

Outer Dowsing Offshore Wind Preliminary Environmental Information Report

Volume 1, Chapter 17: Seascape, Landscape and Visual

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Abbreviations

Acronym	Expanded name
AOD	Above Ordnance Datum
AMSL	Above Mean Sea Level
AONB	Area of Outstanding Natural Beauty
CD	Chart Datum
CEA	Cumulative Effects Assessment
DCO	Development Consent Order
DECC	Department of Energy & Climate Change, now the Department for Energy Security and Net Zero (DESNZ)
DESNZ	Department for Energy Security and Net Zero, formerly Department of Business, Energy and Industrial Strategy (BEIS), which was previously Department of Energy & Climate Change (DECC)
DSM	Digital Surface Model
DTM	Digital Terrain Model
ECC	Export Cable Corridor
EEA	European Economic Area
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
ES	Environmental Statement
ETG	Expert Technical Group
GIS	Geographic Information System
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GT R4 Ltd	The Applicant. The special project vehicle created in partnership between Corio Generation (a wholly owned Green Investment Group portfolio company), Gulf Energy Development and TotalEnergies
IPCC	Intergovernmental Panel on Climate Change
LAT	Lowest Astronomical Tide
LCA	Landscape Character Area
LCT	Landscape Character Type
LLA	Local Landscape Area
MCA	Marine Character Area
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MOD	Ministry of Defence
MSL	Mean Sea Level
NCA	National Character Area
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
ODOW	The Project
ORCP	Offshore Reactive Compensation Platform
OS	Ordnance Survey

Acronym	Expanded name
OSS	Offshore Substation
OWF	Offshore Windfarm
PEIR	Preliminary Environmental Information Report
RAF	Royal Air Force
RPG	Registered Park and Garden
SLVIA	Seascape, Landscape and Visual Impact Assessment
WCS	Worst Case Scenario
WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility

Terminology

Term	Definition
Array area	The area offshore within the PEIR Boundary within which the generating stations (including wind turbine generators (WTG) and inter array cables), offshore accommodation platforms, offshore transformer substations and associated cabling are positioned.
Baseline	The status of the environment at the time of assessment without the development in place.
Cumulative effects	The combined effect of the Project acting cumulatively with the effects of a number of different projects, on the same single receptor/resource.
Cumulative impact	Impacts that result from changes caused by other past, present or reasonably foreseeable actions together with the Project.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of an impact with the sensitivity of a receptor, in accordance with defined significance criteria.
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the Environmental Impact Assessment (EIA) Regulations, including the publication of an Environmental Statement (ES).
Environmental Statement (ES)	The suite of documents that detail the processes and results of the Environmental Impact Assessment (EIA).
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Intertidal	Area where the ocean meets the land between high and low tides.
Landfall	The location at the land-sea interface where the offshore export cable will come ashore.
Maximum Design Scenario	The maximum design parameters of the combined project assets that result in the greatest potential for change in relation to each impact assessed

Term	Definition
Mitigation	Mitigation measures, or commitments, are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
National Policy Statement (NPS)	A document setting out national policy against which proposals for Nationally Significant Infrastructure Projects (NSIPs) will be assessed and decided upon
Offshore Reactive Compensation Station (ORCP)	Platforms located outside the array area which house electrical equipment and control and instrumentation systems. They also provide access facilities for work boats.
Outer Dowsing Offshore Wind (ODOW)	The Project.
Offshore Export Cable Corridor (ECC)	The Offshore Export Cable Corridor (Offshore ECC) is the area within the Preliminary Environmental Information Report (PEIR) Boundary within which the export cable running from the array to landfall will be situated.
Offshore Substation (OSS)	Platforms located within the array area which house electrical equipment and control and instrumentation systems. They also provide access facilities for work boats and helicopters.
Offshore Reactive Compensation Station (ORCP)	Platforms located outside the array area which house electrical equipment and control and instrumentation systems. They also provide access facilities for work boats.
Preliminary Environmental Information Report (PEIR)	The PEIR is written in the style of a draft Environmental Statement (ES) and provides information to support and inform the statutory consultation process in the pre-application phase. Following that consultation, the PEIR documentation will be updated to produce the Project's ES that will accompany the application for the Development Consent Order (DCO).
PEIR Boundary	The PEIR Boundary is outlined in Figure 3.1 of Volume 1, Chapter 3: Project Description and comprises the extent of the land and/or seabed for which the PEIR assessments are based upon.
Project Design envelope	A description of the range of possible elements that make up the Project's design options under consideration, as set out in detail in the project description. This envelope is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is also often referred to as the "Rochdale Envelope" approach.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.

Term	Definition
Study area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.
The Applicant	GT R4 Ltd. The Applicant making the application for a DCO. The Applicant is GT R4 Limited (a joint venture between Corio Generation, TotalEnergies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), TotalEnergies and GULF.
The Project	Outer Dowsing Offshore Wind including proposed onshore and offshore infrastructure.
Transboundary impacts	Transboundary effects arise when impacts from the development within one European Economic Area (EEA) state affects the environment of another EEA state(s).
Wind Turbine Generator (WTG)	All the components of a wind turbine, including the tower, nacelle, and rotor.

17 Seascape, Landscape and Visual

17.1 Introduction

- 17.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) process presents the results to date of the Environmental Impact Assessment (EIA) process for the potential impacts of Outer Dowsing Offshore Wind (“the Project”) on seascape, landscape and visual receptors, which will be presented in detail in the Seascape, Landscape and Visual Impact Assessment (SLVIA) in the Environmental Statement (ES). Specifically, this chapter considers the potential impact of the Project seaward of Mean High Water Springs (MHWS) during the construction, operation and maintenance, and decommissioning phases.
- 17.1.2 GT R4 Limited (trading as Outer Dowsing Offshore Wind) hereafter referred to as the 'Applicant', is proposing to develop the Project. The Project will be located approximately 54km from the Lincolnshire coastline in the southern North Sea. The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm), export cables to landfall, onshore cables, and connection to the electricity transmission network, and ancillary and associated development (see Volume 1, Chapter 3: Project Description for full details). The array area for the Project will be located approximately 54km from the Lincolnshire coastline in the southern North Sea.
- 17.1.3 This chapter comprises a relatively concise chapter in the PEIR. This proportionate approach to the SLVIA has been influenced by the long distance between the array area and the coastline, where the highest concentration of landscape and visual receptors occur. This will be reviewed as the design of the Project evolves during the preparation of the ES.
- 17.1.4 The visualisations and figures developed to inform the assessment are included in Volume 2, Appendix 17.2: SLVIA Figures, Wirelines and Visualisations.

17.2 Statutory and Policy Context

- 17.2.1 This section identifies the legislation, policy and other documentation that has informed the assessment of effects with respect to seascape, landscape and visual. Further information on policies relevant to the EIA and their status is provided in Volume 1, Chapter 2: Need, Policy and legislative context of this PEIR.
- 17.2.2 The relevant legislation and planning policy for offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to the SLVIA, is outlined in Table 17.1 below.

Table 17.1: Legislation and policy context

Legislation/policy	Key provisions	Section where comment addressed
National Parks and Access to the Countryside Act 1949	<p>National Parks and Access to the Countryside Act 1949 provided the framework for the establishment of National Parks and Areas of Outstanding Natural Beauty (AONB).</p> <p>The provisions of Part II Section 5 of this Act have effect for the purpose of -</p> <ul style="list-style-type: none"> (a) conserving and enhancing the natural beauty, wildlife and cultural heritage of the areas specified in the next following subsection; and (b) promoting opportunities for the understanding and enjoyment of the special qualities of those areas by the public. <p>This Act places a duty on public bodies i.e. “relevant authorities” including for example the Councils, statutory undertakers and in the context of the Development Consent Order (DCO), the Secretary of State (SoS), to have regard to the purposes for which Areas of Outstanding Natural Beauty are designated. In relation to the Norfolk Coast and Lincolnshire Wolds this includes conserving and enhancing natural beauty.</p>	<p>The Project has the potential to have adverse effects on the Lincolnshire Wolds AONB and the Norfolk Coast AONB. These potential effects are addressed in Section 17.7.</p>
Countryside and Rights of Way Act 2000 (CRoW)	<p>Countryside and Rights of Way Act 2000 (CRoW) amended the provisions relating to AONBs. Section 82(1) of CRoW defines an AONB in England as: <i>“An area which is in England but not in a National Park is of such outstanding natural beauty that it is desirable that the protective provisions of Part IV of The Countryside and Rights of Way Act 2000 should apply to it, Natural England may, for the purpose of conserving and enhancing the natural beauty of the area, by order designate the area for the purposes of this Part as an area of outstanding natural beauty”</i>.</p> <p>The UK Government current online Guidance on AONBs confirms with regard to the above legislation that</p>	<p>The Project has the potential to have adverse effects on the Lincolnshire Wolds AONB and the Norfolk Coast AONB. These potential effects are addressed in Section 17.7.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>(https://www.gov.uk/guidance/areas-of-outstanding-natural-beauty-aonbs-designation-and-management):</p> <p><i>“An area of outstanding natural beauty (AONB) is land protected by the Countryside and Rights of Way Act 2000 (CROW Act). It protects the land to conserve and enhance its natural beauty”.</i></p>	
<p>National Policy Statement NPS EN-1 Overarching NPS for Energy (NPS EN-1) (DECC, 2011a)</p>	<p>Paragraph 5.9.5 of EN-1 advises that the applicant should carry out a landscape and visual assessment and makes reference to the following documents:</p> <p>Landscape Institute and Institute of Environmental Management and Assessment (2002, 2nd edition): Guidelines for Landscape and Visual Impact Assessment; and</p> <p>Land Use Consultants (2002): Landscape Character Assessment – Guidance for England and Scotland.</p> <p>Note the ‘Guidelines for Landscape and Visual Impact Assessment’ (GLVIA) (2002, 2nd edition) has been superseded by GLVIA Version 3.</p> <p>Paragraph 5.9.5: <i>“The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant’s assessment should also take account of any relevant policies based on these assessments in local development documents in England”.</i></p> <p>Paragraph 5.9.6: <i>“The applicant’s assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character”.</i></p>	<p>This Chapter of the PEIR has been prepared following the updated versions of these documents.</p> <p>Published landscape character assessments and associated studies for the study area are referred to in Sections 17.4 and 17.7. Local Development Plan policies are considered in lower rows of this table.</p> <p>The effect on landscape components and landscape character during operation are addressed in Section 17.7.</p> <p>The Planning Inspectorate has agreed that construction effects within the array area can be scoped out of the SLVIA.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>Paragraph 5.9.7: <i>“The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on local amenity, and nature conservation”.</i></p>	<p>The visual effects of the Project during construction and operation, are addressed in Section 17.7.</p> <p>The Planning Inspectorate has agreed that construction effects, including lighting for construction and operation, within the array area can be scoped out of the SLVIA. Lighting associated with the Offshore Reactive Compensation Platforms (ORCPs) has not been assessed at this point and would be covered in the ES if considered necessary.</p>
	<p>Paragraph 5.9.8: <i>“Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a project on landscape. Virtually all nationally significant energy infrastructure projects will have effects on the landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate”.</i></p>	<p>The quality, value and capacity of the landscape to accommodate change are considerations of the landscape assessment. The design of the Project is considering the potential impact on seascape, landscape and visual receptors, in order to minimise harm by mitigation of landscape effects as presented in Section 17.7 of the SLVIA. Adverse landscape and visual effects would be minimised through embedded environmental measures (as described in Table 17.9).</p>
	<p>Paragraph 5.9.12 and Paragraph 5.9.13: <i>“The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the</i></p>	<p>The potential for the offshore elements of the Project to affect the Lincolnshire Wolds AONB, Norfolk Coast AONB and</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p><i>purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints”.... and paragraph 5.9.13 advises “The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent”.</i></p>	<p>Registered Parks and Gardens (RPG), has been considered in Section 17.7.</p>
	<p>Paragraph 5.9.14: <i>“Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England has policies based on landscape character assessment, these should be paid particular attention. However, local landscape designations should not be used in themselves to refuse consent, as this may unduly restrict acceptable development”.</i></p>	<p>The value of the local landscape is a consideration within the SLVIA and is informed by local landscape designations identified in local development plan documents. Effects on landscape character are addressed in Section 17.7.</p>
	<p>Paragraph 5.9.17: <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></p>	<p>Volume 1, Chapter 4: Site Selection and Consideration of Alternatives sets out the iterative process that has influenced the design of the Project. The mitigation of seascape, landscape and visual effects has been carefully considered in the SLVIA, to minimise ‘harm to the landscape’ where possible.</p>
	<p>Paragraph 5.9.18: <i>“All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites. The IPC will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project. 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></p>	<p>The impacts on visual receptors are assessed in Section 17.7. This includes consideration of visibility from undeveloped coast. The benefits (including need) of the Project are set out in Volume 1, Chapter 4: Site Selection and Consideration of Alternatives.</p>
	<p>Paragraph 5.9.19: <i>“It may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing</i></p>	<p>Baseline OWFs are referenced in Section 17.4 and Section 17.8</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p><i>permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors. This may assist the IPC in judging the weight it should give to the assessed visual impacts of the proposed development.”</i></p> <p>Paragraph 5.9.21: <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></p>	<p>The Applicant is intending to reduce the array area prior to submission of the DCO Application, which will consider all constraints for the Project within the refinements.</p>
	<p>Paragraph 5.9.22: <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></p>	<p>Adverse landscape and visual effects are minimised through embedded environmental measures as presented in Section 17.5. The role of the site selection process in minimising landscape and visual effects is presented in Volume 1, Chapter 4: Site Selection and Consideration of Alternatives. Choice of colours and materials will be considered further in the ES is necessary.</p>
<p>NPS EN-3 Renewable Energy Infrastructure (DECC, 2011b)</p>	<p>Paragraph 2.4.2: <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></p>	<p>The Project has been designed to address potential seascape, landscape and visual effects. Embedded environmental measures that address seascape, landscape and visual effects are presented in Section 17.5.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>Paragraph 2.6.202: <i>“Where a proposed offshore windfarm will be visible from the shore, an SVIA should be undertaken which is proportionate to the scale of the potential impacts. Impact on seascape should be addressed in addition to the landscape and visual effects discussed in EN-1”.</i></p>	<p>The visibility of the Project from the shore is assessed in Sections 17.4 and 17.7. Impacts on seascape are also addressed in Section 17.7.</p>
	<p>Paragraph 2.6.203: <i>“Where necessary, assessment of the seascape should include an assessment of three principal considerations on the likely effect of offshore windfarms on the coast:</i></p> <ul style="list-style-type: none"> • <i>limit of visual perception from the coast;</i> • <i>individual characteristics of the coast which affect its capacity to absorb a development; and</i> • <i>how people perceive and interact with the seascape”.</i> 	<p>The visibility of the Project from the coast and seascape impacts are addressed in Sections 17.4 and 17.7.</p>
	<p>Paragraph 2.6.204: <i>“As part of the SVIA, photomontages are likely to be required. Viewpoints to be used for the SVIA should be selected in consultation with the statutory consultees at the EIA Scoping stage”.</i></p>	<p>Viewpoints are being agreed in consultation with statutory consultees as described in Section 17.4. Wireline visualisations are included in Volume 2, Appendix 17.2, Figures 17.20 to 17.31. Requirements for photomontages will be discussed and agreed with statutory consultees as part of future consultation.</p>
	<p>Paragraph 2.6.205: <i>“Magnitude of change to both the identified seascape receptors (such as seascape units and designated landscapes) and visual receptors (such as viewpoints) should be assessed in accordance with the standard methodology for SVIA”.</i></p>	<p>The methodology for the assessment of magnitude of change to seascape receptors, designated landscapes and visual receptors is set out in Section 17.6.</p>
	<p>Paragraph 2.6.206: <i>“Where appropriate, cumulative SVIA should be undertaken in accordance with the policy on cumulative assessment outlined in Section 4.2 of EN-1”.</i></p>	<p>The potential cumulative effects on seascape, landscape and visual receptors are addressed in Section 17.8.</p>

Legislation/policy	Key provisions	Section where comment addressed
Draft Overarching National Policy Statement for Energy (EN-1), (DESNZ, 2023)	<p>Paragraph 4.2.11 advises that <i>“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”</i>. At paragraph 4.2.12 it is set out that, where this is the case, the likely worst case environmental effects should be set out and assessed.</p>	<p>Volume 1, Chapter 3: Project Description of the PEIR sets out the details of the Project and which aspects are defined in detail. Section 17.5 sets out the maximum design parameters that have been defined to ensure that the worst case seascape, landscape and visual effects are assessed.</p>
	<p>In relation to the topic of Criteria for ‘Good Design’ for Energy Infrastructure Paragraph 4.6.1 advises that <i>“The visual appearance of a building, structure, or piece of infrastructure, and how it relates to the landscape it sits within, 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”</i> and, in Paragraph 4.6.2, <i>“Applying “good design” to energy projects should produce sustainable infrastructure sensitive to place, including impacts on heritage, efficient in the use of natural resources, including land-use 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”</i>.</p>	<p>Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.</p>
	<p>Paragraph 4.6.3 continues on the topic of good design and notes that this is a means by which many policy objectives in the NPS can be met. This may include siting and use of appropriate technologies that can help mitigate adverse impacts.</p>	<p>Volume 1, Chapter 4: Site Selection and Consideration of Alternatives sets out the iterative process that has influenced the design of the Project. Design principles, particularly in relation to the ORCPs will be considered through the</p>

Legislation/policy	Key provisions	Section where comment addressed
		<p>design process as part of the preparation of the ES. The need to retain flexibility of wind turbine generator (WTG) numbers, size and location within the Project’s array area through the planning stages and assessment of a Maximum Design Scenario (MDS) (a necessary part of the process that is recognised through the NPS at paragraphs 4.2.11 – 4.2.12) also limits opportunities for good design as part of the mitigation measures.</p>
	<p>Paragraph 4.6.5 advises that Applicants need to consider the importance of ‘good design’ criteria and demonstrate this in their applications stating that <i>“a project board level design champion could be appointed, and a representative design panel used to maximise the value provided by the infrastructure. Design principles* should be established from the outset of the project to guide the development from conception to operation”</i>. *(footnote 113 in EN-1) <i>“Design principles should take into account any national guidance on infrastructure design, this could include for example the Design Principles for National Infrastructure published by the National Infrastructure Commission. the National Design Guide and National Model Design Code, as well as any local design policies and standards. See https://nic.org.uk/studies-reports/design-principles-for-national-infrastructure; See https://www.gov.uk/government/publications/national-design-guide; and See https://www.gov.uk/government/publications/national-model-design-code”</i>.</p>	<p>The design of the Project cannot be fixed at this time. This is recognised by NPS EN-1 Paragraph 4.2.11 and NPS EN-3 Paragraphs 3.6.1 to 3.6.3. Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES. The Applicant considers that there would be merit in appointing a senior member of the Project team as design champion early in the process – ensuring that design options are explored, advice taken and decisions made to achieve a well considered and good design.</p>
	<p>Paragraph 4.6.7 sets out that the applicants should be able to demonstrate <i>“how the design process was conducted and how the proposed design evolved”</i> and <i>“where a number of different designed</i></p>	<p>The evolution of the project design to date is set out in Volume 1, Chapter 4:</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>were considered, applicants should set out the reasons why the favoured choice has been selected”. Paragraph 4.6.12 goes on to identify that 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. Many of the wider impacts of a development, such as landscape and environmental impacts, will be important factors in the design process”. It is also noted in paragraph 4.6.13 that “Assessment of impacts must be for the stated design life of the scheme rather than a shorter time period”.</p>	<p>Site Selection and Consideration of Alternatives. The duration of the impacts is addressed in Section 17.7 of this Chapter.</p>
	<p>In relation to good design paragraph 4.6.11 advises that “The Secretary of State should be satisfied that the applicant has considered 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”.</p>	<p>Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.</p>
	<p>Paragraph 5.10.1 notes that “the landscape and visual effects of energy projects will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development. In this context, references to landscape should be taken as covering seascape and townscape where appropriate”.</p>	<p>Section 17.7 address both seascape and landscape as well as the varied visual effects.</p>
	<p>Paragraph 5.10.4 “Landscape effects arise not only from the sensitivity of the landscape but also the nature and magnitude of change proposed by the development, whose specific siting and design make the assessment a case-by-case judgement”.</p>	<p>Section 17.7 assesses both the sensitivity of landscape, seascape and visual receptors; and the magnitude of change resulting from the Project, whose specific siting and design make this a case-by-case judgement.</p>
	<p>Paragraph 5.10.5 advises that “Virtually all nationally significant energy infrastructure projects will have effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation”. Paragraph 5.10.6 goes on to state “Projects need to be designed carefully,</p>	<p>The quality, value and sensitivity of the landscape to change are considerations of the assessments set out in Section 17.7. Design principles, particularly in</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p><i>taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.”</i></p>	<p>relation to the ORCPs will be considered through the design process as part of the preparation of the ES.</p>
	<p>Paragraph 5.10.7 states that <i>“National Parks, the Broads and AONBs have been confirmed by the government as having the highest status of protection in relation to landscape and natural beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the Secretary of State should have regard to in their decisions.”</i></p>	<p>The effects of the Project on the Lincolnshire Wolds AONB and Norfolk Coast AONB are assessed in Section 17.7.</p>
	<p>Paragraph 5.10.8 advises that <i>“The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid harming the purposes of designation or to minimise adverse impacts on designated areas, and such projects should be designed sensitively given the various siting, operational, and other relevant constraints.”</i></p>	<p>The potential for the Project to impact upon the nationally designated areas has been considered in Section 17.7. Regard has been paid to the purpose and special qualities of these nationally designated landscapes.</p>
	<p>Paragraph 5.10.9 advises that <i>“Heritage Coasts are defined areas of undeveloped coastline which are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors”.</i></p>	<p>The potential for the Project to impact upon Heritage Coasts has been considered in Section 17.7. The ambition for a Lincolnshire Heritage Coast is acknowledged, with further detail provided in Table 17.2.</p>
	<p>Paragraph 5.10.11 advises that <i>“Outside nationally designated areas, there are local landscapes that may be highly valued locally”.</i> However, it states that <i>“locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development”.</i> <i>“Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention”.</i></p>	<p>The value of the local landscape is a consideration within the assessment of effects on landscape and seascape character in Section 17.7. This includes regard to the character, features and special qualities of locally designated landscapes.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>NPS EN-1 reiterates the likelihood of such infrastructure having visual effects, noting at Paragraph 5.10.12 that <i>“All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites.”</i> Paragraph 5.10.13 goes on to state <i>“The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.”</i> In addition, it is recognised in paragraph 5.10.14 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></p>	<p>The impacts on visual receptors are assessed in Section 17.7. This includes consideration of visibility from undeveloped coast. The benefits (including need) of the Project are set out in Volume 1, Chapter 4: Site Selection and Consideration of Alternatives.</p>
	<p>Paragraph 5.10.15 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) (GLVIA3); and Landscape and Seascape Character Assessments – https://www.gov.uk/guidance/landscape-and-seascape-character-assessments; or any successor documents.</p>	<p>The guidance that has been considered/ followed in preparing this chapter is set out in Section 17.6.</p>
	<p>Paragraph 5.10.16 goes on to state 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 these assessments in local development documents in England and local development plans in Wales”</i>. In paragraph 5.10.17 it continues <i>“For seascapes, applicants should consult the Seascape Character Assessment and the Marine Plan Seascape Character Assessments, and any successors to them”</i>.</p>	<p>Section 17.7 takes into account the relevant landscape and seascape character assessments as listed in Table 17.3.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>Paragraph 5.10.19 states that <i>“The assessment should include the effects on landscape components and character during construction and operation. For projects which may affect a National Park, The Broads or an Areas of Outstanding Natural Beauty the assessment should include effects on the natural beauty and special qualities of these areas.”</i></p>	<p>There are no effects on landscape components as a result of the offshore infrastructure of the Project. There are however potential effects on seascape components of landscape character, and perceived character of landscape designations and these are assessed in Section 17.7.</p>
	<p>Paragraph 5.10.20 advises that <i>“The assessment should include the visibility and conspicuousness of the project during its construction and operation and potential impacts on views and visual amenity. This should include light pollution effects, including on local amenity, and nature conservation.”</i></p>	<p>The visual effects of the offshore elements of the Project during construction and operation, are addressed in Section 17.7.</p> <p>The Planning Inspectorate has agreed that construction effects, including lighting, within the array area can be scoped out of the SLVIA.</p>
	<p>At paragraph 5.10.21 advises that <i>“The assessment should also demonstrate how noise and light pollution, and other emissions, from construction and operational activities on residential amenity and on sensitive locations, receptors and views, will be minimised”</i>.</p>	<p>The Planning Inspectorate has agreed that construction effects, including lighting, for construction and operation within the array area can be scoped out of the SLVIA. Lighting associated with the ORCPs has not been assessed at this point and would be covered in the ES if considered necessary.</p>
	<p>At paragraph 5.10.24 it is suggested that <i>“it may be helpful for applicants to draw attention to examples of existing permitted infrastructure they are aware of with similar magnitude of impact on sensitive receptors”</i>.</p>	<p>Baseline Offshore Windfarms (OWFs) are referenced in Section 17.4 and Section 17.8.</p>
	<p>Paragraph 5.10.25 advises that <i>“Reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project.”</i></p>	<p>The Applicant is intending to reduce the array area prior to submission of the</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p><i>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 Secretary of State may decide that the benefits of the mitigation to reduce the landscape and/ or visual effects outweigh the marginal loss of function”.</i></p>	<p>DCO Application, which will consider all constraints for the Project within the refinements.</p>
	<p>Paragraph 5.10.26 advises that <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></p>	<p>Design principles including embedded mitigation, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.</p>
	<p>Paragraph 5.10.33 advises that <i>“The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The fact that a proposed project will be visible from within a designated area should not in itself be a reason for the Secretary of State to refuse consent”.</i></p>	<p>The potential for the Project to impact upon the nationally designated areas has been considered in Section 17.7. Regard has been paid to the purpose and special qualities of these nationally designated landscapes.</p>
	<p>NPS-EN1 goes on to recognise at paragraph 5.10.34 that <i>“The scale of energy projects means that they will often be visible within many miles of the site of the proposed infrastructure”</i> but confirms that notwithstanding this <i>“The Secretary of State should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project”.</i></p>	<p>The potential effects on seascape and landscape receptors are addressed in Section 17.7. The benefits (including need) of the Project are set out in Volume 1, Chapter 4: Site Selection and Consideration of Alternatives.</p>
	<p>NPS EN-1 also advises in 5.10.35 that <i>“In reaching a judgment, the Secretary of State should consider whether any adverse impact is temporary, such as during construction, and/ or whether any adverse</i></p>	<p>Where the seascape, landscape and visual impacts of the Project are temporary or reversible, this is set out in</p>

Legislation/policy	Key provisions	Section where comment addressed
	<i>impact on the landscape will be capable of being reversed in a timescale that the Secretary of State considers reasonable”.</i>	Section 17.7. The Planning Inspectorate has agreed that construction effects within the array area can be scoped out of the SLVIA.
	Paragraph 5.10.36 advises that <i>“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 appropriate mitigation”.</i> Paragraph 5.10.37 states that <i>“The Secretary of State should consider whether requirements to the consent are needed requiring the “incorporation of particular design details that are in keeping with the statutory and technical requirements for landscape and visual impacts”.</i>	Volume 1, Chapter 4: Site Selection and Consideration of Alternatives sets out the iterative process that has influenced the design of the Project. Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.
	Paragraph 3.5.2 advises that <i>“Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage”.</i>	Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.
	Paragraphs 3.8.87 and 3.8.88 relate to the need for flexibility in the project details owing to the complex nature of offshore windfarm development. It is recognised that this may include the precise location and configuration of turbines and associated development (including offshore substations); the foundation type and size, the exact turbine dimensions and the precise cable type and route. Guidance on how applicants should manage flexibility is set out at Section 2.6 of NPS EN-3 and Section 4.2 of EN-1.	The need for a level of flexibility within the Project design envelope is well established and described in Volume 1, Chapter 3: Project Description. The Key Parameters for Assessment that have been used to inform the assessment of the maximum adverse case for the purpose of SLVIA are set out in Section 17.5.
	Paragraph 3.8.220 states that <i>“Applicants should address impact on seascape in addition to the landscape and visual effects discussed in</i>	The potential effects on seascape are addressed in Section 17.7.

