



Hornsea Project Four: Preliminary Environmental Information Report (PEIR)

Volume 2: Chapter 11: Seascape, Landscape and Visual Resources

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Glossary

Term	Definition
Commitment	A term used interchangeably with mitigation. Commitments are embedded mitigation measures. Commitments are either primary (design) or tertiary (Inherent) and embedded within the assessment at the relevant point in the Environmental Impact Assessment (EIA) (e.g. at Scoping or Preliminary Environmental Information Report (PEIR)). The purpose of Commitments are to reduce and/or eliminate Likely Significant Effects (LSEs), in EIA terms.
Cumulative effects	The combined effect of Hornsea Four in combination with the effects from 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 Hornsea Four.
Design Envelope	A description of the range of possible elements that make up the Hornsea Four design options under consideration, as set out in detail in the project description. This envelope is used to define Hornsea Four 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.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Projects (NSIP).
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
EIA Directive	European Union Directive 85/337/EEC, as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC and then codified by Directive 2011/92/EU of 13 December 2011 (as amended in 2014 by Directive 2014/52/EU).
EIA Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended).
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 EIA Directive and EIA Regulations, including the publication of an Environmental Impact Assessment (EIA) Report.
Environmental Impact Assessment (EIA) Report	A document reporting the findings of the EIA and produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations.
Export cable corridor (ECC)	The specific corridor of seabed (seaward of Mean High Water Springs (MHWS)) and land (landward of MHWS) from the Hornsea Project Four array area to the Creyke Beck National Grid substation, within which the export cables will be located.
High Voltage Alternating Current (HVAC)	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.
High Voltage Direct Current (HVDC)	High voltage direct current is the bulk transmission of electricity by direct current (DC), whereby the flow of electric charge is in one direction.

Term	Definition
Hornsea Four	The proposed Hornsea Project Four offshore wind farm project; the term covers all elements within the DCO (i.e. both the offshore and onshore components).
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape effects	Effects on the landscape as a resource in its own right.
Mitigation	A term used interchangeably with Commitment(s) by Hornsea Four. Mitigation measures (Commitments) are embedded within the assessment at the relevant point in the EIA (e.g. at Scoping or PEIR).
Seascape	Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other.
Visual amenity	The overall pleasantness of the views people enjoy within their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating or travelling through an area.
Visual effects	Effects on specific views and on the general visual amenity experienced by people.

Acronyms

Acronym	Definition
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
CAA	Civil Aviation Authority
CEA	Cumulative Effects Assessment
DCO	Development Consent Order
DTM	Digital Terrain Model
ECC	Export Cable Corridor
EEA	European Economic Area
EIA	Environmental Impact Assessment
ERYC	East Riding of Yorkshire Council
ES	Environmental Statement
FHHC	Flamborough Headland Heritage Coast
GLVIA3	Guidelines for Landscape and Visual Impact Assessment 3rd Edition
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IEMA	Institute of Environmental Management and Assessment
IPC	Infrastructure Planning Commission (now replaced by PINS)
LAT	Lowest Astronomical Tide
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LUC	Land Use Consultants
LVIA	Landscape and Visual Impact Assessment

Acronym	Definition
MCA	Marine Character Area
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MOD	Ministry of Defence
MPA	Marine Plan Areas
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OPEN	Optimised Environments Limited
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
ProW	Public Right of Way
RYA	Royal Yachting Association
SVIA	Seascape and Visual Impact Assessment
SLVR	Seascape, Landscape and Visual Resources
SNH	Scottish Natural Heritage
WTG	Wind turbine generator
YWIL	Yorkshire Wolds Important Landscape
ZTV	Zone of Theoretical Visibility

Units

Unit	Definition
km	Kilometre
m	Metre

11.1 Introduction

11.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the results to date of the Environmental Impact Assessment (EIA) for the potential impacts of the Hornsea Project Four offshore wind farm (hereafter Hornsea Four) on the Seascape, Landscape and Visual Resource (SLVR). Specifically, this chapter considers the potential impact of Hornsea Four seaward of Mean Low Water Springs (MLWS) during its construction, operation and maintenance, and decommissioning phases.

11.1.1.2 Ørsted Hornsea Project Four Limited (the Applicant) is proposing to develop Hornsea Four. Hornsea Four will be located approximately 65 km from the East Riding of Yorkshire in the Southern North Sea and will be the fourth project to be developed in the former Hornsea Zone (please see [Volume 1, Chapter 1: Introduction](#) for further details on the Hornsea Zone). Hornsea Four will include both offshore and onshore infrastructure including an offshore generating station (wind farm), export cables to landfall, and connection to the electricity transmission network (please see [Volume 1, Chapter 4: Project Description](#) for full details on the Project Design).

11.1.1.3 This chapter summarises information contained within the technical report, which is included at [Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#). The Technical Report and this Chapter are supported by visualisations contained in [Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations](#).

11.1.1.4 This chapter characterises the seascape, landscape and visual resources within and around Hornsea Four (namely the Hornsea Four array area and the offshore cable corridor up to Mean High Water Springs (MHWS)). A separate Landscape and Visual Impact Assessment (LVIA) ([Volume 3, Chapter 4: Landscape and Visual](#)) has been prepared for the onshore elements of Hornsea Four landward of MHWS.

11.2 Purpose

11.2.1.1 This PEIR presents the preliminary environmental information for Hornsea Four and sets out the findings of the EIA to date to support the pre-Development Consent Order (DCO) application consultation activities required under the Planning Act 2008.

11.2.1.2 The feedback from this consultation will be used to inform the final project design and the associated EIA (which will be reported in an Environmental Statement (ES)) that will accompany the DCO application to the Planning Inspectorate (PINS).

11.2.1.3 This PEIR chapter:

- Presents the existing environmental baseline established from desk studies and consultation;
- Presents the potential environmental effects on the seascape, landscape and visual resource arising from Hornsea Four, based on the information gathered and the analysis and assessments undertaken to date;
- Identifies any assumptions and limitations encountered in compiling the environmental information; and

- Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

11.3 Planning and Policy Context

11.3.1.1 Planning policy on offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to the seascape, landscape and visual resource, is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1; DECC, 2011a) and the NPS for Renewable Energy Infrastructure (EN-3, DECC, 2011b).

11.3.1.2 NPS EN-1 and NPS EN-3 include guidance on what matters are to be considered in the assessment. These are summarised in [Table 11.1](#) below.

Table 11.1: Summary of NPS EN-2 and EN-3 provisions relevant to seascape, landscape and visual resources.

Summary of NPS EN-1 and EN-3 provisions	How and where considered in the PEIR
Paragraph 5.9.5 of EN-1 advises that <i>"The applicant should carry out a landscape and visual assessment and makes reference to the following documents: Landscape Institute and Institute of Environmental Management and Assessment (2002, 2nd edition): Guidelines for Landscape and Visual Impact Assessment; and Land Use Consultants (2002): Landscape Character Assessment – Guidance for England and Scotland."</i>	This SLVR assessment has been prepared following the updated versions of these documents ^{1,2} .
Paragraph 5.9.5 of EN-1 advises 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."</i>	Published character assessments for the study area and policies are referred to in Section 11.7.1 of this SLVR assessment and Section 11.7.1 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report .
Paragraph 5.9.6 of EN-1 advises that <i>"The applicant's assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character."</i>	The effect on landscape components and landscape character during construction and operation are assessed in Section 11.12 of the SLVR assessment.
Paragraph 5.9.7 of EN-1 advises that <i>"The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity."</i>	The visual effect of Hornsea Four during construction and operation are assessed in Section 11.12 of the SLVR assessment.
Paragraph 5.9.9 of EN-1 advises 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 scenic"</i>	No part of the Hornsea Four offshore PEIR boundary coincides with any such areas. The SLVR study areas do not include any part of these designated areas.

¹ The Guidelines for Landscape and Visual Impact Assessment' (GLVIA) (2002, 2nd edition) has been superseded by GLVIA 3rd edition.

² Landscape Character Assessment – Guidance for England and Scotland has been superseded by Natural England's 'An Approach to Landscape Character Assessment'.

Summary of NPS EN-1 and EN-3 provisions	How and where considered in the PEIR
<p><i>beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the IPC should have regard to in its decisions. The conservation of the natural beauty of the landscape and countryside should be given substantial weight by the IPC in deciding on applications for development consent in these areas."</i></p>	
<p>Paragraph 5.9.10 of EN-1 advises that "Nevertheless, the IPC may grant development consent in these areas in exceptional circumstances. The development should be demonstrated to be in the public interest and consideration of such applications should include an assessment of:</p> <ul style="list-style-type: none"> • the need for the development, including in terms of national considerations, and the impact of consenting or not consenting it upon the local economy; • the cost of, and scope for, developing elsewhere outside the designated area or meeting the need for it in some other way, taking account of the policy on alternatives set out in Section 4.4; and • any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated." 	<p>No part of the Hornsea Four offshore PEIR boundary coincides with any such areas. The SLVR study areas do not include any part of these designated areas.</p>
<p>Paragraph 5.9.11 of EN-1 advises that: "The IPC should ensure that any projects consented in these designated areas should be carried out to high environmental standards, including through the application of appropriate requirements where necessary."</p>	<p>No part of the Hornsea Four offshore PEIR boundary coincides with any such areas. The SLVR study areas do not include any part of these designated areas.</p>
<p>Paragraph 2.6.201 of EN-3 advises that: "Some applications for offshore wind farms that are submitted to the IPC will be proposed at distances that mean that a project would not be visible from the shore. In these instances, the IPC is likely to be able to conclude that an SVIA will not be required."</p>	<p>The potential visibility of the offshore wind farm from the shore is described in Section 11.5 and in Section 2 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report.</p>
<p>Paragraph 2.6.202 of EN-3 advises that: "Where a proposed offshore wind farm 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".</p>	<p>The potential visibility of the offshore wind farm from the shore is described in Section 11.5 and in Section 2 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report.</p> <p>Seascape effects are assessed in Section 11.12 and Table 11.10.</p>
<p>Paragraph 2.6.203 of EN-3 advises that: "Where necessary, assessment of the seascape should include an assessment of three principal considerations on the likely effect of offshore wind farms on the coast:</p> <ul style="list-style-type: none"> • limit of visual perception from the coast; • individual characteristics of the coast which affect its capacity to absorb a development; and • how people perceive and interact with the seascape." 	<p>The limit of visual perception from the coast is described in Section 11.5 and in Section 2 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report.</p> <p>The individual characteristics of the coast are described in Section 5 of Volume 5,</p>

Summary of NPS EN-1 and EN-3 provisions	How and where considered in the PEIR
	<p>Annex 11.1: Seascape, Landscape and Visual Resources Technical Report.</p> <p>How people perceive and interact with the seascape is described in Table 11.12 and Section 6 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report.</p>
<p>Paragraph 2.6.204 of EN-3 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 included in the scoping request and an additional viewpoint location for a wireline view was requested by Natural England as noted in Table 11.3. Two of the viewpoints on the Newcastle – Amsterdam ferry route have been moved slightly to be located on the current route. Wireline views are included in Volume 5 Annex 5.2: SLVR Visualisations.</p>
<p>Paragraph 2.6.205 of EN-3 advises that: <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 is set out in Section 11.11. The assessments of the magnitude of change on the seascape and visual receptors are contained in Table 11.10 and Table 11.12 respectively.</p>
<p>Paragraph 2.6.206 of EN-3 advises that: <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 cumulative assessment is contained in Section 11.13.</p>

11.3.1.3 NPS EN-1 and NPS EN-3 also highlight several factors relating to the determination of an application and in relation to mitigation. These are summarised in [Table 11.2](#) below.

Table 11.2: Summary of NPS EN-1 and EN-3 policy on decision making relevant to seascape, landscape and visual resources.

Summary of NPS EN-1 and EN-3 provisions	How and where considered in the PEIR
<p>Paragraph 5.9.8 of EN-1 advises that <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 character assessment contained in Section 11.12. Reference should be made to Section 11.9 for relevant information on mitigation.</p>
<p>Paragraph 5.9.12 and Paragraph 5.9.13 of EN-1 advise that <i>“The duty to have regard to the purposes of nationally designated areas</i></p>	<p>The SLVR study areas for Hornsea Four do not include any areas that have been</p>

Summary of NPS EN-1 and EN-3 provisions	How and where considered in the PEIR
<p><i>also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints.’... and paragraph 5.9.13 advises “The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent.”</i></p>	<p>nationally designated for their landscape value.</p>
<p>Paragraph 5.9.14 of EN-1 advises that <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>An assessment of the effects on the Flamborough Headland Heritage Coast (FHHC) has been made in Section 11.12. This is not strictly a designated area, but an area that has been defined due to its value and characteristics. The Yorkshire Wolds Important Landscape has been designated by East Riding of Yorkshire Council (ERYC) and effects on this are assessed in Section 11.12.</p>
<p>Paragraph 5.9.15 of EN-1 advises that: <i>“The scale of such projects means that they will often be visible within many miles of the site of the proposed infrastructure. The IPC 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>Noted. The effects on the landscape are assessed in Section 11.12.</p>
<p>Paragraph 5.9.16 of EN-1 advises that: <i>“In reaching a judgment, the IPC should consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse impact on the landscape will be capable of being reversed in a timescale that the IPC considers reasonable.”</i></p>	<p>Noted. The effects on the landscape and their duration/reversibility are assessed in Section 11.12.</p>
<p>Paragraph 5.9.17 of EN-1 advises that <i>“The IPC [now the Planning Inspectorate and the Secretary of State] should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation.”</i></p>	<p>Volume 1, Chapter 3: Site Selection and Consideration of Alternatives sets out the iterative process that has influenced the design of Hornsea Four. The mitigation of landscape and visual effects has been considered in the SLVR assessment, to minimise ‘harm to the landscape’ where possible.</p>
<p>Paragraph 5.9.18 of EN-1 advises that: <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 visual effects on sensitive receptors and coastal areas are assessed in Section 11.12.</p>
<p>Paragraph 5.9.19 of EN-1 advises that: <i>“It may be helpful for applicants to draw attention, in the supporting evidence to their</i></p>	<p>Examples of this are provided in Section 11.16.</p>

Summary of NPS EN-1 and EN-3 provisions	How and where considered in the PEIR
<p><i>applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors. This may assist the IPC in judging the weight it should give to the assessed visual impacts of the proposed development."</i></p>	
<p>Paragraph 5.9.21 of EN-1 advises that: <i>"Reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design of a proposed energy infrastructure project may result in a significant operational constraint and reduction in function – for example, the electricity generation output. There may, however, be exceptional circumstances, where mitigation could have a very significant benefit and warrant a small reduction in function. In these circumstances, the IPC may decide that the benefits of the mitigation to reduce the landscape and/or visual effects outweigh the marginal loss of function."</i></p>	<p>Reference should be made to Section 11.9 for relevant information.</p>
<p>5.9.22 of EN-1 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>Reference should be made to Section 11.9 for relevant information.</p>
<p>Paragraph 5.9.23 of EN-1 advises that: <i>"Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site. For example, filling in gaps in existing tree and hedge lines would mitigate the impact when viewed from a more distant vista."</i></p>	<p>Off-site landscape works have not been considered for the mitigation of the visibility of the offshore elements of Hornsea Four since it is considered unlikely to be effective.</p>
<p>Paragraph 2.4.2 of EN-3 <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>Reference should be made to Section 11.9 for relevant information.</p>
<p>Paragraph 2.6.207 of EN-3 advises that: <i>"The IPC should assess the proposal in accordance with the policy set out in the landscape and visual impacts Section 5.9 of EN-1."</i></p>	<p>Noted.</p>
<p>Paragraph 2.6.208 of EN-3 advises that: <i>"Where a proposed offshore wind farm is within sight of the coast, there may be adverse effects. The IPC 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"> <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 taking account of the sensitivity of the receptor(s) as set out in EN-1 paragraph 5.9.18, the harmful effects are considered to outweigh the benefits of the proposed scheme."</i> 	<p>The visibility of the offshore windfarm from the coast is described in Section 11.5 and in Section 2 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report.</p> <p>The SLVR effects are assessed in Section 11.12 and this includes the extent to which the effects are temporary or reversible.</p>

Summary of NPS EN-1 and EN-3 provisions	How and where considered in the PEIR
And at paragraph 2.6.209 "Where adverse effects are anticipated either during the construction or operational phases, in coming to a judgement, the IPC should take into account the extent to which the effects are temporary or reversible."	
Paragraph 2.6.210 of EN-3 advises that: "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 IPC should expect it to be unlikely that mitigation in the form of reduction in scale will be feasible. However, the layout of the turbines should be designed appropriately to minimise harm, taking into account other constraints such as ecological effects, safety reasons or engineering and design parameters."	Reference should be made to Section 11.9 for relevant information.

11.4 Consultation

- 11.4.1.1 Consultation is a key part of the DCO application process. Consultation regarding SLVR has to date been conducted through the Scoping Report (Ørsted, 2018). An overview of the project consultation process is presented within [Volume 1, Chapter 6: Consultation](#).
- 11.4.1.2 A summary of the key issues raised during consultation specific to seascape, landscape and visual resources is outlined below in [Table 11.3](#), together with how these issues have been considered in the production of this PEIR.

Table 11.3: Consultation Responses.

Consultee	Date, Document, Forum	Comment	Where addressed in the PEIR
PINS	26 November 2019 Scoping Opinion.	Without greater certainty in relation to the anticipated magnitude of impact at the Heritage Coast, the Planning Inspectorate cannot agree to scope this matter out of the ES as there may be significant effects on the Heritage Coast designation.	The daytime effect of the HVAC booster stations on the Flamborough Headland Heritage Coast (FHHC) is assessed in Section 11.12 . The night-time effect of the HVAC booster stations on the FHHC is assessed in Section 11.12 . A viewpoint at FHHC has been included in Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations . Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report sets out the methodology for

Consultee	Date, Document, Forum	Comment	Where addressed in the PEIR
			the seascape, landscape and visual assessment.
PINS	26 November 2019 Scoping Opinion.	The Planning Inspectorate advises that effect on seascape character should not be scoped out of the ES and that an assessment should be made where likely significant effects could occur.	The effects on Historic Seascape Character are assessed in Chapter 10, Marine Archaeology and Volume 5, Annex 10.1: Marine Archaeology Technical Report . The SLVR includes consideration of the Sea Surface elements of this as part of the assessment of the effects on Marine Character Areas set out in Section 11.12 .
PINS	26 November 2019 Scoping Opinion.	Paragraph 6.11.4.6 acknowledges that the increased influence of nearby offshore wind farm developments is of particular importance. However, there is little justification given as to why cumulative impacts on seascape and visual impact should be scoped out (either in this section, or in Section 8 Cumulative Effects). The Planning Inspectorate does not agree to scope this aspect out of the ES based on current information.	The assessment of cumulative effects is set out in Section 11.13 .
PINS	26 November 2019 Scoping Opinion.	In relation to the study area it is advised that <i>"The Scoping Report does not explain how the study area for the assessment has been derived. The Inspectorate does not agree to an arbitrary radius for a study area (50km for the array area or 25km for the offshore substation) and advises that the study area is informed by the extent of the likely impacts."</i>	The rationale and justification for the SLVR HVAC booster stations and SLVR Hornsea Four array area study area radii is set out in Section 11.5 of this Chapter with the background to this included in Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report .
Natural England	26 November 2019 Scoping Opinion.	In relation to the FHHC (relevant section 6.11 p281 and p307 of the scoping report). Natural England advises that <i>"there is the potential for indirect effects on the visual and seascape setting of Flamborough Head Heritage Coast (FHHC)".</i> Natural England <i>"advise that evidence is provided in the ES which demonstrates that no adverse effect will result from the operational phase of the scheme on the seascape setting of this Heritage Coast."</i>	The effects of Hornsea Four on the FHHC is considered in Section 11.12 . The rationale for the SLVR HVAC booster stations and SLVR Hornsea Four array area study area radii is set out in Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report .

Consultee	Date, Document, Forum	Comment	Where addressed in the PEIR
		Natural England advises that <i>"the 50 km visual buffer proposed, which although greater than that recommended by the SNH guidance, may be insufficient in this instance."</i>	
Natural England	26 November 2019 Scoping Opinion.	Reference is made at 6.11.3.19 (p.295) of the scoping request to paragraph 114 of the NPPF (2012). Planning policy in respect of Heritage Coasts was updated in the 2018 revision of the NPPF.	Noted.
Natural England	26 November 2019 Scoping Opinion.	<i>"We request therefore that an additional viewpoint is provided located at the most easterly publicly accessible point of the FHHC and that a wireframe diagram is created and included in the ES. In addition, that an appropriate assessment is provided which considers the potential for adverse effects on the special character of the FHHC and the implications of this for visual receptors i.e. people who visit the HC to enjoy the visual amenity provided by this defined landscape."</i>	A viewpoint wireline at FHHC has been included in Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations . The assessment of the effects on the FHHC special character and visual receptors is included in Section 11.12 .
ERYC	22 January 2019 Scoping Opinion	The Scoping Report is considered very comprehensive and includes the issues ERYC would expect to see in an Environmental Impact Assessment (EIA). The proportionate approach taken where certain aspects can be scoped out is considered appropriate. The Scoping boundary with buffers is appropriate.	Noted
ERYC	22 January 2019 Scoping Opinion	Due to distances involved onshore impacts from the turbines themselves and HVAC booster can be scoped out.	Noted
ERYC	22 January 2019 Scoping Opinion	The Flamborough Head Heritage Coast is an important consideration in terms of views offshore, and to scope out the potential impact should be demonstrated by suitable visualisations.	An assessment of the effects of the HVAC booster stations on the Yorkshire Wolds local landscape designation and the FHHC is included in Section 11.12 . A viewpoint at FHHC has been included in Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations . The rationale for determining the Hornsea Four array area study area and for scoping out the effects of the Hornsea Four

Consultee	Date, Document, Forum	Comment	Where addressed in the PEIR
			array area on the FHHC is included Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report .
Historic England	26 November 2019 Scoping Opinion	Methodologies that can help to inform the extent of the study area include a Visual Impact Assessment and the production of a Zone of Theoretical Visibility (ZTV) in line with current guidance. The ZTV of the proposed development should initially be based on topographical data before the impact of existing trees and buildings etc. on lines of sight is assessed.	A visual impact assessment has been prepared and is included in Section 11.12 of this Chapter. ZTVs for the Hornsea Four array area and HVAC booster stations, shown in Figure 11.7 , Figure 11.8 , Figure 11.9 and Figure 11.10 , were prepared based on a bare ground digital terrain model.
Historic England	26 November 2019 Scoping Opinion	Given the height of the structures associated with the proposed development at the southern end of the service prove connection and the surrounding landscape character, this development is likely to be visible across a large area and could, as a result, affect the significance of heritage assets at some distance from this site itself. Consideration should be given to undertaking a practical exercise with either a crane or balloons erected at the height of the proposed structures so that all parties are to better able to understand the landscape impact of the proposals. We have been engaged in other major developments where this technique has been used and it greatly assisted the identification of the key issues and impacts from which the resulting EIA was able to focus its assessment.	Noted. Whilst this may be a practical approach for onshore development it is unlikely to be practical for the offshore WTGs.

11.5 Study area

11.5.1.1 The study areas for this SLVR assessment include areas both onshore and offshore where receptors may be affected by the offshore components of Hornsea Four. These are shown on [Figure 11.1](#) and defined as follows:

- The SLVR Hornsea Four array area study area – 50 km radius study area from array area boundary and including the array area itself;
- SLVR Hornsea Four offshore ECC study area – the area within which the cables may be located; and

- SLVR Hornsea Four High Voltage Alternating Current (HVAC) booster stations study area – to include the area lying within a 30 km buffer from the offshore HVAC booster station search area.

11.5.1.2 The study area for the HVAC booster stations was increased from a 25 km radius to a 30 km radius following the scoping process.

11.5.1.3 These areas have been determined based on a number of factors that are set out in [Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#).

11.5.1.4 These areas are considered to be the maximum areas within which a significant effect would be likely to occur as a result of the construction and operation of Hornsea Four. In reality, significant seascape, landscape and visual effects are more likely to occur from locations in closer proximity to the array area and HVAC booster stations; and less likely to occur towards the outer edges of the study areas at long distances. This is due to the following factors:

- The limited horizontal and vertical field of view affected by Hornsea Four at distances greater than these;
- The distances to the coastline of the Hornsea Four Array Area (65 km) and the HVAC booster station search area (25 km)
- The effects of climatic conditions in reducing visibility at these distances;
- The large scale of the receiving seascape, which is a characteristic that is generally considered to increase its capacity to accommodate large scale wind farm development;
- The location of the offshore array adjacent to other offshore wind farm development, therefore forming a cluster rather than further distributing wind farm development over new areas of the seascape, a factor that is considered to reduce the cumulative effects;
- The low levels of wildness or remoteness qualities of the coastal area, which might otherwise increase its sensitivity to development.

11.5.1.5 The effects of Hornsea Four beyond these SLVR study areas would be not significant. This is OPEN's professional opinion having worked on the SLVR assessments for eight other offshore wind farms around the coast of the United Kingdom and the Republic of Ireland and a further three sites where SLVR assessment was scoped out due to the distance from the coast.

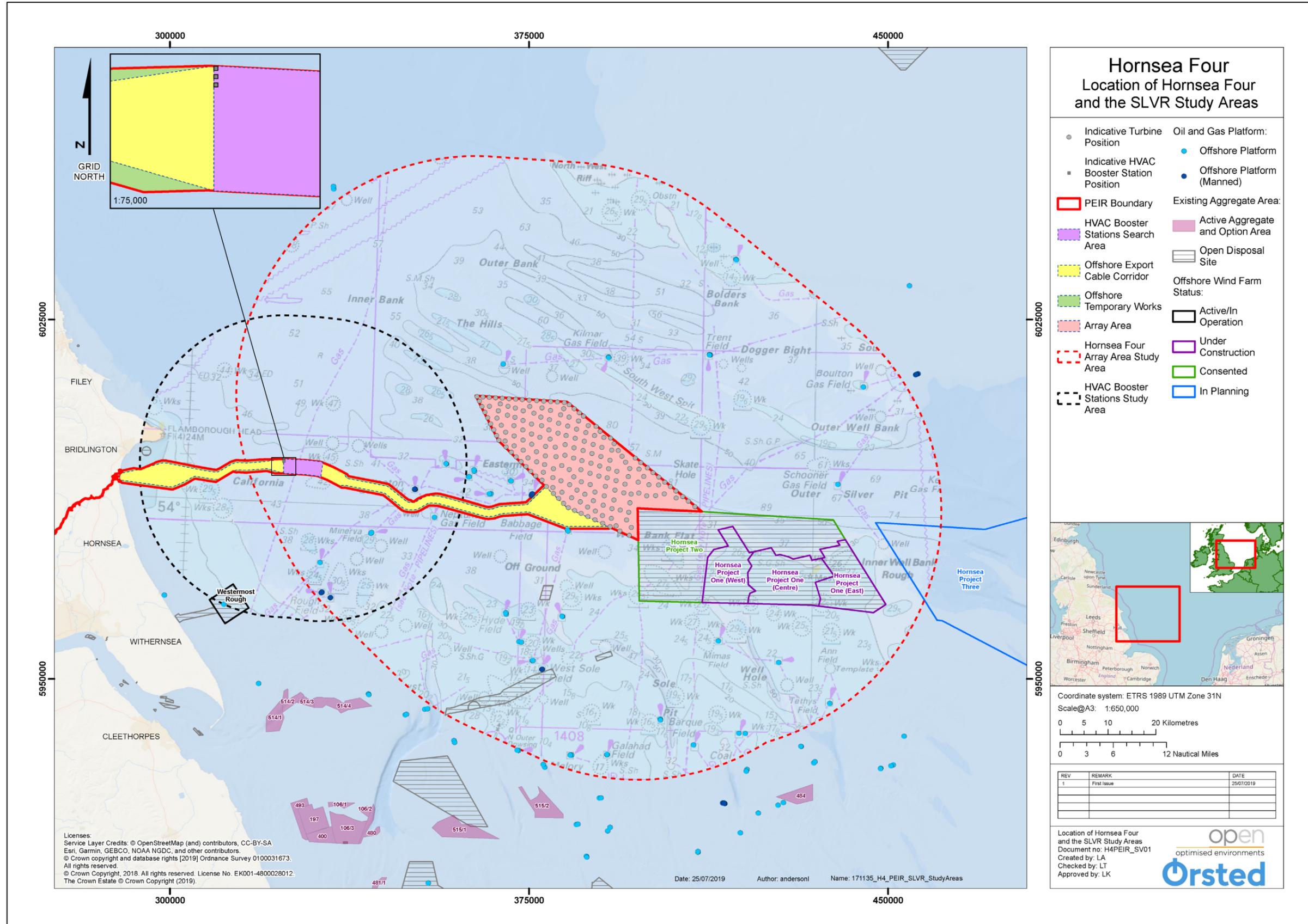


Figure 11.1: Location of Hornsea Four and the SLVR study areas (not to scale).

