates) and protect and reinforce historic landscape features and important characteristics identified within it.’</i>	The LVIA includes consideration of effects on landscape character in section 2.11 of this chapter. The Tendring District Council Landscape Character (2001) is referenced in this assessment.
Tendring District Local Plan - Section 2 (2022)	Policy PPL3 The Rural Landscape advises <i>‘The Council will protect the rural landscape and refuse planning permission for any proposed development which would cause overriding harm to its character or appearance, including to:</i>	The potential direct effects on native hedgerows, trees, woodlands, protected lanes, other rural lanes, bridleways and footpaths are assessed in section 2.10 and indirect effects



Legislation/ Policy	Key Provisions	Section Where Comment Addressed
	<p><i>a. estuaries, rivers and undeveloped coast;</i></p> <p><i>b. skylines and prominent views including ridge-tops and plateau edges;</i></p> <p><i>c. traditional buildings and settlement settings;</i></p> <p><i>d. native hedgerows, trees and woodlands;</i></p> <p><i>e. protected lanes, other rural lanes, bridleways and footpaths; and</i></p> <p><i>f. designated and non-designated heritage assets and historic landscapes including registered parks and gardens.'</i></p>	<p>assessed in respect of landscape character in section 2.11 and visual amenity in respect of section 2.12.</p>
<p>Tendring District Local Plan - Section 2 (2022)</p>	<p>Policy PPL3 The Rural Landscape advises <i>'Development proposals affecting protected landscapes must pay particular regard to the conservation and enhancement of the special character and appearance of the Dedham Vale and Suffolk Coast and Heaths Area of Outstanding Natural Beauty's (AONB), and their settings, including any relevant AONB Management Plan objectives. Elsewhere, development proposals should have regard to the Natural England Character Area profiles for the Greater Thames Estuary (No.81) and the Northern Thames Basin (No.111) and the Council's Landscape Character Assessments, as relevant, and should protect and reinforce identified positive landscape qualities.'</i></p>	<p>The LVIA includes consideration of effects on landscape character including landscape designations.</p> <p>Effects on landscape character and landscape designations are assessed in section 2.11 of this chapter.</p>

2.3 CONSULTATION

- 2.3.1 Consultation and scoping with stakeholders has helped to facilitate proportionate and efficient assessment in the LVIA, by identifying potentially key significant issues and effects. Table 2.2 provides a summary of the principal issues from the Planning Inspectorate (PINS) scoping opinion and further consultation with stakeholders. It also describes how issues raised by consultees have been addressed in the LVIA.



Table 2.2: Summary of consultation relating to LVIA.

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p>Landscape and visual effect resulting from construction traffic.</p> <p>The Inspectorate agrees that this matter may be scoped out from the assessment due to the short term and localised nature of the effects during the construction period.</p>	<p>Noted - an assessment of the effects resulting from construction traffic not required as scoped out.</p>
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p>Effects on landscape and visual receptors resulting from the cable infrastructure during the operational phase.</p> <p>The Scoping Report seeks to scope this matter out on the grounds that the significant effects will occur during construction and would decrease in significance following land restoration. At this stage, the precise route of the onshore cable corridor has not been finalised. As such, it is considered that the potential effects such as vegetation removal and change in appearance of land in the onshore cable corridor are not yet known. It is also unknown how effective restoration proposals are likely to be. In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a</p>	<p>The physical effects resulting from the restoration of land and the establishment of vegetation associated with the construction of the onshore ECC are referenced in section 2.4.6 and assessed in section 2.10, with information provided to present an outline of the landscape management approach that will be implemented.</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p>position to agree to scope this matter from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of an LSE.</p>	
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p>Effects on landscape and visual receptors resulting from maintenance activities at the substation for the Proposed Development.</p> <p><i>“On the basis that maintenance activities at the onshore substation will be infrequent and short in duration, the Inspectorate agrees this matter may be scoped out of the landscape assessment.”</i></p>	<p>Noted - an assessment of the effects resulting from maintenance activities at the substation not required as scoped out.</p>
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p>Night time landscape and visual effect during operation.</p> <p><i>“The Scoping Report states that there may be some limited permanent lighting at the onshore substation or lighting associated with temporary construction or maintenance activities. However, these are not expected to lead to significant effects. The Inspectorate considers that as the location and design of the onshore infrastructure has not yet been ascertained, the potential effects on the night time landscape</i></p>	<p>The effects of permanent and temporary light sources at the onshore substation are considered and assessed where relevant in section 2.12. Cumulative effects with nearby infrastructure are included in the assessment in section 2.14 where there is the potential for a significant effect to arise.</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p><i>cannot be fully understood. Accordingly, the ES should include an assessment of this matter or information demonstrating agreement with the relevant consultation bodies and the absence of an LSE. The ES should also include an assessment of cumulative effects with nearby infrastructure.”</i></p>	
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p>Transboundary impacts. <i>“The Scoping Report states that impacts are likely to be localised and that transboundary impacts are unlikely. The Inspectorate agrees that there are unlikely to be any pathways which could lead to effects on EEA states and therefore agrees that this matter can be scoped out of further assessment.”</i></p>	<p>Noted - an assessment of transboundary effects not required as scoped out (Section 2.15).</p>
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p>Study area <i>“It is noted that the study area is based on a set buffer around the onshore AoS. The Inspectorate appreciates that this is partly in response to the currently lack of uncertainty around the location of the National Grid substation and is likely to be refined. However, the ES should include a ZTV which demonstrates that the assessment of effects covers an appropriate area.”</i></p>	<p>ZTVs are presented in Volume 6, Annex 2.1, Figures 2.7a to 2.7d, 2.8a and 2.8b, 2.9a and 2.9b, and 2.10a and 2.10b. Figure 2.7a and 2.7c presents ZTVs based on bare ground and Figure 2.7b and 2.7d, 2.8a and 2.8b, 2.9a and 2.9b, and 2.10a and 2.10b present reduced ZTVs which take into account the screening effect of woodland. The LVIA study area covers the appropriate extent beyond which significant effects on landscape character and visual amenity will be very unlikely to arise.</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p><i>“Viewpoints for the onshore landscape and visual assessment have not yet been confirmed. The Inspectorate considers that effort should be made to agree viewpoints with relevant stakeholders. A range of viewpoints should be used to represent the various receptors who will be affected by the Proposed Development, including designated and non-designated heritage assets and their settings. A figure showing locations of viewpoints used for the assessment should be provided in the ES.”</i></p>	<p>The location of representative viewpoints has been agreed with the consultation bodies and other relevant stakeholders. These viewpoints have been used to represent the visual receptors affected by the project, such as residents, road-users and walkers, as well as used to represent the landscape character receptors. Representative viewpoints are shown in Figures 2.11 to 2.16 for SSA West and Figures 2.17 to 2.22. for SSA East. Cultural Heritage assets will be assessed in the Cultural Heritage Chapter for which a separate set of viewpoints will be selected, albeit with potentially some degree of overlap.</p>
<p>November 2021 PINS on behalf of SoS Scoping Opinion</p>	<p>Guidance The Technical Guidance Note (TGN) 02-21 ‘Assessing the Value of Landscapes outside National Designations’ has recently been published and should be used within the assessment.</p>	<p>This document is referenced in section 2.4.21 and its contents have been used to inform the assessment of effects on landscape character in section 2.11.</p>
<p>27 May 2022 Natural England Post scoping meeting</p>	<p><i>“The Project explained that viewpoints for the cable routes are not proposed to inform the EIA as the effects are small scale, temporary operations and so do not typically require to be represented by photomontages.”</i></p> <p><i>“What is meant here by ‘small scale’? Although impacts will be temporary with regards to the cable route installation and habitats will be replaced,</i></p>	<p>Site survey has been carried out at relevant parts of the onshore ECC, during which photography has been used to record the baseline landscape elements with potential to be affected. This information has been used to identify where HDD is potentially required and to relocate or narrow the onshore ECC in order to avoid the more substantial and better condition landscape elements. Baseline photography of the onshore ECC is presented in Volume 6, Annex 2.2, Figures 2.11 to 2.22.</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<i>would photos not be required to inform the impact assessment and future monitoring to ensure the same/similar standards are replaced? The correct baseline information would be required to inform effective mitigation and monitoring."</i>	
27 May 2022 Natural England Post scoping meeting	<i>"There will also be longer-term effects due to vegetation removal and time taken for reinstatement."</i>	These longer-term effects on the physical landscape are assessed in section 2.10.
27 May 2022 Natural England Post scoping meeting	<i>"It is noted that there may be impacts on 'longer range views'. As such, we query whether photos would help to assess this?"</i>	Baseline photography of the onshore ECC is presented in Volume 6, Annex 2.2, Figures 2.11 to 2.22.
27 May 2022 Natural England Post scoping meeting	<i>"Detailed cumulative assessment of the visual impacts associated with the substation in the EIA." "Will this include photomontages? Does this include in-combination effects with regards to other projects in the area?"</i>	Photomontages show all relevant cumulative developments in Volume 6, Annex 2.2, Figures 2.11 to 2.22 show all relevant cumulative developments. An in conjunction and in combination assessment is presented in section 2.14.
27 May 2022 Natural England Post scoping meeting	<i>"The viewpoints sought to address any visual receptors (settlements, roads and Public Rights of Way (PRoW)) with the potential for likely significant effects." "Have specific viewpoints such as heritage assets or listed buildings, been considered?"</i>	The visual assessment considers the effects of the proposed development on visual receptors, who are people in settlements, on roads and on Public Right of Ways (PRoW), as well as visiting visitor attractions. Assessment of heritage assets and listed buildings will be assessed by the cultural heritage specialists in Volume 3, Chapter 7: Onshore Archaeology and Cultural Heritage.



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
27 May 2022 Natural England Post scoping meeting	<p><i>“Are the maximum parameters for the substation infrastructure known at this stage? This will have an impact on viewpoints. Potentially more viewpoints may be required, depending on the size and height of the substation.”</i></p>	<p>The maximum site area is 58,800 m² and the maximum building and external equipment height is 15 m. The exception being the lightning masts which will be up to 18 m, as set out in the Project Description. For the purposes of viewpoint selection, these parameters have been applied to ensure that the maximum extents of visibility are being considered and that all visual receptors with potential to be significantly affected are being included. Visualisations are presented in Volume 6, Annex 2.2, Figure 2.11 to 2.22.</p>
27 May 2022 Natural England Post scoping Evidence Plan	<p><i>“The extent of the views which may be impacted are likely to be contained within 2 to 3km.”</i></p> <p><i>“Would this require a larger distance to be covered e.g., 5km?”</i></p>	<p>The purpose of the study area is not to define the extents of visibility but rather to define the extents within which significant effects are likely to arise. In the process of refining the layout and better understanding the extents of visibility and potential for significant effects to arise, the extent of the study area has been reviewed and set at 5 km as described in paragraphs 2.4.8 to 2.4.10 and shown on Volume 6, Annex 2.1, Figure 2.1</p>
27 May 2022 Natural England Post scoping Evidence Plan	<p><i>“Has a Zone of Theoretical Visibility (ZTV) been completed? If so, could this be circulated when available?”</i></p>	<p>ZTVs are presented in Volume 6, Annex 2.1, Figures 2.7a to 2.7.d, 2.8a and 2.8b, 2.9a and 2.9b, and 2.10a and 2.10b. Figure 2.7a and 2.7c presents ZTVs based on bare ground and Figure 2.7b and 2.7d, 2.8a and 2.8b, 2.9a and 2.9b, and 2.10a and 2.10b present reduced ZTVs which take into account the screening effect of woodland.</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
27 May 2022 Natural England Post scoping Evidence Plan	<p><i>“Essex County Council’s pledge to plant one million trees over five years.”</i></p> <p><i>“We advise that screening and tree planting should be provided as mitigation (to replace any trees lost or to screen the substation) and should be additional to this pledge.”</i></p>	<p>The reference to Essex County Council's pledge presented a positive commitment to contributing to an increase in tree planting in this area. The intention will be to avoid loss of trees and standard practice would be to replace any losses that do occur, which it is agreed should not be included as part of Essex County Council's pledge. Information on mitigation planting is set out in the LEDPP.</p>
27 May 2022 Natural England Post scoping Evidence Plan	<p><i>“Hedgerows and boundaries grant – UK Government.”</i></p> <p><i>“We advise that this does not cover meeting legal requirements, including planning conditions and tenancy agreements. Furthermore, as with our comment above, screening and planting should be additional to this.”</i></p>	<p>Reference to the 'hedgerows and boundaries grant' was intended as part of the exploration of possibilities to increase the extent of mitigation planting off-site. Information on mitigation planting is set out in the LEDPP.</p>
27 May 2022 Natural England Post scoping Evidence Plan	<p><i>“The substation colour scheme will need to be considered to lessen impacts.”</i></p>	<p>The colour scheme will be considered as part of the mitigation measures as set out in the LEDPP.</p>
27 May 2022 Natural England Post scoping Evidence Plan	<p><i>“We also advise that decommissioning impacts will need to be considered.”</i></p>	<p>The effects of decommissioning are considered in the assessment at section 2.13 and are typically assessed as being similar to or less than the effects of the construction phase.</p>
27 May 2022 Natural England Post scoping Evidence Plan	<p><i>“A Tree Planting Management Plan should be developed to detail the dedicated ongoing active management required, including replacement of failed trees within a 5 to 10</i></p>	<p>A LEDPP has been prepared as part of PEIR and an Outline Landscape and Ecology Management Plan (OLEMP) will be prepared as part of the DCO application. These documents will detail the replacement of failed</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p>year period, watering regime, protection of trees, i.e. protection during the substation construction phase, use of compostable tree guards.</p> <p><i>The Management Plan should specify tree species and age of trees to be planted. Tree species should be suitable for the area and habitat and soil types, and trees should be of suitable maturity, taking into account growth rates."</i></p>	<p>specimens within the first five years. It will also detail all the specifications listed to ensure successful plant establishment and in particular taking into account the hotter and drier climate that is evolving in the south-east of England owing to climate change.</p>
<p>27 May 2022 Natural England Post scoping Evidence Plan</p>	<p><i>"Timing of planting in relation to the timing of construction works needs to be considered."</i></p>	<p>The timing of tree planting and opportunities for advanced planting are considered as set out in the LEDPP.</p>
<p>27 May 2022 Natural England Post scoping Evidence Plan</p>	<p><i>"Any trees planted prior to construction of the substation, should be protected with fencing with at least a 5-metre buffer area, thus allowing enough area for growing roots (root protection zones)."</i></p>	<p>Appropriate protection of tree planted areas will be implemented as set out in the LEDPP.</p>
<p>27 May 2022 Natural England Post scoping Evidence Plan</p>	<p><i>"Tree species beneficial to wildlife e.g. fruit or flowering species, should be included in the planting scheme. Other factors such as climate change and soil type should be considered."</i></p>	<p>Selection of tree species considers Biodiversity Net Gain, soil types, exposure, species provenance, pest and disease resilience, as well as climate resilience. This information is presented in the LEDPP.</p>
<p>27 May 2022 Natural England Post scoping Evidence Plan</p>	<p>The Project agreed to scope in the potential for light pollution in rural areas.</p> <p><i>"Impacts of lighting to landscape and ecology should be assessed and</i></p>	<p>Once operational, lighting associated with the onshore substation is likely to be very limited. There may be lighting used during the hours of darkness during the construction phase or during</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p><i>measures taken to minimise impacts. A detailed lighting design should be produced."</i></p>	<p>maintenance activities and the effects of this will be considered in the assessment. Details of substation operational lighting will be available within the design and access statement. Relevant guidance will be followed during the works.</p>
<p>2 November 2022 Natural England Post scoping Evidence Plan meeting</p>	<p>Natural England suggested additional viewpoints in the Dedham Vale AONB with potential for visibility shown on the ZTV in relation to:</p> <ul style="list-style-type: none"> > PROW 170_31 (Bridleway), > PROW 170_49 (Bridleway), > PROW 170_33 (footpath) and; > PROW 170_31 (footpath) 	<p>These suggested locations will be investigated and viewpoints included in the DCO application where relevant to the assessment.</p>
<p>2 November 2022 Natural England Post scoping Evidence Plan meeting</p>	<p>Natural England enquired whether collaboration was taking place with the EIA teams for other projects in the area.</p>	<p>Co-ordination is ongoing with opportunities for information sharing and alignment of methodology for LVIA (where possible) with the North Falls EIA team and National Grid Electricity Transmission (NGET) team. It will continue as the designs develop further for the DCO application.</p>
<p>2 November 2022 Suffolk County Council Post scoping Evidence Plan meeting</p>	<p>Suffolk County Council enquired about the proposed approach to the cumulative assessment.</p>	<p>There are currently no under construction, consented or application stage projects relevant to the assessment. The lack of available information on the close-range scoping stage sites means that it has not been possible to</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
		prepare a meaningful cumulative assessment at PEIR stage. A high level assessment is presented at section 2.14 and a full assessment will be included in the DCO application.
2 November 2022 Suffolk County Council Post scoping Evidence Plan meeting	Suffolk County Council enquired about the worst case scenario for LVIA in respect of the different Gas Insulated Switchgear (GIS) and AIS options for the OnSS.	The Gas Insulated Switchgear (substation technology) (GIS) option has been considered in the assessment as it proposes a greater number of buildings up to 15 m in height compared to the AIS option, will give rise to a greater extent of visibility. The larger footprint of the AIS with the taller height of the GIS has been used in the production of the ZTVs to ensure the fullest possible extents of visibility.
2 November 2022 Tendring District Council Post scoping Evidence Plan meeting	Tendring District Council highlighted the issues of slow growth rates in this area owing to the arid climate.	The LEDPP outlines the mitigation planting proposed in respect of the onshore ECC and the OnSS. Species selection will be developed with particular regard to both issues of drought and flooding and included within the LEMP.
2 November 2022 Post scoping Evidence Plan meeting	The Project stated that visualisations would be prepared in accordance with NatureScot's 'Visual Representation of Wind Farms' Version 2.2.	No objection was raised to this approach.

2.4 SCOPE AND METHODOLOGY

- 2.4.1 The project characteristics for the onshore elements of VE are set out in Volume 3, Chapter 1: Onshore Project Description.
- 2.4.2 For this PEIR assessment the design of the onshore elements of VE include some optionality in relation to the final size and locations of infrastructure being proposed. The design and options of the Onshore elements are described in detail within Volume 3, Chapter 1: Onshore Project Description. The LVIA assessment parameters are summarised in this chapter, in section 2.8.



SCOPE OF THE ASSESSMENT

IMPACTS SCOPED IN FOR ASSESSMENT

- 2.4.3 This LVIA includes a 'Preliminary Assessment' which identifies those aspects of the landscape and visual resource that do have potential to undergo a significant effect as a result of the onshore elements of VE. These aspects of the landscape and visual resource are then scoped in for the detailed assessment.
- 2.4.4 The following impacts have been scoped into this assessment:
- > Construction:
 - > The physical effects on the agricultural land, hedgerows and trees resulting from of the excavation works associated with the landfall, onshore ECC and OnSS;
 - > The effects on landscape character and visual amenity resulting from the presence of temporary construction compounds, access roads, plant, materials, spoil heaps and vehicles, associated with the construction of the landfall, onshore ECC and OnSS;
 - > The effects on landscape character and visual amenity resulting from the excavation and land restoration associated with the landfall and onshore ECC and, the earthworks and construction works associated with the emerging OnSS; and
 - > The effects on visual amenity arising from the use of lighting associated with the construction of the OnSS during the hours of darkness.
 - > Operation and maintenance:
 - > The effects on landscape character and visual amenity resulting from the presence of the OnSS; and
 - > The effects on landscape character and visual amenity resulting from the emergence of mitigation and replacement planting.
 - > Decommissioning:
 - > The physical effects and effects on landscape character and visual amenity resulting from the removal of cabling, dismantling and removal of electrical equipment from within the onshore project substation buildings and the removal of the main onshore project substation building and minor services equipment; and
 - > The physical effects and effects on landscape character and visual amenity as a result of the restoration of the site of the OnSS.



IMPACTS SCOPED OUT OF ASSESSMENT

- 2.4.5 This LVIA includes a 'Preliminary Assessment' which identifies those aspects of the landscape and visual resource that do not have potential to undergo a significant effect as a result of the onshore elements of VE. These aspects of the landscape and visual resource are then scoped out of the detailed assessment.
- 2.4.6 In the Scoping Opinion, the Secretary of State (SoS) agreed that the operational impacts of the landfall and onshore cable route could be scoped out of the assessment once the land has been restored, but that assessment would be required in respect of the residual effects associated with vegetation loss and the mitigation through replanting. These considerations have been made in the assessment of effects on the physical landscape during the construction phase in section 2.10.
- 2.4.7 The SoS also agreed that the effects of construction traffic, maintenance activities at the OnSS and transboundary effects should be scoped out of the assessment. Volume 1, Annex 3.2: Transboundary Screening for the purposes of regulation 32 of the 2017 EIA Regulations is presented in Volume 1, Annex 3.2.

STUDY AREA

- 2.4.8 The initial step in the LVIA is the establishment of the study area for the assessment. The LVIA study area for the onshore elements of VE extend to define a limit beyond which professional judgement considers it would be unlikely for significant effects to arise. This judgement is based on knowledge of similar projects, an understanding of the character of the local landscape and scale of the construction and development of the onshore components of VE.
- 2.4.9 The study area for the LVIA of the onshore ECC and landfall extends to a 500 m buffer either side of the onshore ECC search area. This broadly consists of a 60 m wide corridor along the cable route, however, the onshore ECC widens in some areas up to 120 m due to trenchless crossings and landfall and the study area is therefore wider in those areas. The proposed study area for the LVIA of each of the two OnSS options extend to a 5 km radius around the indicative OnSS locations. This radius has been informed by the ZTVs for both OnSS options, and presents a cautionary approach as it is considered unlikely that significant effects will arise beyond 2 or 3 km.
- 2.4.10 Together, these composite study areas form the LVIA study area for the onshore elements of VE (Volume 6, Annex 2.1, Figure 2.1).
- 2.4.11 The LVIA study area is not intended to provide a boundary beyond which the onshore elements of VE would not be seen, but rather to define the area within which there is potential for significant landscape or visual effects. In addition, a significant effect is very unlikely to occur towards the edges of the LVIA study area.

DATA SOURCES

- 2.4.12 Describe baseline data searches/ sources and new data collection (surveys etc.). The key data sources should be described here.



Table 2.3: Data Sources

Data Sources	Summary	Spatial coverage of VE
Ordnance Survey (OS)	OS 1:50,000, 1:25,000 Terrain 50 and Terrain 5 DTM data	This is a national mapping coverage.
Ordnance Survey (OS) Open Data	<ul style="list-style-type: none"> > National landscape planning designations. > Settlements, roads, railways and public rights of way; and > National Trails. 	This is national OS data able to provide designations for the specific area.
Essex County Council	<ul style="list-style-type: none"> > Essex Landscape Assessment (Chris Blandford Associates for Essex County Council 2003); and > The Landscape Character Assessment of the Essex Coast (October 2005). <p>Local Landscape Designations including Citations and descriptions relating to historic parks and gardens & Local Council Planning Portals and Development Plans</p>	Local area coverage of landscape designations
Tendering District Council	Tendering District Landscape Character Assessment, Volumes One and Two, Landscape Character Area (LCA) and Landscape Guidelines (November 2001, Land Use Consultants);	District level coverage of landscape character assessments in Tendering District.
Magic.gov	There are two National Landscape Designations within the LVIA study area; the Dedham Vale Area of Outstanding Natural Beauty (AONB) and Suffolk Coast and Heaths AONB on the northern edge of the OnSS study areas.	National landscape designations specific to the area.
Essex County Council	Identification of PROW, footpaths cycleways and bridleway networks will be assessed using Essex County Council's Highway's Information Map.	Local level coverage of PROWs within Essex.
Suffolk County Council	<ul style="list-style-type: none"> > East of England Landscape Framework; > Suffolk Landscape Assessment, Suffolk County Council (2011, updated 2018); > Touching the Tide Landscape Character Assessment (Alison Farmer Associates for the Touching the Tide Partnership, August 2012); 	Local area coverage of landscape designations within LVIA buffers.



Data Sources	Summary	Spatial coverage of VE
	<ul style="list-style-type: none"> > Suffolk Coastal Landscape Character Assessment (Alison Farmer Associates for Suffolk Coastal District Council, July 2018); and > Citations and descriptions relating to historic parks and gardens and Local Council Planning Portals/ Development Plans. 	
Suffolk Coast and Heaths AONB Management Partnership	<ul style="list-style-type: none"> > Suffolk Coast and Heaths AONB Management Plan 2018-2023; > Suffolk Coast and Heaths AONB – Natural Beauty and Special Qualities Indicators (LDA Design for Suffolk Coast and Heaths AONB Partnership, Suffolk County Council and EDF Energy, V1.8, November 2016); > The Suffolk Coast and Heaths – Landscape Guidelines (Suffolk Coast and Heaths Partnership, 2001); and > Development in the setting of the Suffolk Coast and Heaths AONB (Suffolk Coast and Heaths AONB Partnership, December 2015). 	Landscape planning context and designations within LVIA buffers
Mid Suffolk District Council	<ul style="list-style-type: none"> > The Joint Babergh and Mid Suffolk District Council Landscape Guidance, August 2015; and 	Landscape planning context and designations within LVIA buffers.
Colchester Borough Council	<ul style="list-style-type: none"> > The Colchester Borough Landscape Character Assessment, Colchester Borough Council, November 2005. 	Landscape planning context and designations within LVIA buffers.

ASSESSMENT METHODOLOGY

TYPES OF EFFECT

2.4.13 The LVIA predicts, describes and assesses the likely significant effects that VE will have on the landscape and visual resource, and covers the following types of effect which may arise during construction, decommissioning or operation of the onshore elements of the VE.

LANDSCAPE EFFECTS

2.4.14 Landscape effects potentially arise from the introduction of new onshore elements which may be visible and may therefore affect the perceived character of the landscape. This may also include effects on designated landscapes.



2.4.15 GLVIA 3, paragraph 5.4, advises that Landscape Character Assessment should be regarded as the main source for baseline studies and identifies the following factors which combine to create areas of distinct landscape character:

"the elements that make up the landscape in the study area including:

- *physical influences - geology, soils, landform, drainage and water bodies;*
- *landcover, including different types of vegetation and patterns and types of tree cover; and*
- *the influence of human activity, including landuse and management, the character of settlements and buildings, and pattern and type of fields and enclosure."*

The aesthetic and perceptual aspects of the landscape - such as, for example, its scale, complexity, openness, tranquillity or wildness;

The overall character of the landscape in the study area, including any distinctive Landscape Character Types or Areas that can be identified, and the particular combinations of elements and aesthetic and perceptual aspects that make each distinctive, usually by identification as key characteristics of the landscape."