Legislation/policy	Key provisions	Section where comment addressed
	<p><i>Section 5.10 of EN-1</i>. Paragraph 3.8.221 notes that “<i>Seascape is an additional issue for consideration given that it is an important environmental, cultural and economic asset. This is especially so where seascape provides the setting for a nationally designated landscape (National Park, the Broads or AONB) and supports the delivery of the designated area’s statutory purpose; and for stretches of coastline identified as Heritage Coasts, which are associated with a largely undeveloped coastal character</i>”. Paragraph 3.3.222 notes that “<i>Seascape is a discrete area, with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other</i>”.</p>	
	<p>Paragraph 3.8.223 identifies that relevant guidance should be followed “<i>including, but not limited to, seascape character assessments and marine plan seascape character assessments (e.g., NRW Marine Character Areas (with associated guidance) England’s marine plans)</i>”.</p>	<p>Relevant seascape character assessments have been referenced as set out in Table 17.3.</p>
	<p>It is noted in Paragraph 3.8.224 that “<i>Where a proposed offshore windfarm will be visible from the shore and would be within the setting of a nationally designated landscape with potential effects on the area’s statutory purpose, a SLVIA should be undertaken in accordance with the relevant offshore windfarm EIA policy and the latest Offshore Energy SEA, including the White 2020 report. The SLVIA should be proportionate to the scale of the potential impacts. This will always be the case where a coastal National Park, the Broads or AONB, or a Heritage Coast or their setting is potentially affected</i>”.</p>	<p>It is considered that the SLVIA is proportionate to the scale of the potential impacts and the assessment in Section 17.7 includes the effects on the settings of nationally designated landscapes. The SLVIA scope is being informed through consultation with stakeholders during statutory, non-statutory and Evidence Plan processes, which are influencing the SLVIA in all aspects, from consideration of the maximum design scenarios, the number and location of viewpoints, the approach taken to assessment at each location, and detail presented in contextualizing</p>

Legislation/policy	Key provisions	Section where comment addressed
		<p>key assessment criteria such as magnitude and susceptibility. The SLVIA will therefore be directly proportionate both to the scale of potential impacts and the quantum of feedback provided.</p>
	<p>Paragraph 3.8.225 states that <i>“Where necessary, assessment of the seascape should include an assessment of four principal considerations on the likely effect of offshore windfarms on the coast:</i></p> <ul style="list-style-type: none"> ▪ <i>the limit of visual perception from the coast under poor, good and best lightening [lighting] conditions</i> ▪ <i>the effects of navigation and hazard prevention lighting on dark night skies</i> ▪ <i>individual landscape and visual characteristics of the coast and the special qualities of designated landscapes, such as World Heritage Sites, which limits the coasts capacity to absorb a development; and</i> ▪ <i>how people perceive and interact with the coast and seascape”.</i> 	<p>The range and frequency of visibility of Project from the coast is illustrated in Volume 2, Appendix 17.2, Figure 17.12 and considered in the visual baseline in Section 17.4 and throughout the assessment in Section 17.7. Night-time effects of lighting are currently scoped out of the SLVIA, based on the Scoping Opinion. The characteristics and special qualities of the coast in relation to designated landscapes is assessed in Section 17.7. How people perceive and interact with the coast and seascape is considered in Sections 17.4 and 17.7.</p>
	<p>Paragraph 3.8.226 advises that <i>“As part of the SVIA, photomontages are likely to be required. Viewpoints to be used for the SVIA should be selected in consultation with the statutory consultees at the EIA Scoping stage.”</i></p>	<p>Viewpoints were agreed in consultation with statutory consultees as described in Section 17.7. A requirement for photomontages has not been agreed to date and will be discussed as part of future consultation. Wireline visualisations, with corresponding viewpoint photography, have been prepared are included in Volume 2, Appendix 17.2, Figures 17.20 to 17.31.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>Paragraph 3.8.227 advises that <i>“Applicants should assess the magnitude and significance of change to both the identified seascape receptors (such as seascape and landscape units, visual receptors and the special qualities of designated landscapes) in accordance with the standard methodology for SLVIA”.</i></p>	<p>The methodology for the assessment of magnitude of change to seascape receptors is summarised in Section 17.6.</p>
	<p>Paragraph 3.8.228 states that <i>“Where appropriate, cumulative SLVIA should be undertaken in accordance with the policy on cumulative assessment outlined in Section 5.10.15 of EN-1”.</i></p>	<p>Cumulative SLVIA is undertaken within Section 17.8 of this chapter.</p>
	<p>It is noted at Paragraph 3.8.280 in relation to mitigation that <i>“Neither the design nor scale of individual wind turbines can be changed without significantly affecting the electricity generating output of the wind turbines. Therefore, the Secretary of State should expect it to be unlikely that mitigation in the form of reduction in scale will be feasible”.</i> Paragraph 3.8.281 goes on to state <i>“However, the layout of the turbines should be designed appropriately to minimise harm, considering other constraints such as ecological effects, safety reasons or engineering and design parameters”.</i></p>	<p>The specific layout of the WTGs has not been defined at this stage. However, Section 17.5 sets out the mitigation that is being included in order to reduce the potential for seascape, landscape and visual effects.</p>
	<p>Paragraph 3.8.369 advises that <i>“Where a proposed offshore windfarm is within sight of the coast, there may be adverse effects. The Secretary of State should not refuse to grant consent for a development solely on the ground of an adverse effect on the seascape or visual amenity unless:</i></p> <ul style="list-style-type: none"> <li data-bbox="537 1093 1478 1284">▪ <i>it considers that an alternative layout within the identified site could be reasonably proposed which would minimise any harm, taking into account other constraints that the applicant has faced such as ecological effects, while maintaining safety or economic viability of the application; or</i> <li data-bbox="537 1292 1478 1412">▪ <i>it takes account of the sensitivity of the receptor(s) and impacts on the statutory purposes of designated landscapes as set out in Section 5.10 of EN-1; the harmful effects are considered to outweigh</i> 	<p>Volume 1, Chapter 3: Site Selection and Consideration of Alternatives sets out the alternatives that have been considered.</p> <p>The SLVIA is based on a Rochdale Envelope Approach, which is described in Section 17.5. The Rochdale Envelope Approach and the acknowledged need to maintain flexibility until the detailed design stage, post consent, does not lend itself to further detailed consideration of WTG layout within the Project array area within the SLVIA.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>the benefits of the proposed scheme. See also Critical National Priority (Section 2.8.8 of EN3)".</p>	<p>Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.</p>
<p>Design Principles for National Infrastructure, National Infrastructure Commission Design Group</p>	<p>Draft NPS EN-1 notes that <i>"Design principles should take into account any national guidance on infrastructure design, this could include for example the Design Principles for National Infrastructure (National Infrastructure Commission)"</i>. This guidance sets out four broad design principles, as follows: <i>"Climate - mitigate greenhouse gas emissions and adapt to climate change.</i> <i>People - reflect what society wants and share benefits widely.</i> <i>Places - provide a sense of identity and improve our environment.</i> <i>Value - achieve multiple benefits and solve problems well"</i>.</p>	<p>Volume 1, Chapter 3: Project Description and Volume 1, Chapter 4: Site Selection and Consideration of Alternatives and Volume 1, Chapter 31: Climate Change set out how the Project addresses climate change, benefits to society and solves multiple design/environmental factors to secure environmental and socio-economic benefits. Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.</p>
<p>East Riding Local Plan 2012 – 2029 Strategy Document (Adopted April 2016)</p>	<p>Policy EC5: Supporting the Energy Sector sets out criteria applicable to new energy related development. It identifies that new development should be acceptable in terms of [inter alia] cumulative effects with other developments, the character and sensitivity of landscapes to accommodate such development, with particular emphasis placed on identified Important Landscape Areas, and visual impacts. Relevant to the Project, Important Landscape Areas include the Heritage Coast at Spurn Head. Whilst this list of criteria is focused on energy development more generally than specifically wind energy (with windfarm references directed towards onshore developments), the principles have relevance to the Project.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>Policy ENV1: Integrating High Quality Design set out criteria for the design of new development. Whilst this policy is focussed on proposals such as residential development, elements of Part A are applicable to the Project:</p> <p><i>“1. Contribute to safeguarding and respecting the diverse character and appearance of the area through their design, layout, construction and use; and</i></p> <p><i>2. Seek to reduce carbon emissions and make prudent and efficient use of natural resources, particularly land, energy and water”.</i></p>	<p>Volume 1, Chapter 3: Project Description and Volume 1, Chapter 4: Site Selection and Consideration of Alternatives set out how the Project addresses climate change, benefits to society and solves multiple design/environmental factors to secure environmental and socio-economic benefits. Design principles, particularly in relation to the ORCPs will be considered through the design process as part of the preparation of the ES.</p>
	<p>Policy ENV2: Promoting a high quality landscape.</p> <p>This policy states that <i>“development proposals should be sensitively integrated into the existing landscape, demonstrate an understanding of the intrinsic qualities of the landscape setting and, where possible, seek to make the most of the opportunities to protect and enhance landscape characteristics and features.”</i></p> <p>The policy includes a number of criteria to achieve this, the most relevant to the Project being:</p> <p><i>“Protect and enhance views across valued landscape features, including flood meadows, chalk grassland, lowland heath, mudflats and salt marsh, sand dunes and chalk cliffs; and</i></p> <p><i>Protect and enhance the undeveloped coast.”</i></p> <p>The policy goes on to state that <i>“proposals should protect and enhance existing landscape character as described in the East Riding Landscape Character Assessment”</i>. It places an emphasis on the Important Landscape Areas as shown on the Policies Map, which include the Heritage Coast designation Spurn Head.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>

Legislation/policy	Key provisions	Section where comment addressed
<p>East Riding Local Plan Update 2020 – 2039 Draft Strategy Document Update</p>	<p>The Local Plan Update includes 21 objectives, the most relevant to the SLVIA being number 17: <i>“Recognise, protect and enhance the international, national and local importance of the East Riding’s natural environment and biodiversity, including nature designations of all levels, Priority Habitats and Species, high quality landscapes, such as the Yorkshire Wolds, networks of green infrastructure and supporting opportunities for appropriate recreation”.</i></p> <p>Policies EC5: Supporting the Renewable and Low Carbon Energy Sector, ENV1: integrating High Quality Design and ENV2: Promoting a High Quality Landscape all contain detail and principles that are similar to the corresponding policies in the Adopted Local Plan Strategy Document, as detailed above.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p> <p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>
<p>East Lindsey Local Plan, Core Strategy, Adopted 2018</p>	<p>The Vision and Objectives for East Lindsey includes [inter alia] reference to <i>“a high quality environment that makes the most of its special qualities, particularly the coast, the Lincolnshire Wolds and the historic market towns”.</i></p> <p>Strategic Policy 23 (SP23) – Landscape sets out provision for the protection, enhancement, use and management of the landscape within the East Lindsey District. It identifies that development will be guided by East Lindsey District’s Landscape Character Assessment and places an emphasis on landscapes that are considered to be highly sensitive.</p>	<p>The potential effects of the Project on landscape character are addressed in Sections 17.7.</p> <p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p> <p>The Lincolnshire Wolds AONB is a statutorily protected landscape, recognised by Government to be of the highest value. The offshore elements of the Project will be visible within the setting of the Norfolk Coast AONB and may influence its distinctive character. The likely impacts of the Project on the perceived landscape and seascape character, and special qualities of the</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>Strategic Policy 27 (SP27) Renewable and Low Carbon Energy establishes support for large scale renewable and low carbon energy development, providing the individual or cumulative impacts of such development are considered acceptable (weighted against the benefits) in relation to [inter alia] <i>“the surrounding landscape, townscape and historic landscape character, and visual qualities”</i>.</p>	<p>Lincolnshire Wolds, are addressed in Sections 17.7.</p> <p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>
<p>North Norfolk Local Development Framework, Core Strategy, Adopted September 2008</p>	<p>Core Aim 3 defines the need to <i>“protect the built and natural environment and local distinctive identity of North Norfolk, and enable people's enjoyment of this resource”</i>.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>
	<p>Policy SS 4 Environment sets out that <i>“renewable energy proposals will be supported where impacts on amenity, wildlife and landscape are acceptable”</i>.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>
	<p>Policy EN 1 Norfolk Coast Area of Outstanding Natural Beauty and The Broads set out that the individual and cumulative effects of the development proposals will be carefully assessed. It places a clear emphasis on protecting the AONB and its special qualities.</p>	<p>The Norfolk Coast AONB is a statutorily protected landscape, recognised by Government to be of the highest value. The offshore elements of the Project will be visible within the setting of the Norfolk Coast AONB and may influence its distinctive character. The likely impacts of the Project on the perceived landscape and seascape character, and special qualities of the Norfolk Coast, are addressed in Section 17.7.</p>
	<p>Policy EN 2 Protection and Enhancement of Landscape and Settlement Character provides broader protection of the landscape, identifying the need to take account of the North Norfolk Landscape Character Assessment.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>

Legislation/policy	Key provisions	Section where comment addressed
	<p>Policy EN 4 Design sets out a number of criteria associated with the design of the Project. Whilst this policy is focussed on terrestrial development, the overarching principles relating to local distinctiveness and the protection of the character and quality of an area are broadly applicable.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7</p>
	<p>Policy EN 7 Renewable Energy includes points that are specific to potential landscape and visual effects. It also sets out that large scale renewable energy proposals would not be permitted in areas of national importance, unless it can be demonstrated that that objectives of the designation are not compromised.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>
<p>North Norfolk Local Plan 2016 – 2036 Proposed Submission Version (Regulation 19 Publication) Local Plan, January 2022</p>	<p>Objective 2 Protecting Character includes reference to the protection, conservation and enhancement of the natural environment. It also sets out the need to protect, enhance and maintain the unique qualities and character of the North Norfolk District.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7</p>
	<p>Policy CC 1 Delivering Climate Resilient Sustainable Growth sets out broad criteria for sustainable development with part 1, point h specifically relating to the conservation and enhancement of landscape character.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>
	<p>Policy CC2 Renewable and Low Carbon Energy is specific to the terrestrial elements of renewable energy development, including the landward infrastructure for offshore developments. The criteria set out in this policy include consideration of the potential landscape and visual effects of such developments.</p>	<p>The potential effects of the Project on landscape character are addressed in Section 17.7.</p>
	<p>Policies ENV 1 Norfolk Coast Area of Outstanding Natural Beauty and The Broads, ENV 2 Protection and Enhancement of Landscape and Settlement Character and ENV 3 Heritage & Undeveloped Coast largely reflect the corresponding policies in the Adopted Local Plan¹, placing an emphasis</p>	<p>The Norfolk Coast AONB is a statutorily protected landscape, recognised by Government to be of the highest value. The offshore elements of the Project will</p>

¹ A Local Plan is a document that sets out how development can best benefit the area the council is responsible for. The Local Plan comprises one or more documents prepared in accordance with legal requirements, independently examined and adopted by the Council.

Legislation/policy	Key provisions	Section where comment addressed
	<p>on the protection, conservation and enhancement of the landscape. The policies include references to the qualities and characteristics of the landscape and the published landscape character assessment.</p>	<p>be visible within the setting of the Norfolk Coast AONB and may influence its distinctive character. The likely impacts of the Project on the perceived landscape and seascape character, and special qualities of the Norfolk Coast AONB, are addressed in Section 17.7.</p>

17.3 Consultation

- 17.3.1 Consultation is a key part of the DCO application process. Consultation regarding seascape landscape and visual effects has been conducted through Expert Technical Group (ETG) meetings and the EIA scoping process (ODOW, 2022). An overview of the Project consultation process is presented within Volume 1, Chapter 6: Consultation.
- 17.3.2 A summary of the key issues raised during consultation to date, specific to seascape, landscape and visual effects, is outlined in Table 17.2 below, together with how these issues have been considered in the production of this PEIR.

Table 17.2: Summary of consultation relating to seascape, landscape and visual effects

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.1	The Planning Inspectorate does not agree to scope out seascape, landscape and visual effects as a result of the array area. The ES should provide an assessment of seascape, landscape and visual effects within the 60km study area during all phases of the Project, where significant effects are likely to occur.	Work on assessing potential seascape, landscape and visual effects of the offshore elements of the Project is being undertaken, with initial findings presented in this Chapter.
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.2	The Inspectorate is content that at distances greater than 60km significant effects are unlikely and agrees that this matter can be scoped out	The study area being applied for assessing seascape, landscape and visual effects as part of the EIA process.
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.3	The Scoping Report seeks to scope this matter out on the grounds that Landscape Character Types (LCTs) inland from the coast are located outside the main visual envelope of the sea and the Project, so are unlikely to be affected by changes occurring out to sea. In the absence of evidence demonstrating clear agreement with relevant consultation bodies, the Inspectorate is not in a position to agree to scope out this matter from the assessment. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.	The potential effects of the Project on landscape character are addressed in Section 17.7.

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.8	The Scoping Report notes that there could be a variety of offshore visual receptors such as recreational sea users, people working in oil and gas industry and commercial users, although limited information is currently provided with regards to recreational users in particular. The Inspectorate does not agree to scope out the impact of the array area on views experienced by offshore visual receptors due to insufficient evidence at this stage. The ES should provide an assessment of the visual effects on offshore receptors during all phases of the Project, where significant effects are likely to occur.	The potential effects of the Project on visual receptors are addressed in Section 17.7.
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.9	The ES should provide an assessment of the potential cumulative effects of the offshore RCS [ORCPs] for all phases of the Project, where likely significant effects could occur.	The potential effects of the Project on visual receptors are addressed in Section 17.7.
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.11	Proposals for the creation of a Heritage Coast north of Mablethorpe that may overlap with the onshore Scoping Boundary for the cable landfall and grid connection. Following further liaison with NE regarding this potential new Heritage Coast, the ES should assess impacts to this receptor, where significant effects are likely to occur.	This section of Heritage Coast has not yet been designated and no information is currently available on the possible proposals to designate it. This will be evaluated further during the preparation of the ES if appropriate.
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.12	The ES should include a (Zone of Theoretical Visibility) ZTV for the RCS [ORCPs] and, with reference to the ZTV, provide justification that the proposed 30km radius study area is sufficient to identify any likely significant effects. The ES should assess likely significant effects arising from the RCS [ORCPs] on the Heritage Coast and onshore Areas of Outstanding Natural Beauty (AONB), including the Lincolnshire Wolds AONB. The approach to the assessment should be discussed with relevant consultation	A ZTV has been prepared for the ORCPs and this is included in Volume 2, Appendix 17.2, Figures 17.13 and 17.14.

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	bodies and stakeholders, such as the Lincolnshire Wolds Countryside Service (Lincolnshire Wolds AONB Partnership).	
Scoping Opinion (the Inspectorate, 9 September 2022) Comment ID: 3.11.13	The viewpoint list within Table 7.11.3 does not include any views from offshore receptors, for example from vessel routes located within the study area. The Applicant should make effort to agree representative visualisations of points from offshore receptors with the relevant stakeholders and consultation bodies.	No specific comments on the proposed viewpoints i.e. suggestions for additional or alternative locations were received. Viewpoint locations were discussed at the ETG meeting held on 12/12/22 (further details below).
Seascape, Landscape and Visual Impact ETG (13 July 2023)	<p>The application of a 60km study area was questioned, with a suggestion from Natural England that this may need to increase to 70-80km from the array area. However, this was resolved following the meeting, by confirming that the proposed 60km study area is consistent with approach being taken for other similar developments.</p> <p>Next steps were identified as being to agree the study area and viewpoint selection.</p>	<p>No comments to address.</p> <p>It was confirmed that the study area is consistent with the approach being taken for other similar developments, as described for the point above. Viewpoint selection was discussed at the ETG meeting held on 12/12/2022 as described below.</p>
Seascape, Landscape and Visual ETG (12 October 2022) Subsequent related letter from Natural England (06 April 2023)	Natural England comment that their <i>"only concern is for the setting of the proposed Lincolnshire HC, and potentially the seascape setting of Lincolnshire Wolds AONB. All other designated and defined landscapes can be excluded"</i> .	No information on the Proposed Heritage Coast is currently available. This will be considered further in the ES. Potential effects on the Lincolnshire Wolds AONB is considered in Section 17.7. The PEIR was prepared prior to receipt of these comments and therefore includes analysis of all designated and defined landscapes in the SLVIA study area in Sections 17.4 and 17.7. The level of assessment to be

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
		included in the ES will be evaluated through further stakeholder consultation.
	<p><i>“Natural England is confident that the Heritage Coast proposed for Lincolnshire will be defined in 2023. It will therefore exist at the time of the construction and the operation of the proposed array. Heritage Coasts are not covered by policies in EN-1 but are covered by policies (at para. 176) in the NPPF. If defined The Lincolnshire Heritage Coast will be located wholly outside of a designated landscape and therefore will not benefit from the policies in EN-1.</i></p> <p><i>However Natural England advises that Heritage Coasts located outside of designated landscapes should be a considered as having the highest sensitivity in an SLVIA or LIVA and that the setting of these areas is an important contributing factor in their special character. The design and location of the RCS [ORCPs] should, as far as it operationally possible to do so, take account of this special character.”</i></p>	No information on the Proposed Heritage Coast is currently available. This will be considered further in the ES.
	<p><i>“Natural England confirms that we do not expect significant effects to occur on the Spurn Head Heritage Coast, North Norfolk Heritage Coast and Norfolk Coast AONB.</i></p> <p><i>Nor do we expect significant effects to occur on the Lincolnshire Wolds AONB and the proposed Lincolnshire HC.</i></p> <p><i>Our only concern is with the likely effects of the RCS.”</i></p>	Potential effects on the Lincolnshire Wolds AONB is considered in Section 17.7. The PEIR was prepared prior to receipt of these comments and therefore includes analysis of all designated and defined landscapes in the SLVIA study area in Sections 17.4 and 17.7. The level of assessment to be included in the ES will be evaluated through further stakeholder consultation.
	It was questioned as to whether the ES need to provide an assessment of the visual effects on offshore receptors.	Offshore visual receptors have been considered in Section 17.7.