11.6 Methodology to inform baseline

11.6.1 Desktop Study

11.6.1.1 A desk study was undertaken to obtain information on the seascape, landscape and visual resource. Data were acquired within the SLVR study areas through a detailed desktop review of existing studies and datasets.

11.6.1.2 The following sources of information in [Table 11.4](#) were consulted although this should not be considered an exhaustive list of references, with further detail, including species specific information sources, presented within [Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#).

Table 11.4: Key Sources of SLVR data.

Source	Summary	Coverage of Hornsea Four SLVR study areas
Historic Seascape Character: Consolidating the National Historic Seascape Character (HSC) Database. (Land Use Consultants, LUC, 2017).	Definition of areas as well as descriptions of Historic Seascape Character. Sea Surface information used to inform Marine Character Area (MCA) baseline descriptions.	Relevant across sea surface of SLVR study areas.
Flamborough Headland Heritage Coast-Management Strategy. (Flamborough Headland Heritage Coast, 2007).	A description of the FHHC, the nature conservation and heritage policies and designations covered, the purpose of the strategy and the management aims. Wider aims than 2002 study.	Within the defined area of the FHHC.
Flamborough Head Management Plan (2002).	A description of the FHHC, the purpose of the strategy and the management aims. Aims specific to Heritage Coast defined area and purpose.	Within the defined area of the FHHC.
East Riding of Yorkshire Landscape Character Assessment. (AECOM, 2018).	Landscape Character Assessment including descriptions and landscape character type (LCT) boundaries.	Within the East Riding of Yorkshire area of land contained within the SLVR Hornsea Four HVAC booster station study area.
East Riding Local Plan 2012-2029 Strategy Document. (East Riding of Yorkshire Council 2016).	Boundaries and policies relating to the Yorkshire Wolds Important Landscape and the FHHC.	Within the Yorkshire Wolds Important Landscape Area and FHHC where they coincide with the SLVR Hornsea Four HVAC booster station study area.
Marine Plan Areas (MPAs) Marine Management Organisation (MMO, 2014).	Provides mapping of Marine Plan Areas (MPAs) in England.	Full coverage of Hornsea Four SVR study areas.
Visibility Data for Donna Nook 2008-2018. (Met Office, 2019).	Visibility distance and frequency data collected from the closest representative location on the coast.	Relevant across SLVR study areas.

Source	Summary	Coverage of Hornsea Four SLVR study areas
A Seascape Character Assessment for the North East Inshore and Offshore marine plan areas. (MMO, 2012).	Seascape character boundaries and descriptions.	North East Inshore and Offshore marine plan areas within the Hornsea Four SLVR study areas.
Seascape Character Area Assessment for the East Inshore and East Offshore Marine Plan Area (MMO, 2018).	Seascape character boundaries and descriptions.	East Inshore and Offshore marine plan areas within the Hornsea Four SLVR study areas.
Designated Sites www.designatedsites.naturalengland.org.uk Natural England.	Locations of designated sites.	Full coverage of the SLVR Hornsea Four study areas.
Recorded Visibility Data (Met Office, 2016) referenced from the Hornsea Three Environmental Statement.	Provides information about visibility offshore over a 10-year period.	Provides an insight across the offshore array area study area.
SeaZone Hydro View 1:75,000 raster and vector mapping.	Base mapping and information for sea area.	Full coverage of Hornsea Four SVR study areas.
Hornsea Offshore Wind Farm Project Two ES (Smart Wind, 2015).	Provides baseline information on seascape and visual receptors assessed.	Partial coverage of array area study area.
Hornsea Offshore Wind Farm Project Three ES (Orsted, 2018).	Provides baseline information on seascape and visual receptors assessed.	Partial coverage of array area study area.

11.6.2 Site Specific Study

11.6.2.1 To inform the SLVR assessment, site-specific analysis was undertaken to generate zone of theoretical visibility (ZTV) analysis mapping and wireline views. This includes:

- A blade tip ZTV for the array area to illustrate the theoretical visibility of any part of the Wind Turbine Generators (WTGs). This includes the visibility of all 190 potential positions for structures which includes 180 WTGs, an accommodation platform and nine offshore substations. This is in order to ensure that the maximum possible visibility is accounted for;
- A hub height ZTV for the array area to illustrate the theoretical visibility of the WTGs where more than just the blades are visible (i.e. the hubs and potentially part of the towers are visible);
- A horizontal angle ZTV for the array area. This includes the maximum horizontal angle of the field of view that would be theoretically affected by the WTGs in the array area in views from any location;
- A horizontal angle ZTV for the HVAC booster stations. This indicates all locations from where the HVAC booster stations would be theoretically visible (in their Maximum Design Scenario (MDS) location closest to the FHHC) as well as the maximum horizontal angle of the field of view that would be theoretically affected from any location within the HVAC booster station study area; and

- Cumulative wirelines were generated in order to gain an understanding of the theoretical views of Hornsea Four WTGs in the array area and HVAC booster stations.

11.6.2.2 OPEN has undertaken field work in the Flamborough Head area in order to inform this assessment. This has included walking along sections of the Public Rights of Way (PRoW) and visiting Selwick Bay Beach as well as other onshore visual receptor locations. A baseline panoramic photograph has been included for Viewpoint 1: Flamborough Head. This was taken at one of the most easterly publicly accessible locations near the cliff edge.

11.7 Baseline environment

11.7.1 Existing baseline

11.7.1.1 A detailed characterisation of the existing SLVR baseline is provided in [Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#), with a summary provided here. This PEIR chapter should therefore be read alongside the detailed technical report.

11.7.1.2 The existing baseline environment of the Hornsea Four array area, HVAC booster station search area and Export Cable Corridor (ECC) can be described as open sea with occasional offshore structures, such as oil and gas platforms, having an influence. Hornsea Project One Offshore Wind Farm (hereafter Hornsea Project One) is a further influence to the east of the Hornsea Four array area, bringing large scale wind turbine and offshore platform development to part of the SLVR Hornsea Four array area study area.

11.7.1.3 There is regular passage of use by sea-going vessels for a variety of purposes, including recreational and commercial fishing activities, commercial ferry routes, tankers, cargo vessels and recreational cruising with such activity introducing movement and change within the views. Overhead combat training in aeroplanes and search and rescue activities in helicopters furthers this characteristic of movement and change.

11.7.1.4 The SLVR Hornsea Four array area study area is within open sea with some occasional offshore structures and further offshore wind farm influence. The perimeter of the array study area is 15 km from the coast at its closest point, so there is little influence from its association with the land.

11.7.1.5 The SLVR HVAC booster station study area can largely be described as open sea. However, it also includes a small area of land at Flamborough Head.

11.7.1.6 The ECC is entirely open sea, reaching the coast to the south of Bridlington.

Landscape Planning Designations and Defined Areas

11.7.1.7 No part of the offshore components of Hornsea Four are located within a landscape planning designation or defined area of landscape. The SLVR HVAC booster station

study area includes an area identified as being part of the FHHC, part of which is also within the Yorkshire Wolds Important Landscape as identified in the East Riding of Yorkshire (2016) East Riding Local Plan 2012-2029 Strategy Document.

- 11.7.1.8 **Figure 11.2** illustrates these designated/defined areas. The associated policy and a description of the FHHC, which also encompasses the area covered by the Yorkshire Wolds Important Landscape, are included in **Section 4** of **Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report**.

Seascape Character

- 11.7.1.9 The SLVR study areas have identified seascape characteristics. These are defined and described in MMO (2018), Seascape Character Assessment for the North East Inshore and Offshore marine plan area and MMO (2012) A Seascape Character Area Assessment for the East Inshore and East Offshore Marine Plan Areas. **Figure 11.3** illustrates the identified marine character areas (MCAs). Descriptions of these areas are set out in **Section 5** of **Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report**.

Landscape Character

- 11.7.1.10 The SLVR Hornsea Four HVAC booster station study area includes an area of landscape that has a diverse range of identified characteristics across both the Yorkshire Wolds and the Holderness National Character Areas (Natural England, 2015). The landscape is further defined into 23 Character Types and these are described and their value assessed in AECOM (2018) East Riding of Yorkshire Landscape Character Assessment. The landscape character types (LCT) are shown on **Figure 11.4**.
- 11.7.1.11 This identifies that the landscape character receptors located within the HVAC booster station study area are Landscape Character Area 13E: Bempton, Grindal and Wold Newton Farmland and 13F: Flamborough Headland Farmland, which are both sub-types of LCT 13: Open High Rolling Farmland; and LCA 19C; North Holderness Open Farmland, which is a sub-type of LCT 19: Open Farmland. The key characteristics of these LCTs are listed in **Section 6** of **Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report**.
- 11.7.1.12 The East Riding Local Plan 2012-2029 sets out in its Strategy Document its intentions for promoting a high quality landscape. It has set out the following policy relating to this matter:
- A. 'Policy ENV2: Promoting a high quality landscape. 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. To achieve this, development should:
1. Protect the character and individual identity of settlements by maintaining their physical separation, including through the maintenance of the Key Open

- Areas identified in Policies A1-A6, where there is a risk of settlement coalescence.
2. Protect and enhance important open spaces within settlements which contribute to their character.
 3. Ensure important hedgerows and trees are retained unless their removal can be justified in the wider public interest. Where important hedgerows and trees are lost replacements will usually be required.
 4. Maintain or enhance the character and management of woodland where appropriate.
 5. Retain, not detract from, and enhance wetland and water feature characteristics.
 6. Protect and enhance views across valued landscape features, including flood meadows, chalk grassland, lowland heath, mudflats and salt marsh, sand dunes and chalk cliffs.
 7. Protect and enhance the undeveloped coast.
- B. Proposals should protect and enhance existing landscape character as described in the East Riding Landscape Character Assessment, in particular, within the following Important Landscape Areas as shown on the Policies Map:
1. The Yorkshire Wolds, with special attention to ensuring developments are of an appropriately high quality and will not adversely affect the historic and special character, appearance or natural conservation value.
 2. The Heritage Coast designations at Flamborough and Spurn Head.
 3. The Lower Derwent Valley, which includes the River Derwent Corridor and Pocklington Canal.
 4. The Thorne, Crowle and Goole Moors.

Visual receptors

11.7.1.13 The visual receptors that may experience effects as a result of the development are largely located offshore. However, there are also people located within the Flamborough Head coastal area that may have views of Hornsea Four. Further information is included in [Section 7 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#).

11.7.1.14 [Figure 11.5](#) illustrates the locations where there may be offshore visual receptors. These include the following:

- Manned oil/gas platforms;
- Ferry routes; and
- Royal Yachting Associations (RYA) boating areas.

11.7.1.15 [Figure 11.6](#) illustrates the key locations onshore where visual receptors (people) are likely to be. These include the following:

- Settlements;
- Core paths;
- Visitor attractions; and
- Minor roads.

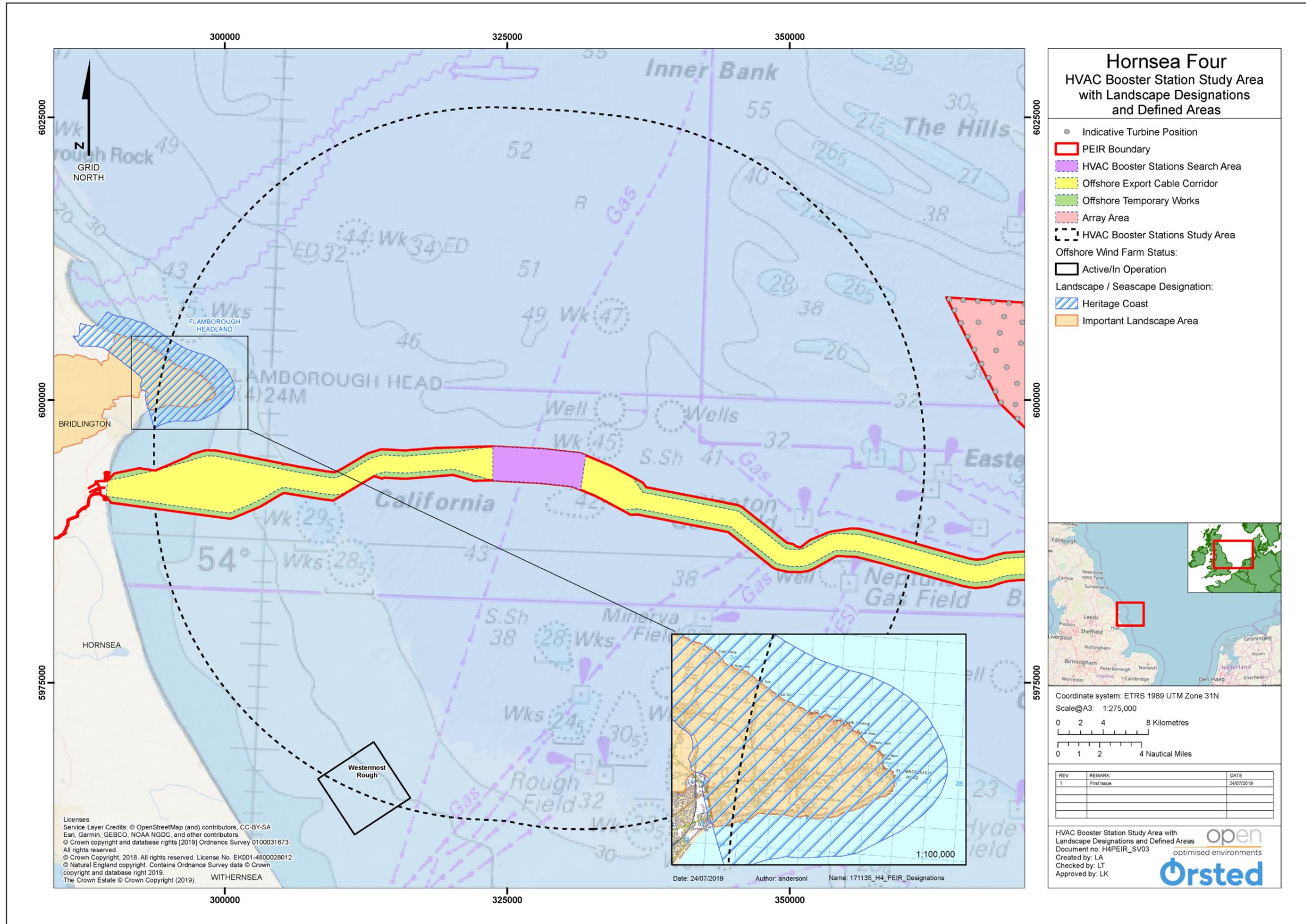


Figure 11.2: HVAC booster station study area with landscape designations and defined areas (not to scale).

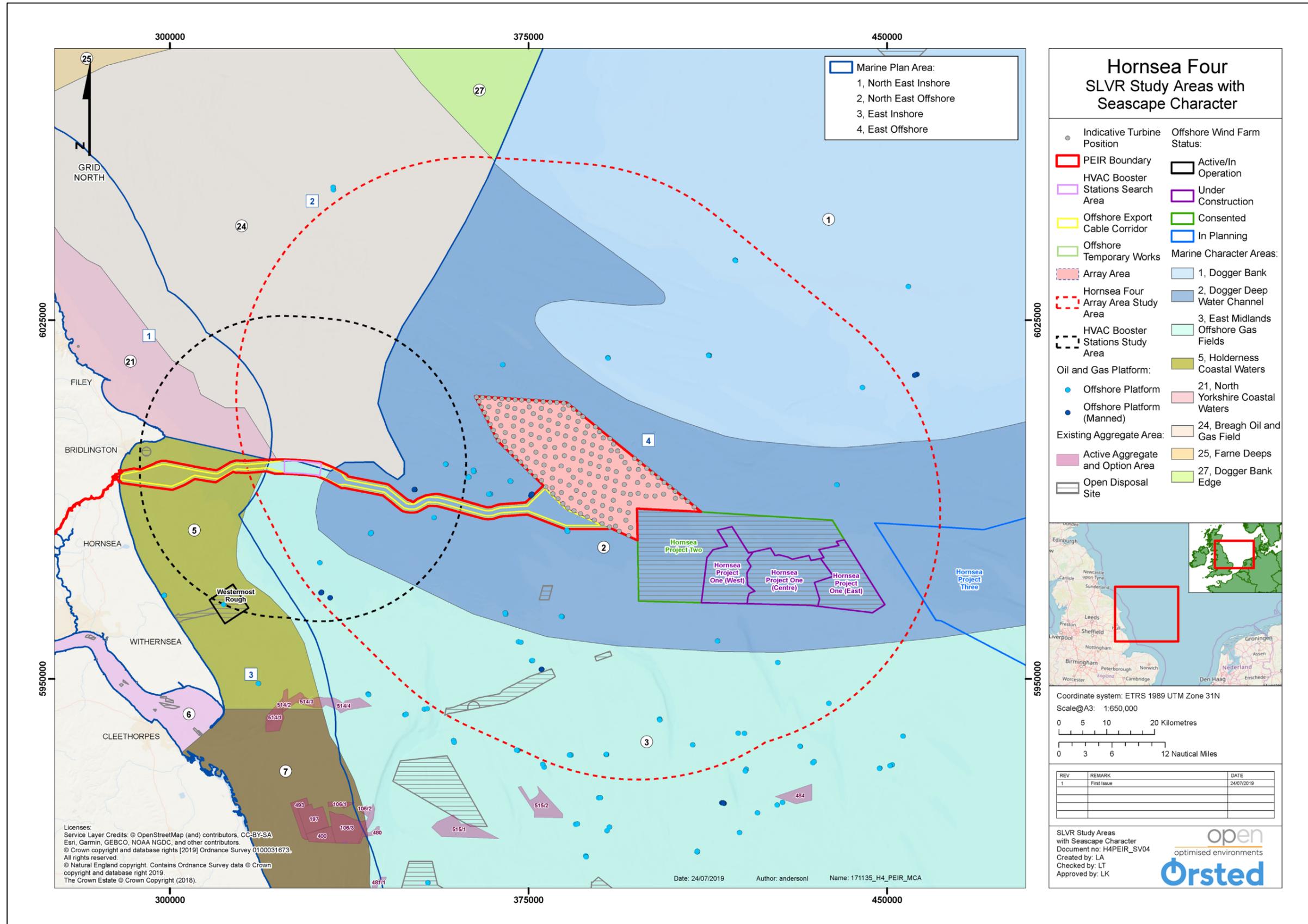


Figure 11.3: SLVR study areas with seascape character (not to scale).

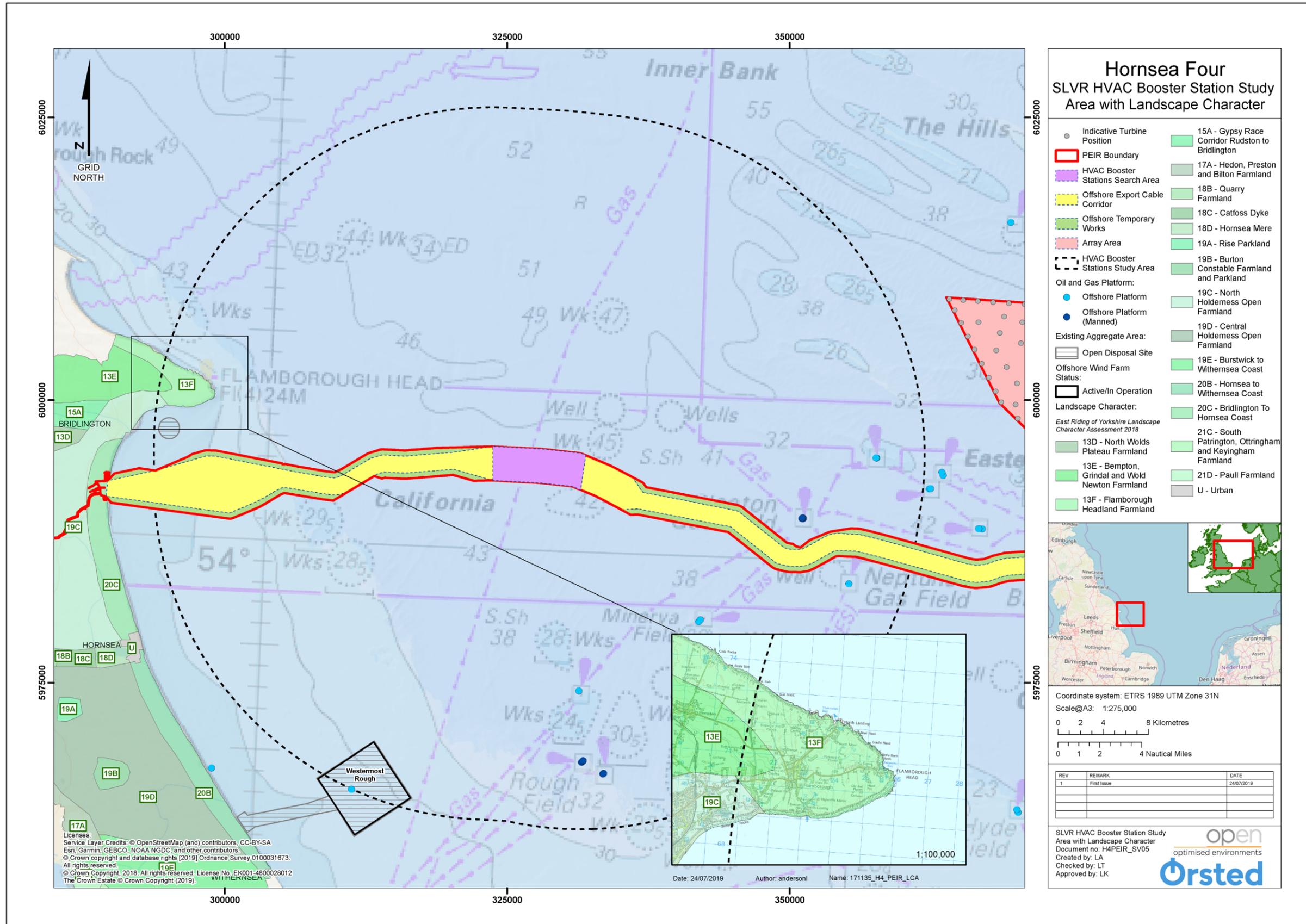


Figure 11.4: SLVR HVAC booster station study area with landscape character (not to scale).

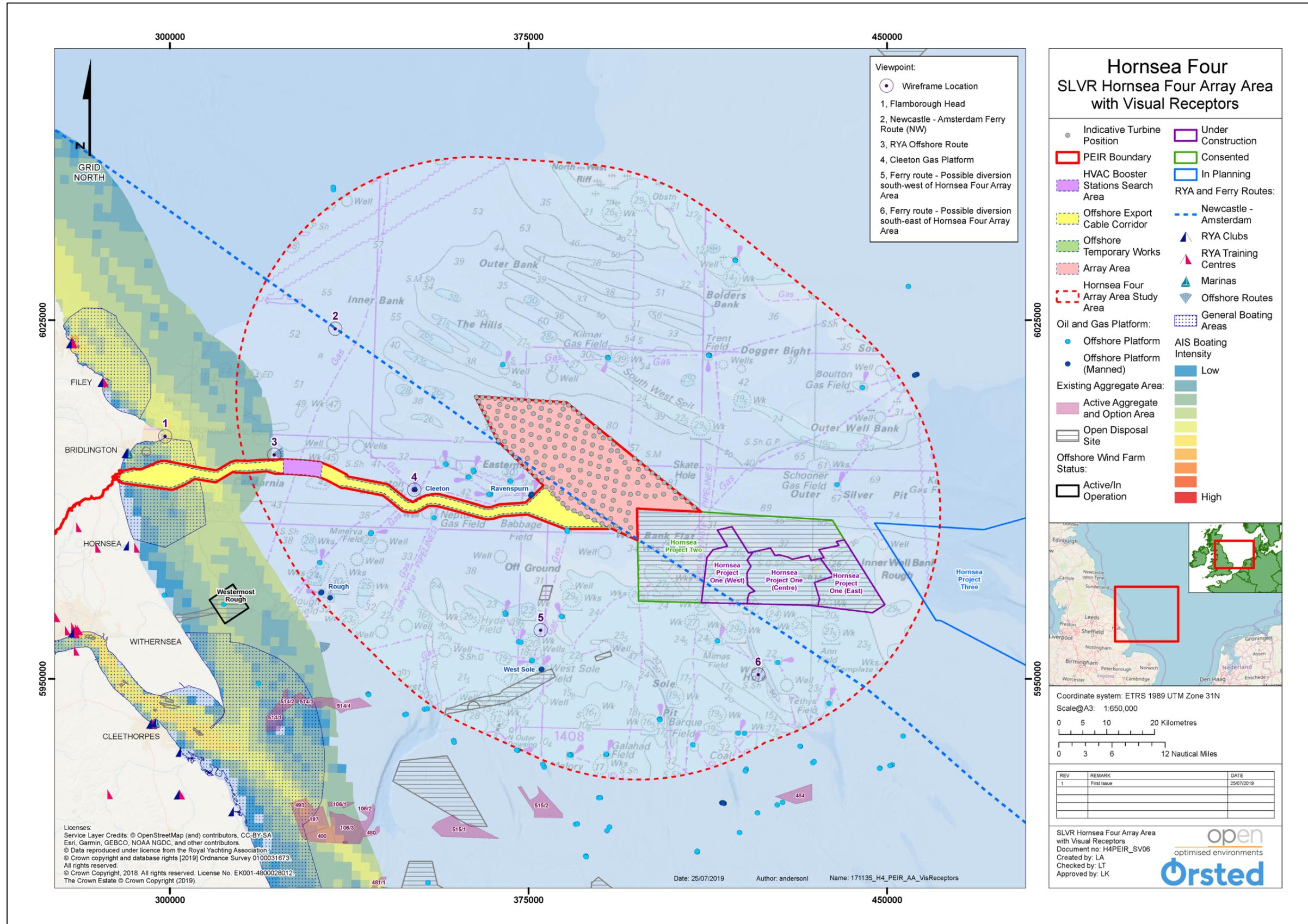


Figure 11.5: SLVR Hornsea Four array area with visual receptors (not to scale).