VISUAL EFFECTS

2.4.16 Visual effects potentially arise from the introduction of onshore elements in views and the resultant effects on visual amenity experienced by people from representative viewpoints and principal visual receptors, for example groups of people, such as within settlements, using transport routes or recreational trails.

CUMULATIVE EFFECTS

2.4.17 In addition to the above, cumulative effects may arise where the study areas for two or more projects overlap so that they are experienced at a proximity where they may have a greater incremental effect, or where projects may combine to have a sequential effect. The LVIA assesses the cumulative effects that would arise through the development of VE.

FIELD SURVEY

2.4.18 Field survey work was undertaken during periods of clear visibility in February, March and June 2021 and in February and September 2022. This has allowed the landscape character and the visual amenity of the study area to be experienced in a range of different conditions and seasonal variation. Field surveys were carried out throughout the LVIA study area from publicly accessible locations.

2.4.19 For the OnSS, the focus is on the areas shown on the ZTV in Volume 6, Annex 2.1, Figures 2.7a to 2.7d to have theoretical visibility. For the proposed onshore ECC and landfall, the focus of the field survey is on the landscape, which is physically affected, although visibility of these elements is also considered in the 1 km onshore ECC study area as part of the wider field survey analysis. The field survey allows the assessors to judge the likely scale, distance, extent and prominence of the onshore elements of VE directly.



- 2.4.20 The landscape of the area surrounding the proposed onshore elements of VE has been assessed for any particular features that contribute to landscape character or that are important to the wider landscape setting. The field surveys provided an experience of the character areas of the LVIA study area and verification of how these areas might be affected by the onshore elements of VE.
- 2.4.21 The visual amenity of the LVIA study area was surveyed from receptors representative of the range of views and viewer types likely to experience the onshore elements of VE. Views from a variety of distances, aspects, elevations and extents are included.

GUIDANCE

2.4.22 Guidance relevant to the LVIA is set out in the following documents:

- > Landscape Institute and IEMA (2013) - Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3);
- > Natural England (2014). An Approach to Landscape Character Assessment;
- > Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope;
- > Planning Inspectorate (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects - Version 2;
- > NatureScot (2021). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- > Landscape Institute (2019). Visual Representation of Development Proposals; and
- > NatureScot (2017) - Visual Representation of Windfarms, Guidance (Version 2.2) (herein referred to as 'NatureScot Visual Representation').

2.4.23 Although some of this guidance is from publications by bodies located in other UK nations it is commonly drawn on for work carried out in England where no equivalent guidance exists. The preparation of visual representations that accord with the NatureScot Visual Representation guidance has been agreed with stakeholders as part of the LVIA Expert Topic Group (ETG) consultations.

2.5 ASSESSMENT CRITERIA AND ASSIGNMENT OF SIGNIFICANCE

APPROACH TO ASSESSMENT

2.5.1 The LVIA is undertaken using the following steps:

- > The features of the onshore elements of VE that may result in landscape and visual effects are described;
- > The overall scope of the assessment is defined, including the study area and range of possible landscape and visual effects;
- > The landscape baseline is established using landscape character assessment and the ZTV maps, to identify landscape receptors that may be affected and their key characteristics and value;



- > The visual baseline is established by identifying the extent of possible visibility, identifying the people who may be affected, identifying visual receptors and selecting viewpoints;
- > A preliminary assessment is undertaken of landscape and visual receptors using ZTV analysis, to identify which landscape and visual receptors are unlikely to be significantly affected and those that are more likely to be significantly affected, which require to be assessed in more detail;
- > Interactions are identified between the proposed onshore elements of VE and landscape and visual receptors, to predict potentially significant effects arising and measures are proposed 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, combining these judgements to assess the sensitivity of the landscape and visual receptor to the proposed onshore elements of VE;
- > An assessment of the size/ 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 of the size/ 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 proposed onshore elements of VE 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 are combined to assess the significance of landscape and visual effects.

2.5.2 GLVIA3 sets out an approach to the assessment of magnitude of change in which three separate considerations are combined within the magnitude of change rating. These are the size or scale of the effect, its geographical extent and its duration and reversibility. Notably GLVIA3 is not a prescriptive methodology but guidance. The guidance suggests that this approach is to be applied in respect of both landscape and visual receptors. It is considered that the process of combining all three considerations in one rating can distort the aim of identifying likely significant effects of development. For example, a high magnitude of change, based on size or scale, may be reduced to a lower rating if it occurred in a localised geographical area and for a short duration. This might mean that a potentially significant effect will be overlooked if effects are diluted down due to their limited geographical extents and/ or duration or reversibility.



- 2.5.3 As advocated by GLVIA3 the assessment has used professional judgement in defining the methodology for the LVIA. The consideration of the size or scale of the effect, its geographical extent and its duration and reversibility has therefore been undertaken separately, by basing the magnitude of change on size or scale to determine where significant and not significant effects occur, and then describing the geographical extents of these effects and their duration and reversibility separately. Duration and reversibility are stated separately in relation to the assessed effects (for example as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about likely 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.
- 2.5.4 The assessment methodology utilises six scales of magnitude of change - high, medium-high, medium, medium-low, low and negligible/none; which are preferred to the 'maximum of five categories' suggested in GLVIA3 as a means of clearly defining and summarising magnitude of change judgements.
- 2.5.5 The assessment methodology also broadly follows the EIA Methodology set out in Volume 1, Chapter 3: EIA Methodology. An exception relates to the matrix presented in Table 2.4 which includes six categories for magnitude of change, as described above, and five categories for sensitivity. This greater range of categories reflects the greater variability in respect of sensitivity and magnitude of change that will be experienced and enables greater accuracy in the assessment of landscape and visual effects.

DEFINING IMPACT SIGNIFICANCE - LANDSCAPE

SENSITIVITY OF LANDSCAPE RECEPTOR

- 2.5.6 The sensitivity of a landscape character receptor is a combination of the judgements made about the value associated with that receptor and the susceptibility of the receptor to the development proposed.

VALUE OF THE LANDSCAPE RECEPTOR

- 2.5.7 The value of a landscape character receptor is a reflection of the value that society attaches to that landscape. The assessment of the landscape value is classified as high, medium-high, medium, medium-low or low and the basis for this assessment is made clear using evidence and professional judgement, based on the following range of factors.
- 2.5.8 **Landscape designations** - A receptor that lies within the boundary of a recognised landscape related planning designation is of increased value, depending on the proportion of the receptor that is affected and the level of importance of the designation which may be international, national, regional or local. The absence of designations does not however preclude value, as an undesignated landscape character receptor may be valued as a resource in the local or immediate environment.



- 2.5.9 **Landscape quality** - The quality of a landscape character receptor is a reflection of its attributes, such as scenic quality, sense of place, rarity and representativeness and the extent to which its valued attributes have remained intact. A landscape with consistent, intact, well-defined and distinctive attributes is considered to be of higher quality and, in turn, higher value, than a landscape where the introduction of elements has detracted from its character.
- 2.5.10 **Landscape experience** - The experiential qualities that can be evoked by a landscape receptor can add to its value and relates to a number of factors including:
- > The perceptual responses it evokes;
 - > The cultural associations that may exist in literature or history, or the iconic status of the landscape in its own right;
 - > The recreational value of the landscape; and
 - > The contribution of other values relating to the nature conservation or archaeology of the area.

LANDSCAPE SUSCEPTIBILITY TO CHANGE

- 2.5.11 The susceptibility of a landscape character receptor to change is a reflection of its ability to accommodate the changes that will occur as a result of the addition of the proposed development. Some landscape receptors are better able to accommodate change as a result of the development than others due to certain characteristics that are indicative of capacity to accommodate change. These characteristics may or not also be special landscape qualities that underpin designated landscapes.
- 2.5.12 The assessment of the susceptibility of the landscape receptor to change is classified as high, medium-high, medium, medium-low or low and the basis for this assessment has been made clear using evidence and professional judgement. The following indicators of landscape susceptibility are considered in the context of the development proposed:
- > **Overall strength and robustness:** Collectively the overall characteristics and qualities of a particular landscape result in a strong and robust landscape that is capable of reasonably accommodating the influence of the onshore elements of VE without undue adverse effects on the special landscape qualities (in the case of a designated landscape) or the key characteristics;
 - > **Landscape scale and topography:** The scale and topography are large enough to physically accommodate the influence of the onshore elements of VE. Topographical features such as more complex, distinctive or small-scale coastal landforms are likely to be more susceptible than simple, broad and homogenous coastal landforms;
 - > **Openness and enclosure:** Openness in the landscape may increase susceptibility to change because it can result in wider visibility, however an open landscape may also be larger scale and simple, which would decrease susceptibility. Conversely, enclosed landscapes can offer more screening potential, limiting visibility to a smaller area, however they may also be smaller scale and more complex which would increase susceptibility;



- > **Skyline:** Prominent and distinctive skylines and horizons with important landmark features that are identified in the landscape character assessment, are generally considered to be more susceptible to development in comparison to broad, simple skylines which lack landmark features or contain other infrastructure features;
- > **Relationship with other development and landmarks:** Contemporary landscapes where there are existing similar developments or other forms of development (industry, mineral extraction, masts, urban fringe / large settlement, major transport routes) that already have a characterising influence result in a lower susceptibility to development in comparison to areas characterised by limited development or smaller scale, historic development and landmarks;
- > **Perceptual qualities:** Notable landscapes that are acknowledged to be particularly scenic, wild or tranquil are generally considered to be more susceptible to development in comparison to ordinary, cultivated or farmed / developed landscapes where perceptions of 'wildness' and tranquillity are less tangible. Landscapes which are either remote or appear natural may vary in their susceptibility to development; and
- > **Landscape context and association:** The extent to which the onshore elements of VE will influence the character of landscape receptors across the study area relates to the associations that exist between the landscape receptor within which the onshore elements of VE are located and the landscape receptor from which the onshore elements of VE are experienced. In some situations, this association is strong, where the landscapes are directly related, and in other situations weak, where the landscape association is weak. The context and visual connection to areas of adjacent landscape character or designations has a bearing on the susceptibility to development.

LANDSCAPE SENSITIVITY RATING

2.5.13 An overall sensitivity assessment of the landscape receptor is made by combining the assessment of the value of the landscape character receptor and its susceptibility to change. The evaluation of landscape sensitivity has been applied for each landscape receptor - high, medium-high, medium, medium-low and low - by combining individual assessments of the value of the receptor and its susceptibility to change.

LANDSCAPE MAGNITUDE OF CHANGE

2.5.14 The magnitude of change affecting landscape receptors is an expression of the scale of the change that will result from the onshore elements of VE and is dependent on a number of variables regarding the size or scale of the change and the geographical extent over which the change would be experienced.

SIZE OR SCALE OF CHANGE

2.5.15 This criterion relates to the size or scale of change to the landscape that will arise as a result of the onshore elements of VE, based on the following factors.

- > **Landscape elements:** The degree to which the pattern of elements that makes up the landscape character is altered by the onshore elements of VE, by



removal or addition of elements in the landscape. The magnitude of change will generally be higher if the features that make up the landscape character are extensively removed or altered, and/or if many new elements are added to the landscape.

- > **Landscape characteristics:** The extent to which the effect of the onshore elements of VE changes, physically or perceptually, the key characteristics of the landscape that may be important to its distinctive character. This may include, for example, the scale of the landform, its relative simplicity or irregularity, the nature of the landscape context, the grain or orientation of the landscape, the degree to which the receptor is influenced by external features and the juxtaposition of the onshore elements of VE in relation to these key characteristics. If the onshore elements of VE are located in a landscape receptor that is already affected by other similar development, this may reduce the magnitude of change, particularly if there is a high level of integration and the developments form a unified and cohesive feature in the landscape.
- > **Landscape designation:** In the case of designated landscapes, the degree of change is considered in light of the effects on the special landscape qualities which underpin the designation and the effect on the integrity of the designation. All landscapes change over time and much of that change is managed or planned. Often landscapes will have management objectives for 'protection' or 'accommodation' of development. The scale of change may be localised, or occurring over parts of an area, or more widespread affecting whole landscape receptors and their overall integrity.
- > **Distance:** The size and scale of change is also strongly influenced by the proximity of the onshore elements of VE to the receptor. Distance may be an influential factor to the extent that over a long range the scale of the influence on landscape receptors may be small or very limited. Conversely, landscapes closest to the development are likely to be most affected. Where the development is located within a 'host' landscape character area this would be directly affected whilst adjacent areas of landscape character would be indirectly affected.
- > **Amount and nature of change:** The amount of the onshore elements of VE that is seen. Generally, the greater the amount of the onshore elements of VE that can be seen, the higher the scale of change. Generally, the magnitude of change is likely to be lower where VE is largely perceived to be at a distance, rather than 'within' the landscape being considered.

GEOGRAPHICAL EXTENT

2.5.16 The geographic extent over which the landscape effects are 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 will experience a particular magnitude of change and therefore the geographical extents of the significant and non-significant effects.



2.5.17 The extent of the effects will vary depending on the specific nature of the onshore elements of VE and is principally assessed through analysis of the extent of perceived changes to the landscape character through visibility of the onshore elements of VE.

DURATION AND REVERSIBILITY

2.5.18 The duration and reversibility of landscape effects is based on the period over which onshore elements of VE are likely to exist (during construction and operation) and the extent to which these elements are removed (during decommissioning) and its effects reversed at the end of that period. Long-term, medium-term and short-term landscape effects are defined as follows:

- > Long-term - more than 10 years (may be defined as permanent or reversible);
- > Medium-term - 6 to 10 years; and
- > Short-term - 1 to 5 years.

LANDSCAPE MAGNITUDE OF CHANGE RATING

2.5.19 The 'magnitude' or 'degree of change' resulting from the onshore elements of VE is described as 'High', 'High-medium', 'Medium', 'Medium-low', 'Low' or 'Negligible'. In assessing magnitude of change, the assessment focuses on the size or scale of change and its geographical extent. The duration and reversibility are stated separately in relation to the assessed effects, for example as short / medium / long-term and temporary / permanent.

EVALUATING LANDSCAPE EFFECTS AND SIGNIFICANCE

2.5.20 The level of landscape effect is evaluated primarily through the combination of landscape sensitivity and magnitude of change. Once the level of effect has been assessed, a judgement is then made as to whether the level of effect is 'significant' or 'not significant' as required by the Environmental Impact Assessment (EIA) Regulations. This process is assisted by the matrix in Table 2.4 which is used to guide the assessment. Geographical extent and duration and reversibility are considered relevant in 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.

2.5.21 Further information is also provided about the nature of the effects (whether these would be direct / indirect; temporary / permanent / reversible; beneficial / neutral / adverse or cumulative).

2.5.22 A significant effect occurs where the combination of the variables results in the onshore elements of VE having a defining effect on the landscape receptor, or where changes of a lower magnitude affect a landscape receptor that is of particularly high sensitivity. A major loss or irreversible effect over an extensive area or landscape character, affecting landscape elements, characteristics and / or perceptual aspects that are key to a nationally valued landscape are likely to be significant, particularly if they are of long duration and irreversible.



2.5.23 A non-significant effect would occur where the effect of the onshore elements of VE is not defining, and the landscape character of the receptor continues to be characterised principally by its baseline characteristics. Equally a small-scale change experienced by a receptor of high sensitivity may not significantly affect the special landscape quality or integrity of a designation. Reversible effects, on elements, characteristics and character that are of small-scale or geographical extent or affecting lower value receptors, are unlikely to be significant.

DEFINING IMPACT SIGNIFICANCE – VISUAL

VISUAL SENSITIVITY TO CHANGE

2.5.24 Visual Effects are concerned wholly with the effect of the onshore elements of VE on views, and the general visual amenity. Visual Effects are defined by the Landscape Institute in GLVIA 3, paragraphs 6.1 as follows:

"An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views."

2.5.25 Visual effects are identified for different receptors (people) who would experience the view at their place of residence, within their community, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- > Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view; and
- > Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

2.5.26 The level of visual effect (and whether this is significant) is determined through consideration of the sensitivity of the visual receptor and their view and the magnitude of change that would be brought about by the onshore elements of VE.

ZONE OF THEORETICAL VISIBILITY (ZTV)

2.5.27 Plans mapping the ZTV are used to analyse the extent of theoretical visibility of the OnSS. The ZTVs provide a starting point in the assessment process and tend towards giving a 'worst case' or greatest calculation of the theoretical visibility. ZTV production for the LVIA, including limitations, is described in section 2.5.66 of this report.

VIEWPOINT ANALYSIS

2.5.28 Viewpoint analysis is used to assist the assessment and is conducted from selected viewpoints within the study area. The purpose of this is to assess both the level of visual effect for particular receptors and to help guide the design process and focus of the assessment. A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur.



2.5.29 The assessment involves visiting the viewpoint location and viewing visualisations prepared for each viewpoint location. The fieldwork is generally conducted in periods of fine weather with good visibility and considers seasonal changes such as reduced leaf cover or hedgerow maintenance. The viewpoint analysis is used to assist in the assessment of effects on visual receptor locations as well as landscape character effects reported in the LVIA.

EVALUATING VISUAL SENSITIVITY TO CHANGE

2.5.30 In accordance with paragraphs 6.31 to 6.37 of GLVIA3, the sensitivity of visual receptors is determined by a combination of the value of the view and the susceptibility of the visual receptors to the change likely to result from the onshore elements of VE on the view and visual amenity.

VALUE OF THE VIEW

2.5.31 The value of a view or series of views reflects the recognition and the importance attached either formally through identification on mapping or being subject to planning designations, or informally through the value which society attaches to the view(s). The value of a view has been classified as high, medium-high, medium, medium-low or low and the basis for this assessment has been made clear using evidence and professional judgement, based on the following criteria.

2.5.32 **Formal recognition** - The value of views can be formally recognised through their identification on OS or tourist maps as formal viewpoints, sign-posted and with facilities provided to add to the enjoyment of the viewpoint such as parking, seating and interpretation boards. Specific views may be afforded protection in local planning policy and recognised as valued views. Specific views can also be cited as being of importance in relation to landscape or heritage planning designations, for example the value of a view has been increased if it presents an important vista from a designed landscape or lies within or overlooks a designated area, which implies a greater value to the visible landscape.

2.5.33 **Informal recognition** - Views that are well-known at a local level and/or have particular scenic qualities can have an increased value, even if there is no formal recognition or designation. Views or viewpoints are sometimes informally recognised through references in art or literature, and this can also add to their value. A viewpoint that is visited or appreciated by a large number of people will generally have greater importance than one gained by very few people.

SUSCEPTIBILITY TO CHANGE

2.5.34 Susceptibility relates to the nature of the viewer experiencing the view and how susceptible they are to the potential effects of the onshore elements of VE. A judgement to determine the level of susceptibility therefore relates to the nature of the viewer and their experience from that particular viewpoint or series of viewpoints, classified as high, medium-high, medium, medium-low or low and based on the following criteria:

- > **Nature of the viewer** - The nature of the viewer is defined by the occupation or activity of the viewer at the viewpoint or series of viewpoints. The most common groups of viewers considered in the visual assessment include residents, motorists, and people taking part in recreational activity or working. Viewers,



whose attention is focused on the landscape, or with static long-term views, are likely to have a higher susceptibility. Viewers travelling in cars or on trains will tend to have a lower susceptibility as their view is transient and moving. The least sensitive viewers are usually people at their place of work as they are generally less susceptible to changes in views.

- > **Experience of the viewer** - The experience of the visual receptor relates to the extent to which the viewer's attention or interest may be focused on the view and the visual amenity they experience at a particular location. The susceptibility of the viewer to change arising from the onshore elements of VE may be influenced by the viewer's attention or interest in the view, which may be focused in a particular direction, from a static or transitory position, over a long or short duration, and with high or low clarity. For example, if the principal outlook from a settlement is aligned directly towards the onshore elements of VE, the experience of the visual receptor is altered more notably than if the experience relates to a glimpsed view seen at an oblique angle from a car travelling at high speed. The visual amenity experienced by the viewer varies depending on the presence and relationship of visible elements, features or patterns experienced in the view and the degree to which the landscape in the view may accommodate the influence of the onshore elements of VE.

VISUAL SENSITIVITY RATING

2.5.35 An overall level of sensitivity is applied for each visual receptor or view - high, medium-high, medium, medium-low or low by combining individual assessments of the value of the view and the susceptibility of the visual receptor to change. Each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, is assessed in terms of their sensitivity.

VISUAL MAGNITUDE OF CHANGE

2.5.36 The visual magnitude of change is an expression of the scale of the change that will result from the onshore elements of VE and is dependent on a number of variables regarding the size or scale of the change and the geographical extent over which the change would be experienced. A separate assessment is also made of the duration and reversibility of visual effects.

SIZE OR SCALE OF CHANGE

2.5.37 An assessment is made regarding the size or scale of change in the view that is likely to be experienced as a result of the onshore elements of VE, based on the following criteria:

- > **Distance:** the distance between the visual receptor/viewpoint and the onshore elements of VE. Generally, the greater the distance, the lower the magnitude of change, as the onshore elements of VE will constitute a smaller scale component of the view.
- > **Size:** the amount and size of the onshore elements of VE that is seen. Visibility may range from small or partial visibility of the onshore elements of VE, to all of the onshore elements being visible. Generally, the larger and greater number of the onshore elements of VE that appear in the view, the higher the magnitude of change. This is also related to the degree to which the onshore elements of



VE may be wholly or partly screened by landform, vegetation (seasonal) and / or built form. Conversely open views are likely to reveal more of the onshore elements of VE, particularly where this is a key characteristic of the landscape context.

- > **Scale:** the scale of the change in the view, with respect to the loss or addition of features in the view and changes in its composition. The scale of the onshore elements of VE may appear larger or smaller relative to the scale of the receiving landscape.
- > **Field of view:** the vertical / horizontal field of view (FoV) and the proportion of the view that is affected by the onshore elements of VE. Generally, the more of the proportion of a view that is affected, the higher the magnitude of change. If the onshore elements of VE extend across the whole of the open part of the outlook, the magnitude of change is higher as the full view has been affected. Conversely, if the onshore elements of VE cover just a narrow part of an open, expansive and wide view, the magnitude of change is likely to be reduced as it will not affect the whole open part of the outlook. This can in part be described objectively by reference to the horizontal / vertical FoV affected, relative to the extent and proportion of the available view.
- > **Contrast:** the character and context within which the onshore elements of VE are seen and the degree of contrast or integration of any new features with existing landscape elements, in terms of scale, form, mass, line, height, colour, luminance and motion. Developments which contrast or appear incongruous in terms of colour, scale and form are likely to be more visible and have a higher magnitude of change.
- > **Consistency of image:** the consistency of image of the onshore elements of VE in relation to other developments. The magnitude of change of onshore elements of VE is likely to be lower if its layout design is broadly similar to other developments in the landscape, in terms of its scale, form and general appearance. New development is more likely to appear as logical components of the landscape with a strong rationale for their location.
- > **Skyline / background:** Whether the onshore elements of VE would be viewed against the skyline or a background landscape may affect the level of contrast and magnitude. If the onshore elements of VE add to an already developed skyline the magnitude of change would tend to be lower.
- > **Number:** generally, the greater the number of separate onshore elements of VE seen simultaneously or sequentially, the higher the magnitude of change. Further effects would occur in the case of separate developments and their spatial relationship to each other would affect the magnitude of change. For example, development that appears as an extension to an existing development would tend to result in a lower magnitude of change than a separate, new development.
- > **Nature of visibility:** the nature of visibility is a further factor for consideration. The onshore elements of VE may be subject to various phases of development change and the manner in which the onshore elements of VE may be viewed



could be intermittent or continuous and / or vary seasonally, due to periodic management or leaf fall.

GEOGRAPHICAL EXTENT

2.5.38 The geographic extent over which the visual effects has been experienced is also assessed, which is distinct from the size or scale of effect and is described in terms of the physical area or location over which it is experienced (described as a linear or area measurement). The extent of the effects varies according to the specific nature of the onshore elements of VE and is principally assessed through ZTV, field survey and viewpoint analysis of the extent of visibility likely to be experienced by visual receptors.

DURATION AND REVERSIBILITY

2.5.39 The duration and reversibility of visual effects are based on the period over which the onshore elements of VE are likely to exist (during construction and operation) and the extent to which the onshore elements of VE are removed (during decommissioning) and the effects reversed at the end of that period.

2.5.40 Long-term, medium-term and short-term visual effects are defined as follows:

- > Long-term - more than 10 years (may be defined as permanent or reversible);
- > Medium-term - 6 to 10 years; and
- > Short-term - 1 to 5 years.

VISUAL MAGNITUDE OF CHANGE RATING

2.5.41 The 'magnitude' or 'degree of change' resulting from the onshore elements of VE is described as 'High', 'High-medium', 'Medium', 'Medium-low' 'Low' and 'Negligible'. In assessing the magnitude of change the assessment focuses on the size or scale of change and its geographical extent. The duration and reversibility are stated separately in relation to the assessed effects (for example as short / medium / long-term and temporary / permanent). The basis for the assessment of magnitude for each receptor is made clear using evidence and professional judgement.

EVALUATING VISUAL EFFECTS AND SIGNIFICANCE

2.5.42 The level of visual effect is evaluated through the combination of visual sensitivity and magnitude of change. Once the level of effect has been assessed, a professional judgement is then made as to whether the level of effect is 'significant' or 'not significant' as required by the relevant EIA Regulations. This process is assisted by the matrix in Table 2.4 which is used to guide the assessment. Geographical extent and duration and reversibility 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.

2.5.43 Further information is also provided about the nature of the effects (whether these would be direct / indirect; temporary / permanent / reversible; beneficial / neutral / adverse or cumulative).

2.5.44 A significant effect is more likely to occur where a combination of the variables results in the onshore elements of VE having a defining effect on the view or visual amenity or where changes affect a visual receptor that is of high sensitivity.



- 2.5.45 A non-significant effect is more likely to occur where a combination of the variables results in the onshore elements of VE having a non-defining effect on the view or visual amenity or where changes affect a visual receptor that is of low sensitivity.