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p>Natural England responded <i>“this is matter for the applicant to decide. NE will only provide advice on those receptors associated with designated and defined landscapes. For other SLVIA receptors we do not provide comment on receptors located within the seascape.</i></p> <p><i>We are aware that many SLIVA’s include visual receptors groups such as recreational sailors and passengers on North Sea Ferries however it is for the applicant to decide whether or not to include these receptor groups in their assessment.”</i></p>	
<p>Seascape, Landscape and Visual Impact ETG (12 December 2022) Subsequent related letter from Natural England (06 April 2023)</p>	<p>Gibraltar Point suggested as an additional viewpoint</p> <p>Recommended that the EIA reports for other offshore development be reviewed in relation to viewpoint selection. The rationale behind viewpoint selection was requested.</p>	<p>A potential viewpoint at Gibraltar Point has been considered, but subsequently discounted. The explanation for this is included in Section 17.4.</p> <p>Additional Viewpoints along the Lincolnshire and Norfolk Coast have been selected in response to the comments. A note explaining the viewpoint selection has been provided to ETG members. This rationale is also included in Section 17.4.</p>
<p>Seascape, Landscape Expert Topic Group (ETG) Meeting Minutes and Presentation Slide Pack (12.12.22), letter from Natural England (06 April 2023)</p>	<p>Natural England commented (letter dated 06 April 2023) that the <i>“Project Envelope is likely to reduce to 300km² at a future point during the submission. Natural England queried whether this reduces the 60km radius study area for the SLVIA agreed through the Planning Inspectorates Scoping Opinion?”</i></p> <p>Natural England comment: <i>“Based on this future reduction of the envelope, we cannot comment on the appropriate study area radius for the RCS/OSP [ORCPs], or any viewpoints that may be</i></p>	<p>The study area for the SLVIA would remain at 60km from the outer edge of the WTGs and 30km from the ORCPs for the reduced area.</p> <p>The minimum distance to the ORCPs is explained in Section 17.5. It is considered that the assessment findings presented in Section 17.7 provide</p>

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p><i>required, in the absence of information on:</i></p> <p><i>a. the minimum distance from the coastline to the RCS [ORCPs];</i></p> <p><i>b. rationale for the proposed study radius of 30km for the RCS's [ORCPs];</i></p> <p><i>c. viewpoints the Applicant considers appropriate given the Worst Case Scenario of the RCS's [ORCPs] being 6km from shore."</i></p>	<p>justification for the 30km study area.</p> <p>The viewpoint selection is explained in Section 17.4 and the viewpoints are assessed in Section 17.7.</p>
	<p>Natural England agree with the statement that <i>"the most likely visibility will be from the RCS [ORCPs]"</i>.</p>	<p>Relates to the assessment findings in Section 17.7.</p>
	<p>Natural England <i>"welcome the acknowledgement that embedded mitigation for the seascape, landscape and visual effects of the RCS's [ORCPs] may be required"</i>.</p>	<p>Consideration of the need for mitigation is considered within the assessment presented in Section 17.7.</p>
<p>SLVIA Viewpoint Selection Technical Note Letter from Natural England (06 April 2023)</p>	<p>Natural England set out that <i>"the proposed offshore infrastructure within the project array area will not significantly interact with seascape, landscape and visual receptors associated with the special character of Spurn Head Heritage Coast and North Norfolk Heritage Coasts or the statutory purpose of the Norfolk Coast and Lincolnshire Wolds AONBs, (or any proposed Heritage Coast for the Lincolnshire coast). There is no additional information within the ODO SLVIA Viewpoint Selection Note (23-ODO-CON-K-BE-000002-01) that requires us to amend this advice."</i></p>	<p>The PEIR was prepared prior to receipt of these comments and therefore includes analysis of all designated and defined landscapes in the SLVIA study area in Sections 17.4 and 17.7. The level of assessment to be included in the ES will be evaluated through further stakeholder consultation.</p>
	<p><i>"Within Natural England's response to the Scoping Response, it was noted that "without further details on the location and height of the offshore Reactive Compensation Station (RCS) [ORCPs] Natural England cannot comment on its impact on the special character of the Heritage Coast, the appropriate study area radius, or any viewpoints that might be required." Paragraph 1.2.3</i></p>	<p>The minimum distance to the ORCPs is explained in Section 17.5.</p> <p>It is considered that the assessment findings presented in Section 17.7 provide justification for the 30km study area.</p> <p>The viewpoint selection is explained in Section 17.4 and</p>

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p><i>confirms that the location of the RCS's [ORCPs] is between 6km and 17km from shore, and that the dimensions of the RCS's [ORCPs] will be up to 90m x 90m x 90m.</i></p> <p><i>A. While the new Worst Case Scenario for the RCS [ORCPs] infrastructure has been indicated, no minimum distance from the coastline to the RCS [ORCPs] has been confirmed.</i></p> <p><i>b. No rationale for the suggested 30km study radius for the RCS's [ORCPs] has been provided.</i></p> <p><i>c. We advise that viewpoints from designated landscapes—dependent upon the location of the RCS's [ORCPs]—will need to be included within the EIA based upon this Worst Case Scenario, and a well justified study area.</i></p> <p><i>d. We welcome the reference to investigating potential views of the RCS's [ORCPs] from the Lincolnshire Wolds AONB, and remind the Applicant that there are proposals for the creation of a Heritage Coast north of Mablethorpe."</i></p>	<p>the viewpoints are assessed in Section 17.7. These viewpoints include an open elevated location from the eastern edge of the Lincolnshire Wolds AONB.</p>
<p>SLVIA ETG meeting notes, comments from Natural England (10 October 2022 ETG meeting) Email from Natural England (17 May 2023)</p>	<p><i>"Natural England will not be providing any comments on seascape effects other than for the RCS [ORCPs]. This is because the offshore red line boundary for the array area is beyond the offshore setting of the Lincolnshire Wolds AONB and Norfolk Coast AONB."</i></p>	<p>The PEIR was prepared prior to receipt of these comments and therefore includes analysis of all designated and defined landscapes in the SLVIA study area in Sections 17.4 and 17.7. The level of assessment to be included in the ES will be evaluated through further stakeholder consultation.</p>
	<p>Natural England comment: <i>"At over 54km from the nearest designated landscape the array itself will not lead to significant effects on designated landscapes or defined coasts. Natural England expect the PEIR to consider the effects of the RCS's [ORCPs] (in terms of</i></p>	<p>The PEIR was prepared prior to receipt of these comments and therefore includes analysis of all designated and defined landscapes in the SLVIA study area in Sections 17.4 and 17.7. The level of assessment to be included in the ES will be</p>

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p><i>a defined Worst Case Scenario) on the Lincolnshire Wolds AONB.”</i></p> <p><i>“Natural England and the local planning authority have ambitions for a Lincolnshire Heritage Coast, however planning for this is still at a very early stage so we cannot provide any certainty about the geographical extent of a finally defined Heritage Coast or about the specific special characteristics that it would seek to protect and how it would be served by local planning policies. Whilst a fully defined Heritage Coast is supported by planning policy in paragraph 178 of the National Planning Policy Framework, a speculative Heritage Coast confers no additional planning protection. We would however request that you give appropriate consideration to a prospective Heritage Coast in progressing your plans and assessing their landscape and seascape effects. If more definitive information about the Heritage Coast emerges in time to further inform your plans, we will of course share that with you.”</i></p>	<p>evaluated through further stakeholder consultation.</p> <p>The ambition for a Lincolnshire Heritage Coast is acknowledged. As No information on the Proposed Heritage Coast is currently available is it not assessed in this chapter of the PEIR. This information will be used to inform Project design decisions and will be considered further in the ES as appropriate.</p>
<p>SLVIA ETG meeting notes, comments from Natural England (27 March 2023 ETG meeting) Email from Natural England (17 May 2023)</p>	<p>Natural England comment: <i>“A WCS is likely to be objected to immediately upon submission, therefore it is recommended that the applicant seeks to move these structures to present as minimal impact as possible to facilitate a starting point for discussion. It’s also likely that this will be as far offshore as possible but our recommendation is that the aim is to reduce impact rather than arbitrarily moving the structures as far offshore as possible.”</i></p>	<p>The minimum distance to the ORCPs is explained in Section 17.5.</p> <p>At the time of preparing the SLVIA for the PEIR it was anticipated that the ORCPs could be approximately 6km from the closest coastline, and this is reflected in the associated map based drawings and wirelines. However, in response to comments made by stakeholders at ETG meetings it is likely that the ORCP search area will be reduced to increase the separation</p>

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
		distance between these structures and the coastline, which will be reflected in future consultation materials and the ES

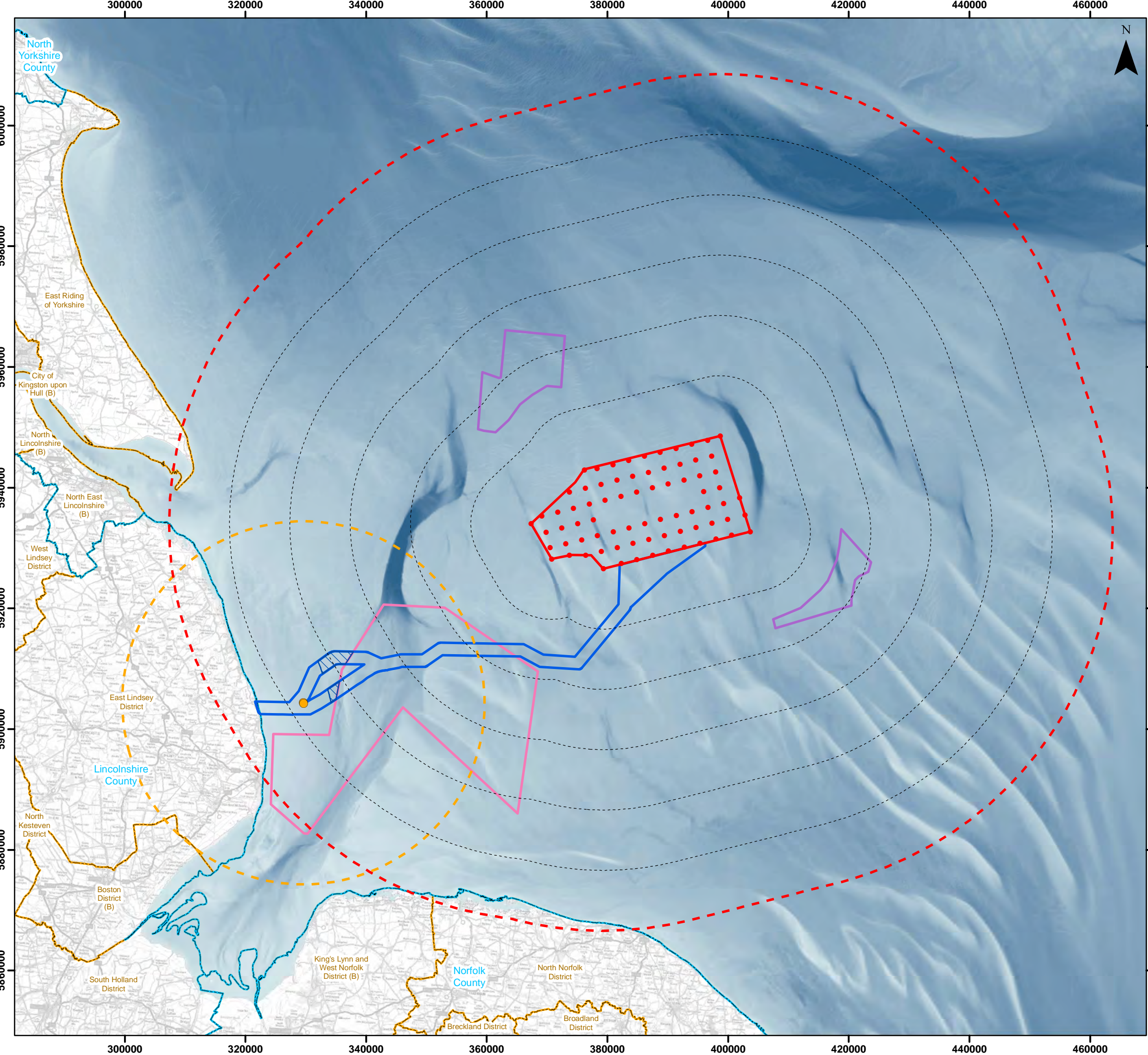
- 17.3.3 As identified in Volume 1, Chapter 3: Project Description and Volume 1, Chapter 4: Site Selection and Consideration of Alternatives, the Project design envelope has been refined and will be refined further prior to making of the DCO application. This process is reliant on stakeholder consultation feedback.
- 17.3.4 As referenced in Table 17.2 above, comments have been received from Natural England in April 2023. This sets out that Natural England agree that potential effects resulting from elements of the Project in the array area are likely to result in limited effects on landscape and visual receptors, including the designated/defined landscape at Spurn Head and the Norfolk Coast AONB. Natural England has also identified that they consider the key issues are likely to be associated with the ORCPs. Therefore, subject to further dialogue and agreement through stakeholder consultation, it is likely that the SLVIA in the ES will concentrate on the ORCPs.
- 17.3.5 Design amendments to offshore export cable routing and export cable landfall are of relevance to this chapter. This particularly relates to the positioning of the two Offshore Reactive Compensation Platforms (ORCPs), each of which could comprise an offshore platform up to 90m long x 90m wide x 90m high. This would be positioned within the offshore Export Cable Corridor (ECC) at a location between approximately 7km and 17km from the coastline. For the purpose of the SLVIA it is currently assumed this would be approximately 7.4km from the coastline as a potential worst case and 30km study area is proposed around the potential location for the ORCPs. However, the design of the Project, including the location of the ORCPs is likely to continue to evolve through the design process and prior to the making of the DCO application.

17.4 Baseline Environment

Study Area

- 17.4.1 An initial understanding of the baseline visual resource is provided in the East Inshore and East Offshore Seascape Character Assessment (Marine Management Organisation (MMO), 2012), which highlights the differences in views from Holderness where the *“flat topography results in the views of the seascape from land being generally restricted to coastal towns and immediate cliff edges”*; compared to the *“extensive linear coastal geometry”* of the East Lincolnshire and North Norfolk coasts *“creating long sweeping views along the coastline and out to sea”*. There are expansive views from the coast across undeveloped North Sea horizons, frequently marked by cargo ships, tankers and fishing vessels, which are *“animated by shipping traffic”* and *“influenced in places by concentrated urban settlements, commercial activities and both on and OWF developments”* (MMO, 2012).

- 17.4.2 The Project array area is located to the east of the Triton Knoll OWF, and to the north of the operational Dudgeon, Sheringham Shoal and Race Bank OWFs. Westermost Rough and Humber Gateway OWF are also visible off the coast of East Riding of Yorkshire; and Triton Knoll and the Inner Dowsing & Lynn and Lincs OWF cluster are viewed off the Lincolnshire coast. The operational Dudgeon, Sheringham Shoal and Race Bank OWFs are also viewed offshore from the Lincolnshire and North Norfolk coasts in coastal views. The locations and extents of these OWFs are included in Volume 2, Appendix 17.2, Figure 17.2. The Project array area located behind these existing OWF groups in views offshore from the coastline. The SLVIA study area for the array area extends to 60km from its outer edge, as agreed in the Scoping Opinion (see Figure 17.1 below, which is also included in Volume 2, Appendix 17.2, Figure 17.1).
- 17.4.3 The offshore ECC extends to the southwest of the array boundary, up to and including the intertidal zone at Wolla Bank, ending at mean high water springs (MHWS) for offshore elements of the Project, to the north of Chapel St Leonards on the Lincolnshire coastline. As noted above, two offshore ORCPs would be positioned within the offshore ECC and for the purpose of the SLVIA it is currently assumed this would be approximately 7.4km from the coastline as a potential worst case.
- 17.4.4 In addition to the 60km study area for the array area a 30km study area is applied around the ORCPs (see Figure 17.1 below, which is also included in Volume 2, Appendix 17.2, Figure 17.1). Consultee comments have highlighted the need for the 30km study area surrounding the ORCPs to be justified. This justification forms one of the findings of the assessment and is set out in Section 17.7. The preliminary assessment judgements included in this chapter identify that significant effects are unlikely to occur as a result of the ORCPs towards the edges of, or beyond this 30km study area. Therefore, it is considered that this study area extent is appropriate and proportionate.



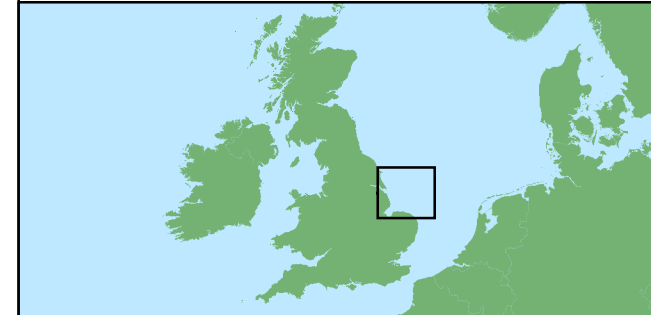
Legend

- Indicative Max No Turbines
- Offshore Reactive Compensation Platforms (ORCPs) - assumed worst case for SLVIA
- Array Area
- 10km Radii
- 60km Study Area
- ORCPs 30km Study Area
- Offshore Export Cable Corridor
- ORCP Search Area
- Artificial Nesting Structure Search Area
- Biogenic Reef Restoration Search Area
- County Boundary
- District / Unitary Authority Boundary

EMODnet DTM for European Sea Regions (m)

High : 4.23

Low : -98.28



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km

Scale: 1:600,000

Preliminary Environmental Information Report

SLVIA Project Design Envelope
- Maximum Height

Figure 17.1



Date: 16/05/2023
Produced By: OPEN
Revision: v0.2

Contains ESRI Basemapping;

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Data Sources

17.4.5 The data sources that have been collected and used to inform this seascape, landscape and visual assessment are summarised in Table 17.3 below.

Table 17.3: Data sources being used to inform the SLVIA

Source	Date	Summary	Coverage of study area
Anatec	2022	Vessel traffic data	Shipping and navigation study area.
Campaign to Protect Rural England (CPRE)	2016	Interactive maps of the UK's light pollution and dark skies as part of a national mapping project (LUC/CPRE, 2016). Open Source data used to understand and illustrate baseline lighting levels. (available online: https://www.nightblight.cpre.org.uk/)	Full coverage of the study area.
East Lindsey District Council	2009	East Lindsey District Landscape Character Assessment (available online: https://www.e-lindsey.gov.uk/article/6163/Landscape-Character-Assessment)	East Lindsey
East Riding of Yorkshire Council	2016	East Riding of Yorkshire Landscape Character Assessment (available online: https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/landscape-character-assessment/)	East Riding of Yorkshire
English Heritage	2020	Any specific visitor attractions / tourist destinations (available online: https://www.english-heritage.org.uk/visit/places/#?page=1&place=&mp=false&fe=false)	Full coverage of the study area
Google Earth Pro	2020	Aerial photography	Full coverage of the study area
Historic England	2020	Registered Parks and Gardens and UNESCO World Heritage Sites (available online: https://historicengland.org.uk/listing/what-is-designation/registered-parks-and-gardens/)	Full coverage of the study area
Long Distance Walkers Association	2020	Overview map for Long Distance Paths and Walks (available online: https://www.ldwa.org.uk/ldp/public/ldp_overview_map.php)	Full coverage of the study area
Met Office	2009-2019	Visibility Data. Visibility bands every 1km up to 30km, then every 5km up to 50km, then every 10km up to 70km, and >70km	Weather station at Thorney Island.

Source	Date	Summary	Coverage of study area
MMO	2012	Seascape character area assessment East Inshore and East Offshore marine plan areas (available online: https://www.gov.uk/government/publications/east-marine-plan-areas-seascape-character-assessment)	South Inshore and Offshore Marine Plan Areas
North Norfolk District Council	2021	North Norfolk Landscape Character Assessment (available online: https://www.north-norfolk.gov.uk/media/6416/10274-north-norfolk-lca-final.pdf)	North Norfolk
National Trust	2020	Any specific visitor attractions / tourist destinations (available online: https://www.nationaltrust.org.uk/days-out)	Full coverage of the study area
Natural England	2018	National Character Areas (NCAs) (available online: https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles#ncas-in-south-east-england-and-london)	Full coverage of the study area
Natural England	2019	GIS datasets for: National Parks (https://data.gov.uk/dataset/334e1b27-e193-4ef5-b14e-696b58bb7e95/national-parks-england). Areas of Outstanding Natural Beauty (AONB) (https://data.gov.uk/dataset/8e3ae3b9-a827-47f1-b025-f08527a4e84e/areas-of-outstanding-natural-beauty-england) Country Parks (https://data.gov.uk/dataset/e729abb9-aa6c-42c5-baec-b6673e2b3a62/country-parks-england). Open Access Land (https://data.gov.uk/dataset/05fa192a-06ba-4b2b-b98c-5b6bec5ff638/crow-act-2000-access-layer). Heritage Coasts (https://data.gov.uk/dataset/79b3515f-b00e-419a-9c7e-1d3163555886/heritage-coasts)	Full coverage of the study area
OPEN internal dataset	2020	Public Rights of Way	Full coverage of the study area

Source	Date	Summary	Coverage of study area
Ordnance Survey	2019	1:50,000 scale mapping	Full coverage of the study area
Ordnance Survey	2019	1:25,000 scale mapping	Coverage of coastal sections of the study area
Ordnance Survey Open Data	2019	OS County Region, Local Unitary Authority, Railways, Road and Settlements	Full coverage of the study area
Ordnance Survey	2019	OS Terrain 50 Digital Terrain Model (DTM)	Full coverage of the study area
Ordnance Survey	2019	OS Terrain 5 Digital Terrain Model (DTM)	Coverage of coastal sections of the study area
Sustrans	2020	National Cycle Network (GIS dataset) (available online: https://www.sustrans.org.uk/)	Full coverage of the study area

Site Surveys

- 17.4.6 The SLVIA undertaken as part of this PEIR has been informed by desk-based studies and field survey work undertaken within the SLVIA study area. The landscape, seascape and visual baseline has been informed by desk-based review of landscape and seascape character assessments, and the ZTV, to identify receptors that may be affected by the offshore elements of the Project and produce written descriptions of their key characteristics and value.
- 17.4.7 Interactions have been identified between the offshore elements of the Project and seascape, landscape and visual receptors, to predict potentially significant effects arising and measures are proposed to mitigate effects.
- 17.4.8 For those receptors where a detailed assessment is required, primary data acquisition has been undertaken through a series of surveys. These surveys include field survey verification of the ZTV from terrestrial landscape character areas (LCAs), micro-siting of viewpoint locations, panoramic baseline photography and visual assessment survey from all representative viewpoints. These viewpoint photography, visual assessment and landscape assessment surveys have been undertaken during November and December 2022 and January 2023, as described in Table 17.4. Sea-based offshore surveys have not been undertaken as part of the SLVIA.

Table 17.4: Site surveys undertaken

Survey type	Survey type	Coverage of study area
November 2022	Seascape, landscape and visual assessment surveys to undertake viewpoint photography and collect baseline data on landscape character and visual amenity associated with views of the offshore elements of the Project and in accordance with methodology such as in	North Norfolk

Survey type	Survey type	Coverage of study area
	GLVIA3 (Landscape Institute, 2013) and TGN 06/19 (Landscape Institute, 2019).	
December 2022	Seascape, landscape and visual assessment surveys to undertake viewpoint photography and collect baseline data on landscape character and visual amenity associated with views of the offshore elements of the Project and in accordance with methodology such as in GLVIA3 (Landscape Institute, 2013) and TGN 06/19 (Landscape Institute, 2019).	East Lindsey
January 2023	Seascape, landscape and visual assessment surveys to undertake viewpoint photography and collect baseline data on landscape character and visual amenity associated with views of the offshore elements of the Project and in accordance with methodology such as in GLVIA3 (Landscape Institute, 2013) and TGN 06/19 (Landscape Institute, 2019).	East Riding of Yorkshire and East Lindsey

Existing Environment

Seascape Baseline

Definition of Seascape

17.4.9 The Marine Policy Statement (UK Government, 2011) states the European Landscape Convention definition of landscape (which includes marine areas) as “*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*”. It adds that “*references to seascape should be taken as meaning landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other*”.

17.4.10 The seascape impact assessment in the SLVIA will therefore focus particularly on areas of onshore landscape with views of the coast or seas and marine environment, as perceived by people, on the premise that the most important effect of OWFs is on the perception of seascape character from the coast.

Seascape Character

17.4.11 The seascape character of the SLVIA study area is defined at a national scale in the seascape assessments published by the MMO for the East Inshore and Offshore Marine Plan Areas (MMO, 2012). These studies produce a combined national seascape character map for all England’s inshore and offshore areas, comprising a spatial framework of individual Marine Character Areas (MCAs) which ‘flow across’ marine plan area and administrative boundaries. The MCAs identified within these MMO seascape assessments will form the baseline for the SLVIA study area as shown in Volume 2, Appendix 17.2, Figure 17.8.

- 17.4.12 The seascape within which the Project array area is located is defined by the East Midlands Offshore Gas Fields MCA (Volume 2, Appendix 17.2, Figure 17.8). Situated at long distance from the coastline and extending to the seaward extents of the SLVIA study area, the East Midlands Offshore Gas Fields MCA is formed by an open expanse of sea with extensive shallow offshore waters generally below 30 metres, with sand banks and tidal sand ridges. The seascape is visually unified, with an expansive open character, but the character is influenced by concentrations of offshore gas and aggregate extraction activities, and commercial offshore activities such as dredging, aggregate extraction and fishing within the significant fisheries areas.
- 17.4.13 The existing Dudgeon, Race Bank and Triton Knoll OWFs are all located within this MCA, and the Hornsea Project One and Hornsea Project Two OWFs are located to the north within the Dogger Deep Water Channel MCA, so that OWFs form a key characteristic in the baseline character of the MCA.
- 17.4.14 The seascape of coastal waters between the array area and the coastal areas of Lincolnshire and North Norfolk is defined by the East Midlands Coastal Waters MCA. It consists of flat, low lying coastal landscape demonstrating a complex array of dynamic natural processes, with a dynamic seascape, shallow waters and extensive submerged sand flats. The seascape character is heavily influenced by the tides and the exposure of vast sand flats at low tide and the extensive linear coastal geometry creating long sweeping views along the coastline and out to sea. The perception of land and sea is strongly influenced by dunes and intertidal areas, influenced in places by concentrated urban settlements, commercial activities and both on and offshore windfarm developments and commercial offshore activities such as dredging.