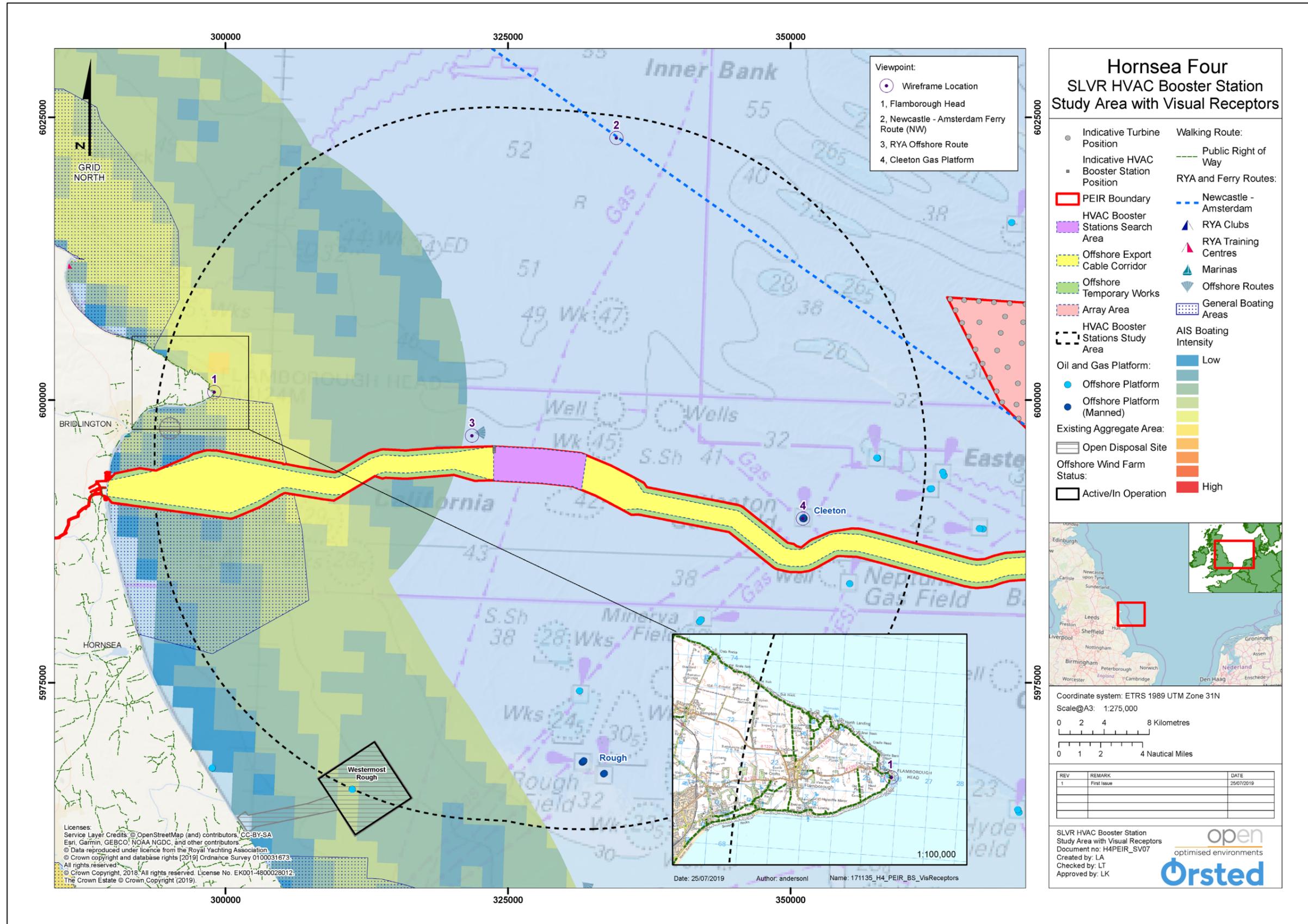


Figure 11.6: SLVR HVAC booster station study area with visual receptors (not to scale).

11.7.2 Predicted future baseline

11.7.2.1 The baseline character of the seascape, landscape and visual resource in the SLVR study areas 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 Hornsea Four progresses to construction and operation or not.

11.7.2.2 A range of policies and legislation impact on the management of the seascape, landscape and visual resource, ranging from European Directive, national policy and regulation, through to community strategies and development frameworks, including the Flamborough Head Management Plan (2007). The effects of these are evident in the wider landscape through the introduction of renewable energy development, agricultural management practices which has resulted in very large field sizes and infrastructure for recreation and nature conservation evidenced by path networks and nature reserve access and facilities for watching wildlife. The Flamborough Head Management Plan document sets out a range of policies which generally seek to conserve and enhance nature conservation and marine environments but also the natural beauty of the area and cultural heritage assets, while recognising the need to accommodate human needs and adapt to inevitable change over time. Further details of the Flamborough Head Management Plan and its aims are set out in [Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#).

11.7.2.3 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.

11.7.2.4 Recent development management decisions/planning decision precedent has established and accepted landscape change from offshore wind farm developments in the seascape of the SLVR study areas. Several large-scale offshore windfarms are operating and visible in the seascape of the SLVR study areas and wider area, including Westernmost Rough in the Holderness Coastal Waters near Withernsea and Hornsea Project One under construction in the offshore waters of the eastern part of the study area. The baseline conditions are likely to change as a result of further offshore wind energy development in this seascape.

11.7.3 Data Limitations

11.7.3.1 The key data limitations with the baseline data and their ability to materially influence the outcome of the EIA are:

- the representativeness of the Donna Nook Met Office visibility data to establish the potential frequency of visibility of the Hornsea Four WTGs and Hornsea Four HVAC booster stations from locations within the SLVR study areas; and

- the accuracy of the Digital Terrain Model (DTM) used to prepare the wireline representations and ZTVs that illustrate the theoretical visibility of Hornsea Four.

11.7.3.2 The appropriateness and rationale for the use of the Donna Nook Met Office visibility data is set out in [Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#).

11.7.3.3 In relation to the DTM there are limitations in the accuracy of the data so that landform may not be picked up precisely and may result in development being more or less visible than is shown. Where descriptions within the assessment identify the numbers of WTCs visible this refers to the illustrations generated and therefore the reality may differ to a degree from these impressions.

11.7.3.4 It is considered that these limitations are not of such a level that they would materially alter the findings of the SLVR assessment.

11.8 Project basis for assessment

11.8.1 Impact register and impacts “scoped out”

11.8.1.1 Based on the baseline environment, the project description outlined in [Volume 1, Chapter 4: Project Description](#) and the Commitments detailed within the [Volume 4, Annex 5.2: Commitments Register](#), a number of impacts are proposed to be “scoped out” of the PEIR assessment for seascape, landscape and visual resources. These impacts are outlined, together with a justification for scoping them out, in a [Table 11.5](#). Further detail is provided in the [Volume 4, Annex 5.1: Impacts Register](#).

11.8.1.2 Please note that the term “scoped out” relates to the Likely Significant Effect (LSE) in EIA terms and not “scoped out” of the EIA process *per se*. All impacts “scoped out” of LSE are assessed for magnitude, sensitivity of the receiving receptor and conclude an EIA significance in the Impacts Register (see [Volume 4, Annex 5.1](#)). This approach is aligned with the Hornsea Four Proportionate approach to EIA (see [Volume 1, Chapter 5: EIA Methodology](#)).

Table 11.5: Impacts scoped out of assessment and justification.

Project activity and impact	Likely significance of effect	Approach to assessment	Justification
Offshore construction, activities of array area visible by day and night from offshore visual receptors (SVR-C-1A).	No likely significant effect	Scoped Out	Evidence provided to Statutory Stakeholders via Scoping Report.
Offshore array area, Offshore export cables and HVAC booster stations night-time impacts on seascape character effects (SVR-O-13).	No likely significant effect	Scoped Out	Evidence provided to Statutory Stakeholders via Scoping Report.

Notes:

Grey - Potential impact is scoped out and both PINS and Hornsea Four agree.

11.9 Commitments

11.9.1.1 Hornsea Four has made several Commitments (primary design principles inherent as part of the project, installation techniques and engineering designs/modifications as part of their pre-application phase), to eliminate a number of impacts or reduce the significance of impacts as far as possible. Further Commitments (adoption of best practice guidance) are also embedded as an inherent aspect of the EIA process.

11.9.1.2 There are no specific commitments adopted by Hornsea Four in relation to seascape, landscape and visual resources. However, there are number of factors that assist in mitigating the effects on the SLVR as follows:

- The location of the Hornsea Four array area at a considerable distance from the coast, thus minimising its potential effects on land-based receptors;
- The location of the Hornsea Four array area as part of a cluster of more distant (from the coast) offshore wind farm developments, thus reducing its cumulative effects;
- The reduction in the width of the horizontal field of view due to a reduction of the north-south expanse of the Hornsea Four array area, following preliminary design iterations. This will have a positive influence on the views of the WTCs within the Hornsea Four array area from locations on or near to the coast to the west of Hornsea Four; and
- The constraining of the HVAC booster stations search area, as part of the preliminary design iterations, in order to ensure that the HVAC booster stations are at a distance of greater than 25 km (approximately) from the coast at Flamborough Head.

11.10 Maximum Design Scenario

11.10.1.1 The MDSs identified in [Figure 11.1](#) and [Table 11.6](#) have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in the Project Description ([Volume 1, Chapter 4: Project Description](#)). Effects of greater adverse significance are not predicted to arise should any other development scenario, compared to that assessed here and based on details within the project Design Envelope (e.g. different turbine layout), be taken forward in the final design scheme. The scenarios presented in [Figure 11.1](#), and [Table 11.6](#) would also be equally valid for lesser parameter values within the same three-dimensional envelope or lower levels/numbers of lights.

11.10.1.2 The HVAC booster stations have been shown at their maximum sizes with the minimum spacing between them so that they appear as a close cluster of objects in views from Flamborough Head as shown on [Figure 1](#) of [Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations](#).

Table 11.6: Maximum design scenario for impacts on seascape, landscape and visual resources.

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
<i>Construction</i>			
<p>Impact on seascape character of MCAs as a result of physical presence and views of all offshore project elements during construction (SVR-C-1B).</p>	<p>None</p>	<p>Offshore Platforms:</p> <ul style="list-style-type: none"> • 6 x HVAC transformer substations (maximum 90 x 100 x 90 m) in the array • 3 x HVDC converter substations (maximum 180 x 180 x 100m) in the array • 1 x accommodation platform (maximum 60 x 60 x 64m) attached to an offshore transformer substation by a 100m long bridge (in the array) • 3 x offshore HVAC booster stations (maximum 90 x 100 x 90 m) located in the HVAC booster station area of search • All structures on jacket foundations • Sited along or near to western edge of array area • 450 vessel return trips for substation foundation and topside construction (including all offshore substations and the accommodation platform) • 105 helicopter return trips <p>WTGs:</p> <ul style="list-style-type: none"> • 180 jacket foundations located across 190 possible positions within the Hornsea Four array area • 180 WTGs (maximum height 370m above LAT) located across 190 possible positions within the Hornsea Four array area • All structures on 3-legged jacket foundations • Spaced across the entire array area (810 m minimum spacing) • 305m maximum blade diameter • 1,710 return trips by vessels involved in WTG construction (including foundations) • 315 helicopter return trips <p>Structures Lighting:</p> <ul style="list-style-type: none"> • CAA and MOD safety lighting of tall structures (200 and 2000 candela). • Trinity House Lighthouse Service requirements for navigation lighting on structures. <p>Cables:</p> <ul style="list-style-type: none"> • 654 km of cables laid in the ECC (and extending 10km into the array area) • 1.5 km maximum width of offshore cable corridor • 600 km of inter-array and inter-connector cables in the Hornsea Four array area. • 1,488 return trips by vessels involved in installation of inter-array and inter-connector cables the Hornsea Four array area. • 408 return trips for vessels involved in installing offshore electrical export cables within the wind farm array area and the offshore export cable route area during construction. 	<p>Widest possible effects in terms of the physical presence and the vertical and horizontal field of view affected as part of the perception of seascape character.</p> <p>Largest possible structures will have the largest physical presence and be visible from a greater distance and therefore have the most widespread impacts.</p>

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
		<ul style="list-style-type: none"> • 800 return trips by helicopters involved in installation of electrical infrastructure within the offshore export cable route area. • 396 return trips by helicopters involved in installation of inter-array and inter-connector cables within the offshore wind farm array area. 	
<p>Impact on landscape character of FHHC as a result of views of HVAC booster station and cable construction (SVR-C-2).</p>	None	<p>HVAC booster stations:</p> <ul style="list-style-type: none"> • 3 x offshore HVAC booster stations (maximum 90 x 100 x 90 m) • Jacket foundations • Sited along the north western extent of HVAC booster station search area. • Trinity House Lighthouse Service requirements for navigation lighting on structures. <p>Cables:</p> <ul style="list-style-type: none"> • 654 km of cables laid in the ECC (and extending into the array area) • 408 return trips for vessels involved in installing offshore electrical export infrastructure within the wind farm array area and the offshore export cable route area during construction. • 800 return trips by helicopters involved in installation of electrical infrastructure within the offshore export cable route area. 	Largest possible structures located closest to the FHHC.
<p>Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster station and cable construction (SVR-C-3).</p>	None	<p>HVAC booster stations:</p> <ul style="list-style-type: none"> • 3 x offshore HVAC booster stations (maximum 90 x 100 x 90 m) • Jacket foundations • Sited along the north western extent of HVAC booster station search area. <p>Cables:</p> <ul style="list-style-type: none"> • 654 km of cables laid in the ECC (and extending into the array area) • 408 return trips for vessels involved in installing offshore electrical export infrastructure within the wind farm array area and the offshore export cable route area during construction. • 800 return trips by helicopters involved in installation of electrical infrastructure within the offshore export cable route area. 	Largest possible structures located closest to the FHHC.
<p>Impact on views and visual receptors located within FHHC as a result of HVAC booster station and cable corridor construction lighting (SVR-C-4).</p>	None	<ul style="list-style-type: none"> • Civil Aviation Authority (CAA) and Ministry of Defence (MOD) safety lighting of tall structures (200 and 2000 candela) • Trinity House Lighthouse Service requirements for navigation lighting on structures. • Lighting on all vessels and cranes undertaking construction. 	Maximum intensity of lights.

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
<i>Operation and maintenance</i>			
Impact on seascape character of MCAs as a result of physical presence and views of the array area and HVAC booster stations (SVR-O-5A).	None	<p>Offshore Platforms:</p> <ul style="list-style-type: none"> • 6 x HVAC transformer substations (maximum 90 x 100 x 90 m) in the array • 3 x HVDC converter substations (maximum 180 x 180 x 100m) in the array • 1 x accommodation platform (maximum 60 x 60 x 64m) attached to an offshore transformer substation by a 100m long bridge (in the array) • 3 x offshore HVAC booster stations (maximum 90 x 100 x 90 m) located in the HVAC booster station area of search • All structures on jacket foundations • Sited along or near to western edge of array area <p>WTGs:</p> <ul style="list-style-type: none"> • 180 jacket foundations located across 190 possible positions within the Hornsea Four array area • 180 WTGs (maximum height 370m above LAT) located across 190 possible positions within the Hornsea Four array area • All structures on 3-legged jacket foundations • Spaced across the entire array area (810 m minimum spacing) • 305m maximum blade diameter <p>Structures Lighting:</p> <ul style="list-style-type: none"> • CAA and MOD safety lighting of tall structures (200 and 2000 candela). • Trinity House Lighthouse Service requirements for navigation lighting on structures. 	<p>Widest possible effects in terms of the physical presence and the vertical and horizontal field of view affected as part of the perception of seascape character.</p> <p>Largest possible structures will have the largest physical presence and be visible from a greater distance and therefore have the most widespread impacts.</p>
Impact on landscape character of FHHC as a result of views of HVAC booster stations (SVR-O-5B).	None	<p>HVAC booster stations:</p> <ul style="list-style-type: none"> • 3 x offshore HVAC booster stations (maximum 90 x 100m x 90 m) • Jacket foundations • Sited along the north western extent of HVAC booster station search area. 	<p>Largest possible structures located closest to the FHHC.</p> <p>Highest intensity lighting that may be required.</p>
Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster stations (SVR-O-6).	None	<p>HVAC booster stations:</p> <ul style="list-style-type: none"> • 3 x offshore HVAC booster stations (maximum 90 x 100m x 90 m) • Jacket foundations • Sited along the north western extent of HVAC booster station search area. 	<p>Largest possible structures located closest to the FHHC.</p> <p>Highest intensity lighting that may be required.</p>
Impact on views and visual receptors located within FHHC as a result	None	<ul style="list-style-type: none"> • Trinity House Lighthouse Service requirements for navigation lighting on structures. • Lighting to meet the requirements of the CAA, THLS and MOD. Medium intensity red located on uppermost location. 	Maximum intensity of lights

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
of HVAC booster station lighting (SVR-O-7).			
<i>Decommissioning</i>			
Impact on seascape of MCAs as a result of physical presence and views of the array area and HVAC booster stations being decommissioned (SVR-D-9).	None	<p>Offshore Platforms:</p> <ul style="list-style-type: none"> • 6 x HVAC transformer substations (maximum 90 x 100 x 90 m) in the array • 3 x HVDC converter substations (maximum 180 x 180 x 100m) in the array • 1 x accommodation platform (maximum 60 x 60 x 64m) attached to an offshore transformer substation by a 100m long bridge (in the array) • 3 x offshore HVAC booster stations (maximum 90 x 100 x 90 m) located in the HVAC booster station area of search • All structures on jacket foundations • Sited along or near to western edge of array area • 450 vessel return trips for substation foundation and topside construction (including all offshore substations and the accommodation platform) • 105 helicopter return trips <p>WTGs:</p> <ul style="list-style-type: none"> • 180 jacket foundations located across 190 possible positions within the Hornsea Four array area • 180 WTGs (maximum height 370m above LAT) located across 190 possible positions within the Hornsea Four array area • All structures on 3-legged jacket foundations • Spaced across the entire array area (810 m minimum spacing) • 305m maximum blade diameter • 1,710 return trips by vessels involved in WTG construction (including foundations) • 315 helicopter return trips <p>Structures Lighting:</p> <ul style="list-style-type: none"> • CAA and MOD safety lighting of tall structures (200 and 2000 candela). • Trinity House Lighthouse Service requirements for navigation lighting on structures. <p>Cables:</p> <ul style="list-style-type: none"> • 654 km of cables laid in the ECC (and extending 10km into the array area) • 1.5 km maximum width of offshore cable corridor • 600 km of inter-array and inter-connector cables in the Hornsea Four array area. • 1,488 return trips by vessels involved in installation of inter-array and inter-connector cables the Hornsea Four array area. • 408 return trips for vessels involved in installing offshore electrical export cables within the wind farm array area and the offshore export cable route area during construction. 	<p>Widest possible effects in terms of the physical presence and the vertical and horizontal field of view affected as part of the perception of seascape character.</p> <p>Largest possible structures will have the largest physical presence and be visible from a greater distance and therefore have the most widespread impacts.</p>

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
		<ul style="list-style-type: none"> • 800 return trips by helicopters involved in installation of electrical infrastructure within the offshore export cable route area. • 396 return trips by helicopters involved in installation of inter-array and inter-connector cables within the offshore wind farm array area. 	
<p>Impact on landscape character of FHHC as a result of views of HVAC booster stations being decommissioned (SVR-D-10).</p>	None	<p>HVAC booster stations:</p> <ul style="list-style-type: none"> • 3 x offshore HVAC booster stations (maximum 90 x 100m x 90 m) • Jacket foundations • Sited along the north western extent of HVAC booster station search area. <p>Cables:</p> <ul style="list-style-type: none"> • 654 km of cables laid in the ECC (and extending into the array area) • 1.5 km maximum width of offshore cable corridor • 408 return trips for vessels involved in decommissioning of offshore electrical export infrastructure within the wind farm array area and the offshore export cable route area during decommissioning. • 800 return trips by helicopters involved in decommissioning of electrical infrastructure within the offshore export cable route area. 	Largest possible structures located closest to the FHHC
<p>Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster stations being decommissioned (SVR-D-11).</p>	None	<p>HVAC booster stations:</p> <ul style="list-style-type: none"> • 3 x offshore HVAC booster stations (maximum 90 x 100m x 90 m) • Jacket foundations • Sited along the north western extent of HVAC booster station search area. <p>Cables:</p> <ul style="list-style-type: none"> • 654 km of cables laid in the ECC (and extending into the array area) • 1.5 km maximum width of offshore cable corridor • 408 return trips for vessels involved in decommissioning of offshore electrical export infrastructure within the wind farm array area and the offshore export cable route area during decommissioning. • 800 return trips by helicopters involved in decommissioning of electrical infrastructure within the offshore export cable route area. 	Largest possible structures located closest to the FHHC
<p>Impact on views and visual receptors located within FHHC as a result of HVAC booster station decommissioning lighting (SVR-D-12).</p>	None	<ul style="list-style-type: none"> • Civil Aviation Authority (CAA) and Ministry of Defence (MOD) safety lighting of tall structures (200 and 2000 candela) • Trinity House Lighthouse Service requirements for navigation lighting on structures. • Lighting on all vessels and cranes undertaking decommissioning. 	Maximum intensity of lights.

11.11 Assessment methodology

11.11.1.1 **Volume 1, Chapter 5: Environmental Impact Assessment Methodology** sets out the general overarching methodology for the PEIR. However, the SLVR methodology diverges in a number of ways from that set out. The methodology used in this SLVR is set out in the following section and is broadly consistent with that presented in Annex C of the Scoping Report; the difference being the way in which the magnitude of change is assessed, as set out below. The SLVR assessment predicts, describes and assesses the likely significant effects that Hornsea Four would have on the seascape, landscape and visual resource, and covers the following types of effect:

- Effects on seascape/ landscape character – arising from the introduction of new elements that alter the existing pattern of elements that define character; or through visibility of Hornsea Four, which may alter the way in which the pattern of elements is perceived. Seascape and landscape effects are assessed on MCAs, landscape character types (LCTs) and landscape designations/defined areas as they are experienced in daylight;
- Visual effects - assessment of how the introduction of Hornsea Four would affect the views available to people and their visual amenity throughout the day and into the night. Visual effects of Hornsea Four will be assessed on principal visual receptors (i.e. groups of people, such as within settlements, using transport routes or recreational trails) with consideration of the viewpoints located within the study areas; and
- Cumulative effects - arise where the study areas for two or more projects overlap so that all are experienced at a proximity where they may have a greater incremental effect, or where projects may combine to have a sequential effect. In accordance with guidance (SNH 2012), the SLVR assesses the overall effect arising from the addition of Hornsea Four to the potential future cumulative context. The addition of Hornsea Four to the active, existing or under construction developments, that form part of the baseline is considered in the main assessment. These are set out in **Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report**.

11.11.1.2 The following publications have been used for guidance and reference in preparation of the SLVR assessment:

- Landscape Institute and Institute of Environmental Management and Assessment, 2013 - Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3);
- Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf>;
- Natural England (2012). An Approach to Seascape Character Assessment;
- Natural England (2014). An Approach to Landscape Character Assessment;
- Scottish Natural Heritage (2012). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- SNH, 2017 - Siting and Designing Windfarms in the Landscape, Guidance (Version 3) (herein referred to as 'SNH Siting and Designing'); and

- SNH, 2017 - Visual Representation of Windfarms, Guidance (Version 2.2) (herein referred to as 'SNH Visual Representation').

11.11.1.3 Whilst many of these guidance documents have been prepared by SNH for projects in Scotland, in the absence of alternative guidelines they have become best practice across the UK.

11.11.1.4 OPEN's SLVIA methodology generally accords with the guidance set out in the GLVIA3. Where it diverges from specific aspects of the guidance, in a small number of areas, reasoned professional justification for this is provided within this section. These diversions are not new and follow practice established on other Nationally Significant Infrastructure Projects (NSIP) such as East Anglia THREE, Norfolk Vanguard, Norfolk Boreas and Thanet Extension.

11.11.1.5 GLVIA3 sets out an approach to the assessment of magnitude of change in which three separate considerations are combined within the magnitude of change rating. These are the size or scale of the effect, its geographical extent and its duration and reversibility. This approach is to be applied in respect of both landscape and visual receptors. OPEN considers that the process of combining all three considerations in one rating can distort the aim of identifying significant effects of wind farm development. For example, a high magnitude of change, based on size or scale, may be reduced to a lower rating if it occurred in a localised geographical area and for a short duration. This might mean that a potentially significant effect will be overlooked if effects are diluted down due to their limited geographical extents and/ or duration or reversibility.

11.11.1.6 OPEN has chosen to keep the consideration of the size or scale of the effect, its geographical extent and its duration and reversibility separate, by basing the magnitude of change on size or scale to determine where significant and not significant effects occur, and then describing the geographical extents of these effects and their duration and reversibility separately.

11.11.1.7 OPEN's assessment methodology utilises six scales of magnitude of change – high, medium-high, medium, medium-low, low and negligible/none; which are preferred to the 'maximum of five categories' suggested in GLVIA3 (3.27), as a means of clearly defining and summarising magnitude of change judgements.

11.11.2 Seascape/Landscape Effects

Sensitivity of Seascape/ Landscape Receptor

11.11.2.2 The sensitivity of a seascape/ landscape character receptor is an expression of the combination of the judgements made about the susceptibility of the receptor to the specific type of change or the development proposed, and the value attributed to that receptor.

Value of the Seascape/ Landscape Receptor

11.11.2.3 The value of a seascape/ landscape character receptor is a reflection of the value that society attaches to that seascape/ landscape. The assessment of the seascape/ landscape value will be classified as high, medium-high, medium, medium-low or low and the basis for this assessment will be made clear using evidence and professional judgement, based on the following range of factors:

- Seascape/landscape designations - A receptor that lies within the boundary of a recognised landscape related planning designation will be of increased value, depending on the proportion of the receptor that is covered and the level of importance of the designation; international, national, regional or local. The absence of designations does not preclude value, as an undesignated landscape character receptor may be valued as a resource in the local or immediate environment;
- Seascape/landscape quality - The quality of a seascape/ landscape character receptor is a reflection of its attributes, such as scenic quality, sense of place, rarity and representativeness and the extent to which attributes have remained intact. A seascape/ landscape with consistent, intact, well-defined and distinctive attributes is considered to be of higher quality and, in turn, higher value, than a landscape where the introduction of elements/features has detracted from its character; and
- Seascape/landscape experience - The experience of the seascape/ landscape character receptor can add to its value and relates to a number of factors including the perceptual responses it evokes, the cultural associations that may exist in literature or history, or the iconic status of the seascape/ landscape in its own right, the recreational value of the seascape/ landscape, and the contribution of other values relating to the nature conservation or archaeology of the area.