DEFINING IMPACT SIGNIFICANCE - CUMULATIVE, LANDSCAPE AND VISUAL

- 2.5.46 NatureScot's guidance, Assessing the Cumulative Impact of Onshore Wind Energy Developments (2021) is widely used across the UK to inform the specific assessment of the cumulative landscape and visual effects of different types of development. Both GLVIA3 and NatureScot's guidance provides the basis for the methodology for the cumulative LVIA. The NatureScot (2021) guidance defines:

'The purpose of a Cumulative Landscape and Visual Impact Assessment (CLVIA) is to describe, visually represent and assess the ways in which a proposed wind farm would have additional impacts when considered with other consented or proposed wind farms. It should identify the significant cumulative impacts arising from the proposed wind farm.'

'The assessment should be proportionate to the likely impacts and all CLVIA should accord with the guidelines within GLVIA3. The emphasis should be on the production of relevant and useful information, highlighting why the proposals assessed have been included and why others have been excluded, rather than the provision of a large volume of information.' (NatureScot 2021, p8);

'Cumulative impacts can change either the physical fabric or character of the landscape, or any special values attached to it' (NatureScot 2021, p7); and

'Cumulative impacts on visual amenity can be caused by 'combined visibility' and/or 'sequential impacts'. (NatureScot 2021, p7).

- 2.5.47 In line with this guidance therefore, the objective of the cumulative assessment is different from the assessment of effects of VE alone. In the cumulative assessment the intention is to establish whether or not the addition of VE, in combination with other relevant consented or proposed developments, may lead to a significant cumulative landscape or visual effect.

EVALUATION OF SIGNIFICANCE

- 2.5.48 The matrix presented in Table 2.4 is used as a guide to help inform the threshold of significance when combining sensitivity and magnitude to assess significance. On this basis potential effects are assessed as Negligible, Minor, Moderate-Minor, Moderate, Moderate-Major and Major. In those instances where the magnitude has been assessed as 'no change', the level of effect is recorded as 'No effect'.



- 2.5.49 For the purposes of this assessment, any effects with a significance level of Major and Moderate-Major have been deemed significant in EIA terms (pink shaded boxes in Table 2.4). 'Moderate' levels of effect have the potential, subject to the assessor's professional judgement, to be considered as significant or not significant, depending on the sensitivity and magnitude of change factors evaluated (orange shaded boxes in Table 2.4). These assessments are explained as part of the assessment, where they occur. Significance can therefore occur at a range of levels depending on the magnitude and sensitivity, however in all cases, a significant effect is considered more likely to occur where a combination of the variables results in the onshore elements of VE having a defining effect on the landscape character or view. Definitions are not provided for the individual categories of significance shown in the matrix and the reader should refer to the detailed definitions provided for the factors that combine to inform sensitivity and magnitude
- 2.5.50 Effects assessed as being either Moderate-Minor, Minor or Negligible level are assessed as not-significant (white shaded boxes in Table 2.4).
- 2.5.51 In line with the emphasis placed in GLVIA3 upon the application of professional judgement, an overly mechanistic reliance upon a matrix is avoided through the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor. Such narrative assessments provide a level of detail over and above the outline assessment provided by use of the matrix alone.
- 2.5.52 The landscape and visual assessment, unavoidably, involves a combination of quantitative and qualitative assessment and wherever possible cross reference has been made to objective evidence, baseline figures and / or to photomontage visualisations to support the assessment conclusions. Often a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach. Importantly, each effect results from its own unique set of circumstances and has been assessed on a case-by-case basis. The matrix, as presented in Table 2.4, should, therefore, be considered as a guide and any deviation from this guide has been clearly explained in the assessment.



Table 2.4: Matrix to determine effect significance.

		Magnitude of change				
Sensitivity	High	Medium - high	Medium	Medium - low	Low	Negligible
High	Significant (Major)	Significant (Major)	Significant (Major-moderate)	Significant or not significant (Moderate)	Not significant (Moderate-minor)	Not significant (Minor)
Medium - high	Significant (Major)	Significant (Major-moderate)	Significant or not significant (Moderate)	Significant or not significant (Moderate)	Not significant (Moderate-minor)	Not significant (Minor)
Medium	Significant (Major-moderate)	Significant or not significant (Moderate)	Significant or not significant (Moderate)	Not significant (Moderate-minor)	Not significant (Minor)	Not significant (Minor)
Medium - low	Significant or not significant (Moderate)	Significant or not significant (Moderate)	Not significant (Moderate-minor)	Not significant (Minor)	Not significant (Minor)	Not significant (Negligible)
Low	Not significant (Moderate-minor)	Not significant (Moderate-minor)	Not significant (Minor)	Not significant (Minor)	Not significant (Negligible)	Not significant (Negligible)

Note: pink shaded cells are defined as significant with regards to the EIA Regulations 2017. Orange shaded cells are defined as either significant or not significant based on professional judgement as explained at paragraph 2.5.51.

NATURE OF EFFECTS

2.5.53 The EIA Regulations 2017, at Schedule 4, Paragraph 5, state that the ES should define *'the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development'*.

2.5.54 In accordance with the EIA Regulations 2017, in this assessment the nature of effects refers to whether the landscape and / or visual effect of the onshore elements of VE is positive or negative (herein referred to as 'beneficial' / 'neutral' or 'adverse').



- 2.5.55 Guidance provided in GLVIA3 on the nature of effect states that 'in the LVIA, thought must be given to whether the likely significant landscape and visual effects are judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity', but it does not provide guidance as to how that may be established in practice. The nature of effect is therefore one that requires interpretation and, where applied, this involves reasoned professional opinion.
- 2.5.56 In this LVIA a precautionary approach has been adopted, which assumes that significant landscape and visual effects are weighed on the adverse side of the planning balance, unless otherwise stated. Beneficial or neutral effects may, however, arise in certain situations and are stated in the assessment where relevant, based on the following definitions.
- 2.5.57 **Beneficial effects** - contribute to the landscape and visual resource through the enhancement of desirable characteristics or the introduction of new, beneficial attributes. The development contributes to the landscape by virtue of good design or the introduction of new landscape planting. The removal of undesirable existing elements or characteristics can also be beneficial, as can their replacement with more appropriate components.
- 2.5.58 **Neutral effects** - occur where the development fits with the existing landscape character or visual amenity. The development neither contributes to nor detracts from the landscape and visual resource and can be accommodated with neither beneficial or adverse effects, nor where the effects are so limited that the change is hardly noticeable. A change to the landscape and visual resource is not considered to be adverse simply because it constitutes an alteration to the existing situation.
- 2.5.59 **Adverse effects** - are those that detract from the landscape character or quality of visual attributes experienced, through the introduction of elements that contrast, in a detrimental way, with the existing characteristics of the landscape and visual resource, or through the removal of elements that are key in its characterisation.

ONSS ZONE OF THEORETICAL VISIBILITY ANALYSIS

- 2.5.60 The ZTVs (Volume 6, Annex 2.1, Figures 2.7a to 2.7d), have been generated using Geographic Information Systems software to demonstrate the extent to which the OnSS may theoretically be seen from any point in the OnSS study area.
- 2.5.61 The OnSS technology will employ either Air Insulated Switchgear (AIS) or Gas Insulated Switchgear (GIS). The choice of switchgear affects both the total land area required and the size and type of buildings which will be needed. If a GIS option is selected, the land area needed for the OnSS will be up to 45,000 m². The maximum height of the GIS building will be 15 m and the maximum height of other electrical equipment will be 11.5 m, both excluding lightning masts at 18 m and any land raising.
- 2.5.62 If an AIS option is selected, the OnSS will be up to 58,800 m². The maximum height of electrical infrastructure will be 12.5 m and the maximum height of buildings will be 6 m, both excluding lightning masts at 18 m and any land raising.



- 2.5.63 The MDS for the finished ground level of the two indicative OnSS options have been established using a balanced cut and fill across the baseline landform of both OnSS SSA West and SSA East for the purposes of this assessment. The platform levels will be revised in the DCO Application to reflect the updated location of the OnSS. It should also be noted that the OnSS platform is based on the AIS footprint and that as such the ZTV represents a highly precautionary worst-case position in terms of theoretical or likely actual visibility of the AIS option given the smaller GIS footprint that is intrinsic to the greater height as explained above.
- 2.5.64 An indicative footprint for the OnSS has been applied in respect of both SSA West and SSA East. Whilst the locations used are indicative for the purposes of this assessment, they have been guided by potential environmental and technical constraints in order to present a realistic worst case scenario.
- 2.5.65 ZTVs are primarily calculated based on the visibility at 2 m above the height of the landform relative to the height of the project, which means a viewer height of 2 m. The ZTVs shown in Volume 6, Annex 2.1, Figure 2.7a and 2.7c reflect bare ground theoretical visibility. The ZTVs shown in Volume 6, Annex 2.1, Figures 2.7b and 2.7d also factor in the potential screening effect of areas of woodland within the OnSS study area. An average height of 10 m has been attributed to all woodlands. These woodland heights are based on observations during fieldwork and are considered to be a conservative average. The ZTVs do not take into account the screening effect of smaller groups of trees, hedgerows, hedgerow trees, buildings or other local features. As a result, the ZTVs present a conservative worst-case assumption in respect of theoretical visibility.
- 2.5.66 There are limitations in the production of the ZTV, and these should be borne in mind in its consideration and use:
- > The ZTVs are based on 5 m data grid (Ordnance Survey Terrain 5) with a viewer height of 2 m above ground level;
 - > The bare ground ZTV does not take into account the screening effects of woodlands, vegetation, buildings, or other local features that may prevent or reduce visibility;
 - > The screened ZTV illustrates the bare ground situation with major woodland blocks reflected, but does not take into account the screening effects of other vegetation, buildings, or other local features that may prevent or reduce visibility;
 - > The woodland blocks included in the screened ZTV may differ to the actual height of woodland in the OnSS study area. Based on fieldwork, it is considered that the assumed heights used in the screened ZTV represent a conservative average;
 - > The ZTV does not indicate the decrease in visibility that occurs with increased distance from the OnSS. The nature of what is visible from 1 km away would differ markedly from what is visible from 5 km away, although both are indicated on the ZTV as having the same level of visibility; and
 - > There is a wide range of variation within the visibility shown on the ZTV. For example, an area shown as having visibility of the OnSS may only gain views of the smallest extremity rather than all of it as may be the case elsewhere.



2.5.67 These limitations mean that while the ZTV is used as a starting point in the assessment, providing an indication of where the OnSS would theoretically be visible, the information drawn from the ZTV is not completely relied upon to accurately represent visibility of the OnSS.

VISUALISATIONS

2.5.68 The viewpoint assessment of the OnSS is illustrated by a range of visualisations, including photographs, Rochdale envelope photomontages and model photomontages, which are in line with current best practice and the guidance provided in Landscape Institute – Visual Representation of Development Proposals (2019). Visualisations have a number of limitations when using them to form a judgement on a development. These include:

- > The images provided give a reasonable impression of the scale of and distance to the OnSS, but can never be 100% accurate;
- > The viewpoints illustrated are representative of views in the area but cannot represent visibility at all locations;
- > To form the best impression of the visual impacts of the OnSS these images are best viewed at the viewpoint location shown;
- > The visualisations must be printed at the right size to be viewed properly (A1 width) and viewed at a comfortable viewing distance;
- > The first visualisation sheet for each of the viewpoints illustrates the existing view with a baseline photograph;
- > The second visualisation sheet includes a photomontage view of the Rochdale envelope as a white dashed line at year 0 once construction is completed;
- > The third visualisation sheet includes a photomontage view of the OnSS model at year 0 once construction is completed; and
- > The fourth visualisation sheet includes proposed mitigation planting at year 15 representing the approximate height in the range of 6.8 to 8.3 m.

2.5.69 The photographs used to produce the photomontages have been taken using Canon EOS 5D and 6D Digital SLR cameras, with a fixed lens and a full-frame (35 mm negative size) CMOS sensor. The photographs are taken on a tripod with a pano-head at a height of approximately 1.5 m above ground. To create the baseline panorama, the frames are individually cylindrically projected and then digitally joined to create a planar projected panorama with a 53.5-degree field of view. Tonal alterations are made using Adobe software to create an even range of tones across the photographs once joined.

2.5.70 The photographs and photomontages used in this assessment are for illustrative purposes only and, whilst useful tools in the assessment, are not considered to be completely representative of what will be apparent to the human eye. The assessments are carried out from observations in the field and therefore may include elements that are not visible in the photographs.



2.6 UNCERTAINTY AND TECHNICAL DIFFICULTIES ENCOUNTERED

GRAPHIC PRODUCTION

- 2.6.1 ZTV and photomontage visualisations have specific limitations which are described in detail in section 2.5.66 above.

FIELDWORK

- 2.6.2 It is not possible to visit every part of the study area when undertaking an LVIA and, therefore, some aspects of the assessment are based on desk-based study and professional experience.

SUMMARY

- 2.6.3 While there is some small degree of uncertainty in carrying out fieldwork, preparing ZTVs and photomontage visualisations, and understanding the cumulative context, there has been sufficient information available to carry out a detailed min assessment and a high level cumulative assessment.

2.7 EXISTING ENVIRONMENT

INTRODUCTION

- 2.7.1 This section identifies aspects of the landscape and visual resource that may be significantly affected by the onshore elements of VE and provides a description of the existing landscape and visual conditions in the area that may be affected, which is referred to as the landscape and visual baseline. When reviewed alongside the description of the onshore elements of VE provided in Volume 3, Chapter 1: Onshore Project Description the established baseline will form the basis for the identification and description of landscape and visual effects.
- 2.7.2 The baseline description of the landscape and visual resource that may be affected is primarily determined by the physical footprint of the onshore elements of VE and the extent to which the OnSS will be visible, all illustrated in the ZTVs (Volume 6, Annex 2.1, Figures 2.7a, 2.7b, 2.7c and 2.7d).
- 2.7.3 The baseline also describes current pressures that may cause change in the landscape in the future, and which need to be considered cumulatively with VE, in particular drawing on information for other developments that are not yet present in the landscape but are at other stages in the planning process.
- 2.7.4 A preliminary assessment has identified those landscape and visual receptors that may have the potential to experience significant effects, which require to be assessed in full. This section provides a baseline overview, and a detailed baseline description is provided separately within the assessment section for each receptor that may be significantly affected.

LANDSCAPE BASELINE OVERVIEW

SITE CONTEXT

- 2.7.5 The onshore elements of VE are located entirely within the administrative boundary of Tendring District Council, in Essex. The offshore export cables will make landfall between Holland-on-Sea and Frinton-on-Sea on the Essex coast. The proposed OnSS would be sited within one of two potential search areas near to Little Bromley, between Lawford and the A120



- 2.7.6 This part of Essex has a distinct coastal landscape broadly characterised by the towns and resorts which extend along much of its coastline, where there are extensive beaches, sea walls and sand dunes, and with coastal marshes along the estuaries to the north and south. Inland from the coastline. The onshore ECC and OnSS study areas are characterised by agricultural lowland landscapes which are typically flat to gently undulating and low-lying. They provide a rural backdrop to the coast where parts have been reclaimed from marshland. Further, inland the farmed landscape covers a mix of shallow river valleys and low-lying plateaux, such that the elevation of the landscape seldom rises above 30 m.
- 2.7.7 Within the context of the onshore ECC study area, the landscape transitions from the beach and coastal landscape across a predominantly rural landscape which mostly comprises fields of arable crops with some enclosure from hedgerows and localised tree cover. Whilst the landscape of the LVIA study area is rural in nature, it also has a concentration of activity along the many transport routes traversing the area, including the A120, A133 and Colchester to Clacton-on-Sea railway.
- 2.7.8 The onshore cables will be installed underground. A 60 m onshore ECC will be routed through the defined Onshore ECC search area, as presented in Volume 3, Chapter 1: Onshore Project Description. This width will increase up to around 120 m in sections of trenchless crossing with compounds present to facilitate HDD. The onshore ECC will extend along a length of 27 km between the landfall and the OnSS. There are two indicative locations for the location of the OnSS, one to the south and one to the south-east of the town of Lawford. The location of the onshore infrastructure is shown in Volume 6, Annex 2.1, Figure 2.1.

LANDSCAPE CHARACTER

- 2.7.9 The English landscape is classified at the national level by National Landscape Character Areas (NLCAs). The NLCAs are defined at a broad landscape scale, each with descriptive character profiles. The proposed onshore elements of VE and the associated LVIA study area broadly lies within the following NLCAs:
- > Landfall – NLCA 81 Greater Thames Estuary (NLCA 81);
 - > Onshore ECC – NLCA 111 Northern Thames Basin; and
 - > OnSS – NLCA 111 Northern Thames Basin.
- 2.7.10 The wider LVIA study area lies within the following two additional National NLCAs as shown in Volume 6, Annex 2.1, Figure 2.2:
- > NLCA 86 South Suffolk and North Essex Clayland; and
 - > NLCA 82 Suffolk Coast and Heaths.
- 2.7.11 As these NLCAs cover a broad scale, the more detailed local landscape character assessments are mainly referred to in this assessment. The LVIA is largely based on the Tendring District Landscape Character Assessment (LCA) which covers the landfall, Onshore ECC and the two indicative locations for the OnSS and most of the associated study areas, but also with reference to the LCAs which cover Babergh District to the north and Colchester Borough to the west;



- > Tendring District Landscape Character Assessment Volumes One and Two - Landscape Character Assessment and Landscape Guidelines prepared by Land Use Consultants (November 2001);
- > The Joint Babergh and Mid Suffolk District Council Landscape Guidance, (August 2015); and
- > The Colchester Borough Landscape Character Assessment, Colchester Borough Council, (November 2005).

- 2.7.12 The Tendring District Landscape Character Assessment separates the landscape into landscape types, which are further sub-divided into character areas. This local character assessment forms the basis for the baseline landscape character assessment for the OnSS study area. The landscape types and character areas that lie within the OnSS study area are shown in Volume 6, Annex 2.1, Figure 2.3. The OnSS and much of the OnSS study area are classified as Plateaux Heathland.
- 2.7.13 The Tendring Peninsula at the edge of the London Basin coincides with a large part the LVIA study area. It is drained by numerous rivulets flowing northwards or eastwards to the sea. The area comprises a mosaic of intensive farmland and pasture, small woodland plantations, heathland, drained estuaries, clay valleys and associated rivers and coastline, with sandy beaches and a string of popular tourist resorts along the coast. It is a predominately lowland plateau landscape with levels falling gradually towards the east. The coastline is largely drained coastal marsh, protected by sea walls with long views extending over the hinterland from this coastal area.
- 2.7.14 There is a range of cultural heritage assets in the Tendring District area, including Saxon burial mounds and military features such as Second World War pillboxes. The settlement pattern inland comprises a mix of dispersed villages and hamlets, such as Bromley, Little Bromley, Tendring, Weeley, Thorpe-le-Soken, Landemere and Great Holland, as well as farmsteads and other rural properties, while larger towns, such as Clacton-on-Sea and Frinton-on-Sea, extend along the coast.
- 2.7.15 The Joint Babergh and Mid Suffolk District Council Landscape Guidance, August 2015 separates the landscape into landscape typologies. This local character assessment has used the Landscape Character Assessment areas as defined by Suffolk County Council and specific descriptions to ensure each Landscape Character is clearly relating to Babergh District. This document contributes to the baseline landscape assessment for the OnSS study area and the landscape character areas that lie within the LVIA study area are shown in Volume 6, Annex 2.1, Figure 2.3.
- 2.7.16 Babergh District is largely characterised by large regular fields located to the north of the River Stour. It contains part of the designated Dedham Vale AONB, comprising plateaux that are flat or gently rolling with areas of 'ancient' countryside and old, sinuous hedge lines. Valley sides of deep loams, with parklands plantations and ancient woodlands line the saltmarsh and intertidal flats with areas of rolling valley farmlands further inland. To the west of the River Stour lie areas of valley meadowland.



2.7.17 The Colchester Borough Landscape Character Assessment (Colchester Borough Council produced by Chris Blandford Associates, November 2005) separates the landscape into landscape types, which are sub-divided into character areas. This document contributes to the baseline landscape assessment for the OnSS study area and the landscape types and character areas that lie within the OnSS study area are shown in Volume 6, Annex 2.1, Figure 2.3.

LANDSCAPE DESIGNATIONS

2.7.18 A landscape designation is an area of landscape identified as being of importance at international, national or local level, either defined by statute or identified in development plans or other documents. The landscapes are designated in relation to their special qualities or features which warrant special consideration through the planning system.

2.7.19 There are three ways in which such designations are relevant to the LVIA:

- > The presence of a designation can provide an indication of a recognised value that may increase the sensitivity of a landscape character receptor, viewpoint or visual receptor, and may therefore affect the significance of the effect on that receptor;
- > The presence of a relevant designation can lead to the selection of a representative viewpoint within the designated area, as the viewpoint will provide a representative outlook from that area; and
- > Designated areas may be included as landscape character receptors so that the effects of the proposed onshore elements of VE on the landscapes that have been accorded particular value can be specifically assessed.

2.7.20 There are two Landscape Designations that overlap the OnSS study area; Dedham Vale AONB overlaps the OnSS study area to the north-west and the Suffolk Coast and Heaths AONB overlaps the OnSS study area to the north-east. Volume 6, Annex 2.1, Figure 2.4 shows the location and extent of the designations in relation to the OnSS study area, while Volume 6, Annex 2.1, Figure 2.9a and 2.9b show the designations in conjunction with the OnSS screened ZTV.

2.7.21 The ZTVs show the very limited extent to which visibility of both OnSS indicative options would arise across Dedham Vale AONB and the Suffolk Coast and Heaths AONB. The combination of the limited visibility of the OnSS indicative options, the extent of tree cover and vegetation in the AONBs, their separation distance from the ONSS indicative options and the baseline influence from other intermediate developments, including the town of Lawford and Foxash Estate, means that the special qualities of the AONBs would not be significantly affected by the Project. The Dedham Vale AONB and the Suffolk Coast and Heaths AONB have, therefore, not been assessed in detail for the visibility of the OnSS.



VISUAL BASELINE OVERVIEW

2.7.22 Principal visual receptors found within the OnSS and onshore ECC study areas include roads, railways, individual properties, settlements and recreational routes. Principal Visual Receptors within the OnSS and onshore ECC study areas are generally larger and more concentrated along the coast, and smaller and sparser across the rural hinterland. Principal visual receptors are mapped in Volume 6, Annex 2.1, Figure 2.5 and with the OnSS screened ZTV in Volume 6, Annex 2.1, Figure 2.10a and 2.10b.

SETTLEMENT

2.7.23 Settlement pattern within the OnSS and onshore ECC study areas is generally dispersed with farmsteads and individual or small clusters of residential properties, scattered across the rural landscape. There are also a number of small villages and occasional small towns in this rural area, with larger towns concentrated along the coast. The popular coastal resorts of Frinton-on-Sea, lies to the north-east, and Clacton-on-Sea, lies to the south-west of the landfall, with the village of Great Holland set inland to the north-east of the onshore ECC. The onshore ECC also passes by the eastern and northern side of Thorpe-le-Soken and the northern side of Thorpe Green. It also passes by the north-eastern side of Tendring Green and Tendring Heath and then crosses under the A120.

2.7.24 In respect of SSA West Indicative OnSS Location, the closest settlement is the town of Lawford at a minimum of approximately 1.8 km to the north-east. There are also the smaller villages of Little Bromley at a minimum of approximately 1.1 km to the east and Bromley Cross at a minimum of approximately 1.7 km to the south-west. The occurrence of intervening tree cover and occasional built development means that visibility of the OnSS from these settlements will be limited.

2.7.25 In respect of SSA East Indicative OnSS Location, the closest settlement is the small village of Horsleycross Street, at a minimum of approximately 1 km to the north-east, while the small village of Little Bromley lies to the north-west at a minimum of approximately 1.3 km. While clear visibility from these settlements is likely to be limited, there is potential for visibility to arise from parts of these settlements and surrounding roads and PRowS.

LEISURE AND RECREATION

2.7.26 In the OnSS and onshore ECC study areas, there are a large number of PRowS and Bridleways, areas of Open Access Land, and promoted cycling routes that provide access to the countryside and coastlines.

2.7.27 Two long distance walking routes overlap with the OnSS and onshore ECC study areas. These include Lasso Essex – Sunny Sands Stands and the Tendring Hundred Hinterland. There are also routes at the Essex Way, Lasso Essex Way (various sections), Nelson Way and Walks in Colne Zolne and several other locally promoted routes, Public Rights of Way, bridleways and byways.

2.7.28 The one National Cycle Route within the onshore ECC study area is the National Cycle Route 150, which runs along the coast between Frinton-on-Sea and Clacton-on-Sea. An on-road route cuts across the onshore ECC study area between Raven's Green in the west towards Stones Green to the east. National Cycle Routes 1 and National Cycle Route 51 also lie within the OnSS study areas.



- 2.7.29 Other opportunities for leisure and recreation in the LVIA study area occur on the coast between and beyond Frinton-on-Sea and Clacton-on-Sea, as well as further inland and include AONBs, Country Parks, nature conservation sites, and caravan and camping sites. Visitor locations notable for their ecological and scenic interest, present within the onshore ECC and OnSS study areas, include;
- > The Holland Haven Marshes SSSI and the Holland Haven Country Park between Clacton-on-Sea and Frinton-on-Sea;
 - > Various pockets of nationally important ancient broadleaf woodland;
 - > The Hamford Water SPA, SAC and Ramsar;
 - > Dedham Vale AONB;
 - > Stour and Orwell SPA and Ramsar;
 - > The Colne Estuary (Mid-Essex Coast Phase 2) Ramsar and SPA;
 - > The Suffolk Coast and Heaths AONB; and
 - > Highwoods Country Park.
- 2.7.30 Visual receptors associated with offshore leisure facilities, such as ferry and sailing routes, are not considered in the LVIA owing to the very limited visibility of the onshore elements of VE from these locations.

TRANSPORT ROUTES

- 2.7.31 There is a network of transport routes present within the onshore ECC and OnSS study areas. The A120 Harwich Road crosses into the northern part of the onshore ECC study area near Great Bromley and Thorley Cross and forms the Wix Bypass. The A133 Colchester Road crosses the western section of the OnSS study area forking south from the A120 and passing south-east to Clacton-on-Sea. There are multiple secondary and minor roads occurring across the onshore ECC and OnSS study areas, providing access to and connections between the settlements.
- 2.7.32 There is one passenger railway line entering the western edge of the OnSS study area near Great Bentley and passing towards Great Holland where it forks into two lines; one towards Frinton-on-Sea in the east and one towards Clacton-on-Sea in the west. A further passenger railway line lies within the LVIA study area connecting Colchester in the west to Manningtree and beyond in the north.
- 2.7.33 Visual receptors associated with offshore transport, such as ferry and sailing routes, are not considered in the LVIA owing to the very limited visibility of the onshore elements of VE from these locations.