Landscape Baseline

Landscape Character

- 17.4.15 At the National level, the SLVIA study area is characterised, from north to south, by the following NCAs:
- Holderness (NCA 40) is a rural, low-lying, undulating plain with the broad, shallow valley of the River Hull flowing southwards through the centre;
 - Humber Estuary (NCA 41) focuses on the open and expansive waters of the Humber where it flows into the North Sea and the adjacent low-lying land;
 - Lincolnshire Coast and Marshes (NCA 42) is a wide coastal plain which extends from Barton-upon-Humber in the north, across to Grimsby at the mouth of the Humber and south to Skegness; and
 - North Norfolk Coast (NCA 77) is the flat, low-lying, open and remote coastal plain that dominates the North Norfolk Coast landscape, consisting of salt marsh, marram grass, sand dunes and shallow channels of mudflats.
- 17.4.16 The landscape of the onshore parts of the study area is informed by these NCAs, however it is described and assessed in relation to the published County Council and District Council Landscape Character Assessments that describe the associated coastal landscapes within the SLVIA study area shown in Volume 2, Appendix 17.2, Figure 17.9, as follows:

- East Riding of Yorkshire Landscape Character Assessment 2018;
- East Lindsey District Landscape Character Assessment 2009; and
- North Norfolk Landscape Assessment 2018.

17.4.17 The Project may influence the visual aspects of perceived character experienced in sea views from several landscape types forming a narrow strip of the immediate coastal LCTs forming the closest parts of the coastline. These are relatively long stretches of coastline which are varied in character, with geographic extents likely to be concentrated on the narrow strip of immediate coastal landscape, including the following coastal LCTs in the SLVIA study area:

- East Riding of Yorkshire – Withernsea to Spurn Coast (20A) and Spurn Point Heritage Coast (21A);
- East Lindsey – Donna Nook to Gibraltar Point Naturalistic Coast (K1) and Tetney Lock to Skegness Coastal Outmarsh (J1); and
- North Norfolk – Drained Coastal Marshes (DCM1 and DCM2), Open Coastal Marshes (OCM1), Coastal Shelf (CS1).

Landscape Designations and Defined Areas

17.4.18 The offshore areas of the site boundary are located beyond the boundaries of any areas subject to international, national or regional landscape designation intended to protect landscape quality, as shown in Volume 2, Appendix 17.2, Figure 17.10.

17.4.19 Certain nationally designated landscapes or defined areas found within the study area have been designated or defined due to their scenic qualities or historic landscape qualities and are of relevance to the SLVIA as shown on Figure 17.10 (Volume 2, Appendix 17.2) and set out in Table 17.5.

17.4.20 The Lincolnshire Wolds AONB is located outside the 60km radius study area for the array area, at over 63.9km from the Project array area at its nearest point, however it is located within the 30km study area for the ORCPs and therefore considered further as part of the assessment in Section 17.7.

Table 17.5: Landscape designations with relevance to the SLVIA and the Project

Designation	Closest distance to the array area	Feature or Description
Norfolk Coast AONB	55.0km	The Norfolk Coast AONB is a protected National Landscape that sweeps around most of the coast of Norfolk. Comprising 451 square kilometres of intertidal, coastal and agricultural land that stretches across the territory of three different local authorities and one county council, the AONB is characterised by natural landscapes, and renowned as one of the few lowland areas in the UK to have ‘wildness’ quality. It is physically split into three separate zones, with the central zone falling partially within the SLVIA study area between Scolt Head and Sheringham (with a stretch forming the North Norfolk Heritage Coast). The special qualities that underpin the designation of the

Designation	Closest distance to the array area	Feature or Description
		<p>Norfolk Coast AONB are derived from its natural environment, sense of tranquillity, wildness and remoteness, richness of the built environment and connections between local communities and the landscape, and are described in full in the Norfolk Coast AONB Five Year Strategy 2019-2024. The Norfolk Coast AONB Management Plan (Norfolk Coast Partnership, 2014-2019) sets out the special qualities of the Norfolk Coast AONB, as follows:</p> <ul style="list-style-type: none"> ▪ 1. Dynamic character and geomorphology of the coast. Movement and interchange of internationally recognised geomorphological features and habitats. ▪ 2. Strong and distinctive links between land and sea. The area's distinctive and unique character is based on the visual, ecological, socio-economic and functional links between land and sea. ▪ 3. Diversity and integrity of landscape, seascape and settlement character. Key quality is based on maintaining diversity of character types rather than uniformity across the area, including landscapes and seascapes, settlement pattern, building materials and styles. ▪ 4. Exceptionally important, varied and distinctive biodiversity, based on locally distinctive habitats. Recognised by a range of national and international designations. Coastal habitats are particularly important and most famous for birds, supporting iconic species. Inland habitats and species are also important, particularly lowland heath. ▪ 5. Nationally and internationally important geology. Mainly based on past glaciation and current coastal processes. Includes landforms and landscape scale features as well as individual sites. ▪ 6. Sense of remoteness, tranquillity and wildness. A low level of development and population density for lowland coastal England, leading to dark night skies and a general sense of remoteness and tranquillity away from busier roads and settlements and, particularly for undeveloped parts of the coast, of wildness. ▪ 7. Richness of archaeological heritage and historic environment, particularly that relating to the coast and its character. Evidence and features of human use of the area since prehistoric times and links to current uses and features.
Lincolnshire Wolds AONB	63.9km	The Lincolnshire Wolds lie in the north-eastern part of Lincolnshire, midway between Lincoln and the coast, surrounded by the relatively flat fens, coastal marsh and the Central Lincolnshire Vale. The AONB

Designation	Closest distance to the array area	Feature or Description
		<p>comprises an area of 558km², located entirely outside the 60km radius study area for the array area, however the eastern part of the AONB is located within the 30km study area for the ORCPs. The Lincolnshire Wolds has a strong unity of visual character, characterised by open plateau hilltops, sweeping views, strong escarpments, wide grass verges and ridge-top routeways, dramatic wooded slopes and valleys, beech clumps, attractive villages often nestled in hill folds, and natural and historic features of great interest including visual remnants of ancient tumuli and deserted/shrunken medieval villages. Table 1 of The Lincolnshire Wolds AONB Management Plan (Lincolnshire Wolds AONB Partnership, 2018-2023) sets out the special qualities of the Lincolnshire Wolds AONB, as follows:</p> <ul style="list-style-type: none"> ▪ A rolling upland landscape of strongly cohesive identity. ▪ A pronounced scarp edge to the west comprising rough pasture and scrub, affording fine panoramic views to the Central Lincolnshire Vale. ▪ A combination of elevated plateau and deep-sided valleys. ▪ Large rectilinear fields with wide hedgerows from the late enclosure. ▪ Archaeologically rich, with ancient trackways, deserted villages and burial mounds. ▪ Sparse settlements of small-nucleated villages, often in sheltered valleys and associated with modest country houses and small parklands. The diverse geology gives rise to a variety of building materials. ▪ Broad verges to some roads and tracks providing valuable flower-rich habitats. ▪ Occasional shelterbelts concentrated on steeper-sided valley and scarp slopes emphasising landform. ▪ Broader south-west valleys of the Rivers Lymn and Bain. Associated alder carr woodland and tree-lined watercourses.
North Norfolk Heritage Coast	55.0km	In managing the Norfolk Coast AONB, the Norfolk Coast Partnership also has a non-statutory responsibility to protect the North Norfolk Heritage Coast, a stretch running from Holme-next-the-Sea to Weybourne that is an officially defined landscape in its own right, and which is recognised as a stretch of undeveloped coast.
Spurn Head Heritage Coast and Local	54.7km	Spurn Heritage Coast is defined by the peninsula of Spurn Point which forms a curving hook of shingle and sand arcing into the mouth of the Humber River, between the North Sea and the Humber Estuary. At over three miles long but as little as 50 metres wide, this landscape is unique and ever-changing. Spurn has an extensive human history,

Designation	Closest distance to the array area	Feature or Description
Landscape Area (LLA)		leaving a legacy of derelict buildings and hidden structures. The area is a designated National Nature Reserve (NNR) and is part of the Humber Flats, Marshes and Coast Special Protection Area.
Sheringham Hall Registered Park and Garden (RPG)	59.3km	Sheringham Hall is a RPG and National Trust property with public access, affording views of the North Norfolk coast through Sheringham Park. Viewing platforms and the Temple which stands above Sheringham Hall provide vantage points from which to look over the surrounding countryside and the coast to the north.

Visual Receptors

17.4.21 The principal visual receptors in the study area are found along the closest sections of coastlines at Spurn Head in East Riding of Yorkshire, the East Lincolnshire coast between Donna Nook and Skegness and from the North Norfolk coast between Scolt Head and Sheringham. Visual receptors include people within settlements, driving on roads, visitors to tourist facilities or historic environment assets, and people engaged in recreational activity such as those using walking and cycle routes, including:

- Coastal settlements - including Easington in East Riding of Yorkshire; North Somercotes, Saltfleet, Mablethorpe, Sutton-on-Sea, Chapel St Leonards, Ingoldmells and Skegness in East Lincolnshire; and Blakeney, Cley-next-the-Sea, Salthouse, Weybourne, Sheringham and West Runton in North Norfolk;
- Recreational routes - including the England Coast Path between Mablethorpe and Skegness; the Norfolk Coast Path between Scolt Island and Sheringham in North Norfolk; and National Cycle Route 1 in North Norfolk;
- Main road routes - including the A1031 and A52 in East Lincolnshire; and the A149 in North Norfolk;
- Visitors to tourist facilities - such as the sea fronts/beaches of the main coastal towns/resorts, holiday villages and nature reserves/visitor centres including Spurn Head NNR in East Riding of Yorkshire; Donna Nook and Saltfleetby - Theddlethorpe Dunes NNRs in East Lincolnshire; and Scolt Island, Holkham and Blakeney NNRs in North Norfolk;
- Visitors to historic environment assets such as Spurn Lighthouse and National Trust sites such as Brancaster Estate, Blakeney Point and Sheringham Park; and
- Offshore visual receptors – such as recreational sea users, people travelling on ferries, and people working in fisheries, oil and gas, or other offshore commercial activities.

Viewpoints

- 17.4.22 The Scoping Report identified eight viewpoints for inclusion in the SLVIA for the offshore elements of the Project. Consistent with the Guidelines for Landscape and Visual Impact Assessment, the selection of these was based on analysis of the ZTV and the identification of key visual receptors in the study area, such as coastal settlements, recreational routes, transport routes, tourist facilities/destinations and key local attractions and focal points, including heritage assets. The viewpoints proposed at scoping stage were concentrated along the coastline and extended throughout the terrestrial part of the 60km study area for the proposed offshore windfarm.
- 17.4.23 No specific comments in relation to the proposed viewpoint selection were received in meetings prior to the ETG meeting in December 2022 and limited comments were included in the Scoping Opinion. However, at the ETG meeting in December, the need to provide more detail on viewpoint selection was highlighted. In parallel, fieldwork to capture viewpoint photography was being undertaken, with this taking place during November and December 2022 and January 2023. Whilst the viewpoints captured during this fieldwork reflect those identified in the Scoping Report, the exact locations were micro-sited based on observations made. In addition, the overall selection was reviewed and additional viewpoints have been identified for inclusion in the SLVIA. The Scoping Opinion includes comments from the Planning Inspectorate that no views from offshore receptors are identified in the Scoping Report. In response two viewpoints, Viewpoint 11 and Viewpoint 12, with associated wireline visualisations (Volume 2, Appendix 17.2, Figures 17.30 and 17.31), are included in this assessment.
- 17.4.24 Since the publication of the Scoping Report elements of the Project design have also evolved, including the potential requirement for up to two ORCPs, which could comprise offshore platforms up to 90m long x 90m wide x 90m high. It is anticipated that these could be positioned between 7km and 17km from the coastline, within the Offshore ECC. The inclusion of these was referred to at the ETG meeting. A 30km study area is proposed around the ORCPs, with a worst case current assumption that the ORCPs could be positioned approximately 7km from the coastline. The inclusion of the ORCPs in the Project has also influenced the proposed viewpoint selection. The Scoping Opinion makes also reference to potential views of the ORCPs from the Lincolnshire Wolds AONB. Whilst no specific locations were suggested in the Scoping Opinion the proposed viewpoint selection now takes account of the ORCPs.
- 17.4.25 The updated viewpoint selection is provided in Table 17.6 below. This is broadly reflective of the spread of viewpoints proposed in the Scoping Report. However, minor adjustments to the locations of certain viewpoints are proposed, compared with those identified in the Scoping Report. Reflecting on the comments made during the ETG meeting, additional viewpoints are also included where these are considered appropriate. The viewpoint photography that has been obtained is included in Volume 2, Appendix 17.2, Figures 17.20 to 17.29, noting that viewpoints 11 and 12 are illustrated by wirelines only. The proposed viewpoint locations are shown on Volume 2, Appendix 17.2, Figure 17.2 to 17.9, together with detailed viewpoint location maps included in Volume 2, Appendix 17.2, Figures 17.20 to 17.31.

Table 17.6: Viewpoints selected for inclusion in the SLVIA

No.	Name	National Grid Reference	Distance to Project	Landscape Designation	Visual Receptors and notes
East Riding of Yorkshire					
1	Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre	541840, 415334	Array area: 57.2km ORCPs: 44.1km	Spurn Heritage and LLA Head Coast	Visitors to Spurn Head Heritage Coast, NNR and the associated beach, footpaths.
East Lincolnshire					
2	Donna Nook	542726, 399853	Array area: 56.6km ORCPs: 30.9km	No landscape designation	Visitors to Donna Nook NNR. The viewpoint is positioned on top of the sand dunes, as described in section 17.7.
3	Saltfleetby-Theddlethorpe Dunes	546826, 391851	Array area: 54.5km ORCPs: 22.3km	No landscape designation	Visitors to Saltfleetby-Theddlethorpe NNR. The viewpoint is located on the top of the sand dunes, to the east of the car park, where there is a timber platform and interpretation board.
4	Mablethorpe	550862, 385254	Array area: 53.3km ORCPs: 15km	No landscape designation	Residents of Mablethorpe. Visitors to Mablethorpe Beach. Walkers on England Coast Path.
5	Chapel Six Marshes	555941, 374263	Array area: 54.8km ORCPs: 7.6km	No landscape designation	Visitors to Chapel Six Marshes. Walkers on England Coast Path.
6	Lincolnshire Wolds between Rigsby and Haugh	542424, 375713	Array area: 65.3km ORCPs: 20.7km	Lincolnshire Wolds AONB	Principally walkers and road users, broadly representative of views from higher ground on the east side of the Lincolnshire Wolds AONB.
North Norfolk					
7	Wells-next-to-the-Sea Beach	591488, 345590	Array area: 58.7km	Norfolk Coast AONB and North Norfolk Heritage Coast	Visitors to Well-next-to-the-Sea Beach.

No.	Name	National Grid Reference	Distance to Project	Landscape Designation	Visual Receptors and notes
			ORCPs: 41.8km		
8	Cley Beach	604798, 345252	Array area: 57.3km ORCPs: 41.8km	Norfolk Coast AONB and North Norfolk Heritage Coast	Visitors to Cley Beach. On the emerging route of the England Coast Path.
9	Sheringham	615439, 343516	Array area: 58.9km ORCPs: not visible	No landscape designation	Residents of Sheringham, Walkers on England Coast Path.
10	Sheringham Park, Gazebo	613278, 342418	Array area: 59.9km ORCPs: 60.5km	Norfolk Coast AONB, Sheringham Hall Registered Park and Garden	Visitors to Sheringham Park, broadly representative of views from higher ground to the south of the Norfolk coastline.
Offshore					
11	Ferry route corridor (south west of array area) – Kingston upon Hull to Rotterdam or Zeebrugge	597966, 389760	Array area: 14.2km ORCPs: 37.2km	No seascape designation	Ferry passengers, travelling between the UK and continental Europe. Assumed deck height of 20m above sea level.
12	Ferry route corridor (northeast of array area) – Newcastle Upon Tyne/North Shields to Amsterdam	633346, 435342	Array area: 10.8km ORCPs: not visible	No seascape designation	Ferry passengers, travelling between the UK and continental Europe. Assumed deck height of 20m above sea level.

17.4.26 In addition to the viewpoints proposed in the Scoping Report, a representative viewpoint on the east facing slopes (and eastern edge of) of the Lincolnshire Wolds AONB has been included. The key reason for the inclusion of this viewpoint is in relation to the potential requirements for the ORCPs. Two potential locations have been identified and photographed where there are open views in an easterly direction, which could comprise representative views towards these elements of the Project. As the nature of both views is comparable it is proposed to include one of these viewpoints, which will be selected based on how the design for the Project evolves.

- 17.4.27 A viewpoint at the Gazebo (platform at tree canopy level) in Sheringham Park (Sheringham Hall RPG) is also included in the viewpoint selection. This viewpoint supplements the viewpoints located along the Norfolk coastline, which were already included in the SLVIA scope. This location is positioned slightly inland and therefore has a different context to the coastal viewpoints. It is located on the rising ground that lies to the south of the coastline, with an open view towards the North Sea. It is positioned within the Norfolk Coast AONB and Sheringham Park (Sheringham Hall RPG), noting that Sheringham Park comprises a National Trust property and is therefore open to the public and promoted as a local visitor destination. The Gazebo is also marked as a viewpoint on Ordnance Survey maps.
- 17.4.28 Minor refinements have been made in relation to the exact locations of the viewpoints included in the Scoping Report. Notable refinements have been made at Spurn Head and Donna Nook. At Spurn Head the viewpoint has been positioned on the coastline close to the Yorkshire Wildlife Trust Spurn Discovery Centre and the associated car park. This is a location likely to be visited by the greatest number of people and the view obtained is comparable with views along the east side of Spurn Head.
- 17.4.29 At Donna Nook the viewpoint is positioned on the sand dunes behind the coastline. Whilst there is a footpath that leads towards the coastline through the entrance to RAF Donna Nook, this was closed when the fieldwork was undertaken due to seal breeding season. The seal breeding colony is a local attraction that draws people to this location, with the area for viewing the seals located on a section of coastline that faces north. The viewpoint is positioned on raised ground along an access route from one of the car parks and therefore is likely to reflect a location accessed by people visiting the coastline, with the relative elevation affording views to the North Sea. The views towards the North Sea are restricted in part by intervening vegetation. However, the viewpoint selected was the most open location identified during the fieldwork.
- 17.4.30 Two offshore locations have also been included in the viewpoint selection (viewpoints 11 and 12). These have been positioned on the edges of the route corridors typically taken by ferries between the UK and continental Europe. Viewpoint 11 is positioned on the route between Kingston upon Hull and Rotterdam or Zeebrugge. Viewpoint 12 is positioned on the route between Newcastle Upon Tyne/North Shields and Amsterdam. For both of these viewpoints a deck height of 20m has been assumed (21.5m observer height).

Visibility (Weather Conditions)

- 17.4.31 The Met Office defines visibility as *“the greatest distance at which an object can be seen and recognised in daylight, or at night could be seen if the general illumination were raised to a daylight level”* (Met Office, 2000).
- 17.4.32 The MMO seascape assessments note that it is a windswept coast *“with frequent ‘haar’, or coastal fog, caused by warmer moist air moving over the relatively cooler North Sea”* (MMO, 2018), where *“changeable weather creates dynamic and variable experiences”* (MMO, 2012).

17.4.33 A quantitative description of the existing visibility is provided using Meteorological Aerodrome Report (METAR) visibility data from the closest Met Office weather station at Donna Nook, to highlight potential trends in the visibility conditions of the Study Area. This ‘visibility data’, presented in Table 17.7, shows a 10-year average of the frequency of observations at measured distances from the station between January 2012 to December 2021. The visibility range is shown in bands relating to the Met Office definitions of visibility (very poor to excellent) to show the likely frequency of visibility at different distance ranges. This is illustrated graphically in Volume 2, Appendix 17.2, Figure 17.12.

Table 17.7: Frequency of visibility at different ranges as a percentage (Donna Nook weather station)

Visibility (km)	Yearly average visibility frequency (%)	Visibility range and definition	% visibility frequency (over 10 years)	Days per year visibility frequency (10 year average)
<1	1.24	<1 km Very poor	1.24%	4.5
1 to 1.99	1.00	1-4 km Poor	4.18%	15.3
2 to 2.99	1.42			
3 to 3.99	1.75			
4 to 4.99	2.09	4-10 km Moderate	13.63%	49.7
5 to 5.99	2.28			
6 to 6.99	2.22			
7 to 7.99	2.23			
8 to 8.99	2.40			
9 to 9.99	2.41			
10 to 10.99	2.47	10-20 km Good	31.19%	113.8
11 to 11.99	2.59			
12 to 12.99	2.80			
13 to 13.99	3.02			
14 to 14.99	3.14			
15 to 15.99	3.37			
16 to 16.99	3.34			
17 to 17.99	3.49			
18 to 18.99	3.49			
19 to 19.99	3.49			
20 to 20.99	3.53	20-40 km Very good	42.59%	155.5
21 to 21.99	3.33			
22 to 22.99	3.24			
23 to 23.99	3.09			
24 to 24.99	3.04			
25 to 25.99	2.91			
26 to 26.99	2.63			
27 to 27.99	2.45			
28 to 28.99	2.29			

Visibility (km)	Yearly average visibility frequency (%)	Visibility range and definition	% visibility frequency (over 10 years)	Days per year visibility frequency (10 year average)
29 to 29.99	2.09			
30 to 34.99	8.50			
35 to 39.99	5.51			
40 to 44.99	3.37	40 - 50 km	5.18%	18.9
45 to 49.99	1.81	Excellent		
50 to 59.99	1.44	>50km Excellent	2%	7.3
60 to 69.99	0.36			
>70	0.19			

17.4.34 The visibility frequency data presented in Table 17.7 provides an understanding about the amount of time when visibility is experienced at the distances required to see WTGs within the array area.

17.4.35 The closest sections of the East Riding of Yorkshire, East Lincolnshire and North Norfolk coastlines fall within 53-60km of the array area, where excellent visibility over 50km would be required to see the WTGs within the array area. The Met Office data shows that such excellent visibility over 50km occurs for approximately 2% of the time over the 10-year period. This equates to approximately 7 days per year on average when there may be visibility beyond 50km with theoretical visibility of the WTGs within the array area at this distance.

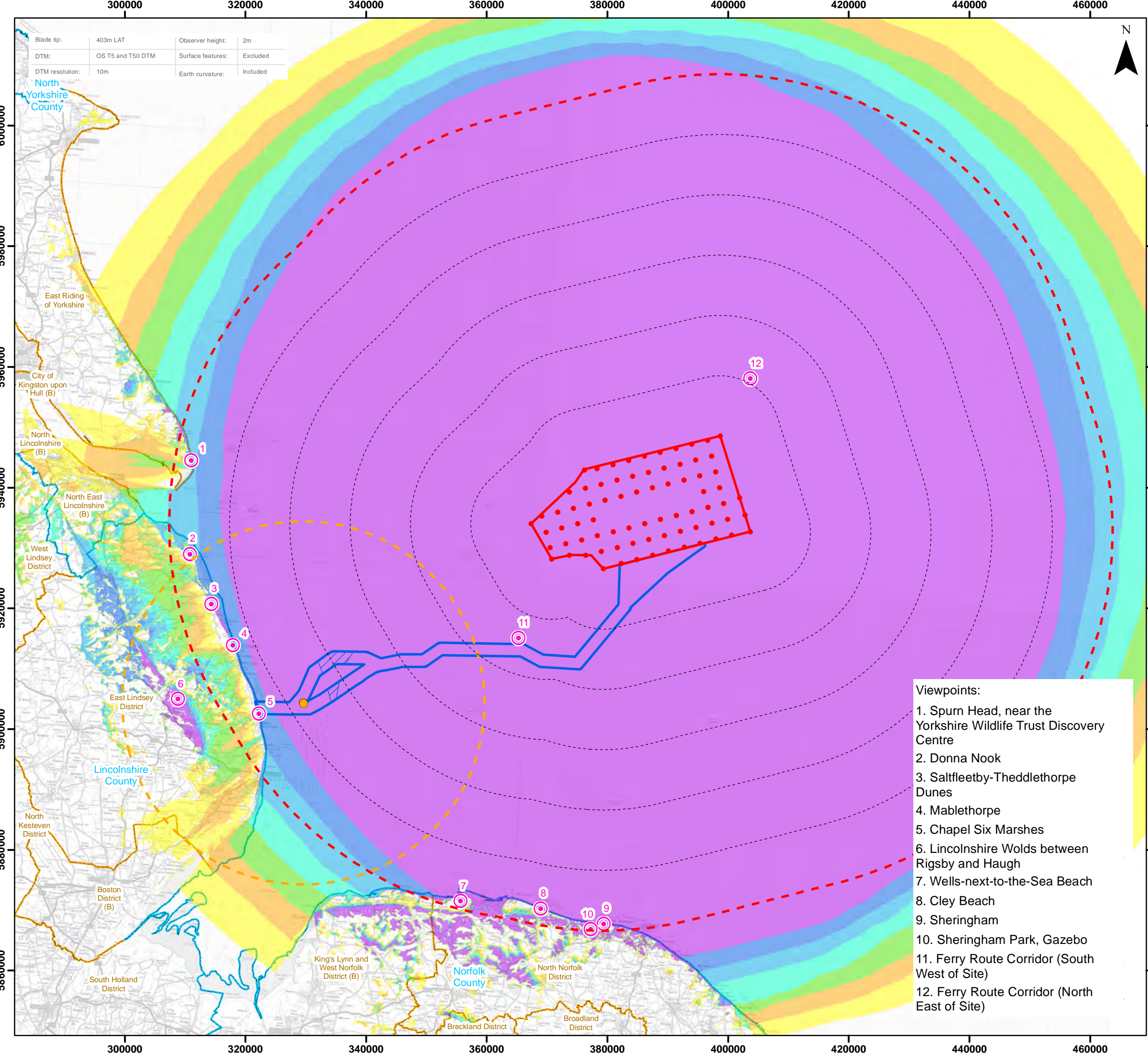
Zone of Theoretical Visibility (ZTV)

17.4.36 The visual baseline is largely defined by the ZTV shown in Volume 2, Appendix 17.2, Figure 17.3 and Figure 17.4 (also included below for reference) for the array area and Volume 2, Appendix 17.2, Figure 17.13 for the ORCPs. The ZTV in Figure 17.3 and Figure 17.4 shows the main area in which the WTGs in the Project array area would theoretically be visible, highlighting the different groups of people who may experience views of WTGs located within the Project array area and assisting in the identification of viewpoints where they may be affected.