Susceptibility to Change - Seascape/ Landscape

11.11.2.4 The susceptibility of a seascape/ landscape character receptor to change is a reflection of its ability to accommodate the changes that will occur as a result of the addition of Hornsea Four without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

11.11.2.5 The assessment of the susceptibility of the seascape/ landscape receptor to change will be classified as high, medium-high, medium, medium-low or low and the basis for this assessment will be made clear using evidence and professional judgement, based on the following criteria:

- The specific nature of Hornsea Four - The susceptibility of seascape/ landscape receptors will be assessed in relation to change arising from the specific development proposed, including the specific components and features of Hornsea Four, its size, scale, location, context and characteristics;
- Seascape/landscape character - The key characteristics of the existing seascape/ landscape character will be considered in the evaluation of susceptibility, as they determine the degree to which the receptor may accommodate the influence of Hornsea Four. A landscape that is of a particularly wild and remote character may

have a high susceptibility to the influence of development, due to the contrast that it would have with the landscape, whereas a developed, industrial landscape, where built elements and structures are already part of the character may have a lower susceptibility; and

- Seascape/landscape association - The extent to which Hornsea Four will influence the character of the seascape/ landscape receptors across the study area, relates to the associations that exist between the seascape/ landscape receptor within which Hornsea Four is located and the seascape/ landscape receptor from which Hornsea Four is being experienced. In some situations, this association will be strong, where the seascapes/landscapes are directly related, and in other situations weak where the landscape association is weak.

Sensitivity Rating – Seascape / Landscape

- 11.11.2.6 An overall sensitivity assessment of the seascape/ landscape receptor will be made by combining the assessment of the value of the seascape/ landscape character receptor and its susceptibility to change. An overall level of sensitivity will be applied for each seascape/ landscape receptor - high, medium-high, medium, medium-low and low - by combining individual assessments of the value of the receptor and its susceptibility to change. The basis for the assessments will be made clear using evidence and professional judgement in the evaluation of sensitivity for each receptor.

Magnitude of Change - Seascape/ Landscape

- 11.11.2.7 The magnitude of change on seascape/ landscape receptors is an expression of the scale of the change that will result from Hornsea Four and is dependent on a number of variables regarding the size or scale of the change. The basis for this assessment is made clear using evidence and professional judgement, based on the following criteria. An assessment will also be made of the geographical extent of the area over which this will occur and the duration and reversibility of such changes, however this is not taken into account in the assessment of magnitude as there is the potential that the reversibility aspect could alter or reduce potentially significant effects even though they are long-term.

Size or Scale of Change

- 11.11.2.8 This criterion relates to the size or scale of change to the seascape/ landscape that will arise as a result of Hornsea Four, based on the following factors:
- The degree to which the pattern of elements/features that makes up the seascape/ landscape character will be altered by Hornsea Four, by removal or addition of elements/features in the seascape/ landscape. The magnitude of change will generally be higher if the features that make up the seascape/ landscape character are extensively removed or altered, and/or if many new components are added to the seascape/ landscape;
 - The extent to which the impact of Hornsea Four changes, physically or perceptually, the key characteristics of the seascape/ landscape as identified in the baseline study and which may be important to the distinctive character of the

landscape. This may include, for example, the scale of the landform, its relative simplicity or irregularity, the nature of the seascape/ landscape context, the grain or orientation of the seascape/ landscape, the degree to which the receptor is influenced by external features and the juxtaposition of Hornsea Four in relation to these key characteristics;

- The degree to which seascape/ landscape character receptors will be changed by the addition of Hornsea Four to baseline wind energy developments that are already present in the seascape/ landscape. If Hornsea Four is located in a seascape/ landscape receptor that is already affected by other wind energy development, this may reduce the magnitude of change if there is a high level of integration and the developments form a unified and cohesive feature in the seascape/ landscape;
- The seascape/ landscape context in which Hornsea Four and other wind energy developments are located. If the development is located in a similar seascape/ landscape context, the magnitude of change is likely to be lower as they relate consistently to key seascape/ landscape characteristics. If developments are located in different seascape/ landscape settings, this can lead to a perception that a wind energy development is unplanned and uncoordinated, affecting a wide range of seascape/ landscape characters and blurring the distinction between them;
- The scale of the seascape/ landscape, landform and patterns of the landscape. A large-scale seascape/ landscape can provide a more appropriate receiving environment than a more intimate, small-scale setting where development may result in uncomfortable scale comparisons and increase the magnitude of change;
- The distance between the seascape/ landscape character receptor and Hornsea Four. Generally, the greater the distance, the lower the scale of change as Hornsea Four will constitute a less apparent influence on the seascape/ landscape character; and
- The amount of Hornsea Four that will be seen. Visibility of Hornsea Four may range from one wind turbine blade tip to all of the wind turbines; generally, the greater the extent of Hornsea Four that can be seen, the higher the scale of change.

11.11.2.9 The levels of magnitude of change that can occur are defined in [Table 11.7](#).

Table 11.7: Magnitude of change definitions - seascape / landscape character.

Magnitude of change	Description / Reason
High	Hornsea Four will result in a major alteration to the baseline characteristics of the seascape/ landscape, providing the prevailing influence and/or introducing elements that are uncharacteristic in the receiving seascape/ landscape. The addition of Hornsea Four will result in a major incremental change, loss or addition to the baseline windfarm context.
Medium	Hornsea Four will result in a moderate alteration to the baseline characteristics of the seascape/ landscape, providing a readily apparent influence and/or introducing elements potentially uncharacteristic in the receiving seascape/ landscape. The addition of Hornsea Four will result in a moderate incremental change, loss or addition to the baseline context.

Magnitude of change	Description / Reason
Low	Hornsea Four will result in a minor alteration to the baseline characteristics of the seascape/ landscape, providing a slightly apparent influence and/or introducing elements that are characteristic in the receiving seascape/ landscape. The addition of Hornsea Four will result in a minor incremental change, loss or addition to the baseline context.
Negligible/None	Hornsea Four will result in a negligible or no alteration to the baseline characteristics of the seascape/ landscape, providing no influence, a barely discernible influence and/or introducing elements that are substantially characteristic in the receiving seascape/ landscape. The addition of Hornsea Four will result in a negligible or no incremental change, loss or addition to the baseline context.

11.11.2.10 There may also be intermediate levels of magnitude of change, such as medium-high and medium-low, where the change falls between definitions.

11.11.3 Visual Effects

11.11.3.1 The assessment of visual effects is an assessment of how the introduction of Hornsea Four will affect the views available to people and their visual amenity during the day and into the night. The assessment of visual effects will be carried out in relation to the key visual receptors within the Study Areas. These include residents of small settlements people at their place of work, motorists using roads and people using ferries and recreational routes, features and attractions throughout the study area. This will be carried out with reference to the representative viewpoint visualisations.

11.11.3.2 The objective of the assessment of effects on visual receptors is to determine what the likely effects of Hornsea Four will be on the people experiencing views across the study areas, and whether these effects will be significant or not significant. The methodology for the assessment of visual effects involves the evaluation of sensitivity, magnitude of change and an assessment of impact significance.

Sensitivity of Visual Receptor

11.11.3.3 The sensitivity of visual receptors will be determined by a combination of the value of the view and the susceptibility of the visual receptors to the change Hornsea Four will have on the view.

Value of the View

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

- Formal recognition - The value of views can be formally recognised through their identification on Ordnance Survey (OS) or tourist maps as formal viewpoints, sign-posted and with facilities provided to add to the enjoyment of the viewpoint such

as parking, seating and interpretation boards. Specific views may be afforded protection in local planning policy and recognised as valued views. Specific views can also be cited as being of importance in relation to landscape or heritage planning designations, for example the value of a view will be increased if it presents an important vista from a designed landscape or lies within or overlooks a designated area, which implies a greater value to the visible landscape.

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

Susceptibility to Change

11.11.3.5 Susceptibility relates to the nature of the viewer experiencing the view and how susceptible they are to the potential effects of Hornsea Four. A judgement to determine the level of susceptibility therefore relates to the nature of the viewer and their experience from that location or viewpoint, as follows:

- Nature of the viewer - The nature of the viewer is described by the occupation or activity which they are engaged in at the viewpoint or series of viewpoints. The most common groups of viewers considered in the visual assessment include people using routes and people taking part in recreational activity or working. Viewers, whose attention is focused on the landscape, or with static long-term views, are likely to have a higher sensitivity. Viewers travelling in cars or ferries will tend to have a lower sensitivity as their view is transient and moving. The least sensitive viewers are usually people at their place of work as they are generally less sensitive to changes in views.
- Experience of the viewer - The experience of the visual receptor relates to the extent to which the viewer's attention or interest may be focused on the view and the visual amenity they experience at a particular location. The susceptibility of the viewer to change arising from Hornsea Four may be influenced by the viewer's attention or interest in the view, which may be focused in a particular direction, from a static or transitory position, over a long or short duration, and with high or low clarity. For example, if the principal outlook from a static receptor is aligned directly towards Hornsea Four the experience of the visual receptor will be altered more notably than if the experience relates to a glimpsed view seen at an oblique angle from a car travelling at high speed. The visual amenity experienced by the viewer varies depending on the presence and relationship of visible elements, features or patterns experienced in the view and the degree to which the landscape in the view may accommodate the influence of Hornsea Four.

Sensitivity rating – Views/ Visual Receptors

- 11.11.3.6 An overall level of sensitivity will be applied for each visual receptor or view – high, medium-high, medium, medium-low, low – by combining individual assessments of the value of the view and the susceptibility of the visual receptor to change. Each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, is assessed in terms of their sensitivity. The basis for the assessments will be made clear using evidence and professional judgement in the evaluation of each receptor.

Magnitude of Change – Views/ Visual Receptors

- 11.11.3.7 The magnitude of change on views is an expression of the scale of the change that will result from Hornsea Four and is dependent on a number of variables regarding the size or scale of the change.
- 11.11.3.8 A separate assessment will also made of the geographical extent of the area over which this will occur and the duration and reversibility of such changes which will not feed into the magnitude of change assessment.

Size or Scale of Change

- 11.11.3.9 An assessment will be made about the size or scale of change in the view that is likely to be experienced as a result of Hornsea Four, based on the following criteria:
- The distance between the visual receptor/viewpoint and Hornsea Four. Generally, the greater the distance, the lower the magnitude of change, as Hornsea Four will constitute a smaller scale component of the view;
 - The amount and size of Hornsea Four that will be seen. Visibility may range from one blade tip to all of the wind turbines or may include only the HVAC booster stations. Generally, the larger Hornsea Four appears in the view, and the more of Hornsea Four that can be seen, the higher the magnitude of change;
 - The scale of the change in the view, with respect to the loss or addition of features in the view and changes in its composition;
 - The field of view available and the proportion of the view that is affected by Hornsea Four. Generally, the more of a view that is affected, the higher the magnitude of change will be. If Hornsea Four extends across the whole of the open part of the outlook, the magnitude of change will generally be higher as the full view will be affected. Conversely, if Hornsea Four covers just a part of an open, expansive and wide view, the magnitude of change is likely to be reduced as Hornsea Four will not affect the whole open part of the outlook;
 - The scale and character of the context within which Hornsea Four will be seen and the degree of contrast or integration of any new features with existing landscape elements, in terms of scale, form, mass, line, height, colour, luminance and motion. Contrasts and changes may arise particularly as a result of the rotational movement of the wind turbine blades, as a characteristic that gives rise to effects;
 - The consistency of image of Hornsea Four in relation to other developments. The cumulative magnitude of change of Hornsea Four is likely to be lower if its wind

turbine height, arrangement and layout design are broadly similar to other developments in the SLVR array area study area, as they are more likely to appear as relatively simple and logical components of the landscape;

- The uniformity of appearance of Hornsea Four in different views. If Hornsea Four appears relatively uniform and consistent in appearance from different viewpoints and viewing angles, in a similar setting and familiar form, this tends to reduce the magnitude of change. If, on the other hand, it appears inconsistent in image, scale and appearance, or from a variety of different angles, and is seen in a different form and setting, the magnitude of change is likely to be higher as it will be a variable and less familiar component of views;
- The extent of the wind energy developed skyline. If Hornsea Four will add notably to the wind energy developed skyline in a view, extending the lateral spread of development or increasing the perceived connection between other windfarms, the cumulative magnitude of change will tend to be higher;
- The number and scale of developments seen simultaneously or sequentially. Generally, the greater the number of clearly separate developments that are visible, the higher the cumulative magnitude of change will be, whereas an extension to an existing windfarm would tend to result in a lower magnitude of change than a separate, new development; and
- The scale and form comparison between developments. If Hornsea Four is of a similar scale and form to other visible developments, particularly those seen in closest proximity to it, the cumulative magnitude of change will generally be lower as it will have more integration with the other sites and will be less apparent as an addition to the cumulative situation.

11.11.3.10 The levels of magnitude of change that can occur are defined in [Table 11.8](#).

Table 11.8: Magnitude of change definitions - views.

Magnitude of change	Visibility level	Magnitude of change definition
High	Hornsea Four will be the prevailing feature in the view and will form the major focus of visual attention due to its large vertical scale and lateral spread, filling a large proportion of the field of view. Contrasts in form, line, colour, texture, luminance or motion may contribute to the prevailing influence. Moving objects associated with Hornsea Four may contribute substantially to drawing viewer attention. The visual prominence of Hornsea Four will detract noticeably from views of other seascape/ landscape elements.	Hornsea Four will result in a high level of alteration to the existing view, forming the prevailing influence and/or introducing elements that are substantially uncharacteristic in the baseline view. The addition of Hornsea Four will result in a major incremental change, loss or addition to the baseline view.
Medium	Plainly visible, so will not be missed by casual observers, but does not strongly attract visual attention or dominate the view because of its apparent size. Hornsea Four is obvious and will have sufficient size to contrast with other	Hornsea Four will result in a medium level of alteration to the baseline view, forming a readily apparent influence and/or introducing elements that are potentially uncharacteristic in the

Magnitude of change	Visibility Level	Magnitude of change definition
	seascape/ landscape elements, but with insufficient visual contrast to strongly attract visual attention and insufficient size to occupy most of an observer's field of view.	receiving view. The addition of Hornsea Four will result in a moderate incremental change, loss or addition to the baseline view.
Low	Hornsea Four will be visible when scanning in its general direction; otherwise it may be missed by casual observers. Very small and/or faint, but when the observer is scanning the horizon or looking more closely at an area, can be detected and sometimes noticed by casual observers. However, most people would not notice it without some active looking.	Hornsea Four will result in a low level of alteration to the baseline view, providing a slightly apparent influence and/or introducing elements that are characteristic in the receiving view. The addition of Hornsea Four will result in a low incremental change, loss or addition to the baseline view.
Negligible/None	Visible only after extended viewing. Hornsea Four is near the limit of visibility or is not visible. It would not be seen by a person who was unaware of it in advance and looking for it. Even under those circumstances, it may be seen only after looking at it closely for an extended period.	Hornsea Four will result in a negligible or no alteration to the existing view. If visible, it may form a barely discernible influence and/or introduce elements that are substantially characteristic in the baseline view. The addition of Hornsea Four will result in no change or a negligible incremental change, loss or addition to the baseline view.

11.11.3.11 There may also be intermediate levels of magnitude of change, such as medium-high and medium-low, where the change falls between definitions.

11.11.4 Cumulative Seascape/ Landscape Effects

11.11.4.1 Cumulative development within a particular area may build up to create different types of seascape/ landscape effect. The significance of the cumulative seascape/ landscape effects of the addition of Hornsea Four will be assessed as follows:

- If Hornsea Four forms a separate isolated feature from other developments within the seascape/ landscape, too infrequent and of insufficient significance to be perceived as a characteristic of the area, then the cumulative seascape/ landscape effect of Hornsea Four is unlikely to be significant;
- If the addition of Hornsea Four results in offshore windfarms and/or other offshore developments forming a key characteristic of the seascape/ landscape, exerting sufficient presence as to establish or increase the extent of a 'seascape/ landscape with windfarms/other offshore development'; then the cumulative seascape/ landscape effect of the proposal may be significant or not significant, depending on the sensitivity of the receptor and magnitude of the change; and
- If the addition of Hornsea Four results in offshore windfarms/other offshore development forming the prevailing characteristic of the seascape/ landscape, seeming to define the seascape/ landscape as a 'windfarm/developed seascape/

landscape character type' then the cumulative seascape/ landscape effect of Hornsea Four is likely to be significant.

Cumulative Visual Effects

11.11.4.2 Cumulative visual effects consist of combined and sequential effects:

- Combined visibility - occurs where the observer is able to see two or more developments from one viewpoint. Combined visibility may either be where several developments are within the observer's main angle of view at the same time, or, where the observer has to turn to see the various developments. The cumulative visual effect of Hornsea Four may be significant, or not significant, depending on factors influencing the cumulative magnitude of change, such as the degree of integration and consistency of image with other developments in combined views; and its position relative to other developments and the landscape context in successive views; and
- Sequential visibility - occurs when the observer has to move to another viewpoint to see different developments. Sequential effects are assessed along regularly used routes such as ferry routes and footpaths. The occurrence of sequential effects ranges from 'frequently sequential' (the features appear regularly and with short time lapses between, depending on speed of travel and distance between the viewpoints) to 'occasionally sequential' (long time lapses between appearances, because the observer is moving slowly and/or there are large distances between the viewpoints). The cumulative visual effect is more likely to be significant when frequently sequential.

Cumulative Sensitivity of Landscape and Visual Receptors

11.11.4.3 In evaluating cumulative sensitivity in the cumulative SLVR assessment, the sensitivity to change of seascape, landscape and visual receptors are retained from the main assessment.

Cumulative Magnitude of Change

11.11.4.4 The cumulative magnitude of change is an expression of the degree to which SLVR receptors will be changed by the addition of Hornsea Four to offshore wind farm and other developments that are already operational, existing, under construction, consented or at application stage. The cumulative magnitude of change is assessed according to a number of criteria, described below:

- The location of Hornsea Four in relation to other offshore wind farm and other developments. If Hornsea Four is seen in a part of the view or setting to a seascape/ landscape receptor that is not affected by other wind farm development, this will generally increase the cumulative magnitude of change as it will extend wind farm influence into an area that is currently unaffected. Conversely, if Hornsea Four is seen in the context of other sites, the cumulative magnitude of change may be lower as wind farm influence is not being extended to otherwise undeveloped parts of the outlook or setting. This is particularly true where the scale and layout of

Hornsea Four is similar to the other sites. Where there is a high level of integration and cohesion with an existing wind farm site, the various developments may appear as a single site;

- The extent of the developed skyline. If Hornsea Four will add notably to the developed skyline in a view, the cumulative magnitude of change will tend to be higher as skyline development can have a particular influence on both views and landscape receptors;
- The number and scale of wind farm developments seen simultaneously or sequentially. Generally, the greater the number of clearly separate developments that are visible, the higher the cumulative magnitude of change will be. The addition of Hornsea Four to a view or landscape where a number of smaller developments are apparent will usually have a higher cumulative magnitude of change than one or two large developments as this can lead to the impression of a less co-ordinated or strategic approach;
- The scale comparison between wind farm developments. If Hornsea Four is of a similar scale to other visible wind farms, particularly those seen in closest proximity to it, the cumulative magnitude of change will generally be lower as it will have more integration with the other sites and will be less apparent as an addition to the cumulative situation;
- The consistency of image of Hornsea Four in relation to other wind farm developments. The cumulative magnitude of change of Hornsea Four is likely to be lower if its turbine height, arrangement and layout design are broadly similar to other wind farms in the landscape, as they are more likely to appear as relatively simple and logical components of the landscape;
- The context in which the wind farm developments are seen. If developments are seen in a similar landscape context, the cumulative magnitude of change is likely to be lower due to visual integration and cohesion between the sites. If developments are seen in a variety of different landscape settings, this can lead to a perception that wind farm development is unplanned and un-coordinated, affecting a wide range of landscape characters and blurring the distinction between them; and
- The magnitude of change of Hornsea Four as assessed in the main assessment. The lower the magnitude of change is assessed to be, the lower the cumulative magnitude of change is likely to be. Where Hornsea Four itself is assessed to have a negligible magnitude of change on a view or receptor there will not be a cumulative effect as the contribution of Hornsea Four will equate to the 'no change' situation.

11.11.4.5 Definitions of cumulative magnitude of change are applied in order that the process of assessment is made clear. These are:

- High - where the magnitude of change arising from the addition of Hornsea Four will result in a high cumulative change, loss or addition to the seascape/landscape receptor or view;
- Medium - where the magnitude of change arising from the addition of Hornsea Four will result in a medium change, loss or addition to the seascape/landscape receptor or view;

- Low - where the magnitude of change arising from the addition of Hornsea Four will result in a low change, loss or addition to the seascape/landscape receptor or view; and
- Negligible/None -where the magnitude of change arising from the addition of Hornsea Four will result in no change or a negligible incremental change, loss or addition to the seascape/landscape receptor or view.

11.11.4.6 There may also be intermediate levels of cumulative magnitude of change - medium-high and medium-low - where the change falls between two of the definitions.

11.11.5 Impact Significance – Seascape, Landscape and Visual Effects

11.11.5.1 The significance of the effect on each seascape, landscape and visual receptor is dependent on all of the factors considered in the sensitivity of the view and the magnitude of change resulting from Hornsea Four based on professional judgement. These judgements on sensitivity and magnitude will be combined to arrive at an overall assessment as to whether Hornsea Four will have an effect that is significant or not significant on the visual receptor. The matrix shown in [Table 11.9](#) helps to inform the threshold of significance when combining sensitivity and magnitude to assess the significance of effect.

11.11.5.2 A significant effect will occur where the combination of the variables results in Hornsea Four having a defining effect on the seascape, landscape or visual receptor or where changes of a lower magnitude occur on a view or visual receptor that is of particularly high sensitivity.

11.11.5.3 A not significant effect will occur where the appearance of Hornsea Four is not definitive, and the view continues to be defined principally by its baseline characteristics or where the small-scale of change experienced by a high sensitivity receptor is such as to be considered not significant.

11.11.5.4 Irreversible, long-term effects on seascapes, landscapes or the views of people who are particularly sensitive to changes in views and visual amenity are more likely to be significant, as are effects on people at recognised viewpoints with high scenic quality. Large-scale changes which introduce new, non-characteristic or discordant elements into the seascape, landscape or view are also more likely to be more significant than small changes or changes involving features already present.

11.11.5.5 The assessment of seascape, landscape and visual effects assumes clear weather and the likely optimum viewing conditions. This means that effects that are assessed to be significant may be not significant under different, less clear conditions. Viewing conditions and visibility tend to vary considerably and therefore the likelihood of effects resulting from Hornsea Four will vary greatly according to the prevailing viewing conditions.

Table 11.9: Impact significance matrix.

		Magnitude of change					
		High	Medium-high	Medium	Medium-low	Low	Negligible/ None
Sensitivity	High	Significant	Significant	Significant	Significant or not significant	Not significant	Not significant
	Medium-high	Significant	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant
	Medium	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant
	Medium-low	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant	Not significant
	Low	Significant or not significant	Not significant	Not significant	Not significant	Not significant	Not significant

11.11.6 Significance of Cumulative Effects

11.11.6.1 The objective of the cumulative assessment is to determine whether any effects that the construction and operation of Hornsea Four will have on seascape, landscape and visual receptors, when seen or perceived cumulatively with the construction and operation of other offshore wind farms/development, will be significant or not significant. Significant cumulative seascape, landscape and visual effects arise where the addition of Hornsea Four, leads to offshore wind farms becoming a prevailing seascape/ landscape and visual characteristic of a receptor that is sensitive to such change. Cumulative seascape/ landscape effects may evolve as follows:

- A small scale, single development will often be perceived as a new or 'one-off' landscape feature or landmark within the seascape. Except at a local site level, it usually cannot change the overall existing seascape character, or become a new characteristic element of a landscape/ seascape;
- With the addition of further development, it can become a characteristic element of the landscape/ seascape, as they appear as elements or components that are repeated. Providing there was sufficient 'space' or undeveloped landscape/ seascape between each development, or the overlapping of several developments is not too dense; they would appear as a series of developments within the landscape/ seascape and would not necessarily become the dominant or defining characteristic of the seascape nor have significant cumulative effects; and
- The next stage would be to consider larger scale developments and/or an increase in the number of developments within an area that either overlap or coalesce and/or 'join-up' along the skyline. The effect is to create a landscape/ seascape where the offshore windfarm and / or energy generation/ transmission element is a

prevailing characteristic of the landscape/ seascape. The result would be to materially change the existing seascape/ landscape character and resulting in a significant cumulative effect. A landscape/ seascape characterised by offshore windfarm or energy generation/ transmission development may already exist as part of the baseline seascape context.

11.11.6.2 Less extensive, but nevertheless significant cumulative seascape, landscape and visual effects may also arise as a result of the addition of Hornsea Four where it results in a seascape / landscape or view becoming defined by the presence of more than one offshore wind farm / offshore developments, so that other patterns and components are no longer definitive, or where the proposal contrasts with the scale or design of an existing or development. Higher levels of significance may arise from cumulative seascape, landscape and visual effects related Hornsea Four when the offshore wind farms / developments are clearly visible together in views. However, where the offshore wind farms projects are designed to achieve a high level of visual integration, with few notable visual differences between developments, these effects may not necessarily be significant. In particular, the effects of an extension to an existing development are often less likely to be significant, where the effect is concentrated, providing that the design of the developments are compatible and that the overall capacity of the seascape is not exceeded.

11.11.6.3 The capacity of the seascape/ landscape or view may be assessed as being exceeded where the seascape, landscape or view becomes defined by a particular type of development, or if Hornsea Four extends across seascape/ landscape character types or clear visual/topographic thresholds in a view. More substantial cumulative effects may result from developments that have some geographical separation, but remain highly inter-visible, potentially resulting in extending effects into new areas, such as an increased presence of development on a skyline, or the creation of multiple, separate offshore wind farm defined seascape/ landscapes.

11.11.7 Geographical Extent

11.11.7.1 The geographic extent over which the visual effects will be experienced will also be assessed, which is distinct from the size or scale of effect. The extent of the effects will vary depending on the specific nature of Hornsea Four and is principally assessed through analysis of the physical changes to the seascape and landscape receptors or the extent of perception/ visibility from the seascape, landscape and visual receptors, to assess the geographical extent of the receptor that will be affected, based on the following criteria:

- The extent of the receptor (a MCA, LCT, road, footpath or settlement for example) that will experience changes through physical changes or visibility of Hornsea Four; and
- The extent to which the change affects the character or views, whether this is unique to the location or viewpoint or if similar changes occur over wide areas.

11.11.8 Duration and Reversibility

11.11.8.1 The duration and reversibility of visual effects are based on the period over Hornsea Four is likely to exist and the extent to which Hornsea Four will be removed and its effects reversed at the end of that period. Duration and reversibility will not be incorporated into the overall magnitude of change and are stated separately in relation to the assessed effects.

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

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

11.11.8.3 For the purposes of the assessment, it is assumed that Hornsea Four would have an operational life of at least 35 years. Therefore, Hornsea Four would be considered a permanent feature, although its seascape, landscape and effects would be reversible.