ONSHORE ECC VISUAL ASSESSMENT

- 2.7.34 As the cables are proposed to be buried there would be little or no visual effects resulting from the onshore ECC once operational. In addition, the relatively small scale and ground-based nature of the onshore ECC means that only the views of close-range receptors would be affected during construction. The effects will also occur over relatively short periods of time as the construction of the onshore ECC will follow a 'rolling programme' along its length.



2.7.35 While it is unlikely that the onshore ECC will give rise to significant effects on the visual amenity of residents, road-users, walkers and horse-riders, this will be reviewed for the DCO Application once the final location of the onshore ECC, HDD locations and associated construction compounds have been fixed.

ONSS VISUAL ASSESSMENT

2.7.36 The built infrastructure proposed for the OnSS has a greater extent of visibility and, therefore, visual receptors over a wider area would potentially be affected. Visual effects would also occur during operation, as well as construction and decommissioning.

2.7.37 The viewpoints identified for assessment of the OnSS have been selected to cover a variety of landscape character areas; roads; recreational routes; points from different directions and distances; and to inform the definition of the likely extent of significant visual effects from the identified principal visual receptors. Six viewpoints for the landscape and visual assessment of each of the two indicative sites were selected through consultation and agreement with statutory consultees.

2.7.38 Representative viewpoints proposed for the visual assessment of SSA West Indicative OnSS Location are identified in Table 2.5 below and mapped in Volume 6, Annex 2, Figures 2.7a and 2.7b. The precise viewpoint locations have been finalised based on site survey and potential visibility of the OnSS. Visualisations for SSA West Indicative OnSS Location are provided in Volume 6, Annex 2.1, Figures 2.11 to 2.16.

Table 2.5: Representative Viewpoints for SSA West Indicative OnSS Location

ID	Viewpoint	Grid Reference	Representation
1	Ardleigh Road near Norman's Farm	608069E 228546N	Road-users / rural residents
2	Barn Lane PRoW / Bridleway	608790E 229183N	Walkers / horse riders
3	Grange Road PRoW	608623E 229801N	Walkers
4	Ardleigh Road near Jennings's Farm	608972E 228679N	Road users / rural residents
5	Barlon Road near Little Bromley	609030E 227737N	Road users / rural residents
6	Badley Hall Road	608725E 226769N	Walkers

2.7.39 Representative viewpoints proposed for the visual assessment of the SSA East are identified in Table 2.6, Table 2.5 below and mapped in Volume 6, Annex 2.1, Figures 2.7c and 2.7d. The precise viewpoint locations have been finalised based on site survey and potential visibility of the OnSS. Visualisations for SSA East are provided in Volume 6, Annex 2.2, Figures 2.17 to 2.22.



Table 2.6: Representative Viewpoints for SSA East Indicative OnSS Location

ID	Viewpoint	Grid Reference	Representation
1	Mulley's Farm PRow	610321E 227782N	Walkers
2	Bentley Road north of Welham's Farm	610610E 227281N	Road-users / rural residents
3	A120 Pellen's Corner	611360E 226670N	Road-users / rural residents
4	Clacton Road near Abbott's Hall	612046E 227818N	Road-users / rural residents
5	New Hall Farm PRow	611771E 228234N	Walkers / rural residents
6	Chequers Road near Chequers Wood	6105621E 228877N	Road-users / rural residents / walkers / horse-riders

CUMULATIVE BASELINE

- 2.7.40 Existing developments are included in the baseline for both the landscape and visual effects assessments in sections 2.11 and 2.12. These developments have an existing influence on the baseline landscape and visual environment. The UK Power Network (UKPN) Lawford Substation lies immediately to the south of OnSS SSA West Indicative OnSS Location, with a number of overhead electricity power lines crossing the OnSS study area to converge at this location. This existing substation and associated overhead electricity power lines are the only examples of large scale energy development in this local area, with much of the development being relatively small in scale and rural in character.
- 2.7.41 Adjacent developments may complement one another, or may be discordant with one another, and it is the increased or reduced level of significance of effects which arises as a result of this change that is assessed. Where this occurs, the magnitude of change varies according to cumulative effect factors such as the consistency of image and degree of contrast or integration with the onshore elements of VE, as well as other 'non-cumulative' factors, such as its distance, lateral spread and amount of visibility.

EVOLUTION OF THE BASELINE

- 2.7.42 The baseline character of the landscapes associated with the LVIA study area could evolve in the future as a result of land use policy, environmental improvements and development pressures. This has the potential to alter the baseline assessment of the landscape and visual resource over time relating to the onshore elements of VE.



- 2.7.43 The most likely evolution of the baseline that is predicted to occur over the time between the point of assessment and the time over which VE will be built and become operational is through the introduction of future developments. Future developments are considered in the assessment of cumulative effects, see section 2.13.

2.8 KEY PARAMETERS FOR ASSESSMENT

- 2.8.1 The LVIA is based on the Rochdale Envelope described in Volume 3, Chapter 1: Onshore Project Description. The parameters relevant to the LVIA are set out in this section. In compliance with Environmental Impact Assessment (EIA) regulations, the likely significant effects of the Maximum Design Scenario (MDS) which represents a worst-case assessment scenario are assessed and illustrated in the LVIA.
- 2.8.2 The finished ground level of the OnSS has been established using a balanced cut and fill in order to determine the ground level across the OnSS platform. In relation to the OnSS footprint, it should also be noted that other elements of external substation infrastructure vary in height, however, because the tallest OnSS buildings could potentially be located anywhere within the OnSS footprint, the maximum parameter height has been applied to the whole OnSS footprint to create the LVIA Rochdale Envelope shown in the LVIA visualisation and used in ZTV calculations. This results in an overestimation of the height of the block model in parts of the OnSS maximum parameter but represents the MDS in terms of assessment. The exception to this will be lightning masts which due to their slender design are not included in the overall consideration of maximum infrastructure height in the LVIA.
- 2.8.3 Visualisations of the LVIA MDS for SSA West Indicative OnSS Location are presented in Volume 6, Annex 2.2, Figures 2.11 to 2.16, and visualisations of the LVIA MDS for the SSA East Indicative OnSS Location are presented in Volume 6, Annex 2.2, Figures 2.17 to 2.22, in order to illustrate the maximum potential visual envelope of the OnSS from each of the agreed viewpoint locations. The figures also show an indicative model of the OnSS in respect of both indicative locations and the indicative model with the proposed mitigation planting, representing the approximate height of mitigation planting after 15 years, estimated to be in the range of 6.8 to 8.3 m. This is based on whips being planted at a height of 800 mm and with growth rates of between 400 and 500 mm per annum, taken from 'A woody plant selection guide' (D.Skinner, 1987).
- 2.8.4 For both SSA West and SSA East, an indicative location for the OnSS has been defined in order to provide the basis for the detailed landscape and visual impact assessment presented in this chapter. These indicative locations will be refined for the DCO application.
- 2.8.5 Volume 3, Chapter 1: Onshore Project Description provides more detail on the OnSS, the onshore ECC and landfall. The assessment of construction, operational and decommissioning effects is based on the following MDS for the LVIA.



Table 2.7: Maximum design scenario for the project alone.

Potential impact / effect	Maximum adverse scenario assessed	Justification
Construction		
Landfall Landscape and Visual Effects	Up to 5 HDD Sheet Piled Exit Pits of dimensions 10 m x 75 m located in the intertidal area. HDD length 1,100 m seaward of MHWS. Up to 4 Transition Joint Bays (TJBs) of dimensions 20 m x 5 m with a total construction land take of 100 m x 200 m.	The MDS includes the maximum dimensions and number of construction compounds and therefore, the greatest area of land disturbance and visible construction activity.
Onshore ECC Landscape and Visual Effects	The onshore ECC comprises a corridor which is typically 60 m wide, albeit that the corridor widens at landfall, HDD locations and at the OnSS. It is approximately 27 km in length and 60 m wide and consists of 4 trenches, each 3.5m wide and of variable depth along with haul road and stockpiling areas associated with cable construction. The onshore ECC will widen up to around 120 m in sections of trenchless crossing with compounds to facilitate HDD present in these areas.	The MDS includes the maximum width and, therefore, the greatest area of disturbance and visible construction activity. The assessment considers the potential that the 60 m wide cable route could be located anywhere in the onshore ECC with effects considered in relation to hedgerow and tree losses to ensure the worst case is being considered.
Onshore ECC Construction Compounds Landscape and Visual Effects	An indicative number of 3 temporary construction compounds (TCCs) each 150 m x 150 m, will be required along the route, see Volume 3, Chapter 1: Onshore Project Description for further detail. HDD crossings will be required in select locations along the route, see Volume 3, Chapter 1: Onshore Project Description for further detail. Maximum HDD compound dimensions are 100 x 100 m.	The MDS includes the maximum dimensions and number of construction compounds and therefore, the greatest area of land disturbance and visible construction activity.
OnSS Construction access and compounds Landscape and Visual Effects	1x OnSS temporary construction compound with an area of 37,500m ² . SSA West access road from Ardleigh Road and SSA East access road from Bentley Road which will become the permanent access to the OnSS.	The MDS includes the maximum area and number of construction compounds and therefore, the greatest area of land disturbance



Potential impact / effect	Maximum adverse scenario assessed	Justification
		and visible construction activity.
OnSS Landscape and Visual Effects	GIS OnSS with a 250 m x 180 m footprint and maximum height of 15 m.	The MDS is based on the GIS OnSS option as the construction of large enclosed buildings represents the greatest visible construction activity. The ZTVs are based on the larger footprint of the AIS option as this will give rise to a greater visible extent.
Construction Period	12 hour working day (07:00 – 19:00 Monday to Saturday) 18 months for Onshore ECC 27 months for OnSS	Construction lighting will be required during working hours in the winter months, the lights of construction vehicles will also add to the levels of lighting and a lower level of lighting will remain overnight for security purposes.
Operation		
Onshore ECC and landfall Landscape and visual effects	Joints pits will be required every 500 m resulting in a maximum of 216 joint pits (including those at TJBs) each with indicative dimensions of 13 x 5 m (65m ²) and 1.5 m deep. Joint pits will include a manhole at ground level for access.	The MDS includes the maximum amount of visible above ground onshore ECC infrastructure.
OnSS Landscape and visual effects	Maximum area of AIS OnSS – 58,800 m ² on a platform of 280 x 210 m. Maximum area of GIS OnSS – 45,000 m ² on a platform measuring approximately 250 x 180 m. 6 x indicative number of OnSS buildings – 1 x 400kV GIS building: 40 x 25 x 15 m high (only required for GIS substation, not for AIS)	The final location of the buildings and infrastructure of the OnSS is not known at this stage, however, it will be located within either the SSA West or SSA East. The indicative model for the OnSS is based on the GIS option that includes for more buildings than the AIS



Potential impact / effect	Maximum adverse scenario assessed	Justification
	<p>1 x 132kV GIS building: 65 x 25 x 12 m high (only required for GIS substation, not for AIS)</p> <p>2 x STATCOM (Control & Valve) buildings: 55 x 15 x 7 m</p> <p>1 x Control building (possibly several adjacent containerised buildings): 50 x 20 x 5 m</p> <p>1 x Storage/Amenity building: 20 x 9 x 4 m (Maximum building height in the AIS option is 7 m and maximum infrastructure height is 12.5 m).</p>	<p>option and a greater height of buildings, with the larger footprint of the AIS options used for the ZTVs. An indicative Rochdale Envelope and detailed model for the GIS option have been included in the visualisations for Viewpoints 1 to 6 for both SSA West and SSA East.</p>
<p>OnSS Landscape and visual effects</p>	<p>The largest structure within the OnSS will be the OnSS building, with a maximum height of 15 m above existing ground level (assuming a GIS design). All other equipment (e.g. transformers, switchgear) will not exceed a height of 15 m above ground level.</p> <p>The exception to this will be lightning masts which due to their slender design are not included in the overall consideration of maximum infrastructure height in the LVIA, despite extending to 18 m.</p> <p>The SSA East Indicative OnSS Location platform has a finished ground level of 30.725 m and the SSA West Indicative OnSS Location platform has a finished ground level of 35.925 m based on balanced cut and fill across each of the indicative OnSS locations.</p>	<p>The maximum parameter model of 15 m is considered to represent the worst case parameter in line with the Rochdale Envelope Approach.</p>
<p>Decommissioning</p>		
<p>Onshore ECC and landfall Landscape and visual effects</p>	<p>Cable ducts likely left in situ underground with cables removed.</p>	<p>Effects would relate principally to the decommissioning process, associated plant, materials, infrastructure and temporary structures, as well as the presence of dismantled structures,</p>



Potential impact / effect	Maximum adverse scenario assessed	Justification
		where they would be visible above ground.
OnSS Landscape and Visual Effects	Removal of the OnSS.	Effects would relate principally to the decommissioning process, associated plant, and materials to remove the OnSS.
Cumulative Effects		
Cumulative Landscape and visual effects	The LVIA considers the potential for significant cumulative effects to arise as a result of the addition of the Project in the context of other large scale developments that are consented or at application or scoping stage, that are located or proposed within the LVIA study area.	Cumulative landscape and visual effects are not considered to arise as a result of other development outwith the LVIA study area.

POTENTIAL EFFECTS FOR ASSESSMENT

2.8.6 This section sets out the potential effects that are then considered within the assessment sections 2.10, 2.11, 2.12, 2.13 and 2.14.

POTENTIAL EFFECTS DURING CONSTRUCTION

2.8.7 The potential effects of the onshore elements of VE during construction would include effects on the physical elements of the sites where construction would take place, as well as effects on the landscape character and visual amenity of the construction works and surrounding area.

2.8.8 The effects would relate principally to the construction process, associated plant, construction compounds, materials, infrastructure and temporary structures. Construction effects would also relate to the presence of the emerging structures of the OnSS, where they would be visible above ground and the use of construction lighting during the hours of darkness (see Volume 3, Chapter 1: Onshore Project Description). External lighting of the construction site will be of a low intensity and designed / positioned to provide the necessary levels for safe working; minimise light spillage or pollution; and avoid disturbance to adjoining residents and occupiers, the principles to control this would be set out in the Code of Construction Practise (CoCP).



- 2.8.9 Construction working hours are proposed to be from 07:00 to 19:00. The use of construction lighting would therefore be limited to morning or early evening during winter months. Taking this into account, the effect of construction during the hours of darkness is considered to be the same or less than the effect of construction activities during daylight hours. Taking this into account, effects associated with OnSS construction lighting are not considered further in the assessment of construction effects.

POTENTIAL EFFECTS DURING OPERATION

- 2.8.10 The potential effects of the onshore elements of VE during operation relate principally to the presence of the OnSS. The LVIA assesses the potential effects of the OnSS in year 0, once construction activity has completed, and in year 15 which allows for landscape mitigation planting to mature. While there would be lighting associated with the OnSS during the operational phase, this would be limited in extent and usage, and of a low intensity such that it would not give rise to any likely significant effects.
- 2.8.11 Visible operational elements of the onshore cable route are limited to marker posts at field boundaries, the ground level concrete access hatches of TJBs at landfall, and Cable Joint Pits along the route. Following the construction phase, the land will be reinstated to its former agricultural use and disrupted hedgerows will be replaced. On this basis, it is anticipated that once operational, the potential effects of the buried onshore cable would be negligible as a result of their presence largely under ground level. Where unplanned replacement or maintenance of onshore ECC infrastructure is required, this would result in only very localised and temporary effects of a much-reduced scale to the effects assessed for construction. Taking this into account, operational effects of the onshore ECC and landfall are not considered further in the assessment of operational effects.
- 2.8.12 The one exception to this relates to the few localised areas where trees or hedgerow trees will be removed but not replaced owing to their location over the onshore ECC or within the search areas for the two OnSS indicative options. The protracted effects of these removals are assessed in section 2.10 under the heading 'Physical Landscape Detailed Assessment'. This approach is in line with PINS consultation in section 2.3, see Table 2.2: Summary of consultation relating to LVIA.

POTENTIAL EFFECTS DURING DECOMMISSIONING

- 2.8.13 The potential effects of the proposed development during decommissioning would relate principally to the removal of the OnSS. These effects would be of a similar or lesser effect than the effects associated with the construction phase.
- 2.8.14 The decommissioning of the onshore ECC and landfall would have a lesser effect, as the ducts would be left *in situ* underground, while only the cables would be removed, such that the trenches would not be re-opened. Decommissioning would include potential effects on the landscape character and visual amenity of the sites and surrounding area. The effects would relate principally to the decommissioning process, associated plant, materials, infrastructure and temporary structures, as well as the presence of dismantled structures, where they would be visible above ground.



POTENTIAL CUMULATIVE EFFECTS

- 2.8.15 Potential cumulative effects may arise due to the addition of the Project to the existing and proposed electrical grid infrastructure and energy developments in the area and the degree to which the OnSS has additional effects on views and landscape character. Potential effects of the onshore elements of VE in combination with these existing baseline energy developments are considered in the main assessment.
- 2.8.16 The LVIA considers the potential for significant cumulative effects to arise as a result of the addition of the Project in the context of other large scale developments that are consented or at application or scoping stage that are located or proposed within the OnSS study area. The scoping stage projects of particular relevance include North Falls and National Grid's East Anglia Connection Node (EACN), both of which propose to locate an onshore substation within close proximity to the Indicative OnSS Location at SSA West, although exact locations are not currently defined.

POTENTIAL EFFECTS SUMMARY

- 2.8.17 Table 2.8 sets out a summary of the potential landscape and visual effects that may arise from the introduction of the onshore elements of VE. It should be noted that their inclusion does not imply that they will occur or will be significant.

Table 2.8: Summary of Potential Effects to be assessed

Specific Element	Potential Effect	Potential Sensitive Receptors
Construction		
Construction plant, temporary construction facilities, construction cranes, construction of OnSS and OnSS building, trenching and cable laying construction activities, removal of landscape features, material stock piles, fences, movement of construction vehicles in and around the site, construction activities during hours of darkness including lighting.	<p>Temporary physical effects on landscape fabric</p> <p>Permanent and temporary physical effects on landscape fabric (i.e. permanent/short term removal of vegetation / ground cover)</p> <p>Temporary effects on landscape character</p> <p>Temporary effects on views</p> <p>Temporary cumulative effects</p>	<p>Physical landscape features</p> <p>Landscape character receptors</p> <p>Visual receptors</p>
Operation		
OnSS platform, OnSS structures and OnSS buildings	<p>Long term effects on landscape character</p> <p>Long term effects on views</p>	<p>Landscape character receptors</p> <p>Visual receptors</p>



Specific Element	Potential Effect	Potential Sensitive Receptors
	Long term cumulative effects	
Decommissioning		
Construction plant, temporary construction facilities, construction cranes, removal of OnSS platform, structures and buildings.	Temporary physical effects on landscape fabric Temporary effects on landscape character Temporary effects on views	Physical landscape features Landscape character receptors Visual receptors

2.8.18 The effects of the construction, operation and decommissioning of the onshore elements of VE on the landscape and visual resource would arise principally from the construction, operation and decommissioning of the OnSS and also the laying of the onshore cables. The temporary construction facilities, such as cranes, construction vehicles, construction compound, delivery vehicles and construction lighting required during the construction process would also have effects on the landscape and visual resource.

2.8.19 It is currently anticipated that the construction of the onshore ECC is likely to start in 2028 and anticipated to last approximately 18 months for the onshore ECC and approximately 27 months for the OnSS (see Volume 3, Chapter 1: Onshore Project Description). The construction effects identified are, therefore, predicted to occur during this period and end at the start of the operational period with the restoration of the onshore ECC. It is anticipated that the onshore elements of VE would be in operation for a project lifespan of 24 to 40 years.

2.9 MITIGATION

2.9.1 Mitigation measures seek to avoid, reduce or offset temporary and permanent environmental effects, including those related to the landscape and visual resource. Mitigation measures relating to potential landscape and visual effects typically use landscape elements such as woodland planting and earthworks to reduce the effects by integrating the development into its landscape context and / or providing screening. Landscape and visual effects change over time as mitigation, such as planting and restoration of habitat types, establish and mature.

EMBEDDED MITIGATION

2.9.2 Embedded mitigation in respect of the onshore elements of VE has involved the careful siting of the search areas for the onshore infrastructure during the search area selection process, to ensure potential impacts are avoided or reduced.

2.9.3 The embedded mitigation contained in Section 2.9 are mitigation measures or commitments that have been identified and adopted as part of the evaluation of the project design of relevance to this topic, these include project design measures, compliance with elements of good practise and use of standard protocols.



- 2.9.4 The search area selection process considered constraints relating to physical landscape elements, such as woodlands, trees and hedgerows, landscape character, visual amenity, and other environmental and technical constraints. The sensitivity of the surrounding landscape and of residents, road-users, workers and recreational users of the landscape, was also a key consideration. The capacity of the landscape to accommodate the onshore elements of VE is assessed in relation to the natural screening afforded by landform, woodlands and trees and the degree to which other surrounding infrastructure and buildings influence visual screening.
- 2.9.5 The close proximity of existing electricity overhead lines to SSA West Indicative OnSS Location and SSA East Indicative OnSS Location and the relatively close proximity of existing electrical infrastructure at the UKPN Lawford Substation provides a context of electrical infrastructure in the area immediately adjacent to the SSA West location and within the local vicinity of the indicative SSA East Indicative OnSS Location. The influence of these baseline energy developments was considered in the search area selection and therefore locating in these areas is also considered to be a form of embedded mitigation.
- 2.9.6 In both the SSA West and SSA East search areas an indicative location for the OnSS has been selected to form the basis of the assessment. These locations have been informed by environmental and technical constraints in order to represent the realistic worst case scenario in respect of a number of relevant topics. Indicative mitigation planting has been attributed to these layouts to demonstrate the approach that will be taken in the final layout.

CONSTRUCTION PHASE MITIGATION

- 2.9.7 Mitigation opportunities during the construction phase of works will be limited and primarily relate to the restrictions imposed on the working areas and measures identified in the CoCP.
- 2.9.8 The LEDPP sets out the key principles in respect of the design of the landscape and ecology elements associated with the onshore components of VE. The LEDPP and CoCP stipulate measures to avoid, reduce or offset environmental effects of the construction works, including those relating to landscape and visual amenity. Both documents will be developed as the design of the Project is refined between PEIR and the DCO application.
- 2.9.9 Sensitive siting of construction compound areas away from more visible and larger numbers of receptors, will also be important to reduce the impact on the immediate views. It should be noted that fixed locations for construction compounds, HDD compounds, onshore ECC routes and access routes are not included in the design options at this PEIR stage. These options will be refined between PEIR and DCO application, in order to reduce the potential effects on the landscape and visual resource of the area.



OPERATIONAL MITIGATION

ONSS MITIGATION SSA WEST

- 2.9.10 SSA West Indicative OnSS Location occupies a relatively open and exposed area of arable farmland set at an elevation of approximately 35 m with little variance in levels. The area bounded by Ardleigh Road to the south and east, Grange Road to the west and north-west, and Barn Lane to the north, is occupied by four large fields with very little internal enclosure other than occasional trees set along field boundaries. The SSA West Indicative OnSS Location occupies the western and central parts of this farmland area.
- 2.9.11 In respect of the roads and PRow around SSA West Indicative OnSS Location, there is no enclosure along either side of Ardleigh Road although there is young hedgerow planting along the north-western, western and southern road-side boundaries which will eventually afford some low-level enclosure along the southern side of SSA West Indicative OnSS Location. This will leave the eastern side still exposed to the effects of close-range SSA West Indicative OnSS Location and for this reason, the mitigation measures aim to provide screening along this northern road-side.
- 2.9.12 Barn Lane is the PRow to the north of SSA West Indicative OnSS Location. The northern side of the lane and some parts of the southern side are enclosed by existing tree and shrub cover that forms some degree of screening from the wider landscape to the north, although views of walkers from the PRow will be exposed to the close-range SSA West Indicative OnSS Location. Mitigation measures will introduce screening along this southern side of the PRow.
- 2.9.13 Grange Road wraps around the western and north-western boundaries of SSA West and although there is a relatively high hedgerow on the western side of the road, on the eastern side there is currently only intermittent trees, leaving this aspect mostly open in the views of road-users. Hedgerow planting has been implemented along much of this eastern road-side which will provide a low level screen. Mitigation measures look to increase the depth and final height of planting on this aspect to ensure a more substantial screen.

ONSS MITIGATION SSA EAST

- 2.9.14 SSA East occupies a relatively open area of arable farmland with some woodland enclosure within the local area and set at an elevation of approximately 30 m with little variance in levels. While SSA East Indicative OnSS Location is fairly well recessed from the surrounding roads, it will be visible from Bentley Road to the south-west and Clacton Road to the east. The southern section of Bentley Road between the A120 and Welham's Farm is fairly well enclosed by road-side tree planting, while the section between Welham's Farm and Mulley's Farm is relatively open albeit with some intermediate screening from tree cover along Mulberry Lane. Mitigation measures look to introduce planting along the eastern side of Bentley Road which will increase the screening of SSA East Indicative OnSS Location in the views of road-users.



- 2.9.15 Views of SSA East Indicative OnSS Location from Clacton Road will be intermittent between the A120 and Steam Mill Road with screening around Abbott's Hall and Horsleycross Street. While there is some tree and hedgerow cover along the western side of Clacton Road it is relatively open with oblique views occurring towards the site. Mitigation measures look to provide screening along this western road-side in order to reduce the extent of visibility experienced by road-users.
- 2.9.16 Existing woodland and tree cover in and around SSA East Indicative OnSS Location will help to provide screening within the local landscape. Mulley's Wood forms a contained screen to the north of SSA East Indicative OnSS Location, while the woodland cover to the west and east of New Hall adds to the wider extent of screening to the north of the site. To the north-west, a series of mature trees occur intermittently along the canalised water course, affording some degree of enclosure, relevant to the PRowS and rural properties offset in this direction.
- 2.9.17 To the south of SSA East Indicative OnSS Location, fairly continuous tree cover lines Mulberry Lane, while to the south-east this becomes more intermittent. To the east of SSA East Indicative OnSS Location, there is some tree cover surrounding the water course and reservoir, with the embankment around the reservoir forming an elevated feature in an otherwise flat landscape. There is a relatively good presence of tree cover around SSA East Indicative OnSS Location and mitigation measures look to connect and consolidate these areas of tree cover into a robust landscape framework.