17.4.37 The ZTV is based on WTGs of 403m blade tip (above LAT) and represents the MDS for the SLVIA. The ZTV illustrates where there would be no visibility of these WTGs, as well as areas where there will be lower or higher numbers of WTGs theoretically visible.

17.4.38 The ZTV illustrates the 'bare ground' situation based on an Ordnance Survey (OS) terrain model and does not take into account the screening effects of vegetation, buildings, or other local features that may prevent or reduce visibility. By using a bare ground elevation model, the results will be an over-representation of maximum visibility, as many could, in reality, be blocked by surface features not included in the model.

17.4.39 The Blade Tip ZTV (Volume 2, Appendix 17.2, Figure 17.3 and Figure 17.4) shows the main areas of higher theoretical visibility of the WTGs will be from offshore areas of the North Sea. All areas of the UK coastline are located beyond 50 km, at which point, the number of visible WTGs reduces, the amount of the WTGs visible over the horizon will be less and the apparent height of WTGs will be smaller, and will only be viewed in excellent visibility conditions, which is rare.



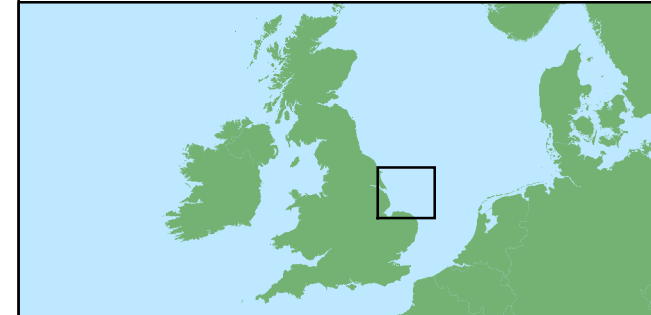
Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included



Legend

- Indicative Max No Turbines
 - Viewpoints
 - Offshore Reactive Compensation Platforms (ORCPs) - assumed worst case for SLVIA
 - ▭ Array Area
 - ⋯ 10km Radii
 - - - 60km Study Area
 - - - ORCPs 30km Study Area
 - ▭ Offshore Export Cable Corridor
 - ▨ ORCP Search Area
 - ▭ County Boundary
 - ▭ District / Unitary Authority Boundary
- BT ZTV**
- No of Blade Tips Visible**
- 1 - 11
 - 12 - 22
 - 23 - 33
 - 34 - 44
 - 45 - 55
 - 56 - 66
 - 67 - 75

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
 2. Donna Nook
 3. Saltfleetby-Theddlethorpe Dunes
 4. Mablethorpe
 5. Chapel Six Marshes
 6. Lincolnshire Wolds between Rigsby and Haugh
 7. Wells-next-to-the-Sea Beach
 8. Cley Beach
 9. Sheringham
 10. Sheringham Park, Gazebo
 11. Ferry Route Corridor (South West of Site)
 12. Ferry Route Corridor (North East of Site)



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km

Scale: 1:600,000

Preliminary Environmental Information Report

Array Area Blade Tip ZTV (Maximum Height) (A3)

Figure 17.2



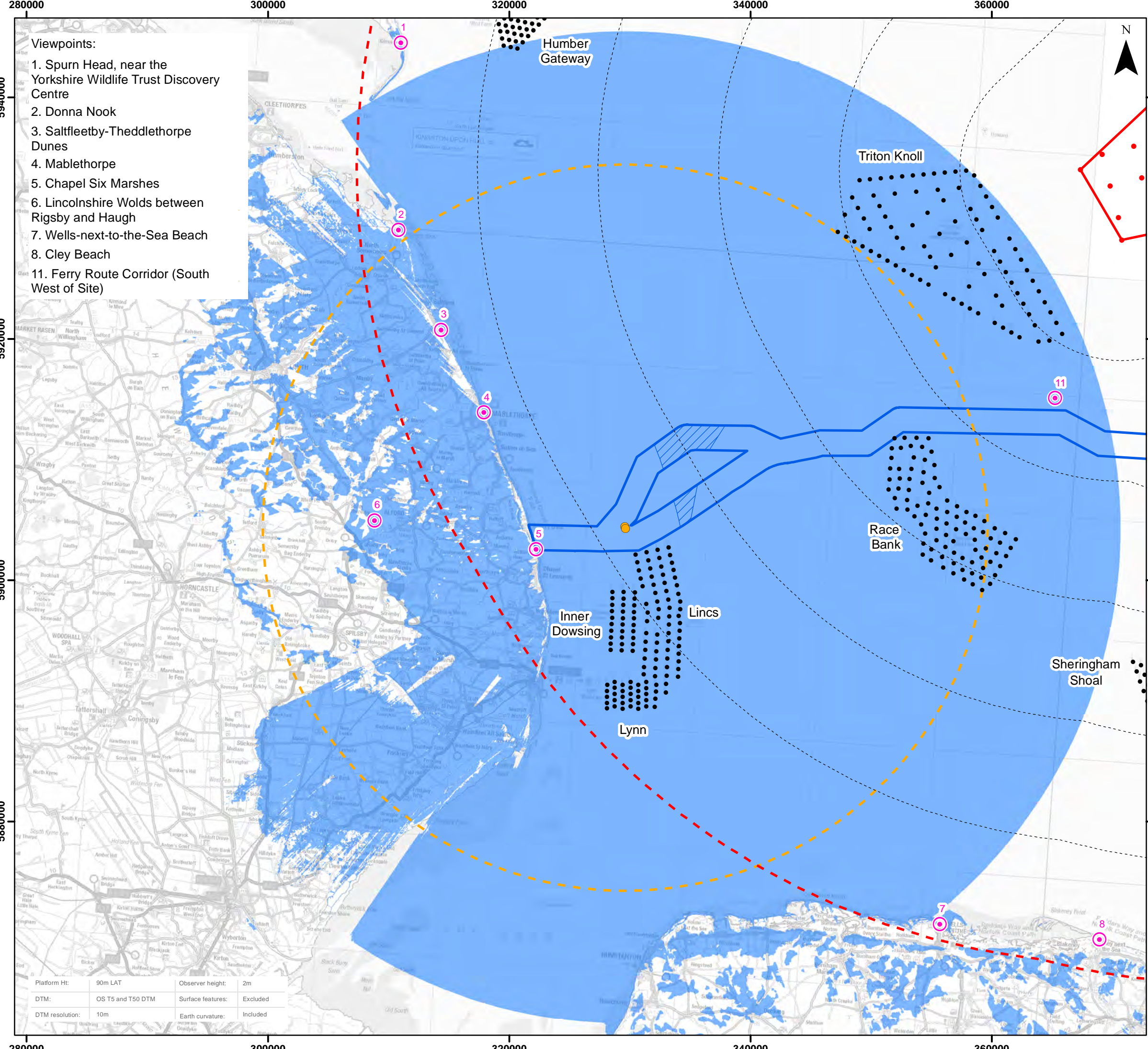
Date: 16/05/2023
 Produced By: OPEN
 Revision: v0.2

Contains ESRI Basemapping;

- 17.4.40 The Blade Tip ZTV does show that there is theoretical visibility of the WTGs from the coastal parts of the SLVIA study, at very long distances, including from Spurn Head in East Riding of Yorkshire to the north at 56.7 km; from the East Lincolnshire coast between Donna Nook and Skegness at 52.7 km; and from the North Norfolk coast between Scolt Head and Sheringham at 56.6 km. These are the closest areas of land with theoretical visibility of the WTGs, all of which are located at very long distance, but may afford views in very infrequent periods of excellent visibility.
- 17.4.41 The area of theoretical visibility of the WTGs becomes more fragmented from the hinterland and inland areas of the SLVIA study area, where views of the sea become increasingly screened within the headlands, adjacent rising land or coastal landforms. Areas with lower theoretical visibility are shown in the ZTV and include the Humber Estuary, the low lying coastal outmarshes of East Lincolnshire, and the saltmarshes to the north of The Wash. Actual visibility from these hinterland and inland areas also becomes increasingly screened by vegetation, such as woodland and hedgerows, and/or built development and settlement. Visibility from streets, open spaces and low storey buildings within coastal urban areas will typically be contained within the urban environment by surrounding built form, with most visibility of the Project likely at the coastal edge and sea front.
- 17.4.42 The analysis of the potential visibility of the offshore elements of the Project has been informed by the field survey work that has been undertaken. Along the coastline of north Norfolk, key views towards the Project are likely to be obtained from the coastal edge and beaches. Inland from this, around the marshes and creeks, potential visibility would be more limited, with the vegetation and marshes restricting views to the North Sea. These limitations to visibility of the Project also result from the distance between north Norfolk and the Project's array area and the influence that curvature of the Earth would have on the extent of the WTG that would be visible. This is demonstrated by the wireline drawings included in the Scoping Report (Appendix B - Seascape, Landscape and Visual Wirelines). Further inland, the landform generally rises affording more open views towards the North Sea, although with local restrictions arising from local landform and vegetation.
- 17.4.43 A similar pattern is applicable along the Lincolnshire coastline, with open views from the coastal edge and beaches. However, inland from this the landscape comprises a low lying, flat coastal plain, with limited views to the North Sea. The landform rises at the edges of the Lincolnshire Wolds AONB and the increased elevation affords open view towards the North Sea from certain locations. However, woodland limits the extent of such locations and the broad ridge of the Wolds also gradually limits long distance views in an easterly direction.

- 17.4.44 A small part of the East Riding of Yorkshire coast is included in the 60km study area, at Spurn Head. There are open views across the North Sea from the coastal edge and beach on the eastern side of Spurn Head. The principal routes to Spurn Point, at the southerly tip of Spurn Head, including a track and Public Right of Way, are located on the eastern side of the sand dunes. The location of this route largely prevents views to the North Sea due to the intervening dunes and vegetation, and the focus of views is the Humber Estuary to the west. The notable exception to this is the section of Spurn Head that has been damaged by the sea in recent years. There are also routes up on to the sand dunes in places, such as in the vicinity of the lighthouse. Spurn Point itself is also a landmark and destination people walking along Spurn Head, with this marked by an area of decking and a post. However, views to the North Sea in an easterly direction are restricted (filtered) by the vegetation on the sand dunes, and the main open views are to the southeast, across the North Sea, and southwest, across the Humber Estuary. It is also noted there is potential for Spurn Head to be breached in future years², which may affect access to parts of this landscape.
- 17.4.45 ZTVs that show the potential influence of surface features on theoretical visibility (Volume 2, Appendix 17.2, Figure 17.5) and hub height visibility (Volume 2, Appendix 17.2, Figure 17.6). Both these ZTVs demonstrate that visibility of the WTGs from onshore locations is likely to be largely truncated or become increasingly fragmented by the sea banks, sand dunes and settlements along the coastline.
- 17.4.46 The ZTV in Volume 2, Appendix 17.2, Figure 17.13 (also included below for reference) shows the main area in which the ORCPs would theoretically be visible. It highlights the different groups of people who may experience views of the proposed ORCPs and assisting in the identification of viewpoints where they may be affected.
- 17.4.47 The ZTV is based on ORCPs with a maximum height of 90m (above LAT) and represents the MDS for the SLVIA. This 90m takes account of the maximum height of the main ORCPs plus ancillary element positioned on top of this. The ZTV illustrates where there would be no visibility of these ORCPs.
- 17.4.48 As with the ZTV for the WTGs, this illustrates the ‘bare ground’ situation based on an OS terrain model and does not take into account the screening effects of vegetation, buildings, or other local features that may prevent or reduce visibility. By using a bare ground elevation model, the results will be an over-representation of maximum visibility, as many could, in reality, be blocked by surface features not included in the model.
- 17.4.49 The ORCP ZTV (Volume 2, Appendix 17.2, Figure 17.13) shows the main areas of higher theoretical visibility will be from offshore areas of the North Sea. The ZTV shows theoretical visibility along the coastline throughout the 30km study area. This visibility extends inland across the low lying coastal plain and to the east facing slopes of the Lincolnshire Wolds. In reality vegetation within this landscape, together with the sea banks, sand dunes and settlements along the coastline are likely to reduce the extent of visibility compared with that indicated by Volume 2, Appendix 17.2, Figure 17.13.

² <https://www.eastriding.gov.uk/coastalexplorer/pdf/5spurn.pdf>



- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
 2. Donna Nook
 3. Saltfleetby-Theddlethorpe Dunes
 4. Mablethorpe
 5. Chapel Six Marshes
 6. Lincolnshire Wolds between Rigsby and Haugh
 7. Wells-next-to-the-Sea Beach
 8. Cley Beach
 11. Ferry Route Corridor (South West of Site)

Legend

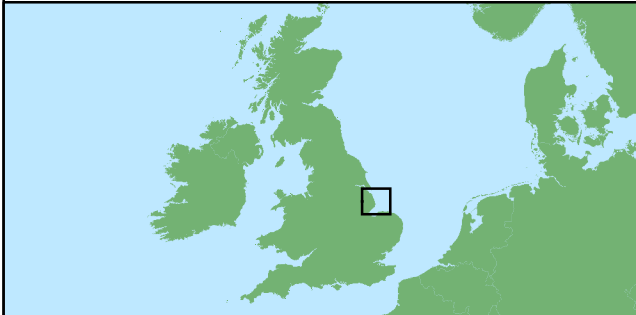
- Indicative Max No Turbines
- Viewpoints
- Offshore Reactive Compensation Platforms (ORCPs) - assumed worst case for SLVIA
- Array Area
- 10km Radii
- 60km Study Area
- ORCPs 30km Study Area
- ▭ Offshore Export Cable Corridor
- ▨ ORCP Search Area

Cumulative Wind Farm Status:

- Operational

ORCPs ZTV

- ORCPs No Visibility
- ▭ ORCPs Visible



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 km

Scale: 1:300,000

Preliminary Environmental Information Report

Offshore Reactive Compensation Platforms (ORCPs) ZTV

Figure 17.3



Date: 16/05/2023
 Produced By: OPEN
 Revision: v0.2

open Contains ESRI Basemapping;
 optimised environments

Platform Ht:	90m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

Document Path: P:\2021\21613_OuterDowsing\GIS\21613_GTR4PER\OFFSHORE\21613_ODOW_PDIR_Offshore_Fig17.3_ORCPs_ZTV_30km.mxd

Future Baseline

- 17.4.50 The baseline character of the landscape in the study area is likely to change in the future as a result of the effects of climate change, land use policy, environmental improvements and development pressures, regardless of whether the Project progresses to construction or not.
- 17.4.51 A range of policies impact on the management of the landscape, ranging from international obligations, national policy and regulation, through to community strategies and development frameworks. Landscape planning policies covering the coastal landscape within the study area, such as the AONBs and Heritage Coasts, generally seek to conserve and enhance the natural beauty of the area, while recognising the need to adapt to inevitable change over time, particularly in such a dynamic coastal landscape shaped by coastal processes, and the need to respond to development pressures that reflect the changing needs of society.
- 17.4.52 There is overwhelming evidence that global climate change, influenced by the human use of fossil fuels, raw materials and intensive agriculture, is occurring (IPCC, 2014). Any notable change in climate is likely to present potential changes to the coastline of the study area in a variety of ways. The legislative framework already exists to ensure that no net loss of internationally important habitat occurs, but there remains a need to increase understanding of the potential effects of climate change on the characteristic landscapes of the study area and to develop longer term strategies that will mitigate any adverse effects of climate change.
- 17.4.53 Linked with climate change, coastal erosion is likely to result in change to the baseline context of the Project, with the potential for this to occur within the operational life of the Project. Much of the coastline within the study area is low lying and comprises areas of sand dunes, mud flats and salt marsh. Parts of this may be lost or changed as result of coastal erosion. A demonstrable example of this within the SLVIA study area is Spurn Head and the ZTV analysis section above references the potential for this to be breached at some point in the future as a result of coastal processes and erosion.
- 17.4.54 Further development pressures which may change the baseline conditions, include suburbanisation and increased tourist development influences, particularly around the coastal landscapes and established coastal towns within the study area, which have potential to increase the developed influence and reduce perceived naturalness of the coastline.

17.5 Basis of Assessment

Scope of the Assessment

Impacts Scoped in for Assessment

- 17.5.1 The following impacts have been scoped into this assessment:
- Construction:
 - Impact 1: Potential effects on seascape character as a consequence of the construction of the ORCPs;

- Impact 2: Potential effects on landscape character as a consequence of the construction of the ORCPs;
- Impact 3: Potential effects on landscape designations as a consequence of the construction of the ORCPs; and
- Impact 4: Potential effects on visual receptors as a consequence of the construction of the ORCPs.
- Operation and maintenance:
 - Impact 1: Potential effects on seascape character as a consequence of the operation of the WTGs and ORCPs;
 - Impact 2: Potential effects on landscape character as a consequence of the operation of the WTGs and ORCPs;
 - Impact 3: Potential effects on landscape designations as a consequence of the operation of the WTGs and ORCPs; and
 - Impact 4: Potential effects on visual receptors as a consequence of the operation of the WTGs and ORCPs.
- Decommissioning:
 - Impact 1: Potential effects on seascape character as a consequence of the construction of the ORCPs;
 - Impact 2: Potential effects on landscape character as a consequence of the construction of the ORCPs;
 - Impact 3: Potential effects on landscape designations as a consequence of the construction of the ORCPs; and
 - Impact 4: Potential effects on visual receptors as a consequence of the construction of the ORCPs.

Impacts Scoped Out of Assessment

17.5.2 In line with the Scoping Opinion (The Planning Inspectorate, 2022), and based on the receiving environment, expected parameters of the Project (Volume 1, Chapter 3: Project Description), and expected scale of impact/potential for a pathway for effect on the environment, the following impacts have been scoped out of the assessment:

- Construction:
 - Impact 1: seascape, landscape and visual effects beyond 60km of the array area;
 - Impact 2: effects resulting from construction of the array area on physical aspects of landscape character.
 - Impact 3: construction effects resulting from the offshore cables; and
 - Impact 4: effects resulting from array area lighting during construction.
- Operation and maintenance:

- Impact 1: Seascape, landscape and visual effects beyond 60km of the array area;
 - Impact 2: operational effects resulting from the offshore cables;
 - Impact 3: effects resulting from aviation and marine navigation lighting during the operation of the Project;
 - Impact 4: cumulative effects with the operational Hornsea One and Hornsea Two operational windfarms and the consented Hornsea Three windfarm; and
 - Impact 5: transboundary impacts.
- Decommissioning:
 - Impact 1: Seascape, landscape and visual effects beyond 60km of the array area;
 - Impact 2: effects resulting from decommissioning of the array area on physical aspects of landscape character.
 - Impact 3: decommissioning effects resulting from the offshore cables; and
 - Impact 4: effects resulting from array area lighting during decommissioning;

Realistic Worst Case Scenario

- 17.5.3 Table 17.8 identifies the MDS in environmental terms, defined by the Project design envelope.
- 17.5.4 At the time of preparing the SLVIA for the PEIR it was anticipated that the ORCPs could be approximately 6km from the closest coastline, and this is reflected in the associated map based drawings and wirelines. However, in response to comments made by stakeholders at ETG meetings it is likely that the ORCP search area will be reduced to increase the separation distance between these structures and the coastline, which will be reflected in future consultation materials and the ES.

Table 17.8: Maximum design scenario for seascape, landscape and visual receptors for the Project alone

Potential effect	Maximum design scenario assessed	Justification
Construction		
Impact 1: effects of the construction of the ORCPs on seascape and landscape character, landscape designations and visual receptors	Construction of 2 ORCPs, topside 90m x 90m x 90m tall (above MHWS inclusive of ancillary elements), the main structure having a maximum height of approximately 60m above MHWS. Mounted on jacket foundations. Located in likely closest part of the offshore ECC to the coastline (from approximately 7km).	ORCPs are positioned as close to the coastline as is likely to occur, where the largest number of receptors are found. Maximum overall dimensions applied.
Operation and Maintenance		
Impact 1: effects of the array area on seascape and landscape character, landscape designations and visual receptors	Operation of 75 WTGs, 403m above LAT to tip, 340m rotor diameter, with jacket foundations arranged in N-S grid formation monopile foundation. Located at south-west of the other infrastructure zone. Note that, whilst up to 93 WTGs may be constructed, a maximum of 75 WTGs with the largest dimensions could be constructed within the array area. Operation of 2 large offshore substations within array area 180m x 110 x 100m (above MHWS including ancillary elements), the main structure having a maximum height of approximately 90m above LAT. Operation of 1 offshore accommodation platform 84m x 84m x 80.2m tall	Largest WTGs with largest rotor diameters likely to have most widespread significant effects. Maximum dimensions applied for other offshore elements.
Impact 2: effects of the ORCPs on seascape and landscape character, landscape designations and visual receptors	Operation of 2 ORCPs, topside 90m x 90m x 90m tall (above MHWS inclusive of ancillary elements), the main structure having a maximum height of approximately 60m above MHWS. Mounted on jacket foundations. Located in likely closest part of the offshore ECC to the coastline (from approximately 7km).	ORCPs are positioned as close to the coastline as is likely to occur, where the largest number of receptors are found. Maximum overall dimensions applied.

Potential effect	Maximum design scenario assessed	Justification
Decommissioning		
Impact 1: effects of the decommissioning of the ORCPs on seascape and landscape character, landscape designations and visual receptors	Decommissioning of 2 ORCPs, topside 90m x 90m x 90m tall (above MHWS inclusive of ancillary elements), the main structure having a maximum height of approximately 60m above MHWS. Mounted on jacket foundations. Located in likely closest part of the offshore ECC to the coastline (from approximately 7km).	ORCPs are positioned as close to the coastline as is likely to occur, where the largest number of receptors are found. Maximum overall dimensions applied.

Embedded Mitigation

17.5.5 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 seascape, landscape and visual receptors are listed in Table 17.9.

Table 17.9: Embedded mitigation relating to seascape, landscape and visual receptors

Project phase		Mitigation measures embedded into the project design
General		
Operation and maintenance	and	<p>The Project will comply with legal requirements with regards to shipping, navigation and aviation marking and lighting.</p> <p>Marking and lighting of the Project will be undertaken in accordance with relevant industry guidance and as advised by relevant stakeholders. This commitment ensures compliance with lighting and marking requirements but also sets the relevant parameters for the SLVIA of the Project in relation to night-time effects.</p> <p>A lighting scheme will be agreed for the aviation lighting of structures (WTGs and Offshore Platforms) with relevant authorities. This commitment provides for minimising lighting impacts as far practicable, whilst ensuring compliance with legal requirements for lighting and marking the Project.</p>

17.6 Assessment Methodology

Overview

- 17.6.1 The assessment has been undertaken in accordance with the Landscape Institute and IEMA (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3), and other best practice guidance. The methodology used to undertake the SLVIA is set out in full in Volume 2, Appendix 17.1 and summarised as follows. The SLVIA assesses the likely effects that the construction, operation and decommissioning of the offshore elements of the Project on the seascape, landscape and visual resource, encompassing effects on seascape/landscape character, designated landscapes, visual effects and cumulative effects.
- 17.6.2 The SLVIA is based on the Project design envelope described in Volume 1, Chapter 4: Site Selection and Consideration of Alternatives and the MDS identified as appropriate for the SLVIA as described in Section 17.5. In compliance with EIA regulations, the likely significant effects of a realistic 'worst case' scenario are assessed and illustrated in the SLVIA.
- 17.6.3 Essentially, the seascape, landscape and visual effects (and whether they are significant) is determined by an assessment of the 'sensitivity' of each receptor or group of receptors and the 'magnitude of change' that would result from the Project.

- 17.6.4 The evaluation of sensitivity takes account of the value and susceptibility of the receptor to the offshore elements of the Project. This is combined with an assessment of the magnitude of change which takes account of the size and scale of the proposed change. By combining assessments of sensitivity and magnitude of change, a level of seascape, landscape or visual effect can be evaluated and determined. The resulting level of effect is described in terms of whether it is significant or not significant, and the geographical extent, duration and the type of effect is described as either direct or indirect; temporary or permanent (reversible); cumulative; and beneficial, neutral or adverse.
- 17.6.5 The assessment has also considered the whole Projector combined effects of the offshore and offshore elements of the Project, as well as the cumulative effects likely to result from the offshore elements of the Project and other similar proposed developments.
- 17.6.6 In each case an appropriate and proportionate level of assessment has been undertaken and agreed through consultation at the scoping stage. The level of assessment may be ‘simple’ (requiring desk-based data analysis) or ‘detailed’ (requiring site surveys and investigations in addition to desk-based analysis).
- 17.6.7 The SLVIA unavoidably, involves a combination of quantitative and qualitative assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.