11.11.9 Nature of Effects

11.11.9.1 The nature of effects refers to whether the landscape and/or visual effect of Hornsea Four is positive or negative (herein referred to as 'beneficial' and 'adverse').

11.11.9.2 The EIA Regulations 2017 state that the ES should cover 'the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development'.

11.11.9.3 Guidance provided by the in GLVIA3 on the nature of effect (i.e. beneficial or adverse) states that 'in the LVIA, thought must be given to whether the likely significant landscape and visual effects are judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity', but it does not provide guidance as to how that may be established in practice. The nature of effect is therefore one that requires interpretation and, where applied, this involves reasoned professional opinion.

11.11.9.4 In relation to many forms of development, the SLVR assessment will identify 'beneficial' and 'adverse' effects by assessing these under the term 'Nature of Effect'. The seascape, landscape and visual effects of wind farms are difficult to categorise in either of these brackets as, unlike other disciplines, there are no definitive criteria by which the effects of windfarms can be measured as being categorically 'beneficial' or 'adverse'. In some disciplines, such as noise or ecology, it is possible to quantify the effect of a wind farm in numeric terms, by objectively identifying or quantifying the proportion of a receptor that is affected and assessing the nature of that effect in justifiable terms. However, this is not the case in relation to seascape, landscape and visual effects where the approach combines quantitative and qualitative assessment.

11.11.9.5 Generally, in the development of 'new' wind farms, a precautionary approach is adopted by OPEN, which assumes that significant landscape and visual effects will be weighed

on the adverse side of the planning balance. Unless it is stated otherwise, the effects considered in the assessment will be considered to be adverse. Adverse effects are those that detract from the seascape/ landscape character or quality of visual attributes experienced, through the introduction of elements that contrast, in a detrimental way, with the existing characteristics of the SLVR resource, or through the removal of elements that are key in its characterisation.

11.12 Impact assessment

- 11.12.1.1 Much of the influence of Hornsea Four is as a result of the visibility of its component parts during construction, operation and decommissioning from locations within the SLVR study areas. To aid the understanding of this, Zone of Theoretical Visibility analysis figures have been prepared to illustrate the maximum theoretical visibility of the MDS blade tip (370 m) and hub height (217.5 m), as shown on [Figure 11.7](#). The extent of the theoretical visibility of the turbine hubs provides an indication of the amount of the turbine visible above the skyline. The medium intensity aviation lighting would also be fitted to the perimeter turbines at hub height. Therefore, the hub height ZTV ([Figure 11.8](#)) also shows the locations from where these may be theoretically visible.

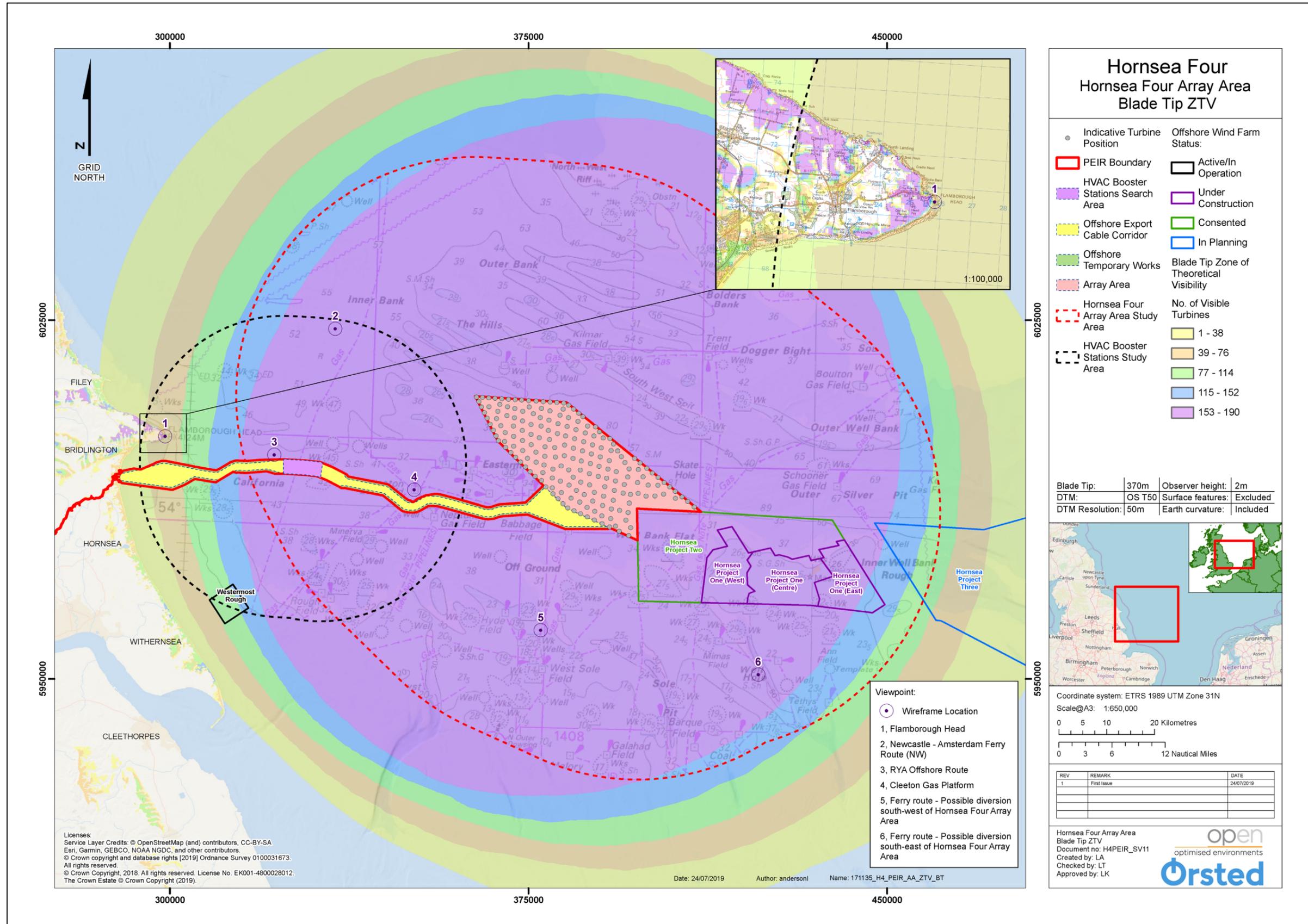


Figure 11.7: Hornsea Four array area blade tip ZTV (not to scale).

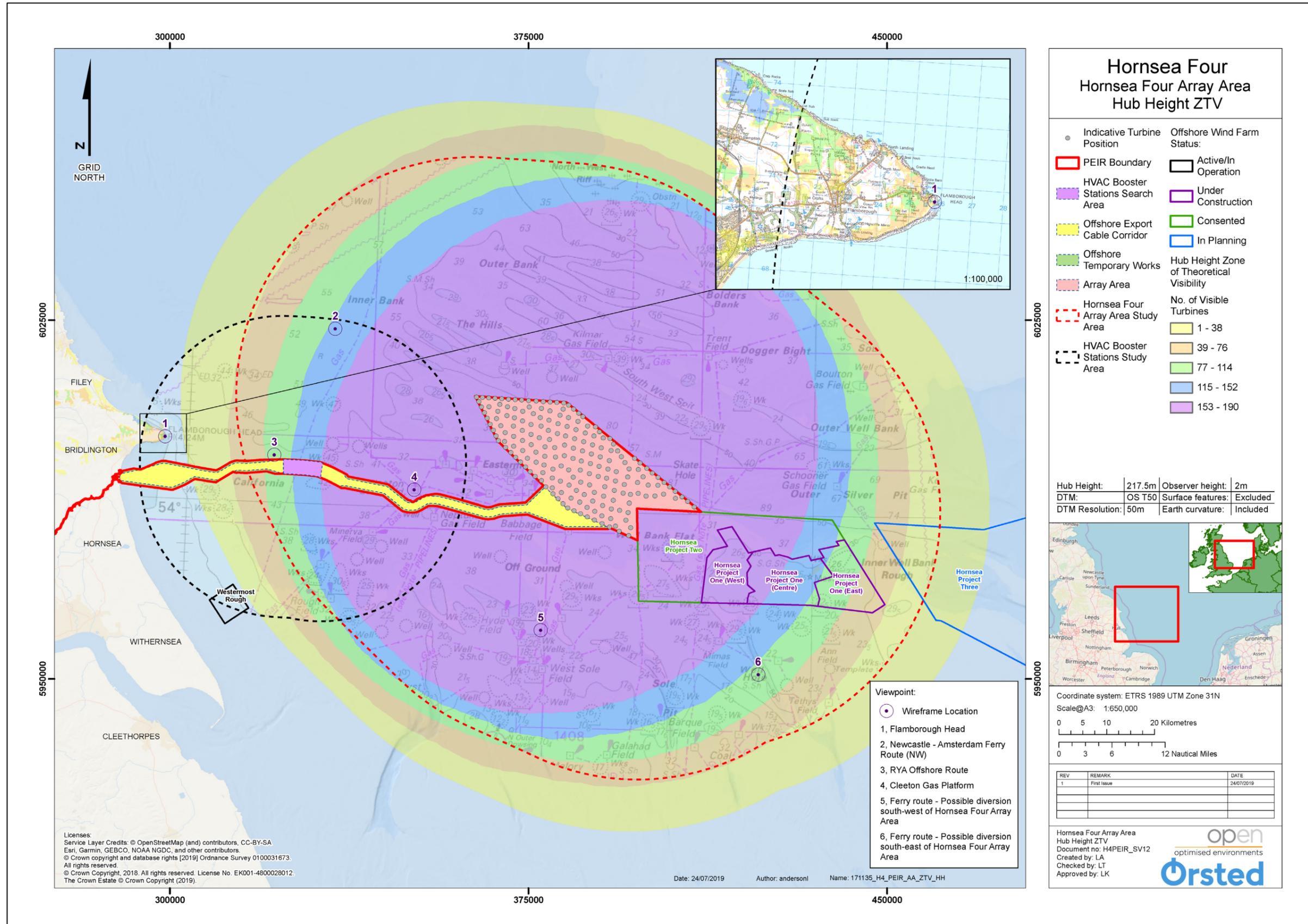


Figure 11.8: Hornsea Four array area hub height ZTV (not to scale).

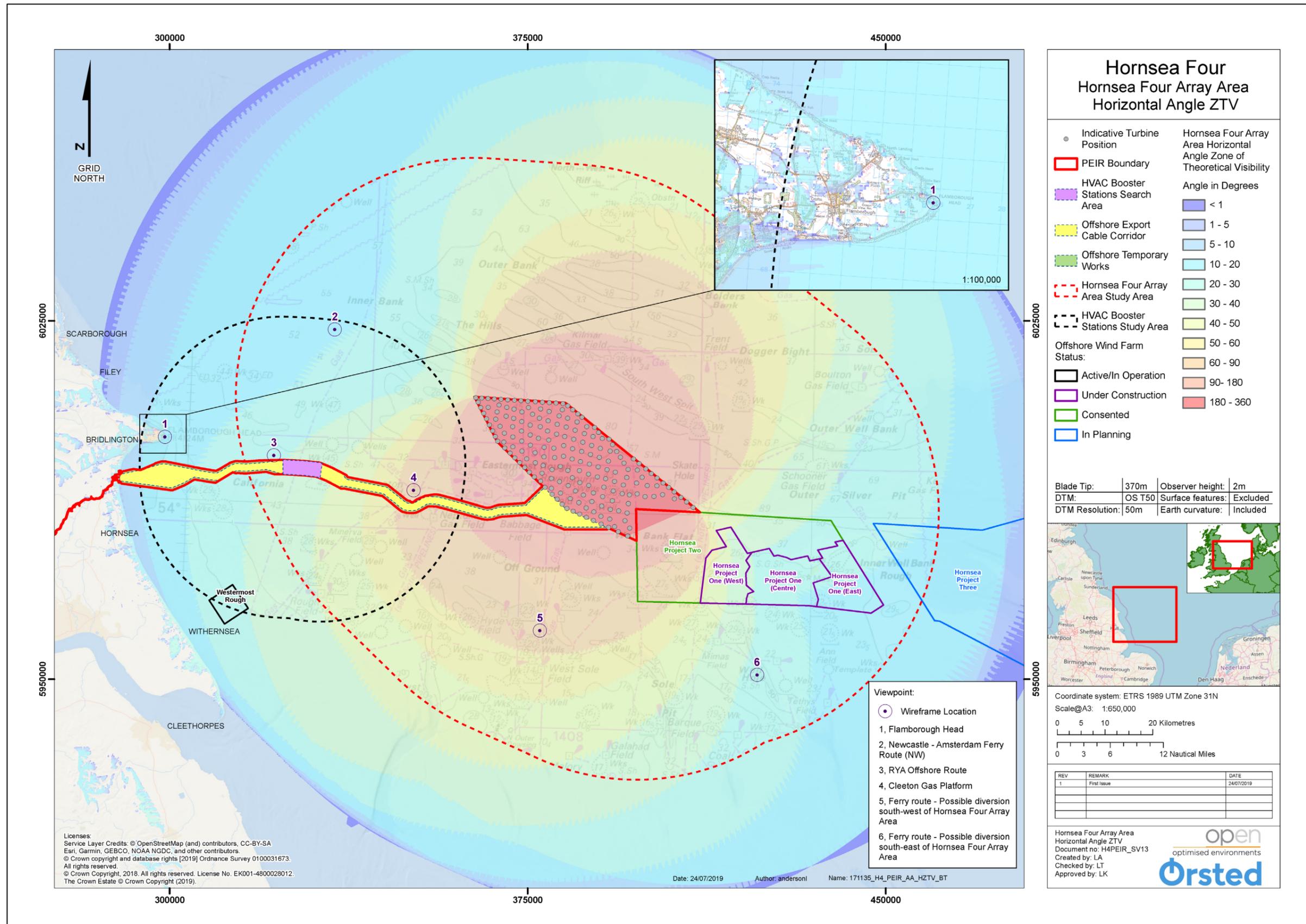


Figure 11.9: Hornsea Four array area horizontal angle ZTV (not to scale).

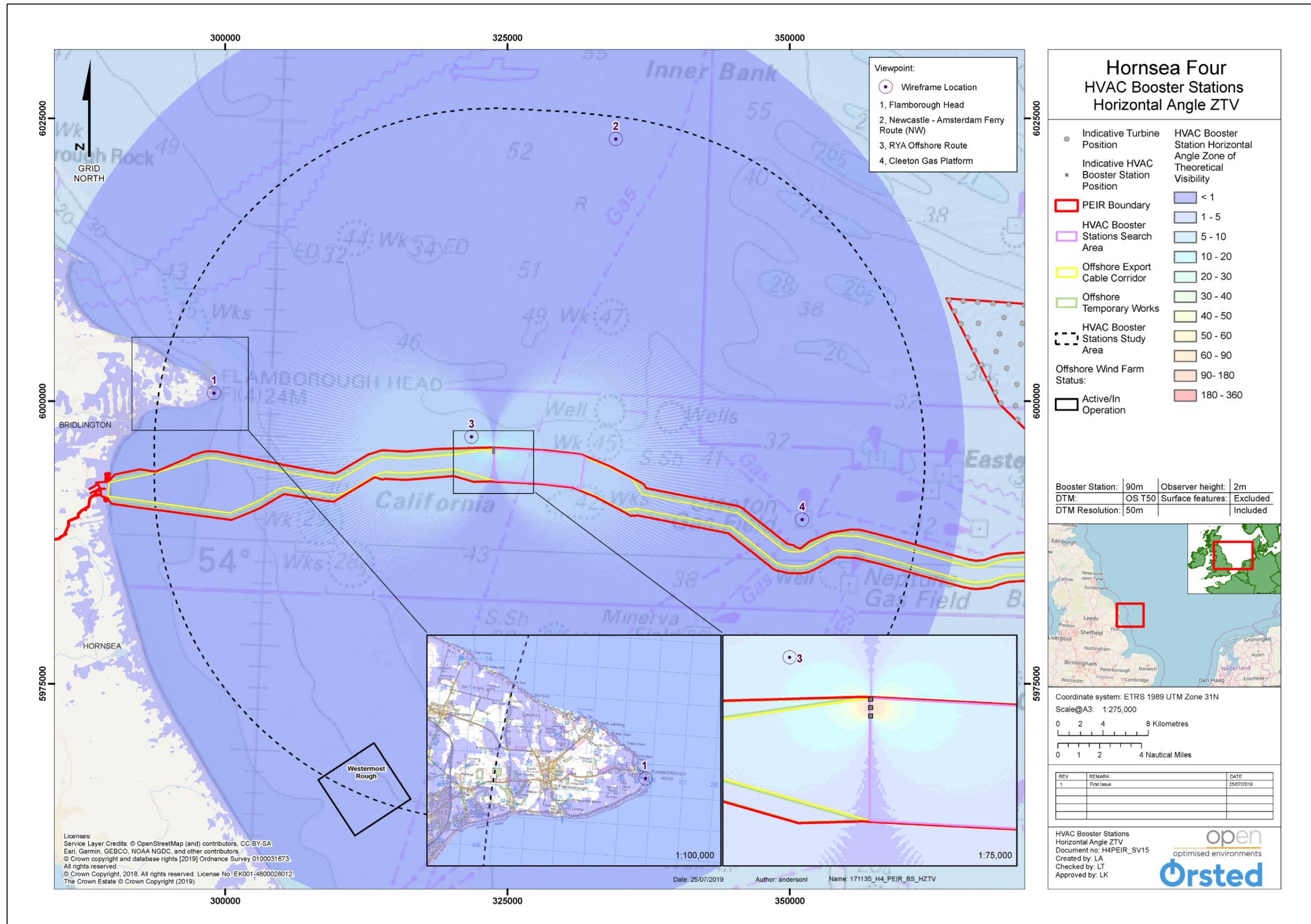


Figure 11.10: HVAC booster stations horizontal angle ZTV (not to scale).

11.12.2 Construction

- 11.12.2.1 The impacts of the offshore construction of Hornsea Four have been assessed on seascape, landscape and visual receptors. The environmental impacts arising from the construction of Hornsea Four are listed in [Table 11.6](#) along with the maximum design scenario against which each construction phase impact has been assessed.
- 11.12.2.2 A description of the potential effect on seascape, landscape and visual receptors caused by each identified impact is given below.

Impact on seascape character of MCAs as a result of physical presence and views of all offshore project elements during construction (SVR-C-1B).

- 11.12.2.3 A detailed technical assessment of the seascape effects of the construction of the offshore elements is set out in [Table 11.10](#) which addresses the MCAs that fall within the SLVR study areas. [Figure 11.3](#) illustrates the locations of the MCAs relative to Hornsea Four.

Table 11.10: Impact on seascape character of MCAs as a result of physical presence and views of all offshore project elements during construction.

MCA	Sensitivity	Magnitude of impact	Significance of Effect
<p>Dogger Bank</p>	<p><i>Value - low</i> Not designated for its landscape value. Does not form part of the immediate setting for any designated landscapes that would provide it with a heightened value. <i>Susceptibility – medium-low</i> No part of Hornsea Four is located within this MCA. The changes to its character will be through the perception of the construction of the elements within array area located within the Dogger Deep Water Channel MCA to the south-west at a minimum distance of approximately 7.5 km. Other components of Hornsea Four construction are located at greater distances from this MCA. Hornsea Project One forms a key characteristic in the baseline character of the MCA to the south, forming a characterising feature. Other offshore wind farms are located within this MCA to the north but at a considerable distance from Hornsea Four. The large-scale simplicity of the MCA exhibits characteristics that are considered to provide opportunities to accommodate large scale wind farm development. The MCA has a windswept, exposed and relatively remote character which provides both contrasts to the form of Hornsea Four, but also a rationale for the wind energy influences. Sensitivity – medium - low</p>	<p>Hornsea Four array area is located entirely beyond the boundary of the MCA approximately 7.5 km to the south-west. Changes to it arise through the perception/views of the Hornsea Four array area construction as part of its wider context which includes other offshore wind farms. The MCA will remain open and characterised by its existing elements which include oil and gas platforms and offshore wind farms. The construction of the elements within the array area will result in some changes to the wider setting of the visually unified, expansive and largely open character. The influence of the existing wind farm to the south of the MCA will be extended by Hornsea Four providing further development, although large vessels, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale. The character influence of the construction of the offshore export cables and HVAC booster stations at greater distances to the west would be negligible. Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>
<p>Dogger Deep Water Channel</p>	<p><i>Value - low</i> Not designated for its landscape value. Does not form part of the immediate setting for any designated landscapes that would provide it with a heightened value. <i>Susceptibility - medium</i> Hornsea Four array area and part of the ECC located within this MCA. Areas of the MCA within and immediately around the array area are more susceptible to changes, as there is a direct association and exposure to changes. Susceptibility recedes with the distance to the north, south and west.</p>	<p>Hornsea Four array area and part of the ECC are located within the Dogger Deep Water Channel MCA and will result in the direct, physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by Hornsea Project One as well as oil and gas platforms. This will occur through the introduction of large-scale static and moving structures and vessels as well as other equipment over a wide spread area. This would tend to occur as clusters of activity across the array area with the WTCs and offshore sub-station</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

MCA	Sensitivity	Magnitude of impact	Significance of Effect
	<p>Hornsea Project One forms a key characteristic in the baseline character of the MCA to the east, forming a prominent characterising feature.</p> <p>The geographical extent of this MCA is large and characterised by large scale open sea that is in part susceptible to changes arising from Hornsea Four due to the scale, movement and structural form of the WTGs and other elements under construction which contrasts with this.</p> <p>The large-scale simplicity of the MCA exhibits characteristics that are considered to provide opportunities to accommodate large scale wind farm development. The MCA has a windswept, exposed and relatively remote character which provides both contrasts to the form of Hornsea Four, but also a rationale for the wind energy influences.</p> <p>The experience of the seascape is also influenced by commercial shipping vessels, commercial fishing and dredging for/disposal of aggregates and gas/oil platforms fields and there is limited association with the shoreline with views restricted and very dependent on weather conditions.</p> <p>Sensitivity – medium - low</p>	<p>platforms/accommodation platforms gradually becoming evident and reaching their ultimate form.</p> <p>In addition, there will be changes to the character through the perception of the construction from a wider extent of the MCA. This will be most marked to the north, west and south in the immediate vicinity of the array area where the WTGs and offshore platforms would be seen at close proximity. To the east of the array area the existing influence of Hornsea Project One means that the change in character would be less marked.</p> <p>The construction of the elements within the array area will result in some changes to the visually unified, expansive and largely open character, partially interrupting the consistent panoramic horizons and providing further development influence, although large vessels, disposal activity, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale. The character influence of the Offshore Export Cables would be relatively limited by comparison and would only be apparent on the sea surface of the MCA as additional vessels located temporarily along the ECC.</p> <p>The construction of the HVAC booster stations to the west of this MCA would have a peripheral influence on character as a result of views to these as part of the wider context.</p> <p>Magnitude of impact: medium magnitude where there would be direct changes within the array area and indirect changes through views of the construction within approximately 5 km of the array area boundary. Beyond this the magnitude of impact within 10 km would be medium - low to the north, west (where there is also closer proximity to the HVAC booster station search area) and south of the array area and low to the east and at greater distances to the north.</p>	
East Midlands	<p><i>Value - low</i></p> <p>Not designated for its landscape value.</p>	<p>The construction of the Hornsea Four booster stations may occur within this MCA as well as the construction of the Offshore Export</p>	<p>The effect is assessed</p>

MCA	Sensitivity	Magnitude of impact	Significance of Effect
<p>Offshore Gas Fields</p>	<p>Does not form part of the immediate setting for any designated landscapes that would provide it with a heightened value.</p> <p><i>Susceptibility - low</i></p> <p>A large part of the HVAC booster station search area and a 15 km long section of the Offshore Export Cable Route Corridor are located within the northern-most extent of this MCA on the boundary with the Breagh Oil and Gas Field MCA. The area that would be affected by the construction of these elements of Hornsea Four would be a very small proportion of the overall MCA.</p> <p>Areas of the East Midlands Offshore Gas Fields MCA within and immediately around the HVAC booster station search area are more susceptible to changes, as there is a direct association and exposure to changes.</p> <p>Susceptibility recedes with the distance to the south and east.</p> <p>The Hornsea Four array area is located at approximately 23 km to the north of the MCA where it extends further to the east. Hornsea Project One forms a characteristic in the baseline character of a similar part of the MCA in views to the north at closer range, forming a characterising feature.</p> <p>The geographical extent of this MCA is large and characterised by large scale open sea that is in part susceptible to changes arising from the construction of the HVAC booster stations which is a contrast due to their large structural forms.</p> <p>The large-scale simplicity of the MCA exhibits characteristics that are considered to provide opportunities to accommodate large scale development. These include the existing influence of oil and gas platforms as well as numerous and very large vessels.</p> <p>The experience of the seascape is also influenced by commercial shipping vessels, commercial fishing and dredging for/disposal of aggregates and gas/oil platforms fields and there is limited association with the shoreline with views restricted and very dependent on weather conditions.</p> <p>Sensitivity – low</p>	<p>Cables. This will require use of a large number of vessels and cranes around the HVAC booster station locations and a number of vessels positioned and/or moving around along the ECC.</p> <p>The area that would be affected by the construction of these elements of Hornsea Four would be a very small proportion of the overall MCA.</p> <p>Areas of the East Midlands Offshore Gas Fields MCA within and immediately around the HVAC booster stations would experience the highest levels of change with the magnitude reducing rapidly with distance to the south and east. Their influence recedes with the distance to the south and east.</p> <p>There would be relatively limited physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by oil and gas platforms and the baseline influence of large commercial and fishing vessels.</p> <p>The construction of the elements within the array area will result in some changes to the wider setting of the visually unified, expansive and largely open character. The influence of the existing wind farm to the north of the MCA (provided by Hornsea Project One) will be extended by Hornsea Four providing further development, although large vessels, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale.</p> <p>Magnitude of impact: medium magnitude where there would be direct physical changes as a result of the HVAC booster stations being constructed. Such a magnitude of change would extend to a distance of approximately 1km around the HVAC booster stations. Beyond this distance the HVAC booster stations would be seen as being a less prominent component of the wider seascape character. Beyond this the magnitude of impact would be low reducing to negligible with distance.</p>	<p>as not significant, of medium duration and temporary.</p>