LEDPP

- 2.9.18 At PEIR stage, the LEDPP sets out the principles that will be used in the development of the OLEMP that will be provided within the Development Consent Order (DCO) application. The OLEMP, in turn, will set out the key landscape and ecology elements that will be secured in the final LEMP which The Applicant will be required to submit to Essex County Council for approval as a requirement of the DCO.
- 2.9.19 The LEDPP sets out outline planting mitigation proposals for the two indicative OnSS options to complement the existing landscape structures located around their respective sites.. These mitigation principles include areas of proposed woodland, areas identified for ecological mitigation and an area identified for SuDS. The extent of the indicative proposed woodland planting is presented on Volume 6, Annex 2.1, Figures 2.6a and 2.6b and is also shown at the predicted height after 15 years' establishment on the LVIA visualisations.
- 2.9.1 The proposed woodland mostly comprises indigenous woodland species and would be located around the OnSS. The mitigation woodland planting would be designed to comprise a mix of faster growing 'nurse' species and slower growing 'core' species. Essex County Council have set out guidance on the appropriate selection of tree species in their 'Essex Tree Palette: A guide to choosing the most appropriate tree species for Essex sites according to landscape character and soil type' (January 2018). 'London Clay' is the relevant category in respect of both SSA West and SSA East, both of which are located in this area. Recommended tree species include field maple, hazel, hornbeam, hawthorn, wild cherry, blackthorn and common oak. Species would also be selected in light of their ability to tolerate periods of drought and flooding associated with the effects of climate change.



- 2.9.2 Nurse species, such as field maple, hornbeam, hazel and wild cherry, would grow quicker so that after 15 years they would be approximately 6.8 to 8.3 m in height. They would provide shelter to bring on core species, such as oak. Whilst the nurse species would be sufficiently fast growing to provide substantial screening of the OnSS after 15 years, the core species would outlive the nurse species and provide a preferred native woodland with a more robust structure closer in character to other nearby woodlands associated with the local landscape.
- 2.9.3 In locations where it is possible to undertake planting that would not interfere with construction works and where practical to do so, mitigation woodland could be planted during the early phases of the OnSS construction to ensure robust screening as quickly as possible. This woodland planting, if implemented at the start of the construction phase would give the woodland in these areas additional growth prior to completion of construction and commencement of operation of the OnSS
- 2.9.4 Depending on the final design and size of the OnSS, earthworks used to create the OnSS platform may result in surplus soil and excavation material. If available, this could potentially be used in the creation of landscape bunding or sensitive reprofiling within the site area in areas of proposed woodland. This would further limit views of the OnSS and provide further landscape and visual mitigation.

CABLE ROUTE AND LANDFALL MITIGATION

- 2.9.5 The onshore ECC assessed and presented in the PEIR, considers a relatively broad cable corridor that will be refined for the DCO Application. The routing of the onshore ECC has been based on the following criteria and will be refined to ensure these criteria are taken into account:
- > Achievement of the best environmental fit of the preferred 60 m cable route where practicable, particularly in relation to reducing hedgerow and tree loss along the cable route;
 - > Reinstatement of removed sections of hedgerows, or suitable replacement hedgerows provided for displaced or severed sections of hedgerows where practical;
 - > Sensitively siting construction compound and HDD compounds such that these are carefully selected taking into account landscape and visual receptors to reduce impacts during the construction period where practicable;
 - > Restoration of all temporary works and construction areas in relation to re-establishment of ground cover;
 - > Protection of all retained trees during the construction phase where practicable; and
 - > Footpaths, bridleways or cycleways that are temporarily disrupted by the proposed onshore ECC will be temporarily diverted and then reinstated.
- 2.9.6 Following the installation of the onshore cables disturbed landcover and habitats would be reinstated. The overall aim of the reinstatement would be the re-establishment of existing ground cover or returning the disturbed ground to its original agricultural use.



2.9.7 Mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) and that are relevant to LVIA are listed in Table 2.9. General mitigation measures, which would apply to all parts of the project, are set out first. Thereafter mitigation measures that would apply specifically to LVIA issues associated with the Onshore ECC, OnSS and Construction compounds are described separately.

Table 2.9: Embedded mitigation relating to LVIA

Project phase	Mitigation measures embedded into the project design
General	
Onshore ECC	Project decision to underground onshore ECC will notably reduce potential landscape and visual effects. Use of HDD and careful routing of onshore ECC will minimise loss of trees, hedgerows and other landscape elements.
OnSS	SSA West and SSA East have been selected to avoid proximity to settlements and national level landscape planning designations, such as AONBs. Location of final footprint and design of mitigation planting will notably reduce potential landscape and visual effects.
Construction	
Onshore ECC	Micro-siting of onshore ECC to avoid loss of trees and hedgerows where practical.
Construction compounds	Detailed location and layout of sites to avoid loss of trees and hedgerows where practical.
Onshore ECC / OnSS	Replacement planting of all removed hedgerows in-situ. Replacement planting of all removed trees with replacement of those from permanent Onshore ECC or OnSS within Order Limits. Planting to be implemented during or at end of construction period.
OnSS	Implementation of mitigation planting around OnSS including woodland planting, tree belts and hedgerows for screening. Planting to be implemented during or at end of construction period.
Operation	
Onshore ECC / OnSS	Ongoing management of plant establishment to ensure mitigation potential realised.
OnSS	Ongoing management of plant establishment to ensure mitigation potential realised.
Decommissioning	
OnSS	Protection of landscape elements during decommissioning of OnSS to avoid loss of trees, hedgerows and other landscape elements.



2.10 ENVIRONMENTAL ASSESSMENT: PHYSICAL LANDSCAPE

PHYSICAL LANDSCAPE PRELIMINARY ASSESSMENT

- 2.10.1 The proposed building of the OnSS and access road, open trenching relating to the onshore ECC, and creation of temporary access and construction compounds would have physical landscape effects on trees, hedgerows and agricultural land. There are woodlands within the study area, however, direct impacts to these have been avoided through careful design of the onshore ECC or use of HDD drilling (or other trenchless crossing techniques) to install cables beneath woodlands and so avoid disturbance.
- 2.10.2 For assessment purposes therefore, the physical landscape elements with the potential for significant effects have been divided into five categories:
- > Coastal land;
 - > Agricultural land;
 - > Hedgerows;
 - > Taller hedgerows and hedgerow trees; and
 - > Trees.
- 2.10.3 As described in section 2.8.7, the onshore ECC is only considered to have potential for significant effects during the construction phase due to the disturbance of landscape features required to construct the underground infrastructure. While there will be no direct effects during the operational phase there is the potential that residual effects, especially relating to the removal of trees during the construction phase, will extend beyond the construction phase and these are also considered in this section.

PHYSICAL LANDSCAPE DETAILED ASSESSMENT

COASTAL LAND - LANDFALL

BASELINE

- 2.10.4 This landscape element is made up of several distinct elements that together create the coastal character found at the eastern extent of the onshore ECC and landfall. The distinct elements include the beach, sea wall and footpath, links golf course, dune grassland and scrubland. The coastal landscape is limited to the landfall and the adjacent section of the onshore ECC.

SENSITIVITY

- 2.10.5 The area is not part of any scenic landscape planning designations although this coastal landscape is of importance within the overall character of the coastline between Frinton-on-Sea and Clacton-on-Sea. Value is, therefore, considered to be medium-high. Reinstatement of the disrupted coastal land can be achieved with relative ease. Susceptibility is, therefore, considered to be medium-low. The combination of the medium-high value and the medium-low susceptibility gives rise to an overall **medium** sensitivity.



MAGNITUDE OF CHANGE

- 2.10.6 The landfall will use HDD under the seawall and the coastal land to a maximum length of 1,100 m. There are currently two options for the location of the HDD; one at Holland Haven towards the Clacton-on-Sea side; and one at Holland Gap towards the Frinton-on-Sea side. The use of HDD means that disruption of the coastal land will be largely avoided other than that associated with the access to and presence of the HDD rig and plant on the beach and in the hinterland, and the access to and presence of the construction compound and construction of the transition joint bays in the hinterland.
- 2.10.7 The sea wall, coastal footpath, dune grassland, scrubland and golf course will be unaffected apart from the effects on the farmland from the temporary disruption associated with the construction compound, construction of transition joint bays and access option taken from the B1032.
- 2.10.8 Taking these factors into account, the magnitude of change is considered to be **medium-low**.

SIGNIFICANCE OF EFFECT

- 2.10.9 The impact of the landfall on the Coastal Land is considered to be of a medium-low magnitude, and the sensitivity of receptors affected is considered to be medium. The significance of the residual effect is therefore concluded to be **moderate / minor**, which is **not significant** in EIA terms. The effect will be adverse, short term and reversible.

AGRICULTURAL LAND

BASELINE

- 2.10.10 Agricultural land is the predominant land use along the length of the onshore ECC. The medium to large fields contain arable crops and farm practices are intensive with the land being constantly disturbed through ploughing, planting and harvesting. The changing appearance of the agricultural landscape and the activities associated with ploughing fields, planting and harvesting crops is, therefore, a common and integral characteristic of the agricultural landscape. The presence and activity of farm machinery is also a feature of the arable farmland and on the rural roads.

SENSITIVITY

- 2.10.11 The onshore ECC does not cross any designated landscapes and the agricultural land has no special value in relation to its characteristics as a landscape element. The value of the agricultural land is considered to be medium - low. Arable crops are easily replaced and due to the level of existing disruption as a result of crop cultivation, combined with the widespread occurrence of agricultural land as a landscape element, susceptibility is considered to be low. The combination of the medium - low value and the low susceptibility gives rise to an overall **medium - low** sensitivity.



MAGNITUDE OF CHANGE

- 2.10.12 For standard open trenched sections, the onshore cable corridor will occupy a general width of 60 m. This allows for cable route trenching, construction of haul roads, areas for soil storage and temporary fencing. Haul roads will be constructed, trenches and soil storage bunds formed and once the cables laid, then trenches will be backfilled and haul; roads removed. In locations where HDD will be used, there will be an effect from the presence of construction compounds and plant including drilling rigs. These construction works will form a relatively small-scale, short-term and localised disturbance to the agricultural land, which owing to its ongoing disturbed state will moderate the effect.
- 2.10.13 After the construction is complete, the agricultural land will then return to its previous use. Re-instatement is therefore considered relatively straightforward with minimal disruption required to return the land to its previous uses and productivity. Construction compounds would require a larger land take and may be there for a longer period than the onshore ECC, although still only occupying a small proportion of the wider agricultural landscape.
- 2.10.14 Taking these factors into account, the magnitude of change is considered to be **medium – low**.

SIGNIFICANCE OF EFFECT

- 2.10.15 The impact of the onshore ECC on the Agricultural Land is considered to be of a medium-low magnitude, and the sensitivity of receptors affected is considered to be medium-low. The significance of the residual effect is therefore concluded to be **moderate / minor**, which is **not significant** in EIA terms. The effect will be adverse, short term and reversible.

HEDGEROWS

BASELINE

- 2.10.16 Hedgerows are a common feature in the rural landscape in which the onshore ECC crosses, varying in height, continuity and condition. Some hedgerows appear more formally managed, others have a scrubbier form often with a fragmented appearance.

SENSITIVITY

- 2.10.17 Hedgerows form an important component of the rural and historic landscape character but are also a widespread and abundant feature. Value is considered to be medium. The sections of hedgerow lost to construction works would be reinstated post construction and as this can be achieved with relative ease this reduces their overall susceptibility to the onshore ECC. Susceptibility for hedgerows is considered to be medium-low. The combination of the medium value and the medium - low susceptibility gives rise to an overall **medium** sensitivity.

MAGNITUDE OF CHANGE

- 2.10.18 Careful consideration of cable routing has sought to reduce the amount of hedgerow removal along the onshore ECC. Hedgerows along roadsides where HDD will be deployed will not be affected. Reinstatement of lost hedgerows would mitigate the effects of lost hedgerows by infilling gaps and completing the enclosure, taking 3-5 years for hedgerows to grow to a low height.



2.10.19 The magnitude of change for hedgerow losses will give rise to a **medium - low** magnitude of change as they are either low in height, fragmented or scrubby and as such would be easily replaced.

SIGNIFICANCE OF EFFECT

2.10.20 The impact of the onshore ECC on hedgerows to be removed is considered to be of a medium-low adverse magnitude, and the sensitivity of receptors affected is considered to be medium. The significance of the residual effect is therefore concluded to be **moderate / minor**, which is **not significant** in EIA terms. The effect will be adverse, short term and reversible. There will be no effect on hedgerows that will not be removed.

TALLER HEDGEROWS AND HEDGEROW TREES

BASELINE

2.10.21 Taller hedgerows and hedgerow trees are also a common feature in the rural landscape in which the onshore ECC crosses. Taller hedgerows tend to be more informally managed as they are left to grow beyond the typical 1 to 2 m height of formally managed hedgerows. Where trees are found within hedgerows they vary in size, age frequency and condition.

SENSITIVITY

2.10.22 Hedgerows and hedgerow trees form an important component of the rural and historic landscape character. All trees, but particularly mature trees play an important role in relation to the need to reduce carbon emissions and this adds to their value. Value is considered to be medium – high.

2.10.23 The susceptibility of hedgerow trees and better condition, taller hedgerows is higher than other hedgerows, as their loss would be more apparent and their reinstatement longer term. Furthermore, restrictions mean that only hedgerow species and not tree species could be planted within the final cable easement associated with the onshore ECC. For these taller hedgerows and trees, susceptibility is considered to be medium-high.

2.10.24 The combination of the medium - high value and the medium – high susceptibility gives rise to an overall **medium - high** sensitivity for hedgerow trees and better condition, taller hedgerows.

MAGNITUDE OF CHANGE

2.10.25 Careful consideration of cable routing has sought to reduce the amount of hedgerow and hedgerow tree removal along the onshore ECC. Hedgerows and hedgerow trees along roadsides where HDD will be deployed will not be affected. Reinstatement of lost hedgerows will mitigate the effects of lost hedgerows by infilling gaps and completing the enclosure, taking 5 to 10 years for taller hedgerows to grow to their original height. Restrictions to planting over cable easements will, however, prevent hedgerow trees from being replanted within the onshore ECC.

2.10.26 Taking all of these factors into account, for better condition, taller hedgerows, often with hedgerow trees present, the magnitude of change is considered to be **medium**.



SIGNIFICANCE OF EFFECT

2.10.27 The impact of the onshore ECC on taller hedgerows and hedge trees to be removed is considered to be of a medium magnitude, and the sensitivity of receptors affected is considered to be medium-high. The significance of the residual effect is therefore concluded to be **moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible. There will be no effect on taller hedgerows and hedge trees that will not be removed. Trees removed over the onshore ECC will be unable to be replanted within the project lifespan (24 to 40 years) and only reversible following decommissioning.

TREES

BASELINE

2.10.28 Mature trees are found along sections of the onshore ECC and within the OnSS search area. These almost all occur along field boundaries and comprise a mix of individual trees and hedge trees. There are, however, also some parkland trees set within fields or open grassland. These trees provide a notable contribution to the landscape character of the rural landscape.

SENSITIVITY

2.10.29 Trees are of importance to the historical pattern and character of the landscape. They provide enclosure and definition in an otherwise largely open and flat landscape, and also contribute to the reduction of carbon dioxide in the atmosphere and add to local biodiversity. All trees but particularly mature trees are important in relation to the need to reduce carbon emissions increasing their value. The value of trees as a landscape element is considered to be medium-high.

2.10.30 Re-establishment of trees would take a long period of time to achieve which heightens their overall susceptibility. Furthermore, there will be restrictions in terms of replanting over and within the wayleaves of the onshore ECC. As such susceptibility is considered to be medium-high.

2.10.31 The combination of the medium - high value and the medium – high susceptibility gives rise to an overall **medium - high** sensitivity.

MAGNITUDE OF CHANGE

2.10.32 Careful consideration of the routing of the onshore ECC and siting of the indicative OnSS locations has sought to reduce the amount of tree removal along the onshore ECC and around the indicative OnSS locations. The use of HDD or other trenchless techniques will also be used to avoid removal of groups of trees where possible. There is the likelihood that there will be some loss of trees in localised parts of the onshore ECC and indicative OnSS locations. Restrictions to planting over cable routes and wayleaves will also prevent trees from being replanted within the onshore ECC and indicative OnSS locations.

2.10.33 Taking all of these factors into account, the localised removal of trees will give rise to a **high** magnitude of change.



SIGNIFICANCE OF EFFECT

2.10.34 The impact of the onshore ECC on trees to be removed is considered to be of a high magnitude, and the sensitivity of receptors affected is considered to be medium-high. The significance of the residual effect is therefore concluded to be **major / moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible. Trees removed over the onshore ECC will be unable to be replanted within the project lifespan (24 to 40 years) and only reversible following decommissioning. The effect will be adverse, long term and reversible. There will be no effect on trees that will not be removed. Environmental assessment: Landscape character

LANDSCAPE CHARACTER PRELIMINARY ASSESSMENT

2.10.35 Landscape character receptors within the study area, including LCAs and landscape designations, are assessed to identify which have potential to be significantly affected by the onshore elements of VE.

PRELIMINARY ASSESSMENT LANDSCAPE CHARACTER– ONSHORE ECC AND LANDFALL

2.10.36 The effects of the onshore ECC and the landfall are considered to be too small in scale and temporary in nature to give rise to significant effects on landscape character. Whilst some permanent tree removal would occur as a result of the onshore ECC, the effects will be limited owing to their localised extents; which within the broader extents of the LCAs will not redefine landscape character. It is considered that whilst the onshore ECC and landfall will have some effect on the LCAs in which they occur, these LCAs are only likely to experience a low level of change and/ or effects experienced over limited geographic areas. The onshore ECC and landfall and their associated study areas do not overlap with any of the identified designated landscapes.

2.10.37 As a result, it is considered that the proposed onshore ECC and landfall will not become a prevailing or defining element or characteristic within the context of the baseline landscape character and are, therefore, not assessed any further in the assessment of effects on landscape character.

PRELIMINARY ASSESSMENTS LANDSCAPE CHARACTER –SSA WEST

2.10.38 The OnSS has potential to give rise to significant effects on landscape character owing to its large scale, modern appearance, and the relatively open and rural character of the receiving landscape.

2.10.39 Table 2.10 identifies which landscape character receptors have the potential to undergo significant effects and require to be assessed in detail.



Table 2.10: Preliminary Assessment of Effects on Landscape Character –SSA West

Landscape Receptor	Potential for significant effects
Heathland Plateaux LCT	Yes –SSA West will be located in this LCA and the ZTV in Volume 6, Annex 2.1, Figure 2.8a shows that OnSS SSA West will be readily visible from large parts of this LCA.
Clay Valleys LCT	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8a shows that OnSS SSA West will not be readily visible from this LCA. There will, therefore, be no potential for significant effects to arise.
Clay Plateaux LCT	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8a shows that OnSS SSA West will not be readily visible from this LCA. There will, therefore, be no potential for significant effects to arise.
Open Estuarine Coastal Marsh LCT	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8a shows that OnSS SSA West will not be readily visible from this LCA. There will, therefore, be no potential for significant effects to arise.
Dedham Vale AONB	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8a shows that OnSS SSA West will not be readily visible from this AONB. There will, therefore, be no potential for significant effects to arise.
Suffolk Coast and Heaths AONB	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8a shows that OnSS SSA West will not be readily visible from this AONB. There will, therefore, be no potential for significant effects to arise.

2.10.40 The finding of this preliminary assessment is that only one LCA has the potential to be significantly affected. This LCA is assessed in detail below. The other LCAs and landscape designations have been discounted from the detailed assessment owing to the very limited potential for significant effects to arise.

LANDSCAPE CHARACTER DETAILED ASSESSMENT SSA WEST

HEATHLAND PLATEAUX LCT – 7A BROMLEY HEATHS

BASELINE

2.10.41 The Heathland Plateaux LCT occupies most of the western half of Tendring District. It extends from the Clay Valleys LCT associated with the River Stour in the north down to the Coastal Slopes LCT, Coastal Ridges and Peninsula LCT, and Drained Estuarine / Coastal Marshes LCT associated with the River Colne in the south. To the east, the Heathland Plateaux LCT meets with the Clay Plateaux LCT, beyond which there are more extensive coastal landscapes and the North Sea. The Heathland Plateaux LCT is divided into 7A Bromley Heaths LCA in the north and west and 7B St Osyth / Great Bentley Heaths in the south. 7A Bromley Heaths LCA covers both indicative OnSS locations and much of their respective study areas.

2.10.42 The key characteristics of 7A Bromley Heaths LCA are presented in the Tendring District Landscape Character Assessment as follows;

- > *“Exposed and windswept plateau corresponding to the highest parts of the district, with deep loamy soils.*



- > *Extensive arable landscape of large productive fields divided by low, gappy hedgerows where hedgerow oaks stand out as silhouettes against the skyline.*
- > *Apple orchards around Ardleigh, Elmstead and Frating are sheltered by belts of poplar or fast growing leylandii.*
- > *Ares of former heath have been converted to small holdings or appear as areas of regenerated woodland.*
- > *Low density, rural settlement pattern of scattered farms and halls, hamlets, villages and small market towns.*
- > *A network of narrow lanes connects the scattered farms and villages and roadside verges often contain gorse and bracken.*
- > *Dominating skyline.”*

2.10.43 These key characteristics have been verified on site and in particular the “*extensive arable landscape of large productive fields*” presents the defining characteristic of this landscape. Despite some cover from woodland and field boundaries, it does appear as an open landscape, with many fields enlarged by the removal of hedgerow enclosure and a general lack of natural vegetation. With the elevation of landform between 30 to 40 m, it is not an especially high landscape and ranges between flat and gently undulating. While the rural character is reinforced by the sparse rural settlements and narrow country lanes, there are also a number of overhead electricity transmission lines, the UKPN Lawford Substation on Ardleigh Road, the A133 and the A120 which present a more developed character in the local area around SSA West.

SENSITIVITY

2.10.44 The value of 7A Bromley Heaths LCA is medium. This reflects the fact that there are no national, county or district level landscape planning designations covering this area, which would otherwise denote a special scenic value. The susceptibility of this LCA to the potential effects of the OnSS is medium. This reflects the broad extents of the LCA and the relatively contained extent of the OnSS within it, as well as the limited extent to which it will be visible across the wider LCA and the existing influence from the overhead electricity transmission lines in this area.

2.10.45 The combination of the medium value and the medium susceptibility gives rise to an overall **medium** sensitivity.



MAGNITUDE OF CHANGE

- 2.10.46 During the construction phase, the magnitude of change will be **high** or **medium-high** within the local area defined broadly by Hungerdown Lane approximately 1.0 km to the west, Grange Road PRow approximately 0.9 km to the north, Little Bromley approximately 1.2 km to the east and Barlon Road, Manning Grove and Lilley's Farm approximately 1.0 to 1.3 km to the south. These effects will relate to the presence of the emerging OnSS, the access road and the construction compound and includes the presence and activity of the plant, equipment and materials required for construction. While there is a baseline influence from overhead electricity transmission lines through this LCA, as well as the relatively well screened UKPN Lawford Substation on Ardleigh Road, the scale of the OnSS site, construction compound, and the emerging structures will present a notable addition that will appear at variance with the predominantly rural landscape.
- 2.10.47 During the operational phase, the magnitude of change will be **high** or **medium-high** within the local area defined broadly by Hungerdown Lane approximately 1.0 km to the west, Grange Road PRow approximately 0.9 km to the north, Little Bromley approximately 1.2 km to the east and Barlon Road, Manning Grove and Lilley's Farm approximately 1.0 to 1.3 km to the south. These effects will relate to the presence of the OnSS which will occupy a 250 m x 180 m footprint and contain substation buildings up to a maximum height of 15 m above ground level. This will present a large scale energy development that will appear at variance within the context of the relatively small scale and rural landscape, despite the baseline influence from the existing overhead electricity transmission lines and UKPN Lawford Substation. While there is some screening from vegetation along field boundaries within the wider landscape, within the local area this is an exposed site and the OnSS will have a notable influence in redefining local landscape character.
- 2.10.48 During both the construction and operational phases, the magnitude of change on those parts of the LCA beyond the immediately local area described above will be **medium** or **medium – low** depending on the extent to which the OnSS will be readily visible relative to the screening effect of intervening tree cover and built form. The magnitude of change on the remaining parts of the LCA will be either **low** or **negligible** or there will be **no change** across the majority of the LCA where there will be no visibility.
- 2.10.49 Mitigation planting around the site will gradually reduce the magnitude of change on local landscape character from high to **medium** over an approximate period of 10 to 15 years. The visualisations presented in Figures 2.11 to 2.22 illustrate the extent to which the mitigation planting will grow to screen the OnSS from the close range surrounding landscape. The mitigation planting will not only reduce the influence of the OnSS on landscape character but will also restore enclosure and enhance biodiversity in this degraded agricultural landscape.



SIGNIFICANCE OF EFFECT

- 2.10.50 The impact of the SSA West Indicative OnSS Location on 7A Bromley Heaths LCA as a whole is considered to be of a medium, medium-low, low or negligible magnitude, and the sensitivity of receptors affected is considered to be medium. There are also large parts of 7A Bromley Heaths LCA where there will be no change owing to no visibility. The significance of the residual effect is therefore concluded to be **moderate / minor**, which is **not significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.10.51 There will, however, be a localised **major** and **significant** effect on landscape character within the area around the OnSS defined broadly by Hungerdown Lane approximately 1.0 km to the west, Grange Road PRoW approximately 0.9 km to the north, Little Bromley approximately 1.2 km to the east and Barlon Road, Manning Grove and Lilley's Farm approximately 1.0 to 1.3 km to the south. The localised significant effect will gradually reduce to a **moderate** or **moderate / minor** and **not significant** effect over an approximate period of 10 to 15 years owing to the screening effect of mitigation planting.

PRELIMINARY ASSESSMENTS LANDSCAPE CHARACTER – SSA EAST

- 2.10.52 The OnSS has potential to give rise to significant effects on landscape character owing to its large scale, modern appearance, and the relatively open and rural character of the receiving landscape.
- 2.10.53 Table 2.11 identifies which landscape character receptors have the potential to undergo significant effects and require to be assessed in detail.

Table 2.11: Preliminary Assessment of Effects on Landscape Character – SSA East

Landscape Receptor	Potential for significant effects
Heathland Plateaux LCT	Yes – SSA East will be located in this LCA and the ZTV in Volume 6, Annex 2.1, Figure 2.8b shows that SSA East will be readily visible from large parts of this LCA. The close-range location
Clay Valleys LCT	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8b shows that SSA East will not be readily visible from this LCA. There will, therefore, be no potential for significant effects to arise.
Clay Plateaux LCT	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8b shows that SSA East will not be readily visible from this LCA. There will, therefore, be no potential for significant effects to arise.
Open Estuarine Coastal Marsh LCT	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8b shows that SSA East will not be readily visible from this LCA. There will, therefore, be no potential for significant effects to arise.
Dedham Vale AONB	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8b shows that SSA East will not be readily visible from this AONB. There will, therefore, be no potential for significant effects to arise.