Defining Impact Significance

- 17.6.8 The matrix presented in Table 17.10 is used as a guide to illustrate the SLVIA process, helping to inform the threshold of significance when combining sensitivity and magnitude to assess significance. 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.
- 17.6.9 The significance of the effect on each seascape/landscape character and visual receptor is dependent on all of the factors considered in the sensitivity of the receptor and the magnitude of change resulting from the Project. Factors which influence levels of sensitivity and magnitude of change assessed in the SLVIA are set out in full in Volume 2, Appendix 17.1. Judgements on sensitivity and magnitude of change are combined to arrive at an overall assessment as to whether the Project will have an effect that is significant or not significant on each seascape/ landscape and visual receptor.
- 17.6.10 Significant seascape, landscape and visual effects are highlighted in bold and shaded dark green in Table 17.10. They relate to all those effects that result in a ‘Major’ or a ‘Major / Moderate’ level of effect. The white / un-shaded cells are not significant, however in some circumstances, ‘Moderate’ levels of effect (shaded green) do have the potential, subject to the assessor’s opinion, to be considered as significant and these exceptions are also highlighted in bold in the text and has been explained as part of the assessment, where they occur. White / un-shaded boxes in Table 17.10 indicate a non-significant effect.
- 17.6.11 In those instances where there would be no effect, the magnitude has been recorded as ‘Zero’ and the level of effect as ‘None’.
- 17.6.12 Assessment of the significance of potential effects is described in Table 17.10.

Table 17.10: Matrix to determine effect significance

		Magnitude of change					
		<i>Negligible</i>	<i>Low</i>	<i>Medium-low</i>	<i>Medium</i>	<i>Medium-high</i>	<i>High</i>
Sensitivity of receptor	<i>Low</i>	Negligible (not significant)	Negligible (not significant)	Minor/negligible (Not significant)	Minor (Not significant)	Moderate/minor (Not significant)	Moderate/minor (Not significant)
	<i>Medium-low</i>	Negligible (not significant)	Minor/negligible (Not significant)	Minor (Not significant)	Moderate/minor (Not significant)	Moderate (potentially significant)	Moderate (potentially significant)
	<i>Medium</i>	Minor/negligible (Not significant)	Minor (Not significant)	Moderate/minor (Not significant)	Moderate (potentially significant)	Moderate (potentially significant)	Major/moderate (Significant)
	<i>Medium-high</i>	Minor (Not significant)	Moderate/minor (Not significant)	Moderate (potentially significant)	Moderate (potentially significant)	Major/moderate (Significant)	Major (Significant)
	<i>High</i>	Minor (Not significant)	Moderate/minor (Not significant)	Moderate (potentially significant)	Major/moderate (Significant)	Major (Significant)	Major (Significant)

Geographical Extent

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

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

Duration and Reversibility

17.6.15 The duration and reversibility of seascape, landscape and visual effects is based on the period over which the Project is likely to exist and the extent to which it will be removed and its effects reversed at the end of that period. OPEN's methodology does not include duration and reversibility as part of magnitude of change, as there is potential that the reversibility aspect could alter or reduce potentially significant effects even though they are long-term. The duration and reversibility of the effects is instead determined separately in relation to the assessed effects.

17.6.16 Long-term, medium-term and short-term seascape/ landscape effects are defined as follows:

- Long-term – more than 10 years;
- Medium-term – 6 to 10 years; and
- Short-term – 1 to 5 years.

17.6.17 Duration and reversibility are not incorporated into the assessment of magnitude of change, but are stated separately in relation to the assessed effects (i.e. as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

Visual representations methodology

17.6.18 The methodology for the production of visual representations (photomontages and ZTVs) of the offshore elements of the Project is set out in full in Volume 2, Appendix 17.1.

17.6.19 The visual representations presented in Volume 2, Appendix 17.2, Figure 17.20 to Figure 17.31 have been produced in accordance with Visual Representation of Windfarms (Scottish Natural Heritage (now NatureScot), 2017) and Visual Representation of Development Proposals (TGN 06/19) (Landscape Institute, 2019). The ZTVs in Volume 2, Appendix 17.2, Figure 17.3 to Figure 17.19, have also been produced in line with guidance in Visual Representation of Windfarms (SNH, 2017) and are generated using GIS software (ESRI ArcGIS Version 10.5) to model the theoretical visibility of the offshore elements of the Project.

Assumptions and Limitations

17.6.20 The SLVIA is based on the adoption of worst case scenario approach to cope with uncertainties and reduce risk of later design modifications falling outside of the assessment envelope. The parameters applied in this worst case scenario are described in Section 17.5.

17.6.21 There are some data limitations relating to seascape, landscape and visual amenity however these do not affect the robustness of the assessment of this ES as the gaps are limited and will not affect the assessments of likely significance assessed for relevant receptors. Where there are gaps in information, these will be addressed in the ES, as agreed with the ETG.

17.6.22 There are limitations in the production of photomontage and wireline visualisations and ZTVs as assessment tools, and limitations in the accuracy of digital terrain model (DTM) data. The use of detailed terrain models (OS Terrain 5), production of visualisations to recognised standard and field survey assessment of impacts minimises these limitations.

17.6.23 Met Office visibility data has limitations in its application to judgements about windfarm visibility. The visibility data provides some understanding and evidence basis for evaluating the visibility of the WTGs against their background. Effects have not been downgraded either in magnitude or significance due to variations as a result of weather/visibility and how frequently/infrequently the effects will be experienced. Effects are based on the worst case with clear visibility and need to be considered in context of the limited time effects will actually occur.

17.6.24 The photographs and other graphic material such as wirelines 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 has been 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. The photomontage visualisations of the offshore elements of the Project (and any windfarm proposal) have a number of limitations when using them to form a judgement on visual impact. These include the following:

- A visualisation can never show exactly what the offshore elements of the Project will look like in reality due to factors such as: different lighting, weather and seasonal conditions which vary through time and the resolution of the image;
- The images provided give a reasonable impression of the scale of the WTGs and the distance to the WTGs but can never be 100% accurate;
- A static image cannot convey turbine movement, or flicker or reflection from the sun on the turbine blades as they move;
- The viewpoints illustrated are representative of views in the area, but cannot represent visibility at all locations;
- To form the best impression of the impacts of the offshore elements of the Project these images are best viewed at the viewpoint location shown;
- The images must be printed and viewed at the correct size (260mm by 820mm);
- Images should be held flat at a comfortable arm's length. If viewing these images on a wall or board at an exhibition, stand at arm's length from the image presented to gain the best impression;
- It is preferable to view printed images rather than view images on screen. Images on screen should be viewed using a normal PC screen with the image enlarged to the full screen height to give a realistic impression; and
- There are practical limitations to shooting viewpoint photographs only in very good or excellent visibility and at particular times of day. The photographs shown in the visualisations show the most favourable weather conditions available during photographic survey work.

17.7 Impact Assessment

Construction

- 17.7.1 This section presents the assessment of impacts arising from the construction phase of the Project.
- 17.7.2 Initial review of the potential effects of the array area identified that significant effects were unlikely to occur in relation to most seascape, landscape and visual receptors. It is still considered that this would be case. However, the Scoping Opinion identified that that Planning Inspectorate has concerns about the potential effects that may result from the offshore elements of the Project. The following sections comprise a concise, high-level analysis to explain why it was proposed to scope out aspects of the SLVIA.

Impact 1: effects of the construction of the ORCPs on seascape and landscape character, landscape designations and visual receptors

Effects on Seascape Character

- 17.7.3 The construction of the offshore elements of the Project has the potential to result in adverse effects on the perceived seascape character of MCAs, particularly MCA3 East Midlands Offshore Gas Fields, and MCA7 East Midland Coastal Waters, as shown in Volume 2, Appendix 17.2, Figure 17.8. The array area is positioned within MCA3 East Midlands Offshore Gas Fields, and the offshore ECC is routed through this MCA and then the adjacent MCA7 East Midland Coastal Waters to the cable landfall. The ORCPs may be positioned in MCA7 East Midland Coastal Waters.
- 17.7.4 Adverse effects relating to the ORCPs on seascape character will occur as a result of the associated construction activities, including the presence of jack-up vessels and/or dynamic positioning heavy lift vessels for the installation of foundations, substructures and the ORCPs itself, windfarm service vessels and accommodation vessels. These activities may combine to alter the seascape character of the area within the offshore part of the PEIR Boundary and the perceived character of the wider seascape through visibility of the construction activities.
- 17.7.5 The residual effects arising as a result of the construction of the ORCPs are assessed as being of the same magnitude and significance on all seascape character receptors as those arising due to their operation and maintenance. The residual effects would be short term and temporary, occurring during the length of this phase and differing in nature from the operational effects mainly due the influence of the various construction vessels in the seascape, which would not be present or result in effects during the operational phase.

Effects on Landscape Character and Designations

- 17.7.6 The construction of the ORCPs has the potential to result in adverse effects on the perceived character of the landscape character areas, designations and their special qualities. As described above these effects would be primarily associated with the construction of the ORCPs. The separation distance between the array area and the coastline would limit any effects associated with associated construction activities.
- 17.7.7 Adverse effects on landscape character will occur as a result of the construction activities. This would include the presence of jack-up vessels and/or dynamic positioning heavy lift vessels during the construction phase for the installation of foundations, substructures and the ORCPs, windfarm service vessels and accommodation vessels. These activities may combine to alter the perceived character of the wider landscape.
- 17.7.8 The residual effects arising as a result of the construction of the ORCPs are assessed as being of the same magnitude and significance on all landscape character receptors as those arising due to their operation and maintenance. The residual effects would be short-term and temporary, occurring during the length of this phase and differing in nature from the operational effects mainly due the influence of the various construction vessels visible during this phase, which will not be present or result in effects during the operational phase.

Effects on Views and Visual Amenity

- 17.7.9 The construction of the ORCPs has the potential to result in adverse effects on views and visual amenity. This would include the presence of jack-up vessels and/or dynamic positioning heavy lift vessels during the construction phase for the installation of foundations, substructures and the ORCPs, windfarm service vessels and accommodation vessels. These activities may combine to affect views and visual amenity.
- 17.7.10 The residual effects arising as a result of the construction of the ORCPs are assessed as being of the same magnitude and significance on visual receptors as those arising due to their operation and maintenance. The residual effects would be short-term and temporary occurring during the length of the construction phase and differing in nature from the operational effects mainly due the influence of the various construction vessels visible during the construction phase, which will not be present or result in effects during the operational phase.

Operation and Maintenance

- 17.7.11 This section presents the assessment of impacts arising from the operational and maintenance phase of the Project.
- 17.7.12 The landscape and visual effects of the offshore elements of the Project are assessed within the main geographic 'receptor areas', which are linked with the local authority administrative boundaries Volume 2, Appendix 17.2, Figure 17.1 within the SLVIA study area:
- East Riding of Yorkshire – specifically Spurn Head, which lies in the northwest part of the study area, including the Spurn Head Heritage Coast and LLA;
 - East Lincolnshire – specifically the coastline of East Lindsey District, and also the 30km study area associated with the ORCPs, including the Lincolnshire Wolds AONB; and
 - North Norfolk – comprising the northern coastal edge of North Norfolk District, which is in on the southern edge of the SLVIA study area, including the Norfolk Coast AONB and North Norfolk Heritage Coast;
- 17.7.13 The effect of the offshore elements of the Project on the seascape, landscape and visual receptors in the following preliminary assessment.

Impacts 1 and 2: effects of the array area and ORCPs on seascape receptors

- 17.7.14 The operations and maintenance phase of the Project has the potential to result in adverse effects on the perceived seascape character of MCAs, particularly MCA3 East Midlands Offshore Gas Fields, and MCA7 East Midland Coastal Waters, as shown in Volume 2, Appendix 17.2, Figure 17.8. The array area is positioned within MCA3 East Midlands Offshore Gas Fields, and the offshore ECC is routed through this MCA and then the adjacent MCA7 East Midland Coastal Waters to the cable landfall. The ORCPs are likely to be positioned in MCA7 East Midland Coastal Waters.

- 17.7.15 The seascape character areas transition from the coastal waters, comprising a strip of up to approximately 17km from the coastline within the study area, to the open parts of the North Sea. The corresponding MCAs have a partly industrialised character, influenced by the multiple operational windfarms, comprising Inner Dowsing, Lynn, Lincs, Sheringham Shoal, Race Bank, Dudgeon, Humber Gateway, Westernmost Rough and Hornsea One, together with offshore gas extraction and marine aggregate extraction. In addition, Hornsea Project Two offshore windfarm has become operational, meaning further development has taken place within the north-western part of the SLVIA study area.
- 17.7.16 Judgements in relation to seascape value, susceptibility and sensitivity will be refined during the preparation of the ES. However, based on preliminary evaluation of the baseline context, seascape value is considered to be medium-low. The MCAs are broadly not covered by designations that relate to their character, although the sections of Heritage Coast extend into the coastal MCAs. The Norfolk Coast AONB also lies adjacent to MCA7 East Midlands Coastal Waters.
- 17.7.17 The susceptibility of seascape character is considered to be medium-low due to the way in which it has been altered by human activities. The Project has the potential to further alter its character through the addition of further structures emerging from the sea. However, the position of the array area in relation to operational windfarms limits its susceptibility to similar development.
- 17.7.18 On the basis of the above preliminary judgements, taking account of value and susceptibility, the sensitivity of the seascape character is assessed as medium-low.
- 17.7.19 The offshore elements of the Project would introduce up to 75 tall, widely spaced WTGs, together with a number of offshore platforms. The majority of these elements would be positioned over 54km from the nearest coastline and form part of a series of similar developments in the North Sea. The ORCPs would be positioned where seascape character is more diverse and influenced by the coastal edge, but in this context it would still be present in conjunction with baseline windfarm developments. The magnitude of change, during the operational phase, in relation to the perceived character of MCAs is assessed as being no greater than moderate.
- 17.7.20 Therefore, it is currently predicted that the effects of offshore elements of the Project would be **no greater than moderate/minor** and not significant. These effects would be adverse, long term, but reversible.

Impacts 1 and 2: effects of the array area and ORCPs on landscape receptors

East Riding of Yorkshire

- 17.7.21 The operations and maintenance phase of the Project has the potential to result in adverse effects on the perceived landscape character of the East Riding of Yorkshire. However, only a small part of the local authority area lies within the SLVIA study area, overlapping predominately with LCA21A Spurn Point Heritage Coast and the most southerly extent of LCA20A Withernsea to Spurn Coast. Figure 17.9 (Volume 2, Appendix 17.2) demonstrates that the ZTV overlaps with these LCAs and field survey work has confirmed that the Project would be theoretically visible.

- 17.7.22 LCA21A Spurn Head Heritage Coast comprises narrow peninsula of coastal sand dune. It was formed by debris washed down the coastline from the soft cliffs to the north. It is a distinctive and unique landscape with a sense of remoteness resulting from the limited access. Its distinctiveness and value are recognised by the Heritage Coast Designation, which is backed up by the policies relating to Important Landscape Areas in the East Riding Local Plan 2012 – 2029.
- 17.7.23 Judgements in relation to landscape value, susceptibility and sensitivity will be refined during the preparation of the ES. However, based on preliminary evaluation of the baseline context, landscape value is considered to be medium-high, reflective of the Heritage Coast designation and also its uniqueness as a landscape feature.
- 17.7.24 The susceptibility of landscape character is considered to be low. The nature of the landscape affords frequent open, panoramic views over the North Sea. However, such views include the operational Humber Gateway OWF and Triton Knoll OWF. The susceptibility of the landscape to the Project would also be moderated by the intervening seascape context stretching over 55km between the LCA and the edge of the array area. This vast seascape context and separation would limit the extent to which the WTGs within the array area may influence the perceived character of the landscape. In addition, taking account of the visibility predictions in the data obtained from the Met Office weather station at Donna Nook (Section 17.4) it is predicted that the offshore elements of the Project would only be susceptible to being seen from this LCA for a very limited proportion of the year.
- 17.7.25 On the basis of the above preliminary judgements, taking account of value and susceptibility, the sensitivity of the seascape character is assessed as medium.
- 17.7.26 The offshore elements of the Project would introduce approximately 75 tall (noting that this is considered to be the worst case in relation to the SLVIA, as set out in Table 17.8), widely spaced WTGs, together with a number of offshore platforms within the distant seascape context of the LCA. The majority of these elements would be positioned over 50km from the coastline of the LCA and form part of a series of similar developments in the North Sea. The ORCPs would be located over 30km from this LCA and, whilst the ZTV in Volume 2, Appendix 17.2, Figure 17.13 shows theoretical visibility from this peninsula, it would comprise a very limited element in views. The magnitude of change, during the operational phase, in relation to SCAs is assessed as being no greater than low.
- 17.7.27 Therefore, it is currently assessed that the effects of offshore elements of the Project would be no greater than **minor** and not significant in EIA terms. These effects would be adverse, long term, but reversible.

East Lincolnshire

- 17.7.28 The operations and maintenance phase of the Project has the potential to result in adverse effects on the perceived landscape character of East Lincolnshire. However, only a small part of the local authority area lies within the SLVIA study area for the array area, overlapping with the LCAs in the eastern part of the District:
- LCAI1 Holton le Clay to Great Steeping Middle Marsh;
 - LCAJ1 Tetney Lock to Skegness Coastal Outmarsh; and
 - LCAK1 Donna Nook to Gibraltar Point Naturalistic Coast.

- 17.7.29 However, in addition to the study area for the array area, the 30km study area for the ORCPs overlaps with East Lindsey District.
- 17.7.30 The relative proximity of the ORCPs to the coastline, at approximately 7.4km, means the 30km study area for these elements extends further inland than the study area for the array area. Therefore, in addition to the LCA identified above the ORCP study area also overlaps with LCAs A1 Stickney to Sibsey Reclaimed Fen, B1, Wainfleet All Saints to Friskney Settled Fen, C1 Wainfleet Reclaimed Saltmarsh, D1 Wainfleet Wash Saltmarsh, G1 Binbrook to Tetford Wolds Farmland, G2 Little Cawthorpe to Skendleby Wolds Farmland, G3 Hainton to Toyton All Saints Wolds Farmland and H1 Mareham to Little Steeping Fenside Woodland and Farmland.
- 17.7.31 The blade tip ZTV for the array area (e.g. Volume 2, Appendix 17.2, Figure 17.3 and Figure 17.4) shows potential visibility of wind turbines throughout the majority of the corresponding study area. However, the hub height ZTV in Volume 2, Appendix 17.2, Figure 17.6 shows visibility largely truncated by the coastline. In relation to the ORCPs the ZTV in Volume 2, Appendix 17.2, Figure 7.14 shows theoretical visibility throughout a large proportion of the corresponding 30km study area. The main part of this 30km study area where theoretical visibility of the ORCPs would become much more limited in extent is the land west of the easterly ridgeline of the Lincolnshire Wolds, predominantly west of the A16 and A1028. Note that the ZTV for the ORCPs is based on a maximum height of 90m above MHWS. However, the main part of the ORCP structures would have a maximum height of approximately 60m above MHWS, with elements above this comprising ancillary structures which would have a reduced mass.
- 17.7.32 LCAK1 Donna Nook to Gibraltar Point Naturalistic Coast extends along the coastline throughout the study area (for both the array area and ORCPs) and much of its length largely includes a strip of vegetated sea banks, coastal sand dunes or, in the vicinity of coastal settlements, concrete promenades. Inland from this the majority of the LCAs are relatively flat, low lying landscapes, which together with the features along the coastline provides visual separation from the North Sea. The landform increases in elevation around the edges of the Lincolnshire Wolds, largely corresponding with LCAG2 within the 30km study area for the ORCPs. Given the intervening distance between the coastline and the array area, and to a lesser degree the ORCPs, and the limited intervisibility of the North Sea inland from the coastal edge, the following analysis concentrates on LCAK1 and LCAG2. This analysis is also informed by the visualisations that have been prepared for Viewpoints 2 to 6 (Volume 2, Appendix 17.2, Figures 17.21 to 17.25).
- 17.7.33 LCAK1 comprises a narrow coastal strip along the edge of Lincolnshire. It includes long sandy beaches, together with areas of mud flats and saltmarsh. The landward side is backed by vegetated sea banks, coastal dunes and in settled locations, concrete promenades. It is a distinctive and largely unspoilt natural landscape. There is a sense of remoteness and tranquillity, although this reduces in the vicinity of the coastal resorts and MOD designated danger areas. Wide open, panoramic views, also extending across the North Sea are associated with this LCA.

- 17.7.34 LCAG2 comprises an elevated, rolling agricultural landscape in the south eastern part of the Lincolnshire Wolds AONB. It includes a mix of arable farmland, pasture and woodland, with the later framing views within and out from the LCA. Fields are typically divided by hedgerows, with hedgerow trees. The woodlands include ancient and semi-natural, and replanted woodlands. There are scattered villages within the valleys and parkland estates, including RPGs.
- 17.7.35 Judgements in relation to seascape value, susceptibility and sensitivity will be refined during the preparation of the ES. However, based on preliminary evaluation of the baseline context, landscape value associated with LCAK1 is considered to be medium to high. It is not currently designated for its landscape value, although it is acknowledged that part of the coastline may be designated a Heritage Coast in the future. The landscape value judgement is reflective of the relatively undeveloped nature of the majority of the LCA, but also the fact that the coastline is a promoted and popular destination.
- 17.7.36 The landscape value of LCAG2 is considered to be high, reflecting its characteristics and features and notably the AONB designation. The key special qualities of the AONB that have the potential to be affected by the Project, as set out in the Lincolnshire Wolds AONB Management Plan 2018 – 2023, are “*scenic beauty and rural charm*” and “*expansive sweeping views*”.
- 17.7.37 The susceptibility of LCAK1 to the Project is considered to be medium. The nature of the landscape affords frequent open, panoramic views over the North Sea. However, such views include operational OWFs including Inner Dowsing, Lynn and Lincs OWFs, Race Bank OWF and Triton Knoll OWF. The susceptibility of the landscape to the Project would also be moderated by the intervening distance of over 55km to the edge of the array area. This distance would limit the extent of the WTGs that would be visible and its relative prominence. In addition, taking account of the visibility predictions in the data obtained from the Met Office weather station at Donna Nook (Section 17.4) it is predicted that the offshore elements of the Project in the array area would be seen from this LCA for a very limited proportion of the year. However, the judgement of medium susceptibility takes account of the two proposed ORCPs. These would be positioned approximately 7.4km from the closest part of the Lincolnshire coastline (and LCAK1). They would also contrast with the existing offshore WTG that are visible, which are the most conspicuous structures in the baseline context, comprising static platforms with a larger mass.

- 17.7.38 The susceptibility of LCAG2 to the Project is considered to be low. The nature of the landscape within the study area affords intermittent open, panoramic views over the landscape to the east. Whilst the North Sea is a component of these views it makes a relatively overall contribution to landscape character, and is not noted in the published landscape character assessment as a key characteristic. LCAG2 is located beyond the 60km study area for the array area. However, it lies within the 30km study area for the ORCPs located approximately 18km to the west of these proposed structures. Views east from this LCA include operational onshore wind turbines, including Gayton le Marsh Windfarm, Conisholme (Fen Farm) Windfarm and Bambers Windfarm, and in clear conditions OWFs such as Inner Dowsing. The susceptibility of the landscape to the Project would also be moderated by the intervening distance to the Project. This distance would limit the extent of the WTGs and ORCPs that would be visible and their relative prominence. In addition, taking account of the visibility predictions in the data obtained from the Met Office weather station at Donna Nook (Section 17.4) it is predicted that the offshore elements of the Project within the array area would be seen from this LCA for a very limited proportion of the year.
- 17.7.39 The ORCPs would be more visible than the elements within the array area due to the shorter separation distance. However, at a distance of approximately 18km they would comprise small components and would occupy a small proportion of the views that can be obtained. Such views are also constrained by the intermittent areas of woodland on the east facing slopes of the Lincolnshire Wolds.
- 17.7.40 On the basis of the above preliminary judgements, taking account of value and susceptibility, the sensitivity of the landscape character would be medium for both LCAK1 and LCAG2.
- 17.7.41 The offshore elements of the Project would introduce approximately 75 tall, widely spaced WTGs, together with a number of offshore platforms in the wider seascape context experienced from the coastal parts of these LCAs. The majority of these elements would be positioned over 50km from the coastline and form part of a series of similar developments in the North Sea. The perceptual change that would be attributable to the elements of the project within the array area would be limited in relation to both LCAK1 and LCAG2.
- 17.7.42 However, the ORCPs would comprise a more conspicuous structure in relation to LCAK1 and would be seen as part of the expansive open, panoramic views over the North Sea, which are a noted characteristic of this LCA. The intervening distance of approximately 7.4km, at the closest point, would limit the relative size of the ORCPs. However, their form would contrast with the baseline offshore wind turbines, which are visible from this coastline. However, one platform is already visible within the overall array of turbines that make up Inner Dowsing, Lynn and Lincs OWFs (see Volume 2, Appendix 17.2, Figure 17.24d). The distance the two ORCPs would be positioned from the coastline would be similar to these baseline OWFs. They would also be present in a comparable part of the view, being located within approximately 5km to the north of the Lincs OWF turbines.

- 17.7.43 In relation to LCAG2, the greater separation distance from both the array area and ORCPs would reduce the potential magnitude of change, compared with LCAK1. At over 60km the elements within the array area are unlikely to be readily discernible, even on a day with excellent visibility. At approximately 18km, based on the shortest distance from this LCA, the ORCPs, would be visible in clear conditions. However, this would be in the context of the intervening landscape between the LCA and the coastline. Overall, based on the intervening distance, and with reference to Volume 2, Appendix 17.2, Figures 17.25e and 17.25f, the ORCPs would not result in any notable changes to the characteristics of this landscape.
- 17.7.44 The magnitude of change, during the operational phase, in relation to LCAK1 is assessed as being medium, whilst in relation to LCAG2 this is assessed as being negligible.
- 17.7.45 Therefore, it is assessed that the effects of offshore elements of the Project would be no greater than **minor** and not significant in EIA terms in relation to LCAG2. However, a **moderate** and potentially significant effect in EIA terms is predicted in relation to LCAK1, due to the changes arising from the ORCPs. This potential for a significant effect would be assessed further as the design for the Project evolves. These effects would be adverse, long term, but reversible. It is also predicted that there would not be a significant adverse effect on the special qualities or characteristics of the Lincolnshire Wolds AONB.