MCA	Sensitivity	Magnitude of impact	Significance of Effect
<p>North Yorkshire Coastal Waters</p>	<p><i>Value – medium - high locally within the FHHC and Medium to low elsewhere</i></p> <p>Southern-most sector closest to the coast forms part of the setting of the FHHC and is partly within this defined area thereby providing it with a heightened value. Some local value beyond the boundary of the FHHC as a setting for leisure sailing and fishing and other coastal activities.</p> <p><i>Susceptibility - low</i></p> <p>A small part of a 2 km long section of the Offshore Export Cable Route Corridor is located near to the south-eastern extent of this MCA but approximately 24 km from the boundary of the FHHC defined area. The influence of the construction would be limited to vessels located within and moving along the cable corridor. The area that would be affected by the construction of these elements of Hornsea Four would be a very small proportion of the overall MCA. Susceptibility recedes with the distance to the north.</p> <p>The existing character of the MCA contains a large number and diverse range of vessels moving within and through it so that the susceptibility to the change proposed (further vessels) is limited.</p> <p>The susceptibility to the other elements of the Hornsea Four construction in areas beyond this MCA is also limited due to their distance and the existing incidence of oil platforms and vessels in the wider context which makes it less susceptible to such changes.</p> <p>Sensitivity – medium within the FHHC and medium - low elsewhere</p>	<p>The construction of a 2 km length of the Offshore Export Cables will occur through a small south-eastern part of this MCA. This will require use of a number of vessels located in and moving along the ECC.</p> <p>The area that would be affected by the construction of the Offshore Export Cables would be a very small proportion of the overall MCA as can be seen from reference to Figure 11.3. There would be relatively limited alteration of the elements and features that together form the baseline characteristics of this MCA.</p> <p>Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>
<p>Holderness Coastal Waters</p>	<p><i>Value – medium to high locally within the FHHC and medium to low elsewhere</i></p> <p>Northern-most sector closest to the coast forms part of the setting of the FHHC and is partly within this defined area thereby providing it with a heightened value. Some local value beyond the boundary of the FHHC as a setting for leisure sailing and other coastal activities.</p> <p><i>Susceptibility - low</i></p> <p>A 30 km long section of the Offshore Export Cable Route Corridor is located near to the northern-most extent of this MCA. The influence would be limited to vessels located within and moving along the cable corridor. The area that would be affected by the construction of these elements of Hornsea Four would be a very small proportion of the overall MCA.</p>	<p>The construction of a 30 km length of the Offshore Export Cables will occur through the northerly section of this MCA. This will require use of a number of vessels located in and moving along the ECC.</p> <p>The area that would be affected by the construction of the Offshore Export Cables would be a very small proportion of the overall MCA as can be seen from reference to Figure 11.3. There would be relatively limited alteration of the elements and features that together form the baseline characteristics of this MCA.</p> <p>Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

MCA	Sensitivity	Magnitude of impact	Significance of Effect
	<p>Susceptibility recedes with the distance to the south and east.</p> <p>The existing character of the MCA contains a large number and diverse range of vessels moving within and through it so that the susceptibility to the change proposed (further vessels) is limited.</p> <p>The susceptibility to the other elements of the Hornsea Four construction in areas beyond this MCA is also limited due to their distance and the existing incidence of oil platforms and vessels as well as Westernmost Rough and other offshore wind farms within the MCA which makes it less susceptible to such changes.</p> <p>Sensitivity – medium within the FHHC and medium - low elsewhere</p>		
<p>Breagh Oil and Gas Field</p>	<p><i>Value - low</i></p> <p>Not designated for its landscape value.</p> <p>Does not form part of the immediate setting for any designated landscapes that would provide it with a heightened value.</p> <p><i>Susceptibility - low</i></p> <p>A small part of the HVAC booster station search area and a short, narrow section of the ECC are located within the south-most extent of this MCA on the boundary with the East Midlands Offshore Gas Fields MCA. The area that would be affected by the construction of these elements of Hornsea Four would be a very small proportion of the overall MCA.</p> <p>Areas of the Breagh Oil and Gas Field MCA within and immediately around the HVAC booster station search area are more susceptible to changes, as there is a direct association and exposure to changes.</p> <p>Susceptibility recedes with the distance to the north and east.</p> <p>The Hornsea Four array area is located at approximately 20 km to the east of the MCA where it extends further to the east.</p> <p>The geographical extent of this MCA is large and characterised by large scale open sea that is in part susceptible to changes arising from the construction of the HVAC booster stations which contrasts with this due to their large structural forms.</p> <p>The large-scale simplicity of the MCA exhibits characteristics that are considered to provide opportunities to accommodate large scale development. These</p>	<p>The construction of the Hornsea Four booster stations may occur within or close to this MCA as well as the construction of a small section of the Offshore Export Cables within or close to this MCA. This will require use of a large number of vessels and cranes around the HVAC booster station locations and a number of vessels positioned and/or moving around along the ECC.</p> <p>The area that would be affected by the construction of these elements of Hornsea Four would be a very small proportion of the overall MCA.</p> <p>Areas of the Breagh Oil and Gas Field MCA within and immediately around the HVAC booster stations would experience the highest levels of change with the magnitude reducing rapidly with distance to the north and east.</p> <p>There would be relatively limited physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by oil and gas platforms and the baseline influence of large commercial and fishing vessels.</p> <p>The construction of the elements within the array area will result in some changes to the wider setting of the visually unified, expansive and largely open character to the east.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

MCA	Sensitivity	Magnitude of impact	Significance of Effect
	<p>include the existing influence of oil and gas platforms as well as numerous and very large vessels.</p> <p>The experience of the seascape is also influenced by commercial shipping vessels, commercial fishing and dredging for/disposal of aggregates and gas/oil platforms fields and there is limited association with the shoreline with views restricted and very dependent on weather conditions.</p> <p>Sensitivity – low</p>	<p>Magnitude of impact</p> <p>Medium magnitude where there would be direct physical changes as a result of the HVAC booster stations being constructed. Such a magnitude of change would extend to a distance of approximately 1km around the HVAC booster stations. Beyond this distance the HVAC booster stations would be seen as being a less prominent component of the wider seascape character.</p> <p>Beyond this the magnitude of impact would be low reducing to negligible with distance.</p>	

Impact on landscape character of FHHC as a result of views of HVAC booster station and cable construction (SVR-C-2).

11.12.2.4 A detailed technical assessment of the landscape character effects due to the construction of the HVAC booster stations and Offshore Export Cables on the FHHC is set out in [Table 11.11](#). [Figure 11.2](#) illustrates the extent of these areas whilst [Figure 11.4](#) shows the Landscape Character Areas (LCAs) that cover this part of the coastline.

Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster station and cable construction (SVR-C-3).

11.12.2.5 A detailed technical assessment of the visual effects of the construction of the HVAC booster stations and Offshore Export Cables on the key visual receptors and views from within the FHHC is set out in [Table 11.12](#). [Figure 11.2](#) illustrates the extent of this area whilst [Figure 11.4](#) shows the visual receptors that are located on this headland area of the coast. [Figure 1](#) of [Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations](#) illustrates a wireline view from the most easterly publicly accessible location at Flamborough Head (Viewpoint 1 on [Figure 11.5](#)) This wireline provides an indication of the field of view and extent of the panoramic views that may be affected by the HVAC booster stations.

11.12.2.6 [Figure 11.10](#) illustrates the locations where there is theoretical visibility of the HVAC booster stations and therefore the places that may be influenced by views of their construction. This shows that there would be very limited opportunities for views from the settlements of Flamborough and North Landing.

11.12.2.7 The theoretical visibility from the coastal car parks is also shown to be limited as are views from the central part of the headland where there is a large caravan park. Actual visibility of the HVAC booster stations from The Haven Holiday Park is likely to be restricted due to intervening built form and vegetation.

11.12.2.8 The key locations from where there may be visibility of the HVAC booster station construction, in very good or excellent visibility conditions would be as follows:

- B1259 to the east of the junction with the Public Right of Way (PRoW) that runs south past Old Fall Plantation;
- Flamborough Head Golf Course;
- Small settlement at Selwicks Bay Beach;
- Coastal and connecting Public Rights of Way between East Landing and North Landing;
- The Flamborough Head Lighthouse, parking and Visitor Centre; and
- Selwicks Bay Beach.

11.12.2.9 These locations are shown on the detailed mapping included on [Figure 11.6](#).

Impact on views and visual receptors located within FHHC as a result of HVAC booster station and cable corridor construction lighting (SVR-C-4).

11.12.2.10 People at Flamborough Head are most likely to experience visibility of the construction activities and their associated lighting during dawn or dusk rather than when it is completely dark, when most people are either indoors or in vehicles rather than moving around outdoors on foot or visiting attractions. This is likely to be when the change in the views as a result of the construction processes (and the associated lighting) is most prominent as any lighting would be seen in addition to the structures and construction vessels.

11.12.2.11 The assessment of the impact on views and visual receptors located within FHHC as a result of HVAC booster station and cable corridor construction lighting is contained in [Table 11.11](#).

Table 11.11: Impact on landscape character of FHHC as a result of views of HVAC booster station and cable construction.

Sensitivity	Magnitude of impact	Significance of Effect
<p><i>Value –medium - high</i></p> <p>This area is defined and managed for its heritage, landscape and nature conservation value.</p> <p><i>Susceptibility – medium - low</i></p> <p>No part of Hornsea Four is located within this landscape. There would be no change to the fabric or pattern of the elements that characterise this landscape. Any effects upon it will be as a result of visibility of the Offshore Export Cable and HVAC booster stations construction as part of the wider context.</p> <p>The closest point of the FHHC to the ECC is at a distance of 3 km to the north. The land area covered by the FHHC and the YWIL area is at a distance of 4 km to the north. The changes as a result of the Offshore Export Cable construction would be limited to views of vessels located within and moving along the ECC.</p> <p>The HVAC booster stations may be located at a minimum distance of 25 km from the land of the FHHC and the YWIL. The area of the sea that forms part of the coastal setting of the FHHC lies at a distance of 23.75 km.</p> <p>The construction of these elements of Hornsea Four would form part of the seaward views, which form part of the perceived character context, mostly from coastal areas. The coast itself is strongly characterised by the cliffs, rocky coastline, stacks, arches and coves accessed by paths and minor roads. As well as the lighthouse there are other man-made structures that have an influence with a number of transmitter masts and other utilitarian buildings visible along the cliff tops.</p> <p>Sensitivity – medium</p>	<p>The impact of the construction of the Offshore Export Cables would be limited at this range, where the vessels would be seen as part of the wider context of this landscape, at a distance and in the context of other vessels.</p> <p>The HVAC booster stations will be located at a range of over 25 km from the land at Flamborough Head. Figure 11.10 illustrates that there is theoretical visibility from coastal parts of the headland as well as areas of slightly higher ground inland. This figure also shows that the field of the view affected by the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc working around the structures. This would occur as part of the wide panoramic views from around the headland, which are not always directed out to sea, as they are usually at the easternmost part of the headland. Instead, they are directed to the north-east or south, away from the direction of the HVAC booster stations, which would be located at a considerable distance to the east.</p> <p>It is considered that the impact on landscape character as a result of the construction of the HVAC boosters at a distance of 25 km to the east and the ECC at 4 km to the south of the headland would be limited.</p> <p>Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Table 11.12: Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster station and cable construction.

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
<p>East bound users of the B1259 from east of the junction with the PRow that runs south past Old Fall Plantation</p>	<p><i>Value –medium -high</i> This route is located within the FHHC and YWIL areas indicating that people value this location and views from within it. <i>Susceptibility – medium - low</i> Users of roads are transient. Any effects upon views will be as a result of visibility of the Offshore Export Cable and HVAC booster stations construction, as part of the wider context of the area meaning that construction at sea would form a very small component of the distant sea backdrop. The road passes through many forms of development and activity along this section with the views to the east over the sea often screened and filtered by intervening hedgerows, built form and tall structures such as lighthouses and transmitter masts, which attract attention. Sensitivity – medium</p>	<p>The impact of the construction of the ECC would be limited at a range of approximately 5 km from this route and particularly due to the screening effect of the intervening roadside woodland and built form. Where visible the cable laying vessels would be seen as part of the wider context of the sea which contains other vessels. The HVAC booster stations will be located at a range of over 25 km from the route. Figure 11.10 illustrates that there is theoretical visibility from parts of this route. However, the road passes through many forms of development and activity along this section, with the views to the east over the sea often screened and filtered by intervening roadside vegetation, built form and tall structures such as lighthouses and transmitter masts, which attract attention. This figure also shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc. working around the structures. It is considered that the impact on the views from the B1259 would be intermittent and limited as a result of the construction of the HVAC boosters at distances of over 25 km to the east and the Offshore Export Cables at 4 km to the south. Magnitude of impact – low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>
<p>Flamborough Head Golf Course</p>	<p><i>Value –medium - high</i> This golf course is located within the FHHC and YWIL areas indicating that people value this location and views from within it. <i>Susceptibility – medium - low</i> Users of golf courses do so largely to partake in the game of golf so that most of their attention would be on this. However, the relatively attractive and interesting setting at this location is also likely to be appealing to golfers.</p>	<p>The impact of the construction of the Offshore Export Cables would be limited at a range of over 5 km from the golf course. The cable laying vessels would be part of the wider context of the sea, which contains other vessels. The HVAC booster stations will be located at a range of over 25.5 km from the golf course. Figure 11.10 illustrates that there is theoretical visibility from parts of the course. However, the intervening development around Flamborough Head Lighthouse and Selwick Drive often screens or influences the mid-ground of the views in the direction of the HVAC booster stations, whilst tall structures</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
	<p>Any effects upon views will be as a result of visibility of the Offshore Export Cable and HVAC booster station's construction as part of the wider context of the area meaning that construction at sea would form a very small component of the large scale, distant undeveloped sea backdrop to the headland cliffs.</p> <p>Sensitivity – medium</p>	<p>such as lighthouses and transmitter masts, attract attention. Views from the golf course are more directed to the east across Selwicks Bay rather than slightly south of this in the direction of the HVAC booster stations construction. Figure 11.10 also shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc working around the structures.</p> <p>It is considered that the impact on the views from the golf course would be intermittent (due to the varied experience of the views across the golf course) and limited as a result of the construction of the HVAC boosters at distances of over 25.5 km to the east and the Offshore Export Cables at 5 km to the south.</p> <p>Magnitude of impact – low</p>	
<p>Small settlement at Selwicks Bay Beach</p>	<p><i>Value –medium - high</i></p> <p>This settlement is located within the FHHC and YWIL areas indicating that people value this location and views from within it.</p> <p><i>Susceptibility – medium</i></p> <p>People living in or visiting a settlement tend to have the potential for views of longer duration than is likely to occur for other viewers. The properties are generally aligned facing north or north-east along Lighthouse Road and along Selwick Drive they face slightly north of east.</p> <p>The properties along Lighthouse Road would not have direct views towards the HVAC booster stations but may gain distant visibility (from their upper floors, rear aspects or gardens) of the Offshore Export Cable construction out at sea at a range of over 5 km as part of a shallow sliver of sea visible above intervening farmland.</p> <p>The views east towards the HVAC booster station construction from the properties along Selwick Drive and the nearby cafes would be partially screened by the intervening</p>	<p>The impact of the construction of the Offshore Export Cables would be limited at a range of over 5 km from the settlement. The cable laying vessels would be seen as part of the wider context of the sea which contains other vessels.</p> <p>The HVAC booster stations will be located at a range of over 25.5 km from the settlement. Figure 11.10 illustrates that there is theoretical visibility from the properties. However, the orientation of the buildings and intervening development around Flamborough Head Lighthouse and Selwick Drive often screens or influences the mid-ground of the views in the direction of the HVAC booster stations, whilst tall structures such as lighthouses and transmitter masts, attract attention. The main orientation of the properties tends to be more directly across Selwicks Bay rather than towards the HVAC booster stations. Figure 11.10 shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc working around the structures.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
	<p>Lighthouse and Visitor Centre as well as the other coastal buildings.</p> <p>Any effects upon views will be as a result of visibility of the Offshore Export Cable and HVAC booster stations construction as part of the wider context of the area meaning that construction at sea would form a very small component of the large scale, distant, undeveloped sea backdrop.</p> <p>Sensitivity – medium - high</p>	<p>It is considered that the impact on the views from the settlement would be limited as a result of the construction of the HVAC booster stations at distances of over 25.5 km to the east and the Offshore Export Cables at over 5 km to the south.</p> <p>Magnitude of impact – low</p>	
<p>Coastal and connecting Public Rights of Way between East Landing and North Landing</p>	<p><i>Value –medium - high</i></p> <p>These PRoW are located within the FHHC and YWIL areas indicating that people value this location and views from within it. Walkers using these routes are likely to have some expectation of a relatively scenic environment. The exposure experienced when walking along the routes along the cliffs and the open sea views are likely to be valued.</p> <p><i>Susceptibility – medium</i></p> <p>People using the paths are transient so that their views will be ever changing and of relatively short duration. They are likely to walk in this area both as a means of exercise but with the purpose of enjoying the coastal scenery and bird watching.</p> <p>Much of the attractiveness of this coastline is the immediate relationship of the rugged and interesting cliffs, coves and beaches with the edge of the sea. The inland areas are settled, highly modified agricultural land, a golf course, a nature reserve and visitor facilities such as car parks and caravan parks so there is little sense of remoteness.</p> <p>Users of the stretches of the route along the northern coastline would not have direct views towards the Offshore Export Cable construction. However, from locations along the eastern and southern coast they may have visibility of</p>	<p>The impact of the construction of the Offshore Export Cables would be limited at ranges of over 4 km from the PRoW. The cable laying vessels would be seen as part of the wider context of the sea which contains other vessels.</p> <p>The HVAC booster stations will be located at a range of over 25 km from the PRoW. Figure 11.2 illustrates that there is theoretical visibility from parts of the routes. The northern sections are shown to have theoretical visibility along parts of the route only, due to intervening landform. To the west of North Landing and the Haven Holiday Centre this would be further restricted due to intervening above ground features such as buildings and vegetation. Views out to sea tend to be to the north rather than eastwards towards the HVAC booster station’s construction. From North Landing heading east the theoretical visibility of the HVAC booster stations until level with approximately Cradle Head. Views from the coast tend to be locally interesting with a focus on the cliffs and coves of the coast with the lighthouses drawing the views towards Flamborough Head itself rather than out over the wider sea, which does provide a broad and simple backdrop to these views. Around the eastern section of the headland the view from the PRoW is again focussed on locally interesting coastal interactions between the land and the immediate sea setting. There are also numerous buildings around Selwick Bay that draw attention and focus to views when travelling from west to east from both the north and south coasts.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
	<p>the vessels undertaking the Offshore Export Cable construction out at sea at a ranges of over 4 km.</p> <p>Any effects upon views will be as a result of visibility of the HVAC booster stations construction as part of the wider coastal and sea context which contains many elements and features so that the construction of out at sea would form a very small component of the large scale, distant sea backdrop. Offshore wind farms, including Westernmost Rough are visible to the south-east in very good or excellent visibility from the PRow to the south of the headland.</p> <p>Sensitivity – medium - high</p>	<p>Views from the PRow include panoramic views of the wider sea. At the easternmost extent of the headland such views are often greater than 180 degrees. Figure 11.2 shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc. working around the structures. Whilst the HVAC booster stations may be visible in Very Good or Excellent visibility, their impact on the coastal views and wider sea setting would be limited.</p> <p>It is considered that the impact on the views from the PRow would be intermittent and limited as a result of the construction of the HVAC boosters at distances of over 25 km to the east and the Offshore Export Cables at over 4 km to the south.</p> <p>Magnitude of impact – low</p>	
<p>The Flamborough Head Lighthouse, Parking and Visitor Centre</p>	<p><i>Value –medium - high</i></p> <p>These visitor attractions located within the FHHC and YWIL areas indicating that people value this location and views from within it.</p> <p><i>Susceptibility – medium - low</i></p> <p>People climbing the lighthouse are likely to have some expectation of a relatively scenic environment but will also anticipate being able to see many different features from this vantage point.</p> <p>Visitors to the lighthouse would have views of relatively short duration with the views encompassing many different elements within the wide panoramic views. Views over open sea do not tend to draw attention for long periods with viewers tending to concentrate on features and activity within the landscape or coastal areas of the seascape.</p> <p>Visitors to the lighthouse may have visibility of the vessels undertaking the Offshore Export Cable construction out at sea at ranges of over 5 km.</p>	<p>The impact of the construction of the Offshore Export Cables would be limited at a range of over 5 km from the Lighthouse. The cable laying vessels would be seen as part of the wider context of the sea, which contains other vessels. Figure 11.10 illustrates that there is theoretical visibility of the HVAC booster stations from ground level in the vicinity of the car park/visitor centre. However, actual visibility in the direction of the HVAC booster station construction is likely to be partially screened or views are likely to be characterised by closer range features.</p> <p>The HVAC booster stations will be located at a range of over 25 km from the lighthouse.</p> <p>The views from the upper levels of the lighthouse are likely to be widely panoramic. In Very Good or Excellent visibility it would be possible to see the HVAC booster stations within the open seascape. Figure 11.10 shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc working around the structures.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
	<p>Other effects upon views will be as a result of visibility of the HVAC booster stations construction as part of the wider coastal and sea context meaning that construction at sea would form a very small component of the large scale, distant, sea backdrop. Offshore wind farms are visible to the south in very good or excellent visibility from the lighthouse.</p> <p>Sensitivity – medium</p>	<p>It is considered that the impact on the views from the lighthouse would be limited as a result of the construction of the HVAC boosters at distances of over 25 km to the east and the Offshore Export Cables at over 5 km to the south.</p> <p>Magnitude of impact – low</p>	
<p>Visitors to Selwicks Bay Beach</p>	<p><i>Value –medium - high</i></p> <p>This beach is located within the FHHC and YWIL areas indicating that people value this location and views from within it. Visitors to this location are likely to have some expectation of a relatively scenic environment.</p> <p><i>Susceptibility – medium</i></p> <p>People using/visiting the bay and beach are mostly transient so that their views will be ever changing and of relatively short duration. They are likely to visit this area both as a means of exercise but with the purpose of enjoying the coastal scenery or to spend time in relaxation/recreational pursuits, which may last several hours.</p> <p>Much of the attractiveness of this coastline and beach area is the immediate relationship of the rugged and interesting cliffs, coves and beach with the edge of the sea. In the bay itself the enclosure created by the cliffs also adds to the intensity of the experience.</p> <p>There would be limited association with the Offshore Export Cable construction as views to the closest sections where there would be vessels would not be possible due to intervening landform.</p> <p>However, views from the bay are directed to the east, rather than in the direction of the HVAC booster station construction which is slightly to the south of east when considered in detail.</p> <p>Sensitivity – medium - high</p>	<p>The impact of the construction of the Offshore Export Cables would be limited at ranges of over 10 km from Selwicks Bay Beach. The cable laying vessels would be seen as part of the wider context of the sea which contains other vessels.</p> <p>The HVAC booster stations will be located at a range of over 25.5 km. Figure 11.10 illustrates that there is theoretical visibility from the northerly extent of the beach and approaches to it. Views from the bay tend to be locally interesting with a focus on the cliffs and the interaction between the land and the immediate sea and waves rather than the wider sea which provides a distant backdrop to the views and activities.</p> <p>Views from this bay include more focussed views of the wider sea with the containment of the cliffs directing views out to sea in an easterly direction. Views towards the HVAC booster stations would be completely screened by the surrounding landform in views from the beach within the bay and from the majority of the approaches to it from the cliffs above. Where there is potential visibility from the higher sections of the approach routes any effects upon views will be as a result of visibility of the HVAC booster station’s construction as part of the wider coastal and sea context meaning that construction at sea would form a very small component of the distant sea backdrop and this would occur beyond the lighthouse buildings and masts which would occur in the foreground. The field of the view affected by views of the HVAC booster stations would be less than one degree although this may be slightly greater during construction when there are vessels etc. working around the structures. Whilst</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
		<p>the HVAC booster stations may be visible in Very Good or Excellent visibility their impact on the coastal views and wider sea setting would be limited.</p> <p>It is considered that the impact on the views from the Selwick Bay Beach as a result of the construction of the HVAC boosters at distances of over 25 km and the Offshore Export Cables at over 10 km to the south-east would be limited.</p> <p>Magnitude of impact – low</p>	

Table 11.13: Impact on views and visual receptors located within FHHC as a result of HVAC booster station and cable corridor construction lighting.

Sensitivity	Magnitude of impact	Significance of Effect
<p><i>Value – medium – high</i></p> <p>Flamborough Head is located within the FHHC and YWIL areas indicating that people value this location and views from within it. People at this location are likely to have some expectation of a relatively scenic environment which they may enjoy at dusk or dawn.</p> <p><i>Susceptibility – medium – low</i></p> <p>People at Flamborough Head at dusk or dawn may be there with the aim of taking in views of the coast and wider sea or they may be focussed on other activities. Views out to sea are likely to be of relatively short duration at these times but people may visit this section of the coast for views of the sunrise from the headland/car parks.</p> <p>The lighting of the houses and businesses in Selwicks Bay as well as the small number of street lights gives the area to the north of the lighthouse a locally lit character. The radiating light of the lighthouse is widely visible and casts light across the landscape and buildings as its beams pass across it. Out at sea the lights of vessels are the only lights visible from the locations to the north of the lighthouse.</p> <p>From the more remote locations along the eastern and southern coast, there are likely to be fewer people out as it gets dark. People may have visibility of the vessels undertaking the Offshore Export Cable construction out at sea at a ranges of over 4 km. From these locations it is possible to see in the distance, across the sea, lighting along the coastline further west and in clear visibility the aviation lighting on offshore turbines, including Westermost Rough to the south-east. Any effects upon views will be as a result of visibility of the HVAC booster stations construction as part of the wider coastal and sea context meaning that the lighting of the construction out at sea would form a very small component of the distant sea backdrop.</p> <p>Sensitivity – medium</p>	<p>The impact of the construction of the Offshore Export Cables and the associated lighting would be limited at ranges of over 4 km. The cable laying vessels would be seen as part of the wider context of the sea which contains other vessels and features with lights, particularly when viewed from south of the lighthouse.</p> <p>The HVAC booster stations are located at ranges of over 25 km from Flamborough Head. Figure 11.10 illustrates that there is theoretical visibility from parts of Flamborough Head. Views from the coast tend to be locally interesting with a focus on the cliffs and coves of the coast, with the Flamborough Head Lighthouse (and its light) drawing the views towards Flamborough Head itself rather than out over the wider sea, which does provide a broad and simple backdrop to these views. Lighting within the small settlement also influences views, with street lights and lighting within houses/businesses forming part of the wider view.</p> <p>Views from Flamborough Head include panoramic views of the wider sea. At the easternmost extent of the headland such views are likely to be greater than 180 degrees. Figure 11.10 shows that the field of view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree, although this may be slightly greater during construction when there are vessels etc. working around the structures with task and safety lighting. It is likely that the lights would be visible in in less clear conditions than would be required to see the structures.</p> <p>It is considered that the impact on the views from Flamborough Head would be intermittent and limited as a result of the construction of the HVAC boosters at distances of over 25 km to the east and the Offshore Export Cables at over 4 km to the south.</p> <p>Magnitude of impact – medium-low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Further mitigation

- 11.12.2.12 As no significant effects have been identified no further SLVR mitigation has been proposed.

Future monitoring

- 11.12.2.13 There is no future monitoring proposed in relation to SLVR effects as there are no effects that may alter or are uncertain.

11.12.3 Operation and Maintenance

- 11.12.3.1 The impacts of the offshore operation and maintenance of Hornsea Four have been assessed on seascape, landscape and visual receptors. The environmental impacts arising from the operation and maintenance of Hornsea Four are listed, along with the maximum design scenario against which each operation and maintenance phase impact has been assessed.

- 11.12.3.2 A description of the potential effect on seascape, landscape and visual receptors caused by each identified impact is given below.

Impact on seascape character of MCAs as a result of physical presence and views of the array area and HVAC booster stations (SVR-O-5A).