Landscape Receptor	Potential for significant effects
Suffolk Coast and Heaths AONB	No - the ZTV in Volume 6, Annex 2.1, Figure 2.8b shows that SSA East will not be readily visible from this AONB. There will, therefore, be no potential for significant effects to arise.

2.10.54 The finding of this preliminary assessment is that only one LCA has the potential to be significantly affected. This LCA is assessed in detail below. The other LCAs and landscape designations have been discounted from the detailed assessment owing to the very limited potential for significant effects to arise.

LANDSCAPE CHARACTER DETAILED ASSESSMENT SSA EAST

HEATHLAND PLATEAUX LCT – 7A BROMLEY HEATH LCA

BASELINE

2.10.55 The Heathland Plateaux LCT occupies most of the western half of Tendring District. It extends from the Clay Valleys LCT, associated with the River Stour in the north, down to the Coastal Slopes LCT, Coastal Ridges and Peninsula LCT and Drained Estuarine / Coastal Marshes LCT, associated with the River Colne in the south. To the east, the Heathland Plateaux LCT meets with the Clay Plateaux LCT, beyond which there are more extensive coastal landscapes and the North Sea. The Heathland Plateaux LCT is the broader landscape character type comprising the constituent landscape character areas of 7A Bromley Heaths LCA in the north and west, and 7B St Osyth / Great Bentley Heaths in the south. 7A Bromley Heaths LCA covers both indicative OnSS locations and much of their respective study areas, and is, therefore, assessed in detail below.

2.10.56 The key characteristics of 7A Bromley Heaths LCA are presented in the Tendring District Landscape Character Assessment as follows;

- > *“Exposed and windswept plateau corresponding to the highest parts of the district, with deep loamy soils.*
- > *Extensive arable landscape of large productive fields divided by low, gappy hedgerows where hedgerow oaks stand out as silhouettes against the skyline.*
- > *Apple orchards around Ardleigh, Elmstead and Frating are sheltered by belts of poplar or fast growing leylandii.*
- > *Ares of former heath have been converted to small holdings or appear as areas of regenerated woodland.*
- > *Low density, rural settlement pattern of scattered farms and halls, hamlets, villages and small market towns.*
- > *A network of narrow lanes connects the scattered farms and villages and roadside verges often contain gorse and bracken.*
- > *Dominating skyline.”*



2.10.57 These key characteristics have been verified on site and in particular the “*extensive arable landscape of large productive fields*” presents the defining characteristic of this landscape, in which farming practices have notably reduced the extent of natural areas. Despite some cover from woodland and field boundaries, it does appear as an exposed landscape, although its typical elevation of 30 to 40 m means that it doesn’t appear especially high. While the rural character is reinforced by the sparse rural settlements and narrow country lanes, there are also a number of overhead electricity transmission lines, the Lawford Grid Substation, the A133 and the A120 which present a more developed character.

SENSITIVITY

2.10.58 The value of 7A Bromley Heaths LCA is medium. This reflects the fact that there are no national, county or district level landscape planning designations covering this area, which would otherwise denote a special scenic value. The susceptibility of this LCA to the potential effects of the OnSS is medium. This reflects the broad extents of the LCA and the relatively contained extent of the OnSS within it, as well as the limited extent to which it will be visible across the wider LCA and the existing influence from the overhead electricity transmission lines.

2.10.59 The combination of the medium value and the medium susceptibility gives rise to an overall **medium** sensitivity.

MAGNITUDE OF CHANGE

2.10.60 During the construction phase, the magnitude of change will be **high** within the local area defined broadly by Mulley’s Farm and Braham Hall approximately 0.8 km to the west, PRoW 172_8 approximately 0.9 km to the north, Bradfield Lodge and Abbott’s Hall approximately 0.9 to 1.2 km to the east and the A120 and Bentley Road approximately 1.3 km to the south. These effects will relate to the presence of the emerging OnSS, the access road and the construction compound and includes the presence and activity of the plant, equipment and materials required for construction. While there is a baseline influence from overhead electricity transmission lines to the north and south of SSA East Indicative OnSS Location, the scale of the OnSS site, construction compound, and the emerging structures will present a notable addition that will appear at variance with the predominantly rural landscape.

2.10.61 During the operational phase, the magnitude of change will be **high** within the local area defined broadly by Mulley’s Farm and Braham Hall approximately 0.8 km to the west, PRoW 172_8 approximately 0.9 km to the north, Bradfield Lodge and Abbott’s Hall approximately 0.9 to 1.2 km to the east and the A120 and Bentley Road approximately 1.3 km to the south. These effects will relate to the presence of the OnSS which will occupy a 250 m x 180 m footprint and contain substation buildings up to a maximum height of 15 m above ground level. This will present a large scale energy development that will appear at variance within the context of the relatively small scale and rural landscape, despite the baseline influence from the overhead electricity transmission lines to the north and south. While there is some screening from vegetation along field boundaries within the wider landscape, within the local area there is enough openness for the OnSS to have a notable influence in redefining local landscape character.



- 2.10.62 During both the construction and operational phases, the magnitude of change on those parts of the LCA beyond the immediately local area described above will be **medium** or **medium – low** depending on the extent to which the OnSS will be readily visible relative to the screening effect of intervening tree cover and built form. The magnitude of change on the remaining parts of the LCA will be either **low** or **negligible** or there will be **no change** across the majority of the LCA where there will be no visibility.
- 2.10.63 Mitigation planting around the site will gradually reduce the magnitude of change on local landscape character from high to **medium** over an approximate period of 10 to 15 years. The visualisations presented in Figures 2.11 to 2.22 illustrate the extent to which the mitigation planting will grow to screen the OnSS from the close range surrounding landscape. The mitigation planting will not only reduce the influence of the OnSS on landscape character but will also restore enclosure and enhance biodiversity in this degraded agricultural landscape.

SIGNIFICANCE OF EFFECT

- 2.10.64 The impact of the SSA East Indicative OnSS Location on 7A Bromley Heaths LCA as a whole is considered to be of a medium, medium-low, low or negligible magnitude, and the sensitivity of receptors affected is considered to be medium. There are also large parts of 7A Bromley Heaths LCA where there will be no change owing to no visibility. The significance of the residual effect is therefore concluded to be **moderate / minor**, which is **not significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.10.65 There will, however, be a localised **major** and **significant** effect on landscape character within the area around the OnSS defined broadly by Mulley's Farm and Braham Hall approximately 0.8 km to the west, PRoW 172_8 approximately 0.9 km to the north, Bradfield Lodge and Abbott's Hall approximately 0.9 to 1.2 km to the east and the A120 and Bentley Road approximately 1.3 km to the south. The localised significant effect will gradually reduce to a **moderate** or **moderate / minor** and **not significant** effect over an approximate period of 10 to 15 years owing to the screening effect of mitigation planting.

2.11 ENVIRONMENTAL ASSESSMENT: VISUAL EFFECTS

VISUAL EFFECTS DETAILED ASSESSMENT – SSA WEST

- 2.11.1 The visual assessment is based on the SSA West Indicative OnSS Location. Distances referenced in this assessment are therefore based on this indicative location and may vary in the DCO Application depending on the final location of the OnSS.

VIEWPOINT 1: ARDLEIGH ROAD, NEAR NORMAN'S FARM

BASELINE

- 2.11.2 This viewpoint is located on Ardleigh Road, to the west of Norman's Farm and the east of UKPN Lawford Substation on Ardleigh Road. The viewpoint is representative of the views of road-users on this quiet minor road, as well as the small number of local residents in the nearby Norman's Farm and Cattsgreen Farm.



- 2.11.3 The view looks north over the rural farmed landscape, which characterises this area. The landform is relatively flat and low-lying with a gentle rise to the north. There is currently no hedgerow enclosure along both the northern and southern sides of this section of Ardleigh Road, although new hedgerow planting has been implemented on the northern side. The medium to large fields contain arable crops or improved pasture, and the absence of woodland and limited presence of trees adds to the sense of openness.
- 2.11.4 Ardleigh Road is a narrow minor road with low traffic flows. While this section provides access to a small number of local farmsteads, there are no settlements in this local area. Access across the farmland is limited to a small number of PRoWs to the south and although there is no access to the immediate north, there is a PRoW along Barn Lane further to the north, as represented by Viewpoint 2. Large scale development is evident from this viewpoint in the form of a number of overhead electricity transmission lines converging at UKPN Lawford Substation on Ardleigh Road, although the substation itself is fairly well concealed by surrounding tree planting.

SENSITIVITY

- 2.11.5 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.
- 2.11.6 The susceptibility of residents to the effects of the OnSS is high. This reflects the long duration and long-term nature of the views experienced by residents, as well as their proximity to the OnSS and the openness of the surrounding landscape which means that it is likely to be readily visible. The susceptibility of road-users to the effects of the OnSS is medium. This reflects the shorter duration and shorter-term transitory nature of the views experienced by road-users, although they will also experience close range views across an open landscape in which the OnSS is likely to be readily visible.
- 2.11.7 The combination of the medium value and the high susceptibility of residents gives rise to an overall **medium-high** sensitivity, while the combination of the medium value and the medium susceptibility of road-users gives rise to a **medium** sensitivity.

MAGNITUDE OF CHANGE

- 2.11.8 The magnitude of change during the construction phase will be **high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 139 m and 194 m from the viewpoint and will occupy a large proportion of the northerly sector of the view. This close proximity and broad horizontal extents will make the construction compound and the OnSS the defining features in the views of residents and road-users represented by this viewpoint.



- 2.11.9 The magnitude of change during the operational phase will be **high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 194 m from the viewpoint as shown on the photomontage on Figure 2.11c. This will form a large scale substation that will be 15 m in height and occupy a notable proportion of the northerly sector of the view. Although there is a baseline influence from the overhead transmission lines in the area, the close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of residents and road-users on this section of Ardleigh Road.
- 2.11.10 The magnitude of change after an approximate 5 to 10 year period will be **low**. This takes into account the screening effect of existing hedgerow and proposed mitigation planting adjacent to Ardleigh Road which will screen visibility of the OnSS, as shown in the photomontage in Figure 2.11d.

SIGNIFICANCE OF EFFECT

- 2.11.11 The impact of SSA West Indicative OnSS Location on Viewpoint 1: Ardleigh Road near Norman's Farm is considered to be of a high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is therefore concluded to be **major**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.12 The significant effect will gradually reduce to a not significant effect at a **moderate / minor** level after an approximate 5 to 10 year period during which existing and mitigation planting will grow to screen visibility of the OnSS.

VIEWPOINT 2: BARN LANE PROW / BYWAY

BASELINE

- 2.11.13 This viewpoint is located on Barn Lane, which is a short section of PRow 170_57 connecting Grange Road in the west and Ardleigh Road in the east. The viewpoint is representative of the views of walkers on this PRow, horse riders on the byway and the small number of residents living on Ardleigh Road, where it joins with Barn Lane.
- 2.11.14 The view looks south over the rural farmed landscape which characterises this area. The landform is relatively flat and low-lying with a gentle fall to the south. There is hedgerow enclosure along the northern side of this section of PRow / byway but none on the southern side, ensuring an open and close range view towards the site. The medium to large fields which surround this viewpoint, contain arable crops or improved pasture, such that the landscape is predominantly open, albeit with some intermittent enclosure from hedgerows and tree cover.



2.11.15 Barn Lane provides a short section of PRoW / byway and is used by local residents. There is a small cluster of residential properties on Ardleigh Road at the eastern end of the PRoW / byway, and although there is some enclosure from surrounding vegetation, visibility of the fields to the west can be experienced from the closer properties and garden grounds. While the settlement of Little Bromley lies to the east, there is limited intervisibility owing to the screening effect of tree cover along the road and in gardens. The character of the view from Barn Lane is predominantly small scale and rural although a number of overhead transmission lines can be seen converging at UKPN Lawford Substation to the south-west, although the substation itself is fairly well concealed by surrounding tree planting.

SENSITIVITY

2.11.16 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.

2.11.17 The susceptibility of residents to the effects of the OnSS is high. This reflects the long duration and long-term nature of the views experienced by residents, despite the partial enclosure from surrounding vegetation. The susceptibility of walkers and horse riders to the effects of the OnSS is medium-high, which reflects the openness of the landscape and the heightened awareness of walkers and horse riders to their surroundings, despite the shorter duration and shorter-term nature of the views experienced compared to residents.

2.11.18 The combination of the medium value of the view and the high and medium-high susceptibility of the residents, walkers and horse riders gives rise to an overall **medium-high** sensitivity.

MAGNITUDE OF CHANGE

2.11.19 The magnitude of change during the construction phase will be **high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 810 m and 581 m from the viewpoint and will form a notable feature in the southerly sector of the view. The relatively close proximity and large-scale will make the construction compound and the OnSS the defining features in the views of walkers and residents represented by this viewpoint, although as the OnSS emerges it will come to screen the construction compound from this viewpoint.

2.11.20 The magnitude of change during the operational phase will be **high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 581 m from the viewpoint, as shown on the photomontage on Figure 2.12c. This will form a large-scale substation that will be 15 m in height and form a notable feature in the southerly sector of the view. Although there is a baseline influence from the overhead electricity transmission lines in the area, the relatively close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of walkers on the PRoW and residents on this section of Ardleigh Road.



2.11.21 The magnitude of change after an approximate 15 year period will be **low**. This takes into account the screening effect of existing hedgerow and proposed mitigation planting adjacent on the northern side of Ardleigh Road, which will screen visibility of the OnSS, as shown in the photomontage in Figure 2.12d.

SIGNIFICANCE OF EFFECT

2.11.22 The impact of SSA West Indicative OnSS Location on Viewpoint 2: Barn Lane PRow is considered to be of a high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high. The significance of the residual effect is therefore concluded to be **major**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.

2.11.23 The significant effect will gradually reduce to a **not significant** effect at a **moderate** / **minor** level after an approximate 15 year period during which mitigation planting will grow to largely screen visibility of the OnSS.

VIEWPOINT 3: GRANGE ROAD PROW

BASELINE

2.11.24 This viewpoint is located on the Grange Road PRow 170_23 which connects the high point on Grange Road with the midpoint on Barn Lane PRow. It represents the views of walkers on the PRow as well as road-users on Grange Road, although views from the road are largely enclosed by road-side vegetation whilst those from the PRow are open. There are few residents in this area, other than those occupying the farmsteads further to the north on Grange Road, from where visibility south is limited by intervening landform and vegetation.

2.11.25 The view looks south over the rural farmed landscape which characterises this area. The landform is relatively flat and low-lying with a gentle fall to the south. There is hedgerow enclosure along the northern side of the PRow but none on the southern side, ensuring an open and relatively featureless view towards the site. The medium to large fields which surround this viewpoint, contain arable crops or improved pasture, such that the landscape is predominantly open, albeit with some enclosure from hedgerows and tree cover across the middle range.

2.11.26 This short section of PRow is used by local residents. There is very little settlement in this local area with the exception of Grange Farm to the north and Lawfordhouse Farm to the north-east, although both located on the northern side of the subtle ridgeline that reduces visibility of the site. The character of the view from the PRow is predominantly small scale and rural although an overhead electricity transmission line crosses over the PRow and along with a number of other lines, can be seen converging at UKPN Lawford Substation on Ardleigh Road to the south-west, although the substation is concealed by intervening tree planting.

SENSITIVITY

2.11.27 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.



- 2.11.28 The susceptibility of walkers to the effects of the OnSS is medium-high, which reflects the openness of the landscape and the heightened awareness of walkers to their surroundings, despite the shorter duration and shorter-term nature of their views compared to residents. The susceptibility of road-users to the effects of the OnSS is medium, which reflects the extent to which clear views from Grange Road are precluded by the enclosure of roadside vegetation, as well as also the shorter duration and shorter-term nature of their transitory views.
- 2.11.29 The combination of the medium value of the view and the medium-high susceptibility of walkers gives rise to an overall **medium-high** sensitivity, while the medium value and medium susceptibility of road-users gives rise to an overall **medium** sensitivity.

MAGNITUDE OF CHANGE

- 2.11.30 The magnitude of change during the construction phase will be **medium**. The screening effect of the intervening vegetation means that the construction compound and some of the ground level construction works will not be readily visible from this viewpoint. There will, however, be a notable change on the views of walkers owing to the effect of the emerging OnSS and the activity of plant involved in its construction. These features will appear at variance with the relatively small scale and rural character of the baseline landscape, despite the baseline influence of the nearby overhead electricity transmission line. The OnSS will be located a minimum distance of 869 m from the viewpoint and will form a readily visible feature in the southerly sector of the view. The relative proximity and contrasting scale and appearance will make the construction of the OnSS the defining feature in the views of walkers represented by this viewpoint. The magnitude of change on the views of road-users will be **medium-low** owing to the extent of screening effect of existing road-side vegetation.
- 2.11.31 The magnitude of change during the operational phase will be **medium-high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 869 m from the viewpoint, as shown on the photomontage on Figure 2.13c. This will form a large-scale substation that will be 15 m in height and form a readily visible feature in the southerly sector of the view, albeit with the lower parts screened by the intervening vegetation. Although there is a baseline influence from the nearby overhead transmission line, the industrial character of the OnSS relative to the predominantly rural character of the baseline landscape, will have a notable effect on the views of walkers on the PRoW. The magnitude of change on the views of road-users will be **medium-low** owing to the extent of the screening effect of existing road-side vegetation.
- 2.11.32 The magnitude of change following 15 years growth on mitigation planting will be **low**. The photomontage in Figure 2.13d shows that following 15 years of growth, the intervening mitigation planting will have grown to a sufficient scale to partially screen the OnSS with only the roof tops visible above the tree tops. This will notably reduce the influence of the OnSS on walkers and road-users represented by this viewpoint and will help to integrate the OnSS into the landscape setting.



SIGNIFICANCE OF EFFECT

- 2.11.33 The impact of SSA West Indicative OnSS Location on Viewpoint 3: Grange Road PRow is considered to be of a medium magnitude during the construction phase and medium-high during the operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is therefore concluded to be **major-moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.34 The significant effect will gradually reduce to a **not significant** effect at a **moderate / minor** level after an approximate 15 year period during which mitigation planting will grow to partially screen visibility of the OnSS.

VIEWPOINT 4: ARDLEIGH ROAD NEAR JENNING'S FARM

BASELINE

- 2.11.35 The viewpoint is located on Ardleigh Road to the north-east of Jennings' Farm where the road is orientated south-west to north-east. It is situated at a bend in the road from where PRow 172_12 extends east towards the village of Little Bromley. This viewpoint is representative of the views of road-users on Ardleigh Road, of walkers on the PRow and of residents at Jennings' Farm.
- 2.11.36 The view looks west-north-west across the open farmland towards the SSA West search area. The extent of the view is contained within the middle ground by trees and hedgerows along Barn Lane and Grange Road. To the south, there is closer range enclosure from vegetation around Jennings' Farm, while to the east, the open farmland extends as far as the western edge of Little Bromley, which is partially enclosed by tree cover.
- 2.11.37 The view is characterised by medium to large fields of arable farmland, with farmsteads and dispersed properties adding to the rural image. There is also an influence from the pole mounted transmission line that crosses the view from north-east to south-west and the larger overhead electricity transmission line following the same direction albeit at a slightly longer range.

SENSITIVITY

- 2.11.38 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.
- 2.11.39 The susceptibility of walkers to the effects of the OnSS is medium-high, which reflects the openness of the landscape and the heightened awareness of walkers to their surroundings, despite the shorter duration and shorter-term nature of their views compared to those of residents. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of their views, despite the partial enclosure from surrounding vegetation and other buildings.
- 2.11.40 The susceptibility of road-users to the effects of the OnSS is medium, which reflects the shorter duration and shorter-term nature of their transitory views, the oblique angle of their views relative to the direction of the road and the partial enclosure by tree cover, although the views of road-users will largely be open.



2.11.41 The combination of the medium value of the view and the high susceptibility of residents and medium-high susceptibility of walkers leads to an overall **medium-high** sensitivity. The medium value of the view and medium susceptibility of road-users leads to a **medium** sensitivity.

MAGNITUDE OF CHANGE

2.11.42 The magnitude of change during the construction phase will be **high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 835 m and 691 m from the viewpoint and will occupy a notable proportion of the westerly sector of the view, albeit with the construction compound largely concealed by the emerging OnSS. This close proximity and broad horizontal extents will make the OnSS the defining feature in the views of walkers, residents and road-users represented by this viewpoint, although as the OnSS emerges it will come to screen the construction compound from this viewpoint.

2.11.43 The magnitude of change during the operational phase will be **high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 691 m from the viewpoint, as shown on the photomontage on Figure 2.14c. This will form a large scale development that will be 15 m in height and occupy a notable proportion of the westerly sector of the view. Although there is a baseline influence from the overhead transmission lines in the area, the close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of road-users on Ardleigh Road, walkers on the PRow from Little Bromley and residents in Jennings's Farm.

2.11.44 The magnitude of change after an approximate 15 year period will be **low**. This takes into account the screening effect of proposed mitigation planting to the east of the OnSS, which will screen visibility of most of the OnSS, as shown in the photomontage in Figure 2.14d. The reduced extent to which the OnSS will be visible will reduce the influence it has on the views of walkers, road-users and residents.

SIGNIFICANCE OF EFFECT

2.11.45 The impact of SSA West Indicative OnSS Location on Viewpoint 4: Ardleigh Road near Jennings's Farm is considered to be of a high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is therefore concluded to be **major** or **major / moderate**, which is significant in EIA terms. The effect will be adverse, long term and reversible.

2.11.46 The significant effect will gradually reduce to a **not significant** effect at a **moderate / minor** level after an approximate 15 year period during which mitigation planting will grow to largely screen visibility of the OnSS.



VIEWPOINT 5: BARLON ROAD NEAR LITTLE BROMLEY

BASELINE

- 2.11.47 This viewpoint is located on Barlon Road, to the south-west of St Mary's Church and Little Bromley Hall. The view is representative of the views of road-users on Barlon Road, as well as walkers on PRoW 172_12 which extends east to west from St. Mary's Church to Lilley's Farm and residents in Little Bromley Hall and surrounding properties, although some of these are enclosed by garden vegetation.
- 2.11.48 The view looks north-west across the adjacent fields of arable farmland towards the SSA West search area. The fields are medium to large and while an accumulation of tree cover encloses the middle to distant landscape, the limited presence of hedgerows, and intermittent presence of trees leads to a relatively open fore to middle-ground landscape. Farmsteads are evident across the middle-ground with Cattsgreen Farm visible to the left, Norman's Farm in the centre and Jennings Farm visible to the right.
- 2.11.49 As well as the rural developments and intensive farming practices, there is also an influence from larger-scale developments in the form of overhead electricity transmission lines and the UKPN Lawford Substation, although both these features lie beyond 1.5 km and with the substation largely screened by tree cover.

SENSITIVITY

- 2.11.50 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.
- 2.11.51 The susceptibility of walkers to the effects of the OnSS is medium-high, which reflects the openness of the landscape and the heightened awareness of walkers to their surroundings, despite the shorter duration and shorter-term nature of the views experienced by walkers compared to residents. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of their views, despite the potential partial enclosure from surrounding vegetation and other buildings.
- 2.11.52 The susceptibility of road-users to the effects of the OnSS is medium, which reflects the shorter duration and shorter-term nature of their views, the oblique angle of their views relative to the direction of the road and the occasional enclosure by buildings and hedgerows, although the views of road-users will largely be open.
- 2.11.53 The combination of the medium value of the view and the high susceptibility of residents and medium-high susceptibility of walkers leads to an overall **medium-high** sensitivity. The medium value of the view and medium susceptibility of road-users leads to a **medium** sensitivity.



MAGNITUDE OF CHANGE

- 2.11.54 The magnitude of change during the construction phase will be **medium-high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of approximately 1.4 km and 1.3 km from the viewpoint and will form readily visible features in the north-westerly sector of the view. The construction of the emerging OnSS will form the defining feature in the views of walkers, residents and road-users represented by this viewpoint, because of the contrast in scale and appearance will present relative to the small scale and rural character of the baseline landscape, although there will be favourable scale comparisons with closer range tree cover and from this range the OnSS will occupy a fairly contained extent of this view.
- 2.11.55 The magnitude of change during the operational phase will be **medium-high**. The change will relate to the presence of the OnSS which will be located a minimum distance of approximately 1.3 km from the viewpoint, as shown on the photomontage on Figure 2.15c. Although there is a baseline influence from the existing overhead electricity transmission lines and substation in this sector, the closer proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of road-users on Barlon Road, walkers on the PRow and residents next to St Mary's church. In particular, the horizontal and vertical scale of the OnSS relative to the scale of Norman's Farm will accentuate the differences.
- 2.11.56 The magnitude of change after an approximate 15 year period will be **low**. This takes into account the screening effect of proposed mitigation planting to the south of the OnSS, which will screen visibility of most of the OnSS, with the exception of the roof tops of the converter buildings, as shown in the photomontage in Figure 2.15d. The reduced extent to which the OnSS will be visible will reduce the influence it has on the views of walkers, road-users and residents.

SIGNIFICANCE OF EFFECT

- 2.11.57 The impact of SSA West Indicative OnSS Location on Viewpoint 5: Barlon Road near Little Bromley is considered to be of a medium-high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is therefore concluded to be **major** or **major / moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.58 The significant effect will gradually reduce to a **not significant** effect at a **moderate / minor** level after an approximate 15 year period during which mitigation planting will grow to largely screen visibility of the OnSS.



VIEWPOINT 6: BADLEY HALL ROAD

BASELINE

- 2.11.59 The viewpoint is located on PRow Great Bromley 4 which extends north-east from Badley Hall Road to meet with Spratt's Lane to the east of Little Bromley Hall. The viewpoint is situated approximately 0.6 km to the north-east of the village of Great Bromley and 0.3 km south-west of Badley Hall, which comprises a large complex of farm buildings. The viewpoint is representative of the views of walkers on the PRow, as well as residents in the rural farmsteads and other dispersed properties in this local area.
- 2.11.60 The view looks north across the adjacent fields of arable farmland which are open between the fore and middle-ground and enclosed by hedgerows and trees along middle range field boundaries and around UKPN Lawford Substation, such that more distant views are largely screened. While the existing substation is well screened by the enclosing tree cover, the overhead electricity transmission line to the north is visible above the treetops and more fully visible across the centre and right of the view. Cattsgreen Farm is visible to the north and Lilley's Farm to the south, marking the dispersed and low-density pattern of rural development.