North Norfolk

- 17.7.46 The operations and maintenance phase of the Project has the potential to result in adverse effects on the perceived landscape character of North Norfolk. However, only a small part of the local authority area lies within the SLVIA study area, which extends inland for less than 5km. The study area includes a number of coastal landscape character types (LCT) and LCAs. These principally comprise coastal marshes (Open Coastal Marshes LCT and Drained Coastal Marshes LCT) and the western part of the Coastal Shelf LCT, behind which lie the northern fringes of the Rolling Open Farmland LCT, River Valley LCTs, Tributary Farmland LCT, Rolling Heath and Farmland LCT and the Wooded Glacial Ridge LCT.
- 17.7.47 In broad terms the coastal edge transitions from low lying coastal marshes in the west to a more elevated coastal shelf to the east, behind which the landform rises gradually, comprising an undulating landscape with a mix of agricultural uses, woodland and heath. The Open Coastal Marshes is characterised by an open coastal barrier beach system, with one of the largest areas of undrained saltmarsh in Europe. Saltmarsh, which associated creek patterns, lies inland of a protective barrier of sand and shingle bars. The occurrences of Drained Coastal Marshes LCT are areas of former Open Coastal Marsh that have been drained and farmed, to comprise a flat open landscape with grazing marsh habitat, sand dunes, woodland and farmland. The Coastal Shelf LCT comprises a narrow strip of land, approximately 12 miles in length, but only approximately one mile deep. Within the study area it includes the settlement of Sheringham, set within arable farmland and woodland. There are sandy beaches and frequent cliffs along the coast.

- 17.7.48 Inland from the coastal landscapes the landform rises and become more diverse. The landscape is frequently open and elevated and comprises gently undulating/rolling farmland with areas of woodland and historic estates. There are areas of sandy soils, where agriculture is more marginal and there are areas of lowland heath (Rolling Heath and Arable LCT). The Wooded Glacial Ridge LCT relates to a terminal glacial moraine and forms a distinctive landscape feature with a wooded steep scarp slope to the north and more gentle arable slopes to the south. The more elevated, rolling/undulating landscape is dissected by occasional occurrences of the River Valleys LCT, including the River Stiffkey and River Glaven.
- 17.7.49 The landscape in North Norfolk that lies within the study area is entirely within the Norfolk Coast AONB and the North Norfolk Heritage Coast designation applies to part of the coastline. The Significance of the Norfolk Coast Landscape document (Norfolk AONB Management Plan 2014 – 2019, supporting information) sets out the qualities of this landscape. This document identifies the diverse mix of rolling hills, ridges of chalk, greensand and sands and gravels. Key characteristics include the exposed North Sea aspect, sand and shingle spits, coastal saltmarshes and areas of heathland. The document identifies that the coastal plain has a wilderness quality, attributed to the wide, open and unsettled character. With the rising landscape, with wooded hills and heathlands forming a backdrop to the coastline, and farmlands in the rest of the AONB contributing to its diversity. This document reflects on the scenic qualities of the landscape, with a mix of coastal features and contrasting agricultural landscapes inland. The sight and sound of the sea are noted as dominating features along the coastline, and also catching the eye from locations further inland. The diversity of the landscape and landform are identified as key features, combined with the mix of distinctive buildings and settlements. The document describes the literary and artistic associations with the landscape. In addition to the landscape characteristic and scenic qualities the document also describes the wildlife habitats and associated designations, together with the archaeological and cultural heritage assets.
- 17.7.50 Judgements in relation to landscape value, susceptibility and sensitivity will be refined during the preparation of the ES. However, based on preliminary evaluation of the baseline context, landscape value is considered to be high, reflective of the characteristics and features described above.
- 17.7.51 The susceptibility of landscape character to the Project is considered to be low. The nature of the landscape within the study area affords frequent open, panoramic views over the North Sea. However, such views include the operational Sheringham Shoal OWF, Dudgeon OWF and Race Bank OWF. The susceptibility of the landscape to the Project would also be moderated by the intervening distance of over 55km to the edge of the array area. This distance would limit the extent of the WTGs that would be visible and its relative prominence. In addition, taking account of the visibility predictions in the data obtained from the Met Office weather station at Donna Nook (Section 17.4) it is predicted that the offshore elements of the Project would be seen from this LCA for a very limited proportion of the year.
- 17.7.52 On the basis of the above preliminary judgements, taking account of value and susceptibility, the sensitivity of the seascape character would be medium.

- 17.7.53 The offshore elements of the Project would introduce approximately 75 tall, widely spaced WTGs, together with a number of offshore platforms in the wider seascape context experienced from the coastal parts of North Norfolk. The majority of these elements would be positioned over 50km from the coastline and form part of a series of similar developments in the North Sea. The ORCPs would be located over 30km from this LCA and, whilst the ZTV in Volume 2, Appendix 17.2, Figure 17.13 shows theoretical visibility from North Norfolk, it would comprise a very limited element in views. The magnitude of change, during the operational phase, in relation to SCAs is assessed as being no greater than low.
- 17.7.54 Therefore, it is assessed that the effects of offshore elements of the Project would be no greater than **minor** and not significant in EIA terms. These effects would be adverse, long term, but reversible. It is also predicted that there would not be a significant adverse effect on the special qualities or characteristics of the Norfolk Coast AONB.

Impacts 1 and 2: effects of the array area and ORCPs on visual receptors

- 17.7.55 The following visual assessment is based upon desk top review and a site-based assessment. Twelve representative viewpoints have been selected to demonstrate a range of views available around the SLVIA study area. These focus on terrestrial parts of the study area, where the highest concentration of visual receptors are located. However, two viewpoints have been selected to represent offshore receptors. The location of these viewpoints is illustrated in various figures associated with the SLVIA e.g. Volume 2, Appendix 17.2, Figure 17.2. For each of the terrestrial viewpoint, photographs of the existing views have been included alongside wirelines illustrating the offshore elements of the Project (see Volume 2, Appendix 17.2, Figures 17.20 to 17.29). The offshore viewpoints are represented by wirelines only, Figures 17.30 and 17.31 in Volume 2, Appendix 17.2).
- 17.7.56 In accordance with the recommendations of GLVIA3 the sensitivity of the potential visual effects has been determined by assessing both the sensitivity of visual receptors and the potential magnitude of visual effect.
- 17.7.57 The Project has the potential to affect numerous visual receptors, including residents, visitors to the East Riding of Yorkshire, Lincolnshire and Norfolk, walkers (including the Southwest Coast Path) and road users. The ZTVs demonstrate a high level of theoretical visibility in relation to offshore receptors, but a more variable pattern in relation to onshore receptors. Whilst elements of the project would be theoretically visible across much of the onshore parts of the study area the ZTV that takes account of surface features (Volume 2, Appendix 17.2, Figure 17.5) and the hub height ZTV (Volume 2, Appendix 17.2, Figure 17.6) demonstrates this pattern would be constrained by the landform and features along the coastline. The wirelines that have been prepared for the viewpoints (Volume 2, Appendix 17.2, Figures 17.20 to 17.31) demonstrate the relative scale of the Project in relation to baseline views. As referred to in relation to landscape effects, weather conditions are also an important consideration and there will be frequent occasions when the prevailing weather limits or prevents visibility of the proposed Project.

- 17.7.58 In relation to the onshore viewpoints, whilst the nature of the view obtained at each viewpoint is different, there are number of common themes. Each viewpoint allows an open and expansive view, in which the North Sea is a component, becoming a prominent and key component for the viewpoints along the coastline. The offshore elements of the Project have the potential to be visible from all the viewpoints selected. However, key factors that would influence this are the intervening distance, curvature of the Earth and the prevailing weather conditions. The rotation of the turbine blades and presence of aviation lighting have the potential to be visible. However, the distance between the coastline and the array area would limit the prominence of these in relation to onshore visual receptors.
- 17.7.59 Further inland, within the Lincolnshire Wolds, the relative elevation of the landscape allows expansive, panoramic views towards the North Sea. However, the distance to the coastline greatly reduces the prominence of the sea in such views. In addition, woodland on the east facing slopes also constrain views in places.
- 17.7.60 The ORCPs would be closer to the coastline than the array area, and have the potential to be more prominent elements from certain locations. The current assumption is that these could be positioned approximately 7.4km from the Lincolnshire coastline and the worst case scenario currently being considered comprises the two ORCPs being positioned approximately 90m apart, the closest distance they could be positioned to each other.
- 17.7.61 In relation to offshore visual receptors, people engaged in a range of activities are likely to see the offshore elements of the Project. Such receptors would include people travelling on recreational vessels and people travelling on ferries between Hull or Newcastle upon Tyne and continental Europe, together with people engaged in commercial or employment activities including fishing, cargo vessels and people employed in the offshore oil and gas industries and dredging for marine aggregates.
- 17.7.62 The offshore visual receptors considered to be more sensitive to the Project are people travelling on recreational vessels and ferries. This is due to a combination of the activity they are engaged in the and the likely level of attention placed on the view. Notwithstanding this, there would be factors that potentially reduce their relative sensitivity. Recreational vessels would be able to plan a journey that increases the separation distance between the vessel and the elements of the Project. Ferry passengers are principally travelling along a specific route with the objective being to get from place to place and the character of the route is more incidental to the journey. In both instances the Project is likely to be seen for a relatively small part of an overall journey. Other offshore receptors would be more focussed on the activity taking place and the context of that route or activity would make a limited contribution to the overall experience.

- 17.7.63 The rotation of the turbine blades and presence of aviation lighting would have the potential to draw attention to the WTGs, noting that the prominence of each of these factors would vary with distance and between day and night. At 403m above LAT (to blade tip), the size of the WTGs constituting the MDS would be very large, and the array would extend across the view with the horizontal extent of the view occupied varying with location. However, the array area is positioned over 50km from the nearest onshore visual receptors. This separation distance, combined with reduction in the vertical extent of the WTGs that would be seen as a consequence of the Earth's curvature would reduce the relative size of structures. The WTGs would also always be seen in the context of baseline offshore windfarm developments which are present in views across the North Sea. Therefore, the Project would not be introducing new elements, but would be reinforcing a pattern created by the baseline offshore windfarms. In addition, the visibility data obtained from the Met Office identifies that the WTGs are likely to be seen for approximately seven days per year.
- 17.7.64 Based on a current assumption that the ORCPs would be positioned approximately 7.4km from the Lincolnshire coastline, these elements of the Project have the potential to be more prominent when seen by onshore from this part of the coastline. The wirelines presented in Volume 2, Appendix 17.2, Figures 17.20 to 17.31 demonstrate the relative size of these structures, when seen from Spurn Head and the North Norfolk, would be diminished by the intervening distance and would form minor additions to the view in very clear weather conditions. At locations along the Lincolnshire coastline they would be more conspicuous and the detail of these platforms would be discernible, particularly where the intervening distance is approximately 8km. A similar structure, located a comparable distance from the coastline forms part of Lincs Offshore Windfarm and is visible in the baseline photography for Viewpoint 5 (Volume 2, Appendix 17.2, Figure 17.24d).
- 17.7.65 Inland from the coastline, whilst the ZTV in Volume 2, Appendix 17.2, Figure 17.13 indicates theoretical visibility of the ORCPs, this is expected to be restricted or prevented by the mix of coastal settlements, sand dunes and sea banks, particularly due to the low lying landform. As the landform rises towards the Lincolnshire Wolds it is anticipated that the ORCPs would be seen from certain locations in the landscape, where the local landform and vegetation allows open views towards the coastline. However, in such instances the ORCPs would form a small change in the baseline view. Such views would typically be open and panoramic and the ORCPs would be seen in the context of a diverse range of baseline landscape elements present between the Lincolnshire Wolds and the coastline.
- 17.7.66 The Project would represent a long-term change, duration of the operational and maintenance phase. However, effects on visual amenity would be reversible following the decommissioning of the Project.
- 17.7.67 Table 17.11 and Table 17.12 below set out a preliminary assessment of the potential effects on visual amenity that could result from the Project. The tables identify the sensitivity of the visual receptor to the Project, the predicted magnitude of change based on the current Project design envelope and the potential visual effects and their significance. The assessment of potential effects will be reviewed, refined and adjusted as part of the preparation of the SLVIA to be included in the ES.

Table 17.11: Preliminary assessment of sensitivity of viewpoints/visual receptors

Viewpoint	Receptors	Value	Susceptibility	Sensitivity
East Riding of Yorkshire				
Viewpoint 1: Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre Distance to array area: 57.2km Distance to ORCPs: 44.1km	Visitors to Spurn Head Heritage Coast, NNR and the associated beach, footpaths.	High	Medium-high	Medium-high
East Lincolnshire				
Viewpoint 2: Donna Nook Distance to array area: 56.6km Distance to ORCPs: 30.9km	Visitors to Donna Nook NNR. Close to, but not on the emerging route of the England Coast Path.	High	Medium-high	Medium-high
Viewpoint 3: Saltfleetby-Theddlethorpe Dunes Distance to array area: 54.5km Distance to ORCPs: 22.3km	Visitors to Saltfleetby – Theddlethorpe NNR. The viewpoint is located on the top of the sand dunes, to the east of the car park, where there is a timber platform and interpretation board. Close to, but not on the emerging route of the England Coast Path.	High	Medium-high	Medium-high
Viewpoint 4: Mablethorpe Distance to array area: 53.3km Distance to ORCPs: 15km	Residents of Mablethorpe. Visitors to Mablethorpe Beach. Walkers on England Coast Path.	Medium-high	Medium-high	Medium-high
Viewpoint 5: Chapel Six Marshes Distance to array area: 54.8km Distance to ORCPs: 7.6km	Visitors to Chapel Six Marshes. Walkers on England Coast Path.	High	Medium-high	Medium-high
Viewpoint 6: Lincolnshire Wolds between Rigsby and Haugh Distance to array area: 65.3km Distance to ORCPs: 20.7km	Principally walkers and road users, broadly representative of views from higher ground on the east side of the Lincolnshire Wolds AONB.	High	Medium-high	Medium-high
North Norfolk				
Viewpoint 7: Wells-next-to-the-Sea Beach Distance to array area: 58.7km Distance to ORCPs: 41.8km	Visitors to Well-next-to-the-Sea Beach.	High	Medium-high	Medium-high

Viewpoint	Receptors	Value	Susceptibility	Sensitivity
Viewpoint 8: Cley Beach Distance to array area: 57.3km Distance to ORCPs: 41.8km	Visitors to Cley Beach. On the emerging route of the England Coast Path.	High	Medium-high	Medium-high
Viewpoint 9: Sheringham Distance to array area: 58.9km Distance to ORCPs: not visible	Residents of Sheringham, Walkers on England Coast Path.	High	Medium-high	Medium-high
Viewpoint 10: Sheringham Park, Gazebo Distance to array area: 59.9km Distance to ORCPs: 60.5km	Visitors to Sheringham Park, broadly representative of views from higher ground to the south of the Norfolk coastline.	High	Medium-high	Medium-high
Offshore				
Viewpoint 11: Ferry route corridor (south west of array area) – Kingston upon Hull to Rotterdam or Zeebrugge Distance to array area: 14.2km Distance to ORCPs: 37.2km	Ferry passengers, travelling between the UK and continental Europe.	Low	Medium	Medium-low
Viewpoint 12: Ferry route corridor (northeast of array area) – Newcastle Upon Tyne/North Shields to Amsterdam Distance to array area: 10.8km Distance to ORCPs: not visible	Ferry passengers, travelling between the UK and continental Europe.	Low	Medium	Medium-low

Table 17.12: Preliminary assessment of magnitude of visual change and potential effects on visual amenity

Viewpoint	Sensitivity	Magnitude	Effect and Significance	Rationale
East Riding of Yorkshire				
<p>Viewpoint 1: Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre</p> <p>Distance to array area: 57.2km</p> <p>Distance to ORCPs: 44.1km</p>	Medium-high	Negligible	Minor – not significant	<p>WTGs would comprise distant elements, likely to be seen for a small number of days per year.</p> <p>Vertical extent of turbines visible would be limited by curvature of the Earth.</p> <p>WTGs would be positioned partly behind the operational Humber Gateway and Triton Knoll Offshore Windfarms.</p> <p>ORCPs would comprise small elements with visibility restricted by meteorological conditions and curvature of the Earth.</p>
East Lincolnshire				
<p>Viewpoint 2: Donna Nook</p> <p>Distance to array area: 56.6km</p> <p>Distance to ORCPs: 30.9km</p>	Medium-high	Negligible	Minor – not significant	<p>WTGs would comprise distant elements, likely to be seen for a small number of days per year.</p> <p>Vertical extent of WTGs visible would be limited by curvature of the Earth.</p> <p>WTGs would be positioned partly behind the operational Triton Knoll Offshore Windfarm.</p> <p>ORCPs would comprise relatively small elements with visibility restricted by meteorological conditions and curvature of the Earth. Intervening vegetation and landform would also prevent views of ORCPs from this specific location.</p>
<p>Viewpoint 3: Saltfleetby-</p>	Medium-high	Low	Moderate/minor – not significant	<p>WTGs would comprise distant elements, likely to be seen for</p>

Viewpoint	Sensitivity	Magnitude	Effect and Significance	Rationale
Theddlethorpe Dunes Distance to array area: 54.5km Distance to ORCPs: 22.3km				a small number of days per year. Vertical extent of turbines visible would be limited by curvature of the Earth. WTGs would be positioned almost entirely behind the operational Triton Knoll Offshore Windfarm. ORCPs would comprise relatively small elements in overall view. ORCPs would be positioned to the right of the principal focus of the view, eastwards towards the North Sea.
Viewpoint 4: Mablethorpe Distance to array area: 53.3km Distance to ORCPs: 15km	Medium-high	Medium-Low	Moderate – potentially significant	WTGs would comprise distant elements, likely to be seen for a small number of days per year. Vertical extent of turbines visible would be limited by curvature of the Earth. WTGs would be positioned entirely behind the operational Triton Knoll Offshore Windfarm. ORCPs would be conspicuous but occupying a small extent of the view. The ORCPs would also be seen in the context of operational baseline offshore windfarms (to the fore of the operational Lincs Offshore Windfarm). ORCPs would be positioned to the right of the principal focus of the view, eastwards towards the North Sea. This level of effect results from the ORCPs rather than elements in the array area.
Viewpoint 5: Chapel Six Marshes	Medium-high	Medium	Major/ moderate – significant	WTGs would comprise distant elements, likely to be seen for

Viewpoint	Sensitivity	Magnitude	Effect and Significance	Rationale
Distance to array area: 54.8km Distance to ORCPs: 7.6km				<p>a small number of days per year.</p> <p>Vertical extent of turbines visible would be limited by curvature of the Earth.</p> <p>WTGs would be positioned almost entirely behind the operational Triton Knoll Offshore Windfarm.</p> <p>ORCPs would be conspicuous but occupying a small extent of the view. The ORCPs would be seen in the context of operational baseline offshore windfarms, positioned to the left of the closest turbines within Linc Offshore Windfarm and to the fore of Race Bank Windfarm. ORCPs would be positioned directly within views eastwards, towards the North Sea and will contribute most to the effects assessed, which are considered to be major/moderate and significant in EIA terms from this viewpoint. This level of effect results from the ORCPs rather than elements in the array area.</p>
Viewpoint 6: Lincolnshire Wolds between Rigsby and Haugh Distance to array area: 65.3km Distance to ORCPs: 20.7km	Medium-high	Negligible	Minor – not significant	<p>WTGs would comprise distant elements, likely to be seen for a small number of days per year.</p> <p>Vertical extent of turbines visible would be limited by curvature of the Earth.</p> <p>WTGs would be positioned entirely behind the operational Triton Knoll Offshore Windfarm.</p> <p>ORCPs would be potentially visible in clear conditions but occupying a small extent of</p>

Viewpoint	Sensitivity	Magnitude	Effect and Significance	Rationale
				the view. They would be seen in the context of an open, panoramic view over the landscape with multiple foci. The North Sea is visible in clear conditions but comprises a relatively small component of the overall scene. The ORCPs would also be theoretically seen in the context of operational baseline offshore windfarms.
North Norfolk				
Viewpoint 7: Wells-next-to-the-Sea Beach Distance to array area: 58.7km Distance to ORCPs: 41.8km	Medium-high	Negligible	Minor – not significant	WTGs would comprise distant elements, likely to be seen for a small number of days per year. Vertical extent of turbines visible would be limited by curvature of the Earth. A small extent of the WTGs would be positioned behind the operational Race Bank/Triton Knoll and Sheringham Shoal/Dudgeon Offshore Windfarms. However, the proposed WTGs would extend across the gap between these operational offshore windfarms. ORCPs would comprise small elements with visibility restricted by meteorological conditions.
Viewpoint 8: Cley Beach Distance to array area: 57.3km Distance to ORCPs: 41.8km	Medium-high	Negligible	Minor – not significant	WTGs would comprise distant elements, likely to be seen for a small number of days per year. Vertical extent of turbines visible would be limited by curvature of the Earth. A large proportion of the WTGs would be positioned behind the operational

Viewpoint	Sensitivity	Magnitude	Effect and Significance	Rationale
				<p>Sheringham Shoal Offshore Windfarm, it would also extend across the gap between Race Bank/Triton Knoll and Sheringham Shoal/Dudgeon Offshore Windfarms.</p> <p>ORCPs would comprise small elements with visibility restricted by meteorological conditions.</p>
<p>Viewpoint 9: Sheringham Distance to array area: 58.9km Distance to ORCPs: not visible</p>	Medium-high	Negligible	Minor – not significant	<p>WTGs would comprise distant elements, likely to be seen for a small number of days per year.</p> <p>Vertical extent of turbines visible would be limited by curvature of the Earth.</p> <p>A large proportion of the WTGs would be positioned behind the operational Sheringham Shoal and Dudgeon Offshore Windfarm, extending across the gap between these baseline developments.</p> <p>ORCPs would comprise small elements with visibility restricted by meteorological conditions.</p>
<p>Viewpoint 10: Sheringham Park, Gazebo Distance to array area: 59.9km Distance to ORCPs: 60.5km</p>	Medium-high	Negligible	Minor – not significant	<p>WTGs would comprise distant elements, likely to be seen for a small number of days per year.</p> <p>Vertical extent of turbines visible would be limited by curvature of the Earth.</p> <p>A large proportion of the WTGs would be positioned behind the operational Sheringham Shoal and Dudgeon Offshore Windfarm, extending across the gap</p>

Viewpoint	Sensitivity	Magnitude	Effect Significance	and	Rationale
					between these baseline developments. ORCPs are not predicted to be visible due to the effect of curvature of the Earth.
Offshore					
Viewpoint 11: Ferry route corridor (southwest of array area) – Kingston upon Hull to Rotterdam or Zeebrugge Distance to array area: 14.2km Distance to ORCPs: 37.2km	Medium/low	Medium/high	Moderate potentially significant	–	WTGs would comprise prominent elements in the middle distance, extending across the horizon to the northeast. They would be seen in the context of operational offshore windfarms, particularly Triton Knoll. Baseline offshore windfarms are located throughout much of the view from this location and the Project would reinforce this pattern. The proposed WTGs would be seen at this proximity for a short duration of the overall journey experienced by ferry passengers. ORCPs would comprise small elements beyond Race Bank Offshore Windfarm, with visibility restricted by meteorological conditions.
Viewpoint 12: Ferry route corridor (northeast of array area) – Newcastle Upon Tyne/North Shields to Amsterdam Distance to array area: 10.8km Distance to ORCPs: not visible	Medium/low	Medium/high	Moderate potentially significant	–	WTGs would comprise prominent elements in the middle distance, extending across the horizon to the southwest. They would be seen in the context of operational offshore windfarms, although those in the same direction as the array area (Dudgeon, Race Bank and Triton Knoll) are relatively distant, all being located over 50km from this viewpoint. The operational

Viewpoint	Sensitivity	Magnitude	Effect and Significance	Rationale
				<p>and consented Hornsea Offshore Windfarms are located in the opposing direction, to the northeast. The proposed WTGs would be seen at this proximity for a short duration of the overall journey experienced by ferry passengers. ORCPs are not predicted to be visible due to the effect of curvature of the Earth.</p>

Summary of Potential Effects on Visual Amenity

- 17.7.68 The Project would introduce new man-made elements into the baseline context of open, expansive seaward views and there would be potential for adverse impacts on visual amenity. The analysis undertaken concentrates on the viewpoints selected in relation to the Project. The landscape context for the Project, and the activity the visual receptors are engaged in, means these are frequently of high sensitivity.
- 17.7.69 Visibility of the offshore elements of the Project, in relation to onshore visual receptors, are most likely to be seen from the coastline. However, there is also potential for these elements to be seen as the landform rises in the vicinity of the Lincolnshire Wolds. Key offshore receptors are likely to comprise people travelling on the ferry routes through the study area and to a lesser degree, due to the likely number of potential receptors, recreational vessels.
- 17.7.70 Based on analysis of the locations from which it is expected that the proposed Project is most likely to be seen, the potential effects resulting from the WTGs are not predicted to be significant at this stage. This is due to a combination of factors including, the intervening distance between the coastline and the array area, together with the associated restrictions to the extent of the WTGs that would be seen due to the effect of curvature of the Earth, and visibility resulting from atmospheric conditions. In addition, the Project is proposed in a seascape beyond an area where there are several baseline OWFs. Therefore, the Project would not be introducing new elements to the landscape or seascape context but would be reinforcing a pattern that has already been established by recent OWF developments and would occur in the backdrop, entirely subsumed behind these operational OWFs – in particular Triton Knoll when viewed from the Lincolnshire coast, and Sheringham Shoal/Dudgeon when viewed from the Norfolk coast.