- 11.12.3.3 A detailed technical assessment of the seascape effects of the operation and maintenance of the offshore elements is set out in [Table 11.14](#) which addresses the Marine Character Areas that fall within the SLVR study areas. [Figure 11.3](#) illustrates the locations of the MCAs relative to Hornsea Four.

Table 11.14: Impact on seascape character of MCAs as a result of physical presence and views of the array area and HVAC booster stations.

MCA	Sensitivity	Magnitude of impact	Significance of Effect
Dogger Bank	<p>The sensitivity is described and assessed in Table 11.10.</p> <p><i>Value - low</i></p> <p><i>Susceptibility – medium-low</i></p> <p>Sensitivity – medium - low</p>	<p>Hornsea Four array area is located entirely beyond the boundary of the MCA approximately 7.5 km to the south-west. Changes to it arise through the perception/views of the Hornsea Four array area operation and maintenance as part of its wider context which includes other offshore wind farms. The MCA will remain open and characterised by its existing elements which include oil and gas platforms and offshore wind farms.</p> <p>Operation and maintenance activities within the array area will result in some changes to the wider setting of the visually unified, expansive and largely open character. The influence of the existing wind farm to the south of the MCA will be extended by Hornsea Four providing further development, although large vessels, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale.</p> <p>The character influence of the operation and maintenance of the HVAC booster stations at greater distances to the west would be negligible.</p> <p>Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of long duration and reversible</p>
Dogger Deep Water Channel	<p>The sensitivity is described and assessed in Table 11.10.</p> <p><i>Value - low</i></p> <p><i>Susceptibility – medium</i></p> <p>Sensitivity – medium - low</p>	<p>Hornsea Four array area and part of the ECC are located within the Dogger Deep Water Channel MCA and will result in the direct, physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by Hornsea Project One as well as oil and gas platforms. This will occur through the introduction of large-scale static and moving structures as well as the sub-station/accommodation platforms over a wide spread area and a small number of vessels/helicopters attending to these as part of maintenance activities. This would tend to occur in a regular pattern of widely spread WTGs and offshore sub-station platforms/accommodation platforms evident across a wide area of this seascape.</p> <p>In addition, there will be changes to the character through the perception of the operation and maintenance from a wider extent of the MCA. This will be most marked to the north, west and south in the immediate vicinity of the array area where the WTGs and offshore platforms would be seen at close proximity. To the east of the array area the existing influence of Hornsea Project One means that the change in character would be less marked.</p> <p>The operation and maintenance of the elements within the array area will result in some changes to the visually unified, expansive and largely open character, partially interrupting the consistent panoramic horizons and providing further development influence, although large vessels, disposal activity, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale.</p> <p>The operation and maintenance of the HVAC booster stations to the west of this MCA would have a peripheral influence on character as a result of views to these as part of the wider context.</p>	<p>The effect is assessed as not significant, of long duration and reversible</p>

MCA	Sensitivity	Magnitude of impact	Significance of Effect
		<p>Magnitude of impact: medium magnitude where there would be direct changes within the array area and indirect changes through views of the construction within approximately 5 km of the array area boundary. Beyond this the magnitude of impact within 10 km would be medium - low to the north, west and south of the array area and low to the east and at greater distances to the north.</p>	
East Midlands Offshore Gas Fields	<p>The sensitivity is described and assessed in Table 11.10. <i>Value - low</i> <i>Susceptibility - low</i> Sensitivity – low</p>	<p>The operation and maintenance of the Hornsea Four booster stations may occur within this MCA and would introduce up to three large scale structures raised above the sea on foundations.</p> <p>The area that would be affected by the operation and maintenance of the HVAC booster stations of these elements of Hornsea Four would be a very small proportion of the overall MCA as can be seen through reference to Figure 11.3.</p> <p>Areas of the East Midlands Offshore Gas Fields MCA within and immediately around the HVAC booster stations would experience the highest levels of change with the magnitude reducing rapidly with distance to the south and east.</p> <p>There would be relatively limited physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by oil and gas platforms and the baseline influence of large commercial and fishing vessels.</p> <p>Operation and maintenance activities within the array area will result in some changes to the wider setting of the visually unified, expansive and largely open character. The influence of the existing wind farm to the north of the MCA (provided by Hornsea Project One) will be extended by Hornsea Four providing further development, although large vessels, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale.</p> <p>Magnitude of impact: medium magnitude where there would be direct physical changes as a result of the operation and maintenance of the HVAC booster stations. Such a magnitude of change would extend to a distance of approximately 1km around the HVAC booster stations. Beyond this distance the HVAC booster stations would be seen as being a less prominent component of the wider seascape character and the magnitude of impact would be low reducing to negligible with distance.</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
North Yorkshire Coastal Waters	<p>The sensitivity is described and assessed in Table 11.10. <i>Value – medium - high locally within the FHHC and medium to low elsewhere</i></p>	<p>The operation and maintenance of the HVAC booster stations would be apparent in the seascape beyond the boundary of this MCA to the east.</p> <p>There would be relatively limited alteration of the elements and features that together form the baseline characteristics of this MCA.</p> <p>Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

MCA	Sensitivity	Magnitude of impact	Significance of Effect
	<p><i>Susceptibility - Low</i> Sensitivity – medium within the FHHC and medium - low elsewhere</p>		
<p>Holderness Coastal Waters</p>	<p>The sensitivity is described and assessed in Table 11.10. <i>Value – medium - high locally within the FHHC and medium - low elsewhere</i> <i>Susceptibility - low</i></p>	<p>The operation and maintenance of the HVAC booster stations would be apparent in the seascape beyond the boundary of this MCA to the east. There would be relatively limited alteration of the elements and features that together form the baseline characteristics of this MCA. Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
<p>Breagh Oil and Gas Field</p>	<p>The sensitivity is described and assessed in Table 11.10. <i>Value - low</i> <i>Susceptibility - low</i> Sensitivity – low</p>	<p>The operation and maintenance of the Hornsea Four booster stations may occur within or close to this MCA. The area that would be affected by the operation and maintenance of these elements of Hornsea Four would be a very small proportion of the overall MCA. Areas of the Breagh Oil and Gas Field MCA within and immediately around the HVAC booster stations would experience the highest levels of change with the magnitude reducing rapidly with distance to the north and east. There would be relatively limited physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by oil and gas platforms and the baseline influence of large commercial and fishing vessels. The operation and maintenance of the elements within the array area will result in some changes to the wider setting of the visually unified, expansive and largely open character to the east. Magnitude of impact - medium magnitude where there would be direct physical changes as a result of the operation and maintenance of the HVAC booster stations. Such a magnitude of change would extend to a distance of approximately 1km around the HVAC booster stations. Beyond this the magnitude of impact would be low reducing to negligible with distance.</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

Impact on landscape character of FHHC as a result of views of HVAC booster stations (SVR-O-5B).

11.12.3.4 A detailed technical assessment of the landscape character effects of the operation and maintenance of the HVAC booster stations on the FHHC and the Yorkshire Wolds Important Landscape (YWIL) is set out in [Table 11.15](#). [Figure 11.2](#) illustrates the extent of these areas whilst [Figure 11.4](#) shows the Landscape Character Assessments (LCAs) that cover this part of the coastline.

Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster stations (SVR-O-6).

11.12.3.5 A detailed technical assessment of the visual effects of the operation and maintenance of the HVAC booster stations on the key visual receptors and views from within the FHHC and the YWIL is set out in [Table 11.16](#). [Figure 11.2](#) illustrates the extent of these areas whilst [Figure 11.6](#) shows the visual receptors and viewpoint that are located on this headland area of the coast. [Figure 1](#) of [Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations](#) illustrates a wireline view from the eastern most publicly accessible location at Flamborough Head. This wireline provides an indication of the field of view and extent of the panoramic views that may be affected by the HVAC booster stations in their MDS locations.

11.12.3.6 [Figure 11.10](#) illustrates the locations where there is theoretical visibility of the HVAC booster stations and therefore the places that may be influenced by views of their operation and maintenance. This shows that there would be very limited opportunities for views from the settlements of Flamborough and North Landing.

11.12.3.7 The theoretical visibility from the coastal car parks is also shown to be limited as are views from the central part of the headland where there is a large caravan park. Actual visibility of the HVAC booster stations from the Haven Holiday Park is likely to be restricted due to intervening built form and vegetation.

11.12.3.8 The key locations from where there may be visibility of the HVAC booster station operation and maintenance, in very good or excellent visibility conditions would be as follows:

- B1259 to the east of the junction with the PRoW that runs south past Old Fall Plantation;
- Flamborough Head Golf Course;
- Small settlement at Selwicks Bay Beach;
- Coastal and connecting PRoWs between East Landing and North Landing;
- The Flamborough Head Lighthouse, parking and Visitor Centre; and
- Selwicks Bay Beach.

11.12.3.9 These locations are shown on the detailed mapping included on [Figure 11.6](#).

Impact on views and visual receptors located within FHHC as a result of HVAC booster station lighting (SVR-O-7).

- 11.12.3.10 People at Flamborough Head are most likely to experience visibility of the operation and maintenance of the HVAC booster stations and their associated lighting during dawn or dusk rather than when it is completely dark, when most people are either indoors or in vehicles rather than moving around outdoors on foot or visiting attractions. This is likely to be when the change in the views as a result of the single aviation lights on each of the HVAC booster stations would occur.
- 11.12.3.11 The assessment of the impact on views and visual receptors located within FHHC as a result of HVAC booster station lighting is contained in [Table 11.17](#).

Table 11.15: Impact on landscape character of FHHC as a result of views of HVAC booster stations.

Sensitivity	Magnitude of impact	Significance of Effect
<p>The sensitivity is described and assessed in Table 11.11. <i>Value –medium - high</i> <i>Susceptibility – medium- low</i> Sensitivity – medium</p>	<p>The HVAC booster stations are located at a range of over 25 km from the land at Flamborough Head. Figure 11.10 illustrates that there is theoretical visibility from coastal parts of the headland as well as more distant areas of slightly higher ground inland. This figure also shows that the field sight affected by views of the HVAC booster stations in this MDS configuration would be less than one degree. This would occur as part of the wide panoramic views from around the headland, which are not always directed out to sea, as they are often at the easternmost part of the headland. Instead, they are often directed to the north-east or south – away from the direction of the HVAC booster stations which would be located at a considerable distance to the east.</p> <p>It is considered that the impact on landscape character as a result of the operation and maintenance of the HVAC boosters at a distance of 25 km to the east of the headland would be limited.</p> <p>Magnitude of impact - low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

Table 11.16: Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster stations.

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
<p>East bound users of the B1259 from east of the junction with the Public Right of Way (PRoW) that runs south past Old Fall Plantation</p>	<p>The sensitivity is described and assessed in Table 11.12. <i>Value –medium - high</i> <i>Susceptibility – medium - low</i> Sensitivity – medium</p>	<p>The HVAC booster stations are located at a range of over 25 km from the receptor. Figure 11.10 illustrates that there is theoretical visibility from parts of this route. However, the road passes through many forms of development and activity along this section with the views to the east over the sea often screened and filtered by intervening roadside vegetation, built form and tall structures such as lighthouses and transmitter masts, which attract attention. This figure also shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree.</p> <p>It is considered that the impact on the views from the B1259 would be intermittent and limited as a result of the operation and maintenance of the HVAC boosters at distances of over 25 km to the east.</p> <p>Magnitude of impact – low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
<p>Flamborough Head Golf Course</p>	<p>The sensitivity is described and assessed in Table 11.12. <i>Value –medium- high</i></p>	<p>The HVAC booster stations are located at a range of over 25.5 km from the golf course. Figure 11.10 illustrates that there is theoretical visibility from parts of the course. However, the intervening development around Flamborough Head Lighthouse and Selwick Drive often screens or influences the mid-ground of the views in the direction of the HVAC booster stations, whilst tall structures such as lighthouses and transmitter masts, attract attention.</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
	<p><i>Susceptibility – medium-low</i></p> <p>Sensitivity – medium</p>	<p>Views from the golf course are more directed to the east across Selwicks Bay rather than slightly south of this in the direction of the HVAC booster stations.</p> <p>Figure 11.10 also shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree.</p> <p>It is considered that the impact on the views from the golf course would be intermittent and limited (due to the varied experience of the views across the golf course) as a result of the construction of the HVAC boosters at distances of over 25.5 km to the east.</p> <p>Magnitude of impact – low</p>	
<p>Small settlement at Selwicks Bay Beach</p>	<p>The sensitivity is described and assessed in Table 11.12.</p> <p><i>Value –medium - high</i></p> <p><i>Susceptibility – medium</i></p> <p>Sensitivity – medium -high</p>	<p>The HVAC booster stations are located at a range of over 25.5 km from the settlement.</p> <p>Figure 11.10 illustrates that there is theoretical visibility from the properties. However, the orientation of the buildings and intervening development around Flamborough Head Lighthouse and Selwick Drive often screens or influences the mid-ground of the views in the direction of the HVAC booster stations, whilst tall structures such as lighthouses and transmitter masts, attract attention. The main orientation of the properties tends to be more directly across Selwicks Bay rather than towards the HVAC booster stations which would be located slightly to the south of this.</p> <p>Figure 11.10 shows that the field of view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree.</p> <p>It is considered that the impact on the views from the settlement would be limited as a result of the operation and maintenance of the HVAC booster stations at distances of over 25.5 km to the east.</p> <p>Magnitude of impact – low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
<p>Coastal and connecting PRoW between East Landing and North Landing</p>	<p>The sensitivity is described and assessed in Table 11.12.</p> <p><i>Value –medium - high</i></p> <p><i>Susceptibility – medium</i></p> <p>Sensitivity – medium- high</p>	<p>The HVAC booster stations are located at ranges of over 25 km from the PRoW. Figure 11.10 illustrates that there is theoretical visibility from parts of the routes. The northern sections are shown to have theoretical visibility along parts of the route only, due to intervening landform. To the west of North Landing and the Haven Holiday Centre this would be further restricted due to intervening above ground features such as buildings and vegetation. Views out to sea tend to be to the north rather than eastwards towards the HVAC booster stations. From North Landing heading east, the theoretical visibility of the HVAC booster stations is intermittent until level with approximately Cradle Head. Views from the coast tend to be locally interesting with a focus on the cliffs and coves of the coast with the lighthouses drawing the views towards Flamborough Head itself rather than out over the wider sea, which does provide a broad and simple backdrop to these views. Around the eastern section of the headland the view from the PRoW is again focussed on locally interesting coastal</p>	<p>The effect is assessed as not significant of long duration and reversible.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
		<p>interactions between the land and the immediate sea setting. There are also numerous buildings around Selwick Bay that draw attention and focus on views when travelling from west to east from both the north and south coasts.</p> <p>Views from the PRoW include panoramic views of the wider sea. At the easternmost extent of the headland such views are often likely to be greater than 180 degrees. shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree. Whilst the HVAC booster stations may be visible in Very Good or Excellent visibility, their impact on the coastal views and wider sea setting would be limited.</p> <p>It is considered that the impact on the views from the PRoW would be intermittent and limited as a result of the operation and maintenance of the HVAC boosters at distances of over 25 km to the east.</p> <p>Magnitude of impact – low</p>	
<p>The Flamborough Head Lighthouse, Parking and Visitor Centre</p>	<p>The sensitivity is described and assessed in Table 11.12.</p> <p><i>Value –medium to high</i></p> <p><i>Susceptibility – medium to low</i></p> <p>Sensitivity – medium</p>	<p>Figure 11.10 illustrates that there is theoretical visibility of the HVAC booster stations from ground level in the vicinity of the car park/visitor centre. However, actual visibility in the direction of the HVAC booster station construction is likely to be partially screened by or characterised by closer range features.</p> <p>The HVAC booster stations are located at a range of over 25 km from the lighthouse. The views from the upper levels of the lighthouse are likely to be widely panoramic. In Very Good or Excellent visibility it would be possible to see the HVAC booster stations within the open seascape.</p> <p>Figure 11.10 shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc. working around the structures.</p> <p>It is considered that the impact on the views from the lighthouse would be limited as a result of the construction of the HVAC boosters at distances of over 25 km to the east and the Offshore Export Cables at over 5 km to the south.</p> <p>Magnitude of impact – low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
<p>Visitors to Selwicks Bay Beach</p>	<p>The sensitivity is described and assessed in Table 11.12.</p> <p><i>Value –medium - high</i></p> <p><i>Susceptibility – medium</i></p>	<p>The HVAC booster stations are located at ranges of over 25.5 km. Figure 11.10 illustrates that there is theoretical visibility from the northerly extent of the beach and the approaches to it. Views from the bay tend to be locally interesting with a focus on the cliffs and the interaction between the land and the immediate sea and waves rather than the wider sea which provides a distant backdrop to the views and activities.</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

Visual Receptor	Sensitivity	Magnitude of impact	Significance of Effect
	<p>Sensitivity – medium - high</p>	<p>Views from this bay include more focussed views of the wider sea with the containment of the cliffs directing views out to sea in an easterly direction. Views towards the HVAC booster stations would be completely screened by the surrounding landform in views from the beach within the bay and from the majority of the approaches to it from the cliffs above. Where there is potential visibility from the higher sections of the approach routes any effects upon views will be as a result of visibility of the HVAC booster station’s construction as part of the wider coastal and sea context meaning that construction at sea would form a very small component of the distant sea backdrop and this would occur beyond the lighthouse buildings and masts which would occur in the foreground. Figure 11.10 shows that the field of the view affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc working around the structures. Whilst the HVAC booster stations may be visible in Very Good or Excellent visibility their impact on the coastal views and wider sea setting would be limited.</p> <p>It is considered that the impact on the views from the Selwick Bay Beach as a result of the operation and maintenance of the HVAC boosters at distances of over 25 km to the east would be limited.</p> <p>Magnitude of impact – low.</p>	

Table 11.17: Impact on views and visual receptors located within FHHC as a result of HVAC booster station lighting.

Sensitivity	Magnitude of impact	Significance of Effect
<p><i>Value –medium – high</i></p> <p>Flamborough Head is located within the FHHC and YWIL areas indicating that people value this location and views from within it. People at this location are likely to have some expectation of a relatively scenic environment which they may enjoy at dusk or dawn.</p> <p><i>Susceptibility – medium – low</i></p> <p>People at Flamborough Head at dusk or dawn may be there with the aim of taking in views of the coast and wider sea or they may be focussed on other activities. Views out to sea are likely to be of relatively short duration at these times but people may visit this section of the coast for views of the sunrise from the headland/car parks.</p> <p>The lighting of the houses and businesses in Selwicks Bay as well as the small number of street lights gives the area to the north of the lighthouse a locally lit character. The radiating light of the lighthouse is widely visible and casts light across the landscape and buildings as its beams pass across it. Out at sea the lights of vessels are the only lights visible from the locations to the north of the lighthouse.</p> <p>From the more remote locations along the eastern and southern coast, there are likely to be fewer people out as it gets dark. From these locations it is possible to see in the distance, across the sea, lighting along the coastline further west and in clear visibility the aviation lighting on offshore turbines to the south.</p> <p>Any effects upon views will be as a result of visibility of the HVAC booster station lighting as part of the wider coastal and sea context.</p> <p>Sensitivity – medium</p>	<p>The lighting requirement for the HVAC booster stations includes navigation lighting and aviation lighting in order to meet the requirements of the MOD. This is likely to require a red, medium intensity (2000 candela) light mounted on the tallest structure of each of the HVAC booster stations, which is the lightning protection, at a maximum height of 90 m above LAT.</p> <p>The HVAC booster stations are located at ranges of over 25 km from Flamborough Head. Figure 11.10 illustrates that there is theoretical visibility from parts of Flamborough Head. Views from the coast tend to be locally interesting with a focus on the cliffs and coves of the coast with the Flamborough Head Lighthouse (and its light) drawing the views towards Flamborough Head itself rather than out over the wider sea, which does provide a broad and simple backdrop to these views. Lighting within the small settlement is also an influence on views with street lights and lighting within houses and businesses as part of wider views. Views from Flamborough Head include panoramic views of the wider sea. At the easternmost extent of the headland such views are likely to be greater than 180 degrees. shows that the field of the view sight affected by views of the HVAC booster stations in this MDS configuration would be less than one degree although this may be slightly greater during construction when there are vessels etc. working around the structures with task and safety lighting. It is likely that the lights would be visible in in less clear conditions than would be required to see the structures.</p> <p>It is considered that the impact on the views from the Flamborough Head would be intermittent and limited as a result of the operation and maintenance of the HVAC boosters at distances of over 25 km to the east.</p> <p>Magnitude of impact – low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Further mitigation

- 11.12.3.12 As there are no significant effects identified no further mitigation is proposed in relation to seascape, landscape and visual effects.

Future monitoring

- 11.12.3.13 There is no future monitoring proposed in relation to SLVR effects as there are no effects that may alter or are uncertain.

11.12.4 Decommissioning

- 11.12.4.1 The impacts of the offshore decommissioning of Hornsea Four have been assessed on seascape, landscape and visual receptors. The environmental impacts arising from the decommissioning of Hornsea Four are listed in [Table 11.6](#) along with the maximum design scenario against which each decommissioning phase impact has been assessed for the following impacts:

- Impact on seascape of MCAs as a result of physical presence and views of the array area and HVAC booster stations being decommissioned (SVR-D-9).
- Impact on landscape character of FHHC as a result of views of HVAC booster stations being decommissioned (SVR-D-10).
- Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster stations being decommissioned (SVR-D-11).
- Impact on views and visual receptors located within FHHC as a result of HVAC booster station decommissioning lighting (SVR-D-12).

- 11.12.4.2 It is assessed that the seascape, landscape and visual effects of the decommissioning on the seascape, landscape and visual receptors would be similar to but of lesser duration and impact than those of the construction. The effects of the construction have been assessed as not significant and therefore no significant effects would arise as a result of the decommissioning. The decommissioning process will reverse any adverse effects of the operational phase by removing all above-sea infrastructure from the seascape, landscape and visual resources.

Further mitigation

- 11.12.4.3 As there are no significant effects identified no further mitigation is proposed in relation to seascape, landscape and visual effects.

Future monitoring

- 11.12.4.4 No future monitoring is proposed in relation to seascape, landscape and visual effects as there are no effects that may alter or are uncertain.

11.13 Cumulative effect assessment (CEA)

- 11.13.1.1 Cumulative effects can be defined as effects upon a single receptor from Hornsea Four when considered alongside other proposed and reasonably foreseeable projects and

developments. This includes all projects that result in a comparative effect that is not intrinsically considered as part of the existing environment and is not limited to offshore wind projects.

11.13.1.2 A screening process has identified a number of reasonably foreseeable projects and developments which may act cumulatively with Hornsea Four. The full list of such projects that have been identified in relation to the offshore environment are set out in [Volume 4, Annex 5.3: Offshore Cumulative Effects](#) and are presented in a series of maps within [Volume 4, Annex 5.4: Location of Offshore Schemes](#).

11.13.1.3 In assessing the potential cumulative impacts for Hornsea Four, it is important to bear in mind that some projects, predominantly those 'proposed' or identified in development plans, may not actually be taken forward, or fully built out as described within their MDS. There is therefore a need to build in some consideration of certainty (or uncertainty) with respect to the potential impacts which might arise from such proposals. For example, those projects under construction are likely to contribute to cumulative impacts (providing effect or spatial pathways exist), whereas those proposals not yet approved are less likely to contribute to such an impact, as some may not achieve approval or may not ultimately be built due to other factors.

11.13.1.4 With this in mind, all projects and plans considered alongside Hornsea Four have been allocated into 'tiers' reflecting their current stage within the planning and development process. This allows the cumulative impact assessment to present several future development scenarios, each with a differing potential for being ultimately built out. This approach also allows appropriate weight to be given to each scenario (tier) when considering the potential cumulative impact. The proposed tier structure is intended to ensure that there is a clear understanding of the level of confidence in the cumulative assessments provided in the Hornsea Four PEIR. An explanation of each tier is included in [Table 11.18](#).

Table 11.18: Description of tiers of other developments considered for CEA (adapted from PINS Advice Note 17).

Tier 1	Project under construction.
	Permitted applications, whether under the Planning Act 2008 or other regimes, but not yet implemented.
	Submitted applications, whether under the Planning Act 2008 or other regimes, but not yet determined.
Tier 2	Projects on the Planning Inspectorate's Programme of Projects where a Scoping Report has been submitted.
Tier 3	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 with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited.
	Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

11.13.1.5 The plans and projects selected as relevant to the CEA of impacts to seascape, landscape and visual resources are based on an initial screening exercise undertaken on a long list (see [Volume 4, Annex 5.3: Offshore Cumulative Effects](#)). A consideration of

effect-receptor pathways, data confidence and temporal and spatial scales has been given to select projects for a topic-specific short-list. For the majority of potential effects on seascape, landscape and visual resources, planned projects were screened into the assessment based on a 50 km radius SLVR study area for the Hornsea Four array area and a 30 km radius for the HVAC booster stations as these are considered to be the maximum range within which significant cumulative effects are likely to occur. This is largely as a result of the fact that the Hornsea Four array area is part of a cluster of offshore wind farms which is separate from other offshore wind farms by a substantial distance. **Figure 11.11** shows the SLVR study areas for cumulative assessment as well as the projects screened into the SLVR cumulative assessment.

11.13.1.6 The specific projects scoped into the CEA for SLVR, as well as the tiers into which they have been allocated, are presented in **Table 11.19** below and are illustrated in **Figure 11.11**. The operational projects are not listed due to their completion/ commissioning prior to the data collection process for Hornsea Four and are therefore included in the baseline characterisation. This table only includes the projects screened into the assessment for SLVR based on the criteria outlined above. For the full list of projects considered, including those screened out, please see **Volume 4, Annex 5.3: Offshore Cumulative Effects**. The partly operational (under construction) Hornsea Project One has been included as part of the baseline as all of its foundations and the majority of its turbines are now in place. It will be operational by the time Hornsea Four begins construction. The baseline seascape includes Westermost Rough and existing oil and gas infrastructure.

11.13.1.7 Further details of the cumulative projects are included in **Table 7** of **Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report**.

Table 11.19: Project screened in to the SLVR cumulative assessment.

Tier	Project/plan	Details/ relevant dates	Distance to Hornsea Four Array	Distance to Hornsea Four ECC	Distance to Hornsea Four HVAC Booster Area	Reason for inclusion in CEA
1	Hornsea Project Two Offshore Wind Farm	Consented	0.00	5.84	66.43	Potential temporal overlap of operation with construction and operation of Hornsea Four within the Hornsea Four array area cumulative study area.
1	Hornsea Project Three Offshore Wind Farm	In planning	36.34	55.47	116.10	Potential temporal overlap of construction and operation with construction and operation of Hornsea Four within the Hornsea Four array area cumulative study area.

11.13.1.8 Certain impacts assessed for the project alone are not considered in the cumulative assessment due to:

- The highly localised nature of the impacts (i.e. they occur entirely within the Hornsea Four boundary only);
- The lack of potential for a significant cumulative effect to arise; and/or
- Where the potential significance of the impact from Hornsea Four alone has been assessed as negligible.