SENSITIVITY

- 2.11.61 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.
- 2.11.62 The susceptibility of walkers to the effects of the OnSS is medium-high, which reflects the openness of the landscape and the heightened awareness of walkers to their surroundings, despite the shorter duration and shorter-term nature of their views. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of the views experienced by residents, despite the potential partial enclosure from surrounding vegetation and other buildings.
- 2.11.63 The combination of the medium value of the view and the high susceptibility of residents and medium-high susceptibility of walkers leads to an overall **medium-high** sensitivity for both groups of visual receptors.

MAGNITUDE OF CHANGE

- 2.11.64 The magnitude of change during the construction phase will be **medium-low**. The change will relate principally to the emerging OnSS and the construction works associated with the development of the OnSS. The OnSS will be located a minimum distance of approximately 2.1 km from the viewpoint and will form a feature in the northerly sector of the view, albeit partially screened by the intervening middle-range tree cover. The location of the construction compound to the west of the OnSS means that it will be screened by the intervening tree cover. The limited extent to which the construction of the OnSS will be visible combined with the separation distance which will reduce the scale of the OnSS in the view, will moderate the overall effect during the construction phase.



- 2.11.65 The magnitude of change during the operational phase will be **medium-low**. The change will relate to the presence of the OnSS which will be located a minimum distance of 2.1 km from the viewpoint. The photomontage in Figure 2.16c shows the limited extent to which the OnSS will be visible owing to the screening effect of the intervening tree cover and its comparatively smaller scale owing to the greater separation distance. The perceived scale of the OnSS will also be moderated through comparison with the closer range trees which help to make the converter buildings appear to sit low in the landscape.
- 2.11.66 The magnitude of change following 15 years growth on mitigation planting will be **low**. The photomontage in Figure 2.16d shows that the mitigation planting will add to the existing screening provided by the intervening tree planting and will help to further integrate the OnSS into the landscape setting, despite the roofs of the substation buildings remaining visible.

SIGNIFICANCE OF EFFECT

- 2.11.67 The impact of SSA West Indicative OnSS Location on Viewpoint 6: Badley Hall Road is considered to be of a medium-low magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high. The significance of the residual effect is therefore concluded to be moderate, which is **not significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.68 The **not significant** effect will remain within the project lifespan (24 to 40 years) with mitigation planting adding further to the screening of the OnSS.

VISUAL EFFECTS DETAILED ASSESSMENT – SSA EAST

- 2.11.69 The visual assessment is based on the SSA East Indicative OnSS Location. Distances referenced in this assessment are therefore based on this indicative location and may vary in the DCO Application depending on the final location of the OnSS.

VIEWPOINT 1: MULLEY'S FARM PROW

BASELINE

- 2.11.70 This viewpoint is located on PRow 172_7 which extends north-east from Bentley Road across the open arable fields which characterise this area. This PRow connects with PRow 172_5 which extends north to Chequers Road and PRow 172_20 which extends north-east to New Hall. The viewpoint is representative of the views of walkers on the PRows, as well as road-users on Bentley Road and residents in the cluster of rural properties along Bentley Road to the north.
- 2.11.71 This view looks north-east across the adjacent arable farmland. The absence of hedgerows combined with the large size of the fields means that the view is open across the foreground. Tree cover along field boundaries across the middle-ground largely contains the view at this extent with some openings through to more distant tree cover visible beyond.



2.11.72 The view is characterised primarily by the rural landscape, in which development is largely limited to dispersed rural properties and farmsteads, with more clustered properties occurring along Bentley Road. Larger scale developments are evident in the form of the tall mast on Steam Mill Road to the north-east and the overhead electricity transmission line which crosses from east to west in the farmland to the south of the viewpoint.

SENSITIVITY

2.11.73 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.

2.11.74 The susceptibility of walkers to the effects of the OnSS is high, which reflects the openness of the landscape and the heightened awareness of walkers to their surroundings, despite the shorter duration and shorter-term nature of the views experienced by walkers compared to residents. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of the views experienced, despite the potential partial enclosure from surrounding vegetation and other buildings that could restrict the views of residents.

2.11.75 The susceptibility of road-users to the effects of the OnSS is medium, which reflects the openness of the views road-users will experience from much of nearby Bentley Road, although these transitory views will be of shorter duration and shorter-term than the views of residents.

2.11.76 The combination of the medium value of the view and the high susceptibility of residents and walkers gives rise to an overall **medium-high** sensitivity, while the medium value and the medium susceptibility of road-users gives rise to a **medium** sensitivity.

MAGNITUDE OF CHANGE

2.11.77 The magnitude of change during the construction phase will be **high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 0.4 km and 0.7 km from the viewpoint and will form a notable feature in the north-easterly sector of the view. This close proximity and contrasting scale and appearance will make the construction of the OnSS the defining feature in the views of walkers, residents and road-users represented by this viewpoint.

2.11.78 The magnitude of change during the operational phase will be **high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 0.7 km from the viewpoint, as shown on the photomontage on Figure 2.17c. This will form a large-scale substation that will be 15 m in height and form a readily visible feature in the north-easterly sector of the view. Although there is a baseline influence from the overhead electricity transmission line in the area, the close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of walkers on the PRoW, residents in this rural area and road-users on Bentley Road.



2.11.79 The magnitude of change following 15 years growth on mitigation planting will be **low**. The photomontage on Figure 2.17d shows that following 15 years of growth, the intervening mitigation planting will have grown to a sufficient scale to largely screen the OnSS with only the roof top potentially visible above the tree tops. This will notably reduce the influence of the OnSS on walkers, residents and road-users represented by this viewpoint.

SIGNIFICANCE OF EFFECT

2.11.80 The impact of SSA East Indicative OnSS Location on Viewpoint 1: Mulley's Farm PRow is considered to be of a high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is, therefore, concluded to be **major** or **major / moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.

2.11.81 The significant effect will gradually reduce to a **not significant** effect at a **moderate / minor** level after an approximate 15 year period, during which mitigation planting will grow to largely screen visibility of the OnSS.

VIEWPOINT 2: BENTLEY ROAD, NORTH OF WELHAM'S FARM

BASELINE

2.11.82 This viewpoint is located on Bentley Road, which connects Little Bromley to the north with the A120 at Pellen's Corner to the south, at a point to the north of Welham's Farm from which clear views extend north-east across the OnSS 27 search area. This viewpoint is representative of the views of road-users on Bentley Road and the small number of rural residents in this area. While views from Bentley Road are currently open, a hedgerow has been planted along most of the eastern side which will enclose views to the search area once established.

2.11.83 The view looks north-east across the adjacent arable fields, with the view contained across the middle-ground by the tree cover and hedgerows which form the northern shelter belt to this large field. Development visible in this sector of the view is limited to the mast on Steam Mill Road, such that the character appears to be predominantly rural. Within the wider view there is visibility of Welham's Farm to the south, properties on the southern side of Little Bromley to the north, the existing overhead electricity transmission line, the distant water tower on Clacton Road and also Bentley Road.

SENSITIVITY

2.11.84 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.

2.11.85 The susceptibility of road-users to the effects of the OnSS is medium-high, which reflects the openness of the views from the road, despite the shorter duration and shorter-term nature of their transitory views. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of the views experienced by residents, despite the potential partial enclosure from surrounding vegetation and other buildings around many of the properties.



2.11.86 The combination of the medium value of the view and the medium susceptibility of road-users gives rise to an overall **medium** sensitivity, while the combination of the medium value and high susceptibility of residents gives rise to a **medium-high** sensitivity.

MAGNITUDE OF CHANGE

2.11.87 The magnitude of change during the construction phase will be **medium**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 0.6 km and 0.8 km from the viewpoint and will occupy a relatively contained proportion of the north-easterly sector of the view. The magnitude of change will be moderated by the screening effect of the middle range tree cover which will reduce visibility of much of the ground level works. There will, however, be visibility of the emerging OnSS and owing to its close proximity, it will have a notable effect on the views of road-users and residents, despite the contained extents and partial screening.

2.11.88 The magnitude of change during the operational phase will be **medium-high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 0.8 km from the viewpoint, as shown on the photomontage on Figure 2.18c. This will form a large-scale substation that will be 15 m in height. Although the partial screening formed by the middle range tree planting, will moderate the effect on this view, the OnSS will be visible from most of this southern section of Bentley Road with fuller visibility occurring to the south where there will be an opening in the screening. The OnSS will form a notable feature in the views of road-users and local residents, owing to its relatively close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape.

2.11.89 The magnitude of change following 15 years growth on mitigation planting will be **medium-low**. The photomontage in Figure 2.18d shows that mitigation planting will bolster the existing planting and create a more effective screen. There will however continue to be an opening over the Onshore ECC into the OnSS where restrictions mean only hedgerow, and not tree planting, can be implemented and this will mean the OnSS will not be fully screened.

SIGNIFICANCE OF EFFECT

2.11.90 The impact of SSA East Indicative OnSS Location on Viewpoint 2: Bentley Road north of Wellham's Farm is considered to be of a medium-high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is, therefore, concluded to be **major** or **major / moderate**, which is significant in EIA terms. The effect will be adverse, long term and reversible.

2.11.91 The significant effect will gradually reduce to a **not significant** effect at a **moderate** level after an approximate 15 year period, during which mitigation planting will grow to partially screen visibility of the OnSS.



VIEWPOINT 3: A120 PELLEN'S CORNER

BASELINE

- 2.11.92 This viewpoint is located on the northern side of the A120, close to the junction with Pellen's Corner. The A120 is the main road connecting Colchester and Harwich and follows a general south-west to north-east alignment in the section to the south of SSA East. While sections of the A120 are enclosed by road-side planting, in the section to the east of Pellen's Corner there are open views northwards. The view is representative of the views of road-users on the A120 and the small number of residents in the rural properties to the north of the road.
- 2.11.93 The view looks north across the adjacent large fields of arable farmland. The key components of the view are the farmed fields and the semi-enclosure formed by intermittent trees along field boundaries. While these components present a predominantly rural character, there are also a number of human influences evident, most notably the busy A120 adjacent to the viewpoint, the overhead electricity transmission line and the distant tall mast on Steam Mill Road. There are a small number of rural properties at Pellen's Corner and the larger Red House Farm to the north-east along the A120 and while there is some enclosure from garden vegetation, there is also the potential for views across the adjacent farmland to the north.

SENSITIVITY

- 2.11.94 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.
- 2.11.95 The susceptibility of road-users to the effects of the OnSS is medium. This rating reflects the shorter duration and shorter-term nature of their transitory views and the oblique angle of the views of road-users looking from the road towards the OnSS, despite the relatively open aspect in this section of the A120. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of the views experienced by residents, despite the potential partial enclosure from surrounding vegetation and other buildings around many of the properties.
- 2.11.96 The combination of the medium value of the view and the medium susceptibility of road-users gives rise to an overall **medium** sensitivity, while the combination of the medium value and high susceptibility of residents gives rise to a **medium-high** sensitivity.



MAGNITUDE OF CHANGE

- 2.11.97 The magnitude of change during the construction phase will be **medium**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 1.1 km and 1.2 km from the viewpoint and will occupy a relatively contained proportion of the northerly sector of the view, as shown on the photomontage on Figure 2.19c. The magnitude of change will be moderated by the screening effect of the middle range tree cover which will reduce visibility of much of the ground level works. There will, however, be visibility of the emerging OnSS and owing to its comparatively large scale and industrial character in a predominantly small scale and rural landscape, it will have a notable effect on the views of road-users and residents, despite the contained extents and partial screening, as well as the baseline influence of the overhead electricity transmission line in the same sector.
- 2.11.98 The magnitude of change during the operational phase will be **medium**. The change will relate to the presence of the OnSS which will be located a minimum distance of 0.8 km from the viewpoint. This will form a large-scale substation that will be 15 m in height. Although the partial screening formed by the middle range tree planting and the existing influence of the overhead electricity transmission line will moderate the effect on this view, the relatively close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of road-users on the A120 and rural residents in this area.
- 2.11.99 The magnitude of change following 15 years growth on mitigation planting will be **medium-low**. The photomontage in Figure 2.19d shows that although the mitigation planting will not form a complete screen, the partial screen will reduce the extent to which the OnSS will be visible and will work to integrate it into the landscape context.

SIGNIFICANCE OF EFFECT

- 2.11.100 The impact of SSA East Indicative OnSS Location on Viewpoint 3: A120 Pellen's Corner is considered to be of a medium magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is, therefore, concluded to be **major / moderate** or **moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.101 The significant effect will gradually reduce to a **not significant** effect at a **moderate / minor** level after an approximate 15 year period, during which mitigation planting will grow to partially screen visibility of the OnSS.



VIEWPOINT 4: CLACTON ROAD NEAR ABBOTT'S HALL

BASELINE

- 2.11.102 This viewpoint is located on the Clacton Road (B1035) to the north of the roundabout with the A120 and to the north of Abbott's Hall. The view is representative of the views of road-users on the Clacton Road, which are intermittently open and enclosed with a predominantly open stretch occurring between Abbott's Hall and the village of Horsleycross Street to the north. The view is also representative of the views of residents in this rural area, where properties typically front onto Clacton Road but back onto the open landscape to the west.
- 2.11.103 The view looks north-west from Clacton Road across the medium to large fields of arable farmland. Although there is very little enclosure from hedgerows, there is some enclosure from tree cover around the reservoir and associated water courses in the foreground, and from the small woodland blocks, named Aldercar and Mulley's Wood, and the field boundary trees in the middle-ground. The presence of tree cover adds to the sense of enclosure in this landscape.
- 2.11.104 In terms of human influences, there is a close-range influence from the heavily trafficked Clacton Road, as well as the more distant tall masts at Steam Mill Road to the north and Hilliard's Road to the west, and overhead electricity transmission line running parallel to Clacton Road. There are also rural farmsteads and rural properties seen within the view and wider view, with New Hall Farm to the north-west and the southern edge of Horsleycross Street to the north.

SENSITIVITY

- 2.11.105 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.
- 2.11.106 The susceptibility of road-users to the effects of the OnSS is medium. This rating reflects the relatively open aspect along this section of Clacton Road, as well as the shorter duration and shorter-term nature of the transitory views road-users experience. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of their views, despite the potential partial enclosure from surrounding vegetation and other buildings around many of the properties.
- 2.11.107 The combination of the medium value of the view and the medium susceptibility of road-users gives rise to an overall **medium** sensitivity, while the combination of the medium value and high susceptibility of residents gives rise to a **medium-high** sensitivity.



MAGNITUDE OF CHANGE

- 2.11.108 The magnitude of change during the construction phase will be **medium-high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The OnSS will be located a minimum distance of 0.8 km from the viewpoint and will form a notable feature in the westerly sector of the view. While the construction compound will also be located a minimum of 0.8 km from the viewpoint, it will be largely screened by the intervening tree cover, although likely to be more visible from the road and properties further to the north. The relatively close proximity of the emerging OnSS to the road and the activity associated with its construction, will combine to form a new defining feature readily visible from this section of the Clacton Road.
- 2.11.109 The magnitude of change during the operational phase will be **medium-high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 0.8 km from the viewpoint, as shown in the photomontage on Figure 2.20c. While the intervening tree cover will screen a notable part of the OnSS from this viewpoint, it is likely to be more fully visible from the road and properties to the north. It will be seen as a large-scale structure that will form a notable feature in the westerly sector of the view, despite there being a baseline influence from the overhead transmission line closer to the viewpoint and owing also to its industrial character relative to the smaller scale and predominantly rural character of the agricultural landscape. The OnSS will have a notable effect on the views of road-users on Clacton Road and local residents with open aspects in this westerly direction.
- 2.11.110 The magnitude of change following 15 years growth on mitigation planting will be **low**. The photomontage in Figure 2.20d shows that mitigation planting will largely screen the OnSS with the exception of the upper parts of the substation buildings and electrical infrastructure. The limited extent to which the OnSS will be visible will moderate its influence on road-users and residents and the landscape elements will come to redefine this view.

SIGNIFICANCE OF EFFECT

- 2.11.111 The impact of SSA East Indicative OnSS Location on Viewpoint 4: Clacton Road near Abbott's Hall is considered to be of a medium-high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is, therefore, concluded to be **major / moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.112 The significant effect will gradually reduce to a **not significant** effect at a **moderate / minor** level after an approximate 15 year period, during which mitigation planting will grow to partially screen visibility of the OnSS.



VIEWPOINT 5: NEW HALL FARM PROW

BASELINE

- 2.11.113 This viewpoint is located on PRow 176-14 which connects the village of Horsleycross Street with New Hall Farm, at the point where the path adjacent to the eastern side of Aldercar joins the main access road into the farm. The view looks south-west across the farmland where the search area for SSA East is located. The viewpoint is representative of the views of walkers on this PRow as well as residents at New Hall Farm and in this local rural area.
- 2.11.114 While the view looks across large arable farm fields with no enclosure, tree cover along middle range field boundaries creates containment to the view. The mature trees of Mulley's Wood to the west and Aldercar to the north, add to the wooded character of this view. The modification of the landscape is evident in the intensive nature of the farming and the presence of a reservoir to the south, with its steep sided embankments.
- 2.11.115 The New Hall Farm can be seen to the west and the road leading back to the busy Clacton Road can be seen to the east, with other rural properties partially contained by vegetation and adjacent farm buildings, at the far end. While development in this area is typically small scale and rural, there is an overhead electricity transmission line visible to the south and tall masts visible to the north and south.

SENSITIVITY

- 2.11.116 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.
- 2.11.117 The susceptibility of walkers to the effects of the OnSS is medium-high, which reflects the openness of the landscape and the heightened awareness of walkers to their surroundings, despite the shorter duration and shorter-term nature of the views of walkers compared to residents. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of the views they experience, despite the partial enclosure from surrounding vegetation and other buildings around many of the properties.
- 2.11.118 The combination of the medium value of the view and the high or medium-high susceptibility of residents and walkers gives rise to an overall **medium-high** sensitivity.

MAGNITUDE OF CHANGE

- 2.11.119 The magnitude of change during the construction phase will be **high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 505 m and 466 m from the viewpoint and will occupy a large proportion of the southerly sector of the view. This close proximity and broad horizontal extents will make the construction compound and the OnSS the defining features in the views of walkers and residents represented by this viewpoint, although as the OnSS emerges it will come to screen the construction compound from this viewpoint.



- 2.11.120 The magnitude of change during the operational phase will be **high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 466 m from the viewpoint, as shown on the photomontage on Figure 2.21c. This will form a large scale substation that will be 15 m in height and occupy a notable proportion of the southerly sector of the view. Although there is a baseline influence from the overhead electricity transmission lines in the area, the close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of walkers on the PRow and residents in this local rural area.
- 2.11.121 The magnitude of change following 15 years growth on mitigation planting will be **medium-low**. The photomontage in Figure 2.21d shows that mitigation planting will largely screen the OnSS with the exception of the upper parts of the substation buildings and electrical infrastructure. The limited extent to which the OnSS will be visible will moderate its influence on walkers and residents and the landscape elements will come to redefine this view.

SIGNIFICANCE OF EFFECT

- 2.11.122 The impact of SSA East Indicative OnSS Location on Viewpoint 5: New Hall Farm PRow is considered to be of a high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high. The significance of the residual effect is, therefore, concluded to be **major**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.123 The significant effect will gradually reduce to a **not significant** effect at a **moderate** level after an approximate 15 year period, during which mitigation planting will grow to partially screen visibility of the OnSS.

VIEWPOINT 6: CHEQUER'S ROAD PROW / BRIDELWAY

BASELINE

- 2.11.124 This viewpoint is located on Chequers Road which is a rural road to the north-west of the SSA East search area, connecting Little Bromley with the south-eastern side of Lawford. The viewpoint is located on PRow 172_8 which is also a bridleway and which extends eastwards from the right-angled corner in Chequers Road to Clacton Road. PRow 172_5 extends from this corner south to Mulley's Farm. The viewpoint is representative of the views of walkers on these PRows, road-users on Chequers Road and the small number of rural residents on Chequers Road to the west of the viewpoint.



2.11.125 Where Chequers Road is aligned north to south, the views are relatively open as there are no hedgerows and only intermittent trees. Where it is aligned west to east there is enclosure from hedgerows and some tree cover. The surrounding landscape comprises mostly open fields of arable and the views from the PRoWs are also relatively open, albeit with some enclosure formed by the small block of trees at Mulley's Wood and along middle range field boundaries. While the view is largely characterised by the agricultural landscape, development is evident in the form of intermittent farmsteads and other rural properties, Chequers Road, the pole-mounted transmission line through the foreground and the water tower and tall masts in the background.

SENSITIVITY

2.11.126 The value of the view is medium. The viewpoint is not a formal viewpoint, and the surrounding area is not covered by any scenic landscape planning designations, which would otherwise denote a special value.

2.11.127 The susceptibility of walkers and horse riders to the effects of the OnSS is medium-high, which reflects the openness of the landscape and the heightened awareness of walkers to their surroundings, despite the shorter duration and shorter-term nature of the views of walkers compared to residents. The susceptibility of residents to the effects of the OnSS is high owing to the longer duration and longer-term nature of the views they experience, despite the partial enclosure from surrounding vegetation and other buildings around many of the properties. The susceptibility of road-users to the effects of the OnSS is medium. This rating reflects the relatively open aspect along Chequers Road, as well as the shorter duration and shorter-term nature of the transitory views road-users experience.

2.11.128 The combination of the medium value of the view and the high or medium-high susceptibility of residents, walkers and horse riders gives rise to an overall **medium-high** sensitivity and the combination of the medium value and medium susceptibility of road-users gives rise to an overall **medium** sensitivity.

MAGNITUDE OF CHANGE

2.11.129 The magnitude of change during the construction phase will be **medium-high**. The change will relate to the presence of the construction compound and the emerging OnSS and the construction works associated with the development of the OnSS. The construction compound and the OnSS will be located minimum distances of 858 m and 846 m from the viewpoint and will be seen as a readily visible feature in the southerly sector of the view, albeit partly screened by Mulley's Wood. The comparatively large scale and industrial character of the emerging OnSS will appear at variance with the typically small scale and rural character of the baseline landscape, such that the construction of the OnSS will form the defining feature in the views of walkers and residents represented by this viewpoint.



- 2.11.130 The magnitude of change during the operational phase will be **medium-high**. The change will relate to the presence of the OnSS which will be located a minimum distance of 846 m from the viewpoint as shown in the photomontage in Figure 2.22c. This will form a large scale substation that will be 15 m in height and be seen as a readily visible feature in the southerly sector of the view. Although there is a baseline influence from the overhead electricity transmission lines in the area, the relatively close proximity of the OnSS, and its large scale and industrial character relative to the small scale and predominantly rural character of the baseline landscape, will have a notable effect on the views of walkers on the PRowS and residents on this section of Chequers Road.
- 2.11.131 The magnitude of change following 15 years growth on mitigation planting will be **medium-low**. The photomontage in Figure 2.22d shows that mitigation planting will screen the lower parts of the OnSS, while the upper parts of the converter buildings and electrical infrastructure will still be visible. The limited extent to which the OnSS will be visible and its integration into its landscape context as a result of the surrounding mitigation planting, will moderate its influence on walkers and residents and the landscape elements will come to redefine this view.

SIGNIFICANCE OF EFFECT

- 2.11.132 The impact of SSA East Indicative OnSS Location on Viewpoint 6: Chequer's Road PRow is considered to be of a medium-high magnitude during both the construction and operational phase, and the sensitivity of receptors affected is considered to be medium-high or medium. The significance of the residual effect is, therefore, concluded to be **major / moderate**, which is **significant** in EIA terms. The effect will be adverse, long term and reversible.
- 2.11.133 The significant effect will gradually reduce to a **not significant** effect at a **moderate** level after an approximate 15 year period, during which mitigation planting will grow to partially screen visibility of the OnSS.

2.12 ENVIRONMENTAL ASSESSMENT: DECOMMISSIONING PHASE

- 2.12.1 This section describes the potential impacts of the decommissioning of the onshore elements of VE with regard to impacts on landscape and visual receptors.
- 2.12.2 No decision has been made regarding the final decommissioning policy for the onshore cables, as it is recognised that industry best practice, rules and legislation change over time. It is likely the onshore cables would be pulled through the ducts and removed, with the ducts themselves left in situ in order to minimise further ground disturbance.
- 2.12.3 In relation to the OnSS, the programme for decommissioning is expected to be similar in duration to the construction phase. The detailed activities and methodology would be determined later within the project lifetime, but a standard approach would include:
- > Dismantling and removal from site of outside electrical equipment located within the OnSS compound and removal of cabling from site;
 - > Dismantling and removal of electrical equipment from within the OnSS buildings and removal of OnSS buildings;
 - > Removal of areas of hard standing; and



- > Reinstatement of the OnSS footprint and platform areas to agricultural land-uses and hedgerows.

- 2.12.4 Whilst details regarding the decommissioning of the OnSS are currently unknown, considering the worst-case assumption (which would be the removal and reinstatement of the current land use at the OnSS site) it is anticipated that the impacts would be similar to or less than those assessed during construction. The difference at the decommissioning phase would be that mitigation planting would have matured over the 25 years of the operational life of the onshore elements of VE and would therefore screen the decommissioning works from many of the surrounding landscape and visual receptors.
- 2.12.5 The decommissioning methodology would need to be finalised nearer to the end of the lifetime of the onshore elements of VE so as to reflect current guidance, policy and legislation at that point. Any such methodology would be agreed with the relevant authorities and statutory consultees.

2.13 ENVIRONMENTAL ASSESSMENT: CUMULATIVE EFFECTS

CUMULATIVE SITES FOR CONSIDERATION IN THE LVIA

- 2.13.1 Cumulative effects refer to effects upon receptors arising from the onshore elements of VE, when considered alongside other proposed developments and activities and any other reasonably foreseeable project(s) proposals.
- 2.13.2 GLVIA3 (Landscape Institute and IEMA, 2013, p120) defines cumulative landscape and visual effects as those that *'result from additional changes to the landscape and visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.'*
- 2.13.3 Other proposed developments that have the potential for cumulative effects in combination with the Onshore elements of VE are considered to be those developments that are found within the OnSS study area. Beyond the OnSS study area cumulative effects are limited by distance and lack of intervisibility with other proposed developments. This is in line with guidance (NatureScot 2021, p8) which states that *'The assessment should be proportionate to the likely impacts and all CLVIA should accord with the guidelines within GLVIA3. The emphasis should be on the production of relevant and useful information, highlighting why the proposals assessed have been included and why others have been excluded, rather than the provision of a large volume of information.'*
- 2.13.4 A comprehensive list of projects that have the potential to contribute to cumulative impacts of the onshore elements of VE has been compiled and this 'long list' and the approach to compiling this list is described in Volume 1, Annex 3.1. Those cumulative projects listed within the 'long list' that lie within the OnSS study area are listed below in Table 2.12.