- 17.7.71 The key elements of the Project that may result in significant adverse effects on visual amenity are the ORCPs. These would be positioned closer to the coastline than the WTGs, with the closest intervening distance being approximately 7.4km. These ORCPs have the potential to comprise relatively prominent structures in views from the closest section of the Lincolnshire coast, for example around Chapel Six Marshes. Whilst they would be seen in the context of the baseline offshore developments, they would have a form that contrasts with the existing WTGs.
- 17.7.72 The absence of potentially significant effects in relation to the Project beyond the coastline closest to the Project, i.e. from viewpoint 5 Chapel Six Marshes, reinforces the appropriateness of the 30km study area for the ORCPs. Significant adverse effects have not been identified towards the edge of the 30km for the ORCPs (or beyond), and this is in the context of relevant receptors along the coastlines and in the Lincolnshire Wolds being of high sensitivity.

Decommissioning

Impact 1: effects of the decommissioning of the ORCPs on seascape and landscape character, landscape designations and visual receptors

- 17.7.73 The effects associated with decommissioning for seascape, landscape and visual receptors would be comparable with those associated with the construction phase. The decommissioning of the offshore elements of the Project has the potential to result in adverse seascape, landscape and visual effects, with these primarily associated with the decommissioning of the ORCPs. Decommissioning activities within the array area have been scoped out of detailed assessment due to the separation distance between the array area and the coastline and the resulting limit on any potential seascape, landscape and visual effects associated with associated decommissioning activities.
- 17.7.74 Decommissioning phase effects on seascape, landscape and visual receptors will occur as a result of the decommissioning activities. This is most likely to result from the presence of jack-up vessels and/or dynamic positioning heavy lift vessels, windfarm service vessels and accommodation vessels, all of which may combine to result in adverse effects.
- 17.7.75 The residual effects arising as a result of the decommissioning of the offshore elements of the Project are assessed as being of the same magnitude and significance on all landscape character receptors as those arising due to their operation and maintenance, with the residual effects being short-term and temporary occurring during the length of the decommissioning phase and differing in nature from the operational effects mainly due the influence of the various decommissioning vessels visible, which will not be present or result in effects during the operational phase.

17.8 Cumulative Impact Assessment

Approach

- 17.8.1 Impacts identified in Section 17.7 have the potential for a cumulative effect on receptors. The Cumulative Effects Assessment (CEA) takes account of the impact associated with the Project together with other relevant plans, projects and activities. Cumulative effects are therefore the additional or combined effect of the Project in combination with the effects from a number of different projects, on the same receptor or resource. Refer to Chapter 1, Chapter 5: EIA Methodology for the over-arching approach to the CEA and use of the Planning Inspectorate’s advice note seventeen.
- 17.8.2 GLVIA3 (Landscape Institute and IEMA 2013, p120) also defines cumulative landscape and visual effects as those that *“result from additional changes to the landscape and visual amenity caused by the proposal 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”*.
- 17.8.3 NatureScot’s guidance, Assessing the Cumulative Impact of Onshore Wind Energy Developments (NatureScot 2012) is widely used across the UK to inform the specific assessment of the cumulative effects of onshore and offshore windfarms. Both GLVIA3 and NatureScot’s guidance provide the basis for the methodology for the cumulative SLVIA undertaken within this chapter. The NatureScot (2012) guidance defines:
- *“Cumulative effects as the additional changes caused by a Proposed Development in conjunction with other similar developments or as the combined effect of a set of developments taken together”* (NatureScot, 2012: p4);
 - *“Cumulative landscape effects are those effects that ‘can impact on either the physical fabric or character of the landscape, or any special values attached to it”* (NatureScot, 2012, p10); and
 - *“Cumulative visual effects are those effects that can be caused by combined visibility, which occurs where the observer is able to see two or more developments from one viewpoint and/or sequential effects which occur when the observer has to move to another viewpoint to see different developments”* (NatureScot, 2012, p11).
- 17.8.4 In line with the Planning Inspectorate, NatureScot guidance and GLVIA3, cumulative effects are assessed in this SLVIA as the additional changes caused by the Project in conjunction with other similar developments (not the totality of the cumulative effect). The CEA assesses the cumulative effect of the Project with other projects (Table 17.3) against the current baseline (Section 17.4), with the assessment of significance apportioning the amount of the effect that is attributable to the Project. The contribution of the Project to the cumulative effect upon the baseline character/view is assessed and information provided on *“how the effects of the applicant’s proposal would combine and interact with the effects of other development”* (the Planning Inspectorate, 2019).

17.8.5 Adjacent developments may complement one another, or may be discordant with one another, and it is the contribution of the Project to these cumulative effects that is assessed in the CEA, such as through design discordance or proliferation of multiple developments affecting characteristics, views or new geographic areas. Judgements are made as to whether character changes are likely to occur because of multiple developments becoming a prevailing characteristic of the seascape or view.

Tier Approach to CEA

17.8.6 In accordance with the Planning Inspectorate's advice on CEA (the Planning Inspectorate, 2019), NatureScot guidance (NatureScot, 2021) and GLVIA3 (para 7.13) (Landscape Institute, 2013), existing projects and those which are under construction (Table 17.13) are included and described as part of the SLVIA baseline conditions, including the extent to which these have altered character and views, and affected sensitivity to windfarm development. As such, the main assessment set out in Section 17.7 has considered the additional effect of the Project in conjunction with a baseline that includes existing operational and under-construction projects. This includes assessment of the Project against magnitude factors such as its size, scale, spread and landscape context, as well as cumulative effect factors relating to the operational and under-construction windfarms, such as its increase in spread, aesthetic relationship, and contrasts of size and spacing of WTGs of the projects.

17.8.7 This CEA sets out a further assessment of the additional cumulative seascape, landscape and visual effects of the Project with other potential future projects.

17.8.8 In undertaking this CEA for the Project, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside the Project. Therefore, a tiered approach has been adopted in line with advice from the Planning Inspectorate on CEA (the Planning Inspectorate, 2019). This provides a framework for placing relative weight upon the potential for each project/plan to be included in the CEA to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the projects' parameters. The tiered approach that has been utilised within the CEA employs the following tiers (the Planning Inspectorate, 2019):

- Tier 1 assessment – all permitted and submitted applications (including those not yet determined), whether under the Planning Act 2008 or other regimes, but not yet implemented;
- Tier 2 assessment – projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted; and
- Tier 3 assessment – projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted; identified in the relevant Development Plan (and emerging Development Plans) recognising that there will be limited information available on the relevant proposals; and identified in other plans and programmes that set the framework for future development consents/approach, where such development is reasonably likely to come forward.

Other Plans, Projects and Activities

- 17.8.9 The second step in the cumulative assessment is the identification of the other plans, projects and activities that may result in cumulative effects for inclusion in the CEA (described as ‘project screening’).
- 17.8.10 All projects considered for CEA across all topics have been identified within Volume 1, Chapter 5: EIA Methodology which forms an exhaustive list of plans, projects and activities relevant to the Project.
- 17.8.11 Those included in the overall short list for the CEA have then been subject to a screening exercise specific to potential cumulative impacts on seascape, landscape and visual receptors (Table 17.13). Each project or plan has been considered on a case-by-case basis for screening in or out of this CEA assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved. Projects screened into the CEA with potential for cumulative impact interactions for seascape, landscape and visual receptors, are mapped in the cumulative search area base plan compiled within the 60km SLVIA study area (Volume 2, Appendix 17.2, Figure 17.16). The specific projects scoped into the CEA for seascape, landscape and visual receptors, are set out in Table 17.13, in accordance with the Scoping Opinion (ID 3.11.9) (The Planning Inspectorate, 2022).

Table 17.13: Summary of projects considered for the CEA in relation to the SLVIA

Development type	Project	Status	Data confidence assessment /phase	Approach to assessment in PEIR
Baseline - Operational and under-construction projects that are part of the baseline and considered as part of main SLVIA assessment set out in Section 17.7.				
Offshore Windfarm	Hornsea Project 1	Operational	High	Cumulative effects scoped out of the SLVIA due to its long distance offshore and lack of visibility from the coastline, as agreed with the Planning Inspectorate (The Planning Inspectorate, 2022) (ID 3.11.9).
Offshore Windfarm	Hornsea Project 2	Operational	High	Cumulative effects scoped out of the SLVIA due to its long distance offshore and lack of visibility from the coastline, as agreed with the Planning Inspectorate (The Planning Inspectorate, 2022) (ID 3.11.9).
Offshore Windfarm	Dudgeon	Operational	High	Considered as part of the baseline conditions in assessment of potential effects (Section 17.7) and baseline for CEA in Section 17.8.
Offshore Windfarm	Humber Gateway	Operational	High	
Offshore Windfarm	Inner Dowsing	Operational	High	

Development type	Project	Status	Data confidence assessment /phase	Approach to assessment in PEIR
Offshore Windfarm	Lincs	Operational	High	
Offshore Windfarm	Lynn	Operational	High	
Offshore Windfarm	Sheringham Shoal	Operational	High	
Offshore Windfarm	Triton Knoll	Operational	High	
Offshore Windfarm	Westermost Rough	Operational	High	
Tier 1 - all permitted and submitted applications, but not yet implemented				
Offshore Windfarm	Hornsea Four	Application stage (submitted but not yet determined)	High	Cumulative effects scoped out of the SLVIA due to its long distance offshore and lack of visibility from the coastline.
Offshore Windfarm	Sheringham Shoal and Dudgeon Extension	Application stage (submitted but not yet determined)	High	Considered as part of the Tier 1 CEA in Section 17.8. Project MDS described further in Tier 1 CEA. Potential for operation and maintenance phase to overlap with the Project's operation and maintenance phase.

Cumulative Effects Assessment (CEA)

Tier 1

- 17.8.12 The Tier 1 CEA assessment considers all permitted and submitted applications that are not yet implemented within the SLVIA study area, as listed in Table 17.13 and shown in Volume 2, Appendix 17.2, Figure 17.16.
- 17.8.13 There is only one Tier 1 project within the SLVIA study area with potential for cumulative impacts with the Project on seascape, landscape and visual receptors. The Sheringham and Dudgeon Extension Project is subject to a single submitted application that is not yet determined. The Sheringham Extension Project (SEP) and Dudgeon Extension Project (DEP) windfarm sites are 15.8km and 26.5km from the coast for SEP and DEP respectively at their closest point (Volume 2, Appendix 17.2, Figures 17.16). The maximum design scenario for SEP and DEP refers to construction and operation of two OWFs comprising up to 53 offshore turbines in total and a maximum blade tip height of 330m.

- 17.8.14 The key offshore components of SEP and DEP comprise wind turbines, offshore substation platform(s), foundation structures, inter-array cables and export cables to the landfall. SEP and DEP will be connected to shore by offshore export cables installed to the landfall at Weybourne, on the north Norfolk coast. From there, the onshore export cables travel approximately 60km inland to a new high voltage alternating current (HVAC) onshore substation near to the existing Norwich Main substation.
- 17.8.15 The preliminary assessment in Table 17.13 has identified that there is potential for the operation and maintenance phase of SEP and DEP to overlap with the Project's operation and maintenance phase, and potential for the construction phases to overlap between 2026 – 2028, leading to potential cumulative impacts on seascape, landscape and visual receptors.
- 17.8.16 The effects identified are considered as being possible to arise only if SEP and DEP receive planning consent and become operational; however it is the case that application stage projects may not ultimately be built in the form that they are submitted, or may not be built at all, introducing some uncertainty that effects assessed in the Tier 1 assessment may not arise in full.
- 17.8.17 The Tier 1 CEA considers the additional cumulative effect of the Project with SEP and DEP, with the assessment of significance apportioning the amount of the effect that is attributable to the Project.
- 17.8.18 The potential for cumulative effects arising in the Tier 1 assessment on views and visual amenity, and perceived effects on seascape and landscape character, is informed by the assessments undertaken in the assessment of potential impacts in Section 17.7. The potential cumulative effects arising with SEP and DEP are a subset of those considered for the Project alone. This is because some of the potential impacts identified and assessed for the Projects alone, are of low or negligible magnitude, or localised geographic extent and temporary in nature and therefore have limited potential to interact significantly with changes associated with other projects.
- 17.8.19 The contribution of the Project to the Tier 1 cumulative effect with SEP and DEP on views/visual amenity, seascape and landscape character is described for each broad geographic region within the SLVIA study area with reference to representative viewpoints on these coastlines and the cumulative wireline visualisations presented in Volume 2, Appendix 17.2, Figures 17.20 – 17.31.

Lincolnshire

- 17.8.20 The potential impacts identified and assessed for the Project alone on receptors in Lincolnshire are of negligible or low magnitude and not significant (as assessed in Section 17.7) for most onshore receptors, increasing to medium-low or medium from the viewpoints from a limited area of coastline closest to the ORCPs.
- 17.8.21 The potential cumulative effects arising with SEP and DEP are a subset of those considered for the Project alone and have limited potential to interact significantly with changes associated with SEP and DEP. This is primarily due to the distance of the Project off the Lincolnshire coast (over 54km), the visible vertical extent of its turbines being limited by curvature of the Earth, likely to be seen for a small number of days per year (see Table 17.7 and the associated analysis) and its position in the background to existing operational Triton Knoll Offshore Windfarm, behind which the Project will be almost entirely subsumed.

- 17.8.22 The cumulative ZTV for SEP in Volume 2, Appendix 17.2, Figure 17.18 and DEP in Volume 2, Appendix 17.2, Figure 17.19 shows the potential geographic extent of combined theoretical visibility of the Project with SEP and DEP. Although this appears to show potential for a wide zone of combined visibility, similar factors limit the potential for cumulative changes arising from DEP and SEP, which will be located approximately 47km (SEP) and 57km (DEP), from the closest part of the Lincolnshire coast, behind operational windfarms (Inner Dowsing, Lincs, Lynn and Race Bank) and DEP and SEP will result in a negligible (project alone) magnitude of change to views from the Lincolnshire coast. Not significant effects are identified in the SLVIA for SEP and DEP (Equinor, 2022 - Volume 1, Chapter 25).
- 17.8.23 SEP and DEP are shown in the wireline visualisations from Lincolnshire in Viewpoints 2 – 6 (Volume 2, Appendix 17.2, Figures 7.21 to Figure 7.25). The cumulative wirelines from these viewpoints illustrate that there would be potential for the Project to be visible in combination with SEP and DEP from the southern part of the SLVIA study area, from the closest parts of the Lincolnshire coastline, located in the wide easterly offshore views. Both the Project (54km), SEP (47km) and DEP (57km) will form visually recessive distant elements subsumed behind either the operational Triton Knoll or Inner Dowsing, Lynn, Lincs and Race Bank offshore windfarms. The Project, SEP and DEP will appear distant and recessive, introducing elements that are substantially characteristic in the receiving views with a similar form and which will appear notably smaller in apparent scale due to their longer distance from viewpoints and will frequently not be visible in the prevailing weather conditions.
- 17.8.24 The contribution of the Project to the cumulative effect with DEP and SEP on views and visual amenity experienced from the Lincolnshire coastline within the SLVIA study area is assessed as being of low to negligible magnitude. Consequently, even for receptors of high sensitivity at the coast or within AONBs, its resulting contribution to the cumulative effect on views and perceived character of the seascape/landscape is assessed as being not significant (moderate/minor), reducing further for receptors of lower sensitivity to change and at greater distance moving away from the closest sections of the Lincolnshire coastline.

North Norfolk

- 17.8.25 The potential impacts identified and assessed for the Project alone on receptors in North Norfolk are of negligible magnitude and not significant (as assessed in Section 17.7) for all seascape, landscape and visual receptors. It is considered that these potential impacts of the offshore elements of the Project have limited potential to interact with changes associated with SEP and DEP on onshore seascape, landscape and visual receptors.
- 17.8.26 The potential cumulative effects arising with SEP and DEP are a subset of those considered for the Project alone and have limited potential to interact significantly with changes associated with SEP and DEP. This is primarily due to the distance of the Project off the North Norfolk coast (over 54km), the visible vertical extent of its turbines being limited by curvature of the Earth, likely to be seen for a small number of days per year (see Table 17.7 and the associated analysis) and its position in the background to the existing operational Sheringham Shoal, Dudgeon and Race Bank Offshore Windfarms, behind which the Project will be almost entirely subsumed.

- 17.8.27 The cumulative ZTV for SEP in Volume 2, Appendix 17.2, Figure 17.18 and DEP in Volume 2, Appendix 17.2, Figure 17.19 shows the potential geographic extent of combined theoretical visibility of the Project with SEP and DEP. SEP and DEP are located at closer range to the North Norfolk coast, approximately 15.8km and 26.5km respectively, such that they have the potential to result in a medium-large (project alone) magnitude of change to views from the closest parts of the North Norfolk coast (as identified in the SLVIA for SEP and DEP) (Equinor, 2022 - Volume 1, Chapter 25). The potential for cumulative changes arising from the Project is however limited by its long distance off the North Norfolk coast (approximately 57 km) and its position subsumed behind DEP and SEP, and the operational Sheringham Shoal, Dudgeon and Race Bank offshore windfarms.
- 17.8.28 SEP and DEP are shown in the wireline visualisations from Norfolk in Viewpoints 7 – 10 (Volume 2, Appendix 17.2, Figures 7.26 to Figure 7.29). The cumulative wirelines from these viewpoints illustrate that there would be potential for the Project to be visible in combination with SEP and DEP from the North Norfolk coast of the SLVIA study area, however the Project (57km) will form visually recessive distant elements subsumed behind SEP, DEP and the operational offshore windfarms, small in apparent scale and frequently not be visible in the prevailing weather conditions.
- 17.8.29 The contribution of the Project to the cumulative effect with DEP and SEP on views and visual amenity experienced from the North Norfolk coastline within the SLVIA study area is assessed as being of negligible magnitude. Consequently, even for receptors of high sensitivity at the coast or within AONBs, its resulting contribution to the cumulative effect on views and perceived character of the seascape/landscape is assessed as being not significant (minor), reducing further for receptors of lower sensitivity to change and at greater distance moving away from the closest sections of the North Norfolk coastline. It is also predicted that there would not be a significant cumulative effect on the special qualities or characteristics of the Norfolk Coast AONB.

17.9 Inter-Relationships

- 17.9.1 There are clear inter-relationships between the seascape, landscape and visual assessment and several other topics, that have been considered within this PEIR. Table 17.14 sets out the inter-relationships between this chapter and the other chapters within the PEIR and signposts to where those issues have been addressed in the relevant chapters.

Table 17.14: Potential inter-relationships between the SLVIA and other chapters within the PEIR

Topic/Chapter	Where Addressed in the SLVIA	Rationale
Volume 1, Chapter 27: Landscape and Visual Impact Assessment	Section 17.7	Both chapters consider the potential effects of the Project on landscape and visual receptors. Volume 1, Chapter 27 considers the effects of the onshore elements of the Project on these receptors whilst this SLVIA chapter considers the effects of the offshore elements of the Project.
Volume 1, Chapter 20: Onshore Archaeology and Cultural Heritage	Section 17.7	The visualisations and figures associated with the SLVIA (Volume 2, Appendix 17.2, Figures 17.20 to 17.31) are also used to support the assessment in

Topic/Chapter	Where Addressed in the SLVIA	Rationale
		Volume 1, Chapter 20: Onshore Archaeology and Cultural Heritage. Both chapters consider the potential effects of the visibility of offshore elements of the Project on onshore landscape and visual receptors. The SLVIA considers this in terms of the effects on visual amenity and landscape character whilst Volume 1, Chapter 13: Marine and Intertidal Archaeology considers visibility of the offshore elements of the Project in relation to the settings of the cultural heritage assets. Registered Historic Parks and Gardens are referenced in the SLVIA where they are relevant to the value or view. The impact on these receptors is assessed in Volume 1, Chapter 20.
Volume 1, Chapter 28: Socio-Economic Characteristics		The visualisations and figures associated with the SLVIA (Volume 2, Appendix 17.2, Figure 17.20 to 17.31) are also used to support the assessment in Volume 1, Chapter 28. Both chapters consider the potential effects of the offshore elements of the Project on the visual amenity of recreational users in the local area.

17.9.2 The inter-relationship between the SLVIA effects of the offshore elements of the Project and the landscape and visual effects of the onshore elements of the Project occurs where landscape and visual receptors may be materially impacted through visibility of both parts of the Project.

17.9.3 The offshore elements of the Project only affect landscape receptors through visibility as part of the setting which may affect landscape character, however the onshore elements of the Project also affect the landscape physically, which in turn may affect landscape character.

17.9.4 The landscape character and visual effects of the onshore elements of the Project are relatively localised whilst the effects of the offshore elements of the Project are more widespread. The areas where there is a strong interrelationship between these effects occurs only where they coincide to affect the same receptors.

17.10 Transboundary Effects

17.10.1 A description of how potential transboundary effects will be assessed is outlined in Volume 1, Chapter 5: EIA Methodology. The SLVIA study area is located entirely outside the European Union (EU) territorial waters and the coastline of the Netherlands, Belgium and France are all located over 200km from the array area.

- 17.10.2 Due to the long distance of these respective coastlines, the position of EU territorial waters outside the SLVIA study area and the concentrated nature of any potential impacts on the seascape, landscape and visual resource to the UK coastline within the SLVIA study area, transboundary impacts will not occur on seascape, landscape or visual receptors and therefore transboundary impacts have been scoped out from further consideration within the SLVIA.
- 17.10.3 The Scoping Report proposed to scope this matter out of further assessment on the grounds that there are unlikely to be any transboundary effects because of the distance between the Project and the boundaries of EEA States. The Planning Inspectorate agreed that effects on an EEA State are unlikely, and this matter could be scoped out of further assessment.

17.11 Conclusions

- 17.11.1 The SLVIA chapter of the PEIR identifies and assesses the potential significance of changes resulting from the construction, operation and decommissioning of the offshore elements of the Project within the array area and the Offshore ECC. This is carried out in relation to both the seascape character and landscape character as environmental resources in their own right, and on peoples' views and visual amenity.
- 17.11.2 Aspects of the Project have been scoped out of the SLVIA, as set out in Table 17.2. These include the construction and decommissioning of structures within the array area, the construction, operation and decommissioning of the Offshore ECC and the effects of aviation and navigation lighting within the array area.
- 17.11.3 Table 17.15 provides an overview of the potential effects of the offshore elements of the Project.

Table 17.15: Summary of potential seascape, landscape and visual effects

Description of effect	Effect	Additional mitigation measures	Residual impact
Construction			
Impact 1: effects of the construction of the ORCPs on seascape and landscape character, landscape designations and visual receptors	Changes to the perception of seascape/landscape character, landscape designations and visual amenity.	Not Applicable – no additional mitigation identified	Potential for significant effects on the Donna Nook to Gibraltar Point Naturalistic Coast LCA. More limited and not significant effects identified in relation to other LCAs and designations. Potential for significant effects identified in relation to visual receptors on the closest part of the coastline, as reflected by Viewpoint 5 at Chapel Six Marshes.
Operation and Maintenance			
Impact 1: effects of the array area on seascape and	Changes to the perception of seascape/	Not Applicable – no additional	No significant effects identified in relation to offshore elements of the Project in the array area, due to a

Description of effect	Effect	Additional mitigation measures	Residual impact
landscape character, landscape designations and visual receptors	landscape character, landscape designations and visual amenity.	mitigation identified	combination of distance, curvature of the earth, presence of baseline windfarm development and, in the context of ferry passengers, the duration the WTGs are likely to be prominent elements.
Impact 2: effects of the ORCPs on seascape and landscape character, landscape designations and visual receptors	Changes to the perception of seascape/ landscape character, landscape designations and visual amenity.	Not Applicable – no additional mitigation identified	Potential for significant effects on the Donna Nook to Gibraltar Point Naturalistic Coast LCA. More limited and not significant effects identified in relation to other LCAs and designations. Potential for significant effects identified in relation to visual receptors on the closest part of the coastline, as reflected by Viewpoint 5 at Chapel Six Marshes.
Decommissioning			
Impact 1: effects of the decommissioning of the ORCPs on seascape and landscape character, landscape designations and visual receptors	Changes to the perception of seascape/ landscape character, landscape designations and visual amenity.	Not Applicable – no additional mitigation identified	Potential for significant effects on the Donna Nook to Gibraltar Point Naturalistic Coast LCA. More limited and not significant effects identified in relation to other LCAs and designations. Potential for significant effects identified in relation to visual receptors on the closest part of the coastline, as reflected by Viewpoint 5 at Chapel Six Marshes.

Cumulative

Potential cumulative effects are considered based on the introduction of the Project in the context of the baseline operational and consented OWFs

- 17.11.4 In broad terms the potential effects of the offshore elements of the Project are not predicted to be significant in relation to seascape, landscape and visual receptors. However, there is potential for significant effects on landscape and visual receptors to occur. These significant effects relate to the ORCPs due to their relative proximity to parts of the Lincolnshire coastline and are associated with the closest onshore landscape and visual receptors to the ORCPs. The project design parameters may evolve prior to the preparation of the ES and the potential for significant effects will continue to be evaluated, together with the potential extent of these effects.

- 17.11.5 There are nationally designated landscapes within the SLVIA study area for the Project: the Lincolnshire Wolds AONB and Norfolk Coast AONB. However, it is assessed that the effects on landscape and visual receptors within these designated landscapes would not be significant, as a result of the Project. Therefore, it is considered that the Project would not adversely affect the defined special qualities or statutory purposes of the Lincolnshire Wolds AONB or Norfolk Coast AONB designations.
- 17.11.6 As referred to in Section 17.3 comments have been received from Natural England in April 2023 in relation to the SLVIA scope. These comments set out that Natural England agree that potential effects resulting from elements of the Project in the array area are likely to result in limited effects on landscape and visual receptors, including the designated/defined landscape at Spurn Head and the Norfolk Coast AONB. Natural England has also identified that they consider the key issues are likely to be associated with the ORCPs. Therefore, subject to further dialogue and agreement through stakeholder consultation, it is likely that the SLVIA in the ES will concentrate on the ORCPs.

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