11.13.1.9 The impacts excluded from the CEA for the above reasons are:

- The cumulative effects on onshore landscape receptors due to the distance offshore of the cumulative wind farms included in the SLVR CEA.
- The cumulative effects on onshore visual receptors due to the distance offshore of the cumulative wind farms included in the SLVR CEA.

11.13.1.10 The only offshore wind farm development in the HVAC booster station study area that would be visible in combination or successively with the HVAC booster stations from Flamborough Head would be Westermost Rough. It is an operational wind farm which has been included and considered as part of the baseline and main assessment.

11.13.1.11 Therefore, the impacts that are considered in the CEA are the cumulative effects of the Hornsea Four:

- Construction on seascape character of MCAs;
- Construction on offshore visual receptors;
- Operation and maintenance on seascape character of MCAs; and
- Operation and maintenance on offshore visual receptors.

11.13.1.12 The cumulative MDS described in [Table 11.20](#) have been selected as those having the potential to result in the greatest cumulative effect on an identified receptor group. The cumulative impacts presented and assessed in this section have been selected from the details provided in the project description for Hornsea Four (summarised for SLVR in [Table 11.6](#)) as well as the information available on other projects and plans in order to inform a cumulative MDS. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the project design envelope to that assessed here, be taken forward in the final design scheme.

Table 11.20: Cumulative MDS for SLVR.

Project Phase	Potential Impact	Maximum Design Scenario	Justification
Construction	Cumulative effect on seascape character of MCAs	<p>MDS for Hornsea Four plus the cumulative full development of the following projects within 50 km of Hornsea Four array area:</p> <p>Tier 1:</p> <ul style="list-style-type: none"> - Consented wind farm project (Hornsea Project Two) - Submitted wind farm project applications not yet determined (Hornsea Three). <p>Tier 2:</p> <ul style="list-style-type: none"> - No Tier 2 projects identified. <p>Tier 3:</p> <ul style="list-style-type: none"> - No Tier 3 projects identified. 	Maximum potential for changes to seascape character through physical changes to Dogger Deep Water Channel and East Midlands Offshore Gas Fields MCAs and changes to seascape character through perception of Hornsea Four in the context of the other offshore wind farms.
Construction	Cumulative effect on offshore visual receptors	<p>MDS for Hornsea Four plus the cumulative full development of the following projects within 50 km of Hornsea Four array area:</p> <p>Tier 1:</p> <ul style="list-style-type: none"> - Consented wind farm project (Hornsea Project Two) - Submitted wind farm project applications not yet determined (Hornsea Three). <p>Tier 2:</p> <ul style="list-style-type: none"> - No Tier 2 projects identified. <p>Tier 3:</p> <ul style="list-style-type: none"> - No Tier 3 projects identified. 	Maximum potential for changes to views from offshore receptors through visibility of Hornsea Four in the context of the other offshore wind farms.
Operation	Cumulative effect on seascape character of MCAs	<p>MDS for Hornsea Four plus the cumulative full development of the following projects within 50 km of Hornsea Four array area:</p> <p>Tier 1:</p> <ul style="list-style-type: none"> - Consented wind farm project (Hornsea Project Two) - Submitted wind farm project applications not yet determined (Hornsea Three). <p>Tier 2:</p> <ul style="list-style-type: none"> - No Tier 2 projects identified. <p>Tier 3:</p> <ul style="list-style-type: none"> - No Tier 3 projects identified. 	Maximum potential for changes to seascape character through physical changes to Dogger Deep Water Channel and East Midlands Offshore Gas Fields MCAs and changes to seascape character through perception of Hornsea Four in the context of the other offshore wind farms.
Operation	Cumulative effect on offshore visual receptors	<p>MDS for Hornsea Four plus the cumulative full development of the following projects within 50 km of Hornsea Four array area:</p> <p>Tier 1:</p> <ul style="list-style-type: none"> - Consented wind farm project (Hornsea Project Two) - Submitted wind farm project applications not yet determined (Hornsea Three). <p>Tier 2:</p> <ul style="list-style-type: none"> - No Tier 2 projects identified. 	Maximum potential for changes to views from offshore receptors through visibility of Hornsea Four in the context of the other offshore wind farms.

Project Phase	Potential Impact	Maximum Design Scenario	Justification
		<ul style="list-style-type: none"> - No Tier 2 projects identified. Tier 3: <ul style="list-style-type: none"> - No Tier 3 projects identified. 	

11.13.1.13 A description of the significance of cumulative effects upon SLVR arising from each identified impact is given below. The cumulative effects assessment has been based on information available in Environmental Statements, though project parameters are often refined further during the determination period and in the post-consent phase. The assessment presented here is therefore considered to be conservative, with the level of impacts expected to be reduced.

11.13.1.14 [Table 7 of Volume 5, Annex 11.1: Seascape, Landscape and Visual Resources Technical Report](#) sets out the parameters of the offshore wind farms used in the assessment.

11.13.2 Construction Phase

Cumulative Seascape Effects on MCAs

Tier 1

11.13.2.2 There is potential for cumulative seascape impacts resulting from the construction activities of Hornsea Four and other projects ([Table 11.19](#)). For the purposes of this PEIR, this additive impact has been assessed within a 50 km radius from the Hornsea Four array area and 30 km from the HVAC booster stations search area, which is the maximum area within which significant seascape effects may arise. This is largely as a result of the fact that the Hornsea Four array area is part of a cluster of offshore wind farms which is separate from other offshore wind farms by a substantial distance. The only projects identified for Tier 1 are Hornsea Project Two and Hornsea Three. The assessment is set out in [Table 11.21](#).

11.13.2.3 No Tier 2 or 3 projects have been identified for this impact.

Table 11.21: Cumulative Seascape Effects of Construction on MCAs.

MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
Dogger Bank	<p>The sensitivity is described and assessed in Table 11.10. <i>Value - low</i> <i>Susceptibility – medium-low</i> Sensitivity – medium - low</p>	<p>There is no physical alteration to the features and patterns that characterise the Dogger Bank MCA as a result of any of the Tier 1 wind farms or Hornsea Four. All changes to the character of the MCA would result from the increased perception of wind farms located beyond the MCA boundary to the south.</p> <p>Hornsea Two would be located to the south of the Dogger Bank MCA at a distance of approximately 15 km. It would extend and increase the influence of the existing wind farms in views towards Hornsea Project One, through its closer proximity, and the increase in the field of view affected by wind farms extending further west.</p> <p>Hornsea Three would be located to the south of Dogger Bank at a distance of approximately 15 km. It would increase the field of view affected by wind farms extending further east.</p> <p>The Hornsea Four array area is located entirely beyond the boundary of the MCA approximately 7.5 km to the south-west. It would further increase the field of view affected by wind farms in views south from the Dogger Bank MCA and would also bring taller turbines (compared to Tier 1 wind farms) closer to the MCA.</p> <p>The MCA will remain open and characterised by its existing elements which include oil and gas platforms and offshore wind farms.</p> <p>The construction of the elements within the array area will result in further changes to the wider setting of the visually unified, expansive and largely open character so that the majority of the southerly influence on the perception of character of this MCA would be affected by offshore wind farms.</p> <p>The character influence of the construction of the offshore export cables and HVAC booster stations at greater distances to the west would be negligible.</p> <p>Magnitude of cumulative impact – medium - low</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>
Dogger Deep Water Channel	<p>The sensitivity is described and assessed in Table 11.10. <i>Value - low</i> <i>Susceptibility – medium</i> Sensitivity – medium - low</p>	<p>Hornsea Project Two is located entirely within the Dogger Deep Water Channel MCA. It would increase the wind farm influence immediately to the north and west of Hornsea Project One.</p> <p>The majority of Hornsea Three is located within the MCA. It would further increase the wind farm influence to the east in a slightly separate area that also extends south. Both wind farms physically alter the features and patterns that characterise the seascape of the MCA as well as increasing the perception of wind farms across a wider area of the MCA, particularly in its eastern extents.</p> <p>The Hornsea Four array area and part of the ECC are located within the Dogger Deep Water Channel MCA and will result in further direct, physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by Hornsea Project One as well as oil and gas platforms.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
		<p>This extends the wind farm influence into the western sector of the MCA through the introduction of large-scale static and moving structures and vessels as well as other equipment over a wide spread area.</p> <p>In addition, there will be changes to the character through the perception of the construction from a wider extent of the MCA, particularly in the western sector.</p> <p>The construction of the Hornsea Four elements within the array area will result in some further changes to the visually unified, expansive and largely open character, partially interrupting the consistent panoramic horizons and providing further development influence; although large vessels, disposal activity, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale. This would result in the majority of the central part of the MCA being characterised by wind farms. However, this occurs within a vast area of open sea where the boundaries of the MCA are not apparent.</p> <p>The character influence of the Offshore Export Cables would be relatively limited by comparison and on the sea surface of the MCA would be apparent only as additional vessels located temporarily along the ECC.</p> <p>The construction of the HVAC booster stations to the west of this MCA would have a peripheral influence on character as a result of views to these as part of the wider context.</p> <p>Magnitude of cumulative impact- medium</p>	
<p>East Midlands Offshore Gas Fields</p>	<p>The sensitivity is described and assessed in Table 11.10.</p> <p><i>Value - low</i></p> <p><i>Susceptibility - low</i></p> <p>Sensitivity – low</p>	<p>There is no physical alteration to the features and patterns that characterise the East Midlands MCA as a result of any of the Tier 1 wind farms or Hornsea Four array area. With the exception of the HVAC booster stations which may be located within the MCA all changes to the character of the MCA would be as a result of the increased perception of wind farms located beyond the MCA boundary to the north.</p> <p>Hornsea Two would be located to the north of the East Midlands Offshore Gas Fields MCA at a distance of approximately 9 km. It would extend the existing wind farm influence in views towards Hornsea Project One through the increase in the field of view affected by wind farms extending further west.</p> <p>Hornsea Three would be located largely to the north of the East Midlands Offshore Gas Fields but partially extends into it beyond the Hornsea Four array area boundary to the east so that it would physically and perceptually alter the character of the MCA.</p> <p>Hornsea Four array area is located entirely beyond the boundary of the MCA and lies approximately 22.5 km to the north. It would further increase the field of view affected by wind farms in views north from the East Midlands Offshore Gas Fields MCA and would also bring taller turbines (compared to Tier 1 wind farms) to the wind farm array, although this may not be noticeable due to the increase in relative distance.</p> <p>The MCA will remain open and characterised by its existing elements which include oil and gas platforms and offshore wind farms.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
		<p>The construction of the Hornsea Four booster stations may occur within this MCA as well as the construction of the Offshore Export Cables. This will require use of a large number of vessels and cranes around the HVAC booster station locations and a number of vessels positioned and/or moving around along the ECC.</p> <p>There would be relatively limited physical alteration of the elements and features that together form the baseline characteristics of this MCA and the HVAC booster stations would have very little perceptual interaction with the Tier 1 wind farms or Hornsea Project One due to their visual and physical separation from them.</p> <p>Magnitude of impact – medium magnitude where there would be direct physical changes as a result of the HVAC booster stations being constructed. Such a magnitude of change would extend to a distance of approximately 1km around the HVAC booster stations. Beyond this the magnitude of impact would be low reducing to negligible with distance.</p>	
<p>North Yorkshire Coastal Waters</p>	<p>The sensitivity is described and assessed in Table 11.10. <i>Value – medium high locally within the FHHC and Medium to low elsewhere</i> <i>Susceptibility - low</i> Sensitivity – medium within the FHHC and medium - low elsewhere</p>	<p>There would be relatively limited cumulative alteration of the elements and features that together form the baseline characteristics of this MCA.</p> <p>Magnitude of cumulative impact - negligible</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>
<p>Holderness Coastal Waters</p>	<p>The sensitivity is described and assessed in Table 11.10. <i>Value – Medium - High locally within the FHHC and Medium to Low elsewhere</i> <i>Susceptibility – Low</i> Sensitivity – medium within the FHHC and medium - low elsewhere.</p>	<p>There would be relatively limited alteration of the elements and features that together form the baseline characteristics of this MCA.</p> <p>Magnitude of cumulative impact - negligible</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>
<p>Breagh Oil and Gas Field</p>	<p>The sensitivity is described and assessed in Table 11.10. <i>Value - low</i></p>	<p>There is no physical alteration to the features and patterns that characterise the Breagh Oil and Gas Field MCA as a result of any of the Tier 1 wind farms. All changes to the character of the MCA would be as a result of the increased perception of wind farms located beyond the MCA boundary at a considerable distance to the south-</p>	<p>The effect is assessed as not significant, of</p>

Hornsea 4



MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
	<i>Susceptibility - low</i> Sensitivity – low	east and largely beyond the Hornsea Four array area which would be located at a distance of over 20 km to the east. The construction of the elements within the Hornsea Four array area will result in some changes to the wider setting of the visually unified, expansive and largely open character to the east. Magnitude of cumulative impact - low	medium duration and temporary.

Cumulative Visual Effects on Visual Receptors

Tier 1

- 11.13.2.4 There is potential for cumulative visual impacts on offshore visual receptors resulting from construction activities associated with Hornsea Four and other projects ([Table 11.19](#)). For the purposes of this PEIR, this additive impact has been assessed within a 50 km radius from the Hornsea Four array area and 30 km from the HVAC booster stations search area, which is considered to be the maximum area within which significant seascape effects may arise as a result of the addition of Hornsea Four. This is largely as a result of the fact that the Hornsea Four array area is part of a cluster of offshore wind farms which is separate from other offshore wind farms by a substantial distance. The only projects identified for this tier are Hornsea Project Two and Hornsea Three. The assessment is set out in [Table 11.22](#).
- 11.13.2.5 [Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations](#) contains several cumulative wireline views that illustrate the cumulative visibility of Hornsea Four array area and HVAC booster stations with the Tier 1 cumulative wind farms and Hornsea Project One, which forms part of the baseline.
- 11.13.2.6 Viewpoints were included within the scoping request to illustrate views from the offshore visual receptors. An additional viewpoint was requested by Natural England to illustrate the views from Flamborough Head. Cumulative wirelines are provided for the following locations, which are shown on [Figure 11.5](#) and [Figure 11.6](#).
- Viewpoint 1: Flamborough Head. Viewpoint height 20.5 m Above Ordnance Datum (AOD);
 - Viewpoint 2: Newcastle - Amsterdam ferry route (NW). Viewpoint height 26.5 m above LAT;
 - Viewpoint 3: RYA offshore route. Located to the west of the Hornsea Four array area and close to the offshore ECC. Viewpoint height 4m above LAT;
 - Viewpoint 4: Cleeton Gas Platform is situated to the west of the Hornsea Four array area and just north of the offshore ECC (viewpoint height nominal 34.5 m above LAT);
 - Viewpoint 5: Ferry route possible diversion south-west of Hornsea Four array area. Viewpoint height 26.5 m above LAT; and
 - Viewpoint 6: Ferry route approximate diversion south-east of Hornsea Four array area. Viewpoint height 26.5 m above LAT.
- 11.13.2.7 There has been a slight modification to the position of viewpoints on the Newcastle-Amsterdam ferry route since scoping. This has been made to ensure that it is on the alignment of the known route. These viewpoints are referred to in [Table 11.22](#).
- 11.13.2.8 No Tier 2 or 3 projects have been identified for this impact.

Table 11.22: Cumulative visual effects on construction of offshore visual receptors.

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
<p>People in recreational vessels in areas of leisure fishing to the north of Flamborough Head or within the General Boating Areas shown in Figure 11.6.</p>	<p><i>Value –medium to high in FHHC and medium beyond the FHHC boundary</i></p> <p>People sailing or fishing in the vicinity of Flamborough Head would be within the area that is defined as the FHHC indicating that people value this location and views from within it. The seascape beyond the FHHC is not designated and is therefore of lower value.</p> <p><i>Susceptibility – medium - low</i></p> <p>The attention of people boating or fishing for recreation is likely to be focussed on these activities. However, the relatively attractive and interesting setting at this location is also likely to be appealing to people recreating in boats. Views of the coastal landscape and the headland are the scenic focus in close proximity to the shore, rather than the wider seascape. People in recreational vessels are transient so their views will be of short duration, making them less susceptible to changes.</p> <p>Any effects upon views will be caused by visibility of the Offshore Export Cable and HVAC booster stations construction, within the wider context of the seascape meaning that construction at sea would form a very small component of the distant sea backdrop.</p> <p>Sensitivity – medium</p>	<p>All cumulative changes to the views would be as a result of the visibility of the Tier 1 wind farms and Hornsea Four. The Tier 1 wind farms are located at a distance of over 90 km from the General Boating Area so that visibility is unlikely. The HVAC booster station for Hornsea Project Two lies at a range of 65 km with that of Hornsea Three being considerably more distant.</p> <p>The Hornsea Four array area would be located at a distance of over 60 km to the east and although theoretically visible, as shown on Figure 11.7 this is only during the clearest of excellent conditions.</p> <p>The construction of a 16 km length of the Offshore Export Cables will occur through the General Boating Area. This will require use of a number of vessels located in and moving along the ECC.</p> <p>There would be very limited cumulative change to the views available to people in recreational vessels.</p> <p>Magnitude of cumulative impact - negligible</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>
<p>People in recreational vessels using offshore routes as</p>	<p><i>Value – medium</i></p> <p>The seascape through which vessels pass offshore is not designated. However, people out at sea may attribute some value to it due to its expansive and relatively</p>	<p>All cumulative changes to the views result from the visibility of the Tier 1 wind farms and Hornsea Four. Viewpoint 3 in Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations is a</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
<p>shown on Figure 11.5</p>	<p>remote characteristics as a setting for their boating activity.</p> <p><i>Susceptibility – medium to low</i></p> <p>People in recreational vessels using offshore routes are likely to focus their attention on this activity. They may also be travelling from place to place. People in recreational vessels are transient and their views will be of short duration making them less susceptible to changes. Views from out at sea are likely to be less influenced by the coast so that the expansiveness of the open sea with some offshore platforms and offshore wind farms (Hornsea Project One) will be the main characteristics.</p> <p>Any cumulative effects upon views will result from visibility of the Hornsea Four Offshore Export Cable and HVAC booster stations construction as well as offshore wind farms within the wider context.</p> <p>Sensitivity – medium</p>	<p>cumulative wireline illustrating the theoretical visibility from the offshore route shown on Figure 11.5.</p> <p>The Tier 1 wind farms are located at a distance of over 75 km from the location mapped. The viewpoint indicates that there would be no visibility of these and therefore no cumulative effect. The HVAC booster station for Hornsea Project Two lies at a range of 65 km with that of Hornsea Three being considerably more distant.</p> <p>Hornsea Four array area would be located at a distance of 44.8 km to the east and although theoretically visible, as shown on Figure 11.7 At this range it would only be visible in excellent conditions.</p> <p>The construction of the Offshore Export Cables will occur close to the marked offshore route and this will require use of several vessels located in and moving along the ECC. The Hornsea Four HVAC booster stations would be located at a distance of 2 km from this offshore route and their construction would involve a concentration of vessels as well as the structures as they materialise.</p> <p>The main cumulative effect would arise sequentially as vessels pass through the Hornsea Four study area mostly to the south of the Tier 1 wind farms and Hornsea Four. Viewpoints 2, 4, 5 and 6 illustrate the theoretical visibility of the cumulative wind farms from similar locations from where people using offshore routes may gain visibility. However, the vantage points are higher in the viewpoints as they represent views from ferries or the oil platform, which are higher. The wirelines therefore over emphasise the theoretical visibility.</p> <p>From locations far out at sea, the Tier 1 wind farms would be apparent as an expanse of turbines extending</p>	

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
		<p>eastwards from the English coast from a point approximately 100 km offshore. They would collectively cover a wide sector of views and could take some considerable time to pass (depending on the route taken) due to their approximately 95 km combined length. They would be part of the expansive seascape context.</p> <p>Hornsea Four would bring wind farm visibility closer to the shore by extending the Tier 1 wind farms north-west by approximately 45 km. This would mean that views of turbines may occur over an extended distance of the journeys. When travelling from the west or north-west, turbines would become a feature of views more quickly than would be the case for the Tier 1 wind farms.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array. However, this would occur as part of a wider wind farm array and not as a separate isolated wind farm. The wind farm array would collectively be part of the expansive seascape with large areas of open sea around it.</p> <p>Magnitude of cumulative impact – medium.</p>	
<p>People at work on fishing boats or other commercial vessels</p>	<p><i>Value – medium - low</i></p> <p>The seascape through which vessels pass offshore is not designated.</p> <p><i>Susceptibility – medium - low</i></p> <p>People working tend to be the least susceptible to changes in their views their work takes up most of their concentration. However, they are unlikely to be completely unaware of their largely open sea surroundings.</p>	<p>The cumulative visibility of offshore wind farms would be similar to that described above in relation to people in recreational vessels using offshore routes.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array. However, this would occur as part of a wider wind farm array and not as a separate isolated wind farm. The wind farm array would collectively be seen as part of the expansive seascape with large areas of open sea around it.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
	<p>Views of workers out in vessels at sea will tend to be transient although they may have the potential be of long duration if they are on a slow-moving fishing boat.</p> <p>Sensitivity – medium - low</p>	<p>Magnitude of cumulative impact – medium.</p>	
<p>People working on manned oil and gas platforms as shown on Figure 11.5</p>	<p><i>Value – low</i></p> <p>The seascape within which the oil and gas platforms are located is not designated. The seascape in the vicinity is characterised by offshore oil and platforms which reduce the quality of the local seascape and therefore its perceived value.</p> <p><i>Susceptibility – low</i></p> <p>People working tend to be the least susceptible as they are generally located at these viewpoints to undertake work, which takes up most of their concentration. However, they are unlikely to be completely unaware of their largely open sea surroundings. Workers on oil platforms may have the potential for views of long duration.</p> <p>Sensitivity – medium - low</p>	<p>Hornsea Four would bring wind farm visibility closer to the manned platform by extending the Tier 1 wind farms north-west by approximately 45 km.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array. This would occur as part of a wider wind farm array and not as a separate isolated wind farm. The wind farm array would collectively be seen as part of the expansive seascape with large areas of open sea around it.</p> <p>Magnitude of cumulative impact – medium to high for Ravenspurn. medium to low for other manned platforms.</p>	<p>The effect is assessed as not significant of medium duration and temporary.</p>
<p>People travelling on the Newcastle-Amsterdam ferry route</p>	<p><i>Value – medium</i></p> <p>The seascape through which the ferries pass is not designated. However, it may be of value to people at sea due to its expansive and remote characteristics.</p> <p><i>Susceptibility – medium to low</i></p> <p>People travelling on this ferry will often do so in the hours of darkness which makes them less susceptible to changes in views.</p> <p>Views from out at sea are likely to be less influenced by the coast so that the expansiveness of the open sea with some offshore platforms and offshore wind farms (Hornsea Project One) will be the main characteristics.</p>	<p>All cumulative changes to the views would result from the visibility of the Tier 1 wind farms and Hornsea Four. Viewpoints 2, 5 and 6 in Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations are cumulative wirelines illustrating the theoretical visibility from the likely diversion to the offshore ferry route shown on Figure 11.5.</p> <p>The increased visibility of offshore wind farms from this route would be similar to that experienced by people in recreational vessels using offshore routes as described above.</p>	<p>The effect is assessed as not significant, of medium duration and temporary.</p>

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
	<p>This is likely to be of lesser interest to a traveller on this sector of the route.</p> <p>The possibility of offshore wind farm views at close range is likely to result in some greater interest in the views from the ferry as one passes through this area. People travelling in ferries are transient, making them less susceptible to changes.</p> <p>Any cumulative effects upon views will result from visibility of the Hornsea Four Offshore Export Cable and HVAC booster stations construction as well as visibility of the offshore wind farms as part of the wider context.</p> <p>Sensitivity – medium</p>	<p>This would mean that views of turbines may occur over an extended duration of the journeys or they may be apparent within areas where the Tier 1 wind farms would not be visible, as illustrated by Viewpoint 2. If travelling from the north-west, turbines would become a feature of views more quickly on the journey than would be the case for the Tier 1 wind farms.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array as shown in the Viewpoint 5 wireline. However, this would occur as part of a wider wind farm array and not as a separate isolated wind farm. The addition of Hornsea Four would not be as notable from locations to the south of the route, as represented by Viewpoint 6, since Hornsea Four would be behind the Tier 1 wind farms and Hornsea Project One. The wind farm array would collectively be part of the expansive seascape, surrounded by large areas of open sea.</p> <p>The construction of the Offshore Export Cables will cross the route and this will require several vessels located in and moving along the ECC. The Hornsea Four HVAC booster stations would be located at distances of over 20 km from the ferry route and their construction would involve a concentration of vessels as well as the structures as they materialise.</p> <p>The main cumulative effect would arise sequentially as vessels pass through the Hornsea Four study area mostly to the south of the Tier 1 wind farms and Hornsea Four.</p> <p>Magnitude of cumulative impact – medium.</p>	

11.13.3 Operation and Maintenance Phase

Cumulative Impact on Seascape Character of MCAs

Tier 1

11.13.3.2 There is potential for cumulative seascape impacts as a result of operation and maintenance activities associated with Hornsea Four and other projects ([Table 11.19](#)). For the purposes of this PEIR, this additive impact has been assessed within a 50 km radius from the Hornsea Four array area and a 30 km radius from the HVAC booster stations search area, which is considered to be the maximum area within which significant seascape effects may arise as a result of the addition of Hornsea Four. This is largely as a result of the fact that the Hornsea Four array area is part of a cluster of offshore wind farms which is separate from other offshore wind farms by a substantial distance. The only projects identified for this tier are Hornsea Project Two and Hornsea Three. The assessment is set out in [Table 11.21](#).

11.13.3.3 No Tier 2 or 3 projects have been identified for this impact.

Table 11.23: Cumulative Seascape Effects of Construction on MCAs.

MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
Dogger Bank	<p>The sensitivity is described and assessed in Table 11.10.</p> <p><i>Value - low</i></p> <p><i>Susceptibility – medium - low</i></p> <p>Sensitivity – medium - low</p>	<p>There is no physical alteration to the features and patterns that characterise the Dogger Bank MCA as a result of any of the Tier 1 wind farms or Hornsea Four. All changes to the character of the MCA would be caused by the increased perception of wind farms located beyond the MCA boundary to the south.</p> <p>Hornsea Two would be located to the south of the Dogger Bank MCA at a distance of approximately 15 km. It would extend and increase influence of the existing wind farm views towards Hornsea Project One through its closer proximity and the increase in the field of view affected by wind farms extending further west.</p> <p>Hornsea Three would be located to the south of Dogger Bank at a distance of approximately 15 km. It would increase the field of view affected by wind farms extending further east.</p> <p>The Hornsea Four array area is located entirely beyond the boundary of the MCA approximately 7.5 km to the south-west. It would further increase the field of view affected by wind farms in views south from the Dogger Bank MCA and would also bring taller turbines (compared to Tier 1 wind farms) closer to the MCA.</p> <p>The MCA will remain open and characterised by its existing elements which include oil and gas platforms and offshore wind farms.</p> <p>The operation and maintenance of the elements within the array area will result in further changes to the wider setting of the visually unified, expansive and largely open character so that most of the southerly influence on the perception of character of this MCA would be affected by offshore wind farms.</p> <p>The character influence of the operation and maintenance of the HVAC booster