Table 2.12: Cumulative Developments

Project Name / Type	Status	Distance from OnSS	Project Description	Relevance to Cumulative Assessment
National Grid Electricity Transmission (NGET) EACN Substation	Scoping	Location unknown	Large scale substation	Proposed close proximity is likely to give rise to cumulative interactions with SSA West.
North Falls Substation	Scoping	Location unknown	Large scale substation	Proposed close proximity is likely to give rise to cumulative interactions with SSA West.

PRELIMINARY ASSESSMENT CUMULATIVE EFFECTS

2.13.5 The LVIA has undertaken a process of scoping out projects and activities from this list, based on professional judgement, assessment rationale and guidance relevant to landscape and visual impacts.

Cumulative effects refer to effects upon receptors arising from SSA West Indicative OnSS Location and SSA East Indicative OnSS Location when considered alongside other proposed developments and activities and any other reasonably foreseeable projects or proposals.

2.13.6 All operational and under construction large scale developments have been included as part of the baseline situation in the main assessment. The cumulative effect of SSA West Indicative OnSS Location and SSA East Indicative OnSS Location is considered in relation to the following three different cumulative scenarios:

- > **Cumulative Scenario 1** assesses the effects of adding OnSS to a cumulative situation comprising all operational, under construction and consented large-scale developments;
- > **Cumulative Scenario 2** assesses the effects of adding OnSS to a cumulative situation comprising all operational, under construction, consented and application stage large-scale developments; and
- > **Cumulative Scenario 3** assesses the effects of adding OnSS to a cumulative situation comprising all operational, under construction, consented, application stage and scoping stage large-scale developments.

2.13.7 These three cumulative scenarios reflect the different stages at which the cumulative developments are at in the planning system, with generally more certainty that those developments which are consented will be built out and less certainty surrounding application stage developments and less again surrounding scoping stage developments.

2.13.8 The projects and plans selected as relevant to the assessment of impacts to landscape character and visual amenity are based upon an initial screening exercise undertaken on a long list. Each project, plan or activity has been considered and scoped in or out on the basis of effect–receptor pathway, data confidence and the temporal and spatial scales involved.



- 2.13.9 Assessment of the long list of projects has concluded that there are no large scale under construction, consented or application stage large scale developments with potential to give rise to cumulative effects with either SSA West Indicative OnSS Location or SSA East Indicative OnSS Location. This is owing to the absence of large scale developments within or near to the LVIA study area, which means that there is unlikely to be close or middle range intervisibility between SSA West Indicative OnSS Location or SSA East Indicative OnSS Location and other large scale developments and, therefore, unlikely for significant cumulative effects to arise.
- 2.13.10 Projects that are at the pre-planning or scoping stage are generally not considered in the assessment of cumulative effects because firm information on which to base the assessment is not available. Consultee comments at ETG meetings have expressed the importance of including the proposed NGET EACN Substation and proposed North Falls Substation in the cumulative assessment owing to their probable close-range location. A meeting has also been held with the North Falls project team to share information and better understand how the two projects could relate to one another.
- 2.13.11 A detailed cumulative assessment of SSA West Indicative OnSS Location and SSA East Indicative OnSS Location has not been possible at PEIR stage owing to the lack of available information on these scoping stage projects, whereby information about their location, their extents and their contents would be required to form a meaningful assessment. A detailed cumulative assessment will be included for the DCO application when it is anticipated that there will be enough available information to assess the cumulative impacts on landscape and visual receptors in detail with visualisations prepared to represent the potential visual effects of the three developments.

HIGH LEVEL ASSESSMENT OF THE POTENTIAL CUMULATIVE EFFECTS

- 2.13.12 For the purposes of the PEIR, a high level cumulative assessment of the potential cumulative effects has been included in order to indicate the anticipated effects that SSA West and SSA East will give rise to in conjunction with the proposed NGET EACN Substation and North Falls Substation. For the purposes of this high level assessment, it is assumed that both the National Grid Substation and North Falls Substation are both built out and a VE substation within either SSA West or SSA East is being added to this cumulative scenario.
- 2.13.13 Whilst the exact locations of the National Grid Substation and North Falls Substation are not yet known, it is assumed that the National Grid Substation would be located on the western side of Grange Road to the west of SSA West in the darker area of the gradated swathe of the plan presented during National Grid's community consultation (April / May 2022). The North Falls Substation would be located adjacent to the indicative location presented in SSA West. The SSA West Indicative OnSS Location would require a slight shift westward, in order to allow the North Falls Substation to also be accommodated in this area.

HIGH LEVEL CUMULATIVE ASSESSMENT OF SSA2 WEST

- 2.13.14 A high level cumulative assessment of SSA2 West in conjunction with the National Grid Substation and North Falls Substation is presented in Table 2.13 below.



Table 2.13: High Level Cumulative Assessment of SSA2 West

LCA / Viewpoint	High level cumulative assessment
7A Bromley Heaths LCA	It is likely that the addition of SSA West would give rise to a significant cumulative effect within a localised part of this LCA owing to the concentration of three substations within a localised area and the influence these would have on this predominantly rural and small scale landscape character. This LCA covers a broader area, much of which will not be significantly affected owing to no or limited visibility. The detail and extent of the significant and not significant cumulative effect will be determined in the detailed assessment presented in the DCO Application.
VP1 Ardleigh Road near Norman's Farm	It is likely that the addition of SSA West would give rise to a significant cumulative effect on receptors represented by this viewpoint, as SSA West would be seen set to the immediate west of the North Falls Substation, with the National Grid Substation also potentially visible in the local landscape further to the west. The addition of SSA West would further increase the influence of these large scale energy developments on the views of residents and road-users in this area.
VP2 Barn Lane PRoW / Bridleway	It is likely that the addition of SSA West would give rise to a not significant cumulative effect on receptors represented by this viewpoint as North Falls Substation would likely be close range to Barn Lane and potentially screen or partially screen SSA West from the views of walkers and horse riders on this PRoW / bridleway.
VP3 Grange Road PRoW	It is likely that the addition of SSA West would give rise to a significant cumulative effect on receptors represented by this viewpoint, as SSA West would be seen set to the immediate west of the North Falls Substation, with the National Grid Substation also potentially visible in the local landscape further to the west. The addition of SSA West would further increase the influence of these large scale energy developments on the views of walkers and road-users in this area.
VP4 Ardleigh Road near Jennings' Farm	It is likely that the addition of SSA West would give rise to a significant cumulative effect on receptors represented by this viewpoint, as SSA West would be seen set to the immediate west of the North Falls Substation, with the National Grid Substation also potentially visible in the local landscape further to the west. While the closer range of the North Falls Substation would mean that SSA West would be partially screened, it would still be seen to add to the influence of these large scale energy developments on the views of residents and road-users in this area.



LCA / Viewpoint	High level cumulative assessment
VP5 Barlon Road near Little Bromley	It is likely that the addition of SSA West would give rise to a significant cumulative effect on receptors represented by this viewpoint, as SSA West would be seen set to the immediate west of the North Falls Substation, and although the National Grid Substation would also potentially be visible in the local landscape further to the west, this would be more distant and potentially partially screened. The addition of SSA West would further increase the influence of these large scale energy developments on the views of walkers, residents and road-users in this area.
VP6 Badley Hall Road	It is likely that the addition of SSA West would give rise to a not significant cumulative effect on receptors represented by this viewpoint as visibility of SSA West, North Falls Substation and National Grid Substation would be reduced by the screening effect of intervening vegetation and the greater separation distance compared to the other viewpoints.

2.13.15 It is anticipated that mitigation planting would reduce the cumulative significant effects from significant to not significant in the first 10 to 15 years as concluded in the main assessment, but this will need to be reviewed in the detailed cumulative assessment in the DCO Application. Co-ordination between mitigation measures associated with SSA West, North Falls Substation and NGET EACN Substation will be important to ensure their effectiveness across the local context.

HIGH LEVEL CUMULATIVE ASSESSMENT OF SSA EAST

2.13.16 A high level cumulative assessment of SSA East Indicative OnSS Location in conjunction with the NGET EACN Substation and North Falls Substation is presented in Table 2.14 below.

Table 2.14: High level cumulative assessment of SSA East

LCA / Viewpoint	High level cumulative assessment
7A Bromley Heaths LCA	It is unlikely that the addition of SSA East would give rise to a significant cumulative effect owing to the limited intervisibility that would arise between North Falls Substation / National Grid Substation and SSA East. While there may be some localised cumulative effects on this LCA, these would relate principally to the cumulative interactions between North Falls Substation and National Grid Substation, with the effects relating to SSA West being solus rather than cumulative.
VP1 Mulley's Farm PRow	It is unlikely that the addition of SSA East would give rise to a significant cumulative effect on receptors represented by this viewpoint, as it is unlikely that the North Falls Substation and the National Grid Substation would be visible from this location.



LCA / Viewpoint	High level cumulative assessment
VP2 Bentley Road north of Welham's Farm	It is unlikely that the addition of SSA East would give rise to a significant cumulative effect on receptors represented by this viewpoint, as it is unlikely that the North Falls Substation and the National Grid Substation would be visible form this location.
VP3 A120 Pellen's Corner	It is unlikely that the addition of SSA East would give rise to a significant cumulative effect on receptors represented by this viewpoint, as it is unlikely that the North Falls Substation and the National Grid Substation would be readily visible form this location.
VP4 Clacton Road near Abbott's Hall	It is unlikely that the addition of SSA East t would give rise to a significant cumulative effect on receptors represented by this viewpoint, as it is unlikely that the North Falls Substation and the National Grid Substation would be readily visible form this location.
VP5 New Hall Farm ProW	It is unlikely that the addition of SSA East t would give rise to a significant cumulative effect on receptors represented by this viewpoint, as it is unlikely that the North Falls Substation and the National Grid Substation would be readily visible form this location.
VP6 Chequers Road near Chequers Wood	It is unlikely that the addition of SSA East would give rise to a significant cumulative effect on receptors represented by this viewpoint, as it is unlikely that the North Falls Substation and the National Grid Substation would be readily visible form this location.

2.13.17 The separation distance between North Falls Substation / NGET EACN Substation and SSA East Indicative OnSS Location combined with the screening effect of intervening tree cover and buildings will make it unlikely for significant cumulative effects to arise if an OnSS at this location is taken forward by the project.

2.14 INTER-RELATIONSHIPS

2.14.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the proposal on the same receptor. Table 2.15 provides a summary of assessed inter-relationships on the receptors assessed in this chapter.



Table 2.15: Inter-relationships between the LVIA and other chapters in the PEIR

Topic Chapter	Where addressed in the LVIA	Rationale
Chapter 5: Onshore Biodiversity and Nature Conservation	Section 2.9 mitigation Sections 2.10, 2.11 and 2.12.	Both chapters consider the potential effects of hedgerow and tree removal, 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 ecological assets. Both chapters consider the mitigation of hedgerow and tree loss in respect of planting proposed as outline landscape mitigation principles.
Chapter 8: Onshore Archaeology and Cultural Heritage	Sections 2.11 and 2.12.	Both chapters consider the potential effects of the onshore elements of the Project on designated Registered Historic Parks and Gardens and their setting within the landscape.
Chapter 4: Socio-economics, Tourism and Recreation	Section 2.12.	Both chapters consider the potential effects of the onshore elements of the Project on the visual amenity of recreational users in the local area including walkers on PRowWs and horse-riders on bridleways.
Volume 2, Chapter 10 SLVIA	Section 10.14.	The SLVIA considers the inter-relationship between the LVIA and the SLVIA.

2.15 TRANSBOUNDARY EFFECTS

2.15.1 In relation to this chapter, it is considered that no transboundary effects will arise. The scoping out of transboundary effects in respect of the LVIA has been agreed with PINS on behalf of SoS and relates to the considerable separation between the onshore components of the Project and international boundaries, as well as the relatively small scale and localised nature of potentially significant effects.

2.16 SUMMARY OF EFFECTS

2.16.1 The potential effects on the landscape and visual receptors that would arise as a result of the onshore components of VE have been assessed in this Chapter. The process has involved identifying those receptors with the potential to be significantly affected and assessing the potential effects that the onshore components of VE would give rise to. The significance of these effects has been assessed through combining the sensitivity of each receptor with a prediction of the magnitude of change that would occur as a result of the onshore components of VE. The findings of the assessment are presented in summary in Table 2.16 below and highlight the localised extent within which significant effects will occur.



- 2.16.2 In respect of the LVIA, the maximum design scenario for the OnSS is based on the GIS option with a footprint of 250 m x 180 m and a height of 15 m. Although the AIS option has a larger footprint, the larger height of the GIS option has been considered to present the worst-case scenario, although the larger footprint of the AIS option has been used in the production of the ZTVs. There is currently no fixed location for the OnSS, although there are two defined search areas referred to as SSA West and SSA East, with SSA West located approximately 2.5 km to the south of Lawford and SSA East located approximately 3.0 km to the south-east. Indicative locations for SSA West and SSA East have been identified within each respective search area in order to form the basis for the detailed assessment and the production of the ZTVs and photomontages.
- 2.16.3 The LVIA study areas for the indicative OnSS locations cover a radius of 5 km and within these areas, those receptors with the potential to be significantly affected have been assessed in detail. This has included one LCA and six viewpoints for each indicative OnSS location. Three photomontages have been prepared for each of the twelve viewpoints; one showing the maximum design scenario using a Rochdale Envelope; one showing the indicative model of the OnSS in the indicative OnSS location; and one showing the indicative model of the OnSS in the indicative OnSS location with mitigation planting following 15 years growth.
- 2.16.4 The Figures are presented in Volume 6: Annex 2.1: LVIA Figures. Figures 2.1 to 2.10 show plans of the LVIA study area, landscape receptors, visual receptors and ZTVs of the indicative OnSS locations, whilst Volume 6: Annex 2.2: Figures 2.11 to 2.22 show the photographs and photomontages from the representative viewpoints. The focus of the assessment has been the effects of the indicative OnSS locations during the construction and operational phase, with an assessment also of the physical effects associated with the landfall and the onshore ECC.
- 2.16.5 The assessment of effects on landscape character found that significant effects will arise as a result of the indicative OnSS locations within one of the five LCTs that occur in the LVIA study areas; namely LCT Heathland Plateaux LCT 7A Bromley Heaths LCA. The assessment has found that in respect of both SSA West and SSA East, 7A Bromley Heaths LCA as a whole will not be significantly affected but also found that there will be significant effects within the localised parts of the LCA around the indicative SSA West and SSA East OnSS locations.
- 2.16.6 In respect of the indicative SSA West location, significant effects will occur within the local area defined broadly by Hungerdown Lane approximately 1.0 km to the west, Grange Road PRoW approximately 0.9 km to the north, Little Bromley approximately 1.2 km to the east and Barlon Road, Manning Grove and Lilley's Farm approximately 1.0 to 1.3 km to the south. In respect of the indicative SSA East location, significant effects will occur within the local area defined broadly by Mulley's Farm and Braham Hall approximately 0.8 km to the west, PRoW 172_8 approximately 0.9 km to the north, Bradfield Lodge and Abbott's Hall approximately 0.9 to 1.2 km to the east and the A120 and Bentley Road approximately 1.3 km to the south.



- 2.16.7 The assessment of effects on visual amenity found that significant effects will occur within a localised area around each of the indicative OnSS locations. In respect of the indicative SSA West location, significant effects will occur in five of the six representative viewpoints, all lying within approximately 1.4 km of the indicative SSSA West location. In respect of the indicative SSA East location, significant effects will occur in all six of the representative viewpoints, all lying within approximately 1.3 km of the indicative SSA East location. While there will be effects on visual amenity beyond these distances, they are unlikely to be significant owing to the reduced scale as a result of the greater separation distance, the greater influence from the wider landscape and the screening effect of intervening vegetation.
- 2.16.8 Indicative plans for mitigation planting have been set out with the intention of providing screening around the indicative SSA West and SSA East locations. These plans give an indication of the type and scale of planting that would be put forward for the final substation location. An assessment of the reduction in landscape and visual effects taking into account 15 years growth of mitigation planting, found that the effects on landscape character would be reduced within the local area from significant to not significant, and that the effects on visual amenity would also be reduced within the local area from significant to not significant. The LEDPP presents the plan of indicative mitigation planting and the principles behind the layout and design with reference to the ecological aims as well as the landscape aims of the plan, which would be applied to the future landscaping proposals when the final design layout is known.
- 2.16.9 The assessment of physical effects relating to the landfall, onshore ECC and OnSS found that there will be no significant effects in relation to the coastal land, the agricultural land or the hedgerows that will potentially be disturbed or removed during the construction phase. There will, however, be significant effects in respect of the removal of taller hedgerows, hedgerow trees and trees in the localised areas where these might arise during the construction of the onshore ECC or OnSS. In locations where vegetation will be removed, replacement planting will be implemented where practical, although over cables and within wayleaves this will be restricted to the planting of hedgerows and not trees. An overview of the approach to this replacement planting is presented in the LEDPP.
- 2.16.10 In respect of the cumulative assessment there are no large scale under construction, consented or application stage large scale developments with potential to give rise to cumulative effects with either SSA West or SSA East. This is owing to the absence of large scale developments within or near to the LVIA study area, which means that there is unlikely to be close or middle range intervisibility between SSA West or SSA East and other large scale developments and therefore unlikely for significant cumulative effects to arise.



- 2.16.11 Projects that are at the pre-planning or scoping stage include the proposed NGET EACN Substation and proposed North Falls Substation both of which are likely to have a close-range location to SSA West. A detailed cumulative assessment has not, however, been possible at PEI stage owing to the lack of available information on these scoping stage projects, whereby information about their location, their extents and their contents would be required to form a meaningful assessment. A high level assessment has, however, been presented which highlights the likely significant cumulative effects on landscape and visual receptors that would arise in respect of SSA2 West and the potential absence of significant cumulative effects that would arise in respect of SSA East. This high level conclusion relates to the close proximity of SSA2 West to North Falls Substation and NGET EACN Substation and their greater separation from SSA East.
- 2.16.12 In summary, the onshore components of VE will give rise to some significant effects on landscape character in the local areas around indicative SSA West and SSA East locations and extending out to approximately 1 km and some significant effects on visual amenity in the local areas around indicative SSA West and SSA East locations and extending out to approximately 1.4 km and 1.3 km respectively. These significant effects are likely to be mitigated by proposed mitigation planting following 15 years of growth. There will also be significant effects relating to the localised removal of physical elements including taller hedgerows, hedgerow trees and trees although the majority of these will be avoided through careful routing of the onshore ECC and OnSS and use of HDD in select locations.
- 2.16.13 The localised nature of these effects means that the majority of the physical elements, landscape receptors and visual receptors across the wider LVIA study area will either undergo not significant effects or will not be affected.

2.17 NEXT STEPS

- 2.17.1 The following steps will be undertaken in order to progress the LVIA from PEIR stage to DCO Application stage.
- > Representation of landscape and visual considerations will be made to influence the final location of the OnSS alongside consideration of other environmental and technical constraints.
 - > In response to the final location of the OnSS, representative viewpoints will be reviewed in consultation with the statutory consultees to ensure they best represent the views of visual receptors in the local area and cover all potentially significant effects.
 - > Information on North Falls Substation and NGET EACN Substation will be sourced, as far as is practical, to enable a detailed cumulative assessment to be carried out.
 - > Efforts to work collaboratively with the North Falls and NGET EACN project teams will be made to ensure an exchange of information and development of a strategic approach to landscape and ecological mitigation measures.
 - > Consideration will be given to the potential design of the OnSS so that a holistic approach to design is being considered and recorded in the OLEMP and emerging Design and Access Statement.



- > In response to the refined corridor of the onshore ECC and associated HDD and construction compounds, a detailed assessment of the physical effects and potential visual effects will be presented in the DCO Application.



Table 2.16: Summary of effects for LVIA.

Receptor	Sensitivity	Magnitude of change (construction)	Significance of effect (construction)	Magnitude of change (operation)	Significance of effect (operation)	Magnitude of change (+15 years)	Significance of effect (+15 years)
Landfall / Onshore ECC / OnSS							
Coastal land	Medium	Medium-low No change	Moderate / minor (not significant) No effect	N/A	N/A	N/A	N/A
Agricultural land	Medium	Medium-low No change	Moderate / minor (not significant) No effect	N/A	N/A	N/A	N/A
Hedgerows	Medium	Medium-low No change	Moderate / minor (not significant) No effect	N/A	N/A	N/A	N/A
Taller hedgerows and hedgerow trees	Medium-high	Medium-high No change	Major / moderate (significant) where taller hedgerows or hedgerow	N/A	N/A	N/A	N/A



Receptor	Sensitivity	Magnitude of change (construction)	Significance of effect (construction)	Magnitude of change (operation)	Significance of effect (operation)	Magnitude of change (+15 years)	Significance of effect (+15 years)
			trees are removed No effect				
Trees	Medium-high	High No change	Major (significant): where trees are removed No change	N/A	N/A	N/A	N/A
SSA West							
7A Bromley Heath LCA	Medium	High and medium-high – approximately 1.0 km west, 0.9 km north, 1.2 km east and 1.3 km south. Medium / Medium-low / Low / No change	Major/moderate (significant) – approximately 1.0 km west, 0.9 km north, 1.2 km east and 1.3 km south. Moderate or moderate/minor (not significant)	High and medium-high – approximately 1.0 km west, 0.9 km north, 1.2 km east and 1.3 km south. Medium / Medium-low / Low / No change	Major/moderate (significant) – approximately 1.0 km west, 0.9 km north, 1.2 km east and 1.3 km south. Moderate or moderate/minor (not significant)	Medium / Medium-low / Low / Negligible / No change	Moderate or moderate/minor (not significant)



Receptor	Sensitivity	Magnitude of change (construction)	Significance of effect (construction)	Magnitude of change (operation)	Significance of effect (operation)	Magnitude of change (+15 years)	Significance of effect (+15 years)
VP1: Ardleigh Road near Norman's Farm	Medium-high: residents Medium: road-users	High	Major or Major / moderate (significant)	High	Major or Major / moderate (significant)	Low	Moderate / minor (not significant)
VP2: Barn Lane PRow	Medium-high: residents Medium-high: walkers	High	Major (significant)	High	Major (significant)	Low	Moderate/ minor (not significant)
VP3: Grange Road PRow	Medium-high: walkers Medium: road-users	Medium: walkers Medium-low: road-users	Moderate (significant) Moderate/ minor (not significant)	Medium-high: walkers Medium-low: road-users	Major/ moderate (significant) Moderate / minor (not significant)	Low	Moderate/ minor (not significant)
VP4: Ardleigh Road near Jennings Farm	Medium-high: walkers and residents Medium: road-users	High	Major (significant) Major/ moderate (significant)	High	Major (significant) Major/ moderate (significant)	Low	Moderate/ minor (not significant)
VP5: Barlon Road near Little Bromley	Medium-high: walkers and residents	Medium-high	Major (significant)	Medium-high	Major (significant)	Low	Moderate/ minor (not significant)



Receptor	Sensitivity	Magnitude of change (construction)	Significance of effect (construction)	Magnitude of change (operation)	Significance of effect (operation)	Magnitude of change (+15 years)	Significance of effect (+15 years)
	Medium: road-users		Major/moderate (significant)		Major/moderate (significant)		
VP6: Badley Hall Road	Medium-high: walkers and residents	Medium-low	Moderate (not significant)	Medium-low	Moderate (not significant)	Low	Moderate/minor (not significant)
SSA East							
7A Bromley Heaths LCA	Medium	High and medium-high – approximately 0.8 km west, 0.9 km north, 1.2 km east and 1.3 km south. Medium / Medium-low / Low / No change	Major/moderate (significant) – approximately 0.8 km west, 0.9 km north, 1.2 km east and 1.3 km south. Moderate or moderate/minor (not significant)	High and medium-high – approximately 0.8 km west, 0.9 km north, 1.2 km east and 1.3 km south. Medium / Medium-low / Low / No change	Major/moderate (significant) – approximately 0.8 km west, 0.9 km north, 1.2 km east and 1.3 km south. Moderate or moderate/minor (not significant)	Medium / Medium-low / Low / Negligible / No change	Moderate or moderate/minor (not significant)



Receptor	Sensitivity	Magnitude of change (construction)	Significance of effect (construction)	Magnitude of change (operation)	Significance of effect (operation)	Magnitude of change (+15 years)	Significance of effect (+15 years)
VP1: Mulley's Farm PRow	Medium-high: walkers and residents Medium: road-users	High	Major (significant) Major/moderate (significant)	High	Major (significant) Major/moderate (significant)	Low	Moderate/minor (not significant)
VP2: Bentley Road north of Welham's Farm	Medium-high: residents Medium: road-users	Medium	Moderate (significant)	Medium-high	Major/moderate (significant)	Medium-low	Moderate (not significant) Moderate/minor (not significant)
VP3: A120 Pellen's Corner	Medium-high: residents Medium: road-users	Medium	Moderate (significant)	Medium	Moderate (significant)	Medium-low	Moderate (not significant) Moderate/minor (not significant)
VP4: Clacton Road near Abbott's Hall	Medium-high: residents Medium: road-users	Medium-high	Major (significant) Major/moderate (significant)	Medium-high	Major (significant) Major/moderate (significant)	Low	Moderate/minor (not significant)
VP5: New Hall Farm PRow	Medium-high: walkers and residents	High	Major (significant)	High	Major (significant)	Medium-low	Moderate (not significant)



Receptor	Sensitivity	Magnitude of change (construction)	Significance of effect (construction)	Magnitude of change (operation)	Significance of effect (operation)	Magnitude of change (+15 years)	Significance of effect (+15 years)
VP6: Chequers Road near Chequers Wood	Medium-high: residents and walkers Medium: road-users	Medium-high	Major (significant) Major/moderate (significant)	Medium-high	Major (significant) Major/moderate (significant)	Medium-low	Moderate (not significant) Moderate/minor (not significant)



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F I V E 
ESTUARIES
OFFSHORE WIND FARM

PHONE
EMAIL
WEBSITE
ADDRESS

COMPANY NO

0333 880 5306

fiveestuaries@rwe.com

www.fiveestuaries.co.uk

Five Estuaries Offshore Wind Farm Ltd
Windmill Hill Business Park
Whitehill Way, Swindon, SN5 6PB
Registered in England and Wales
company number 12292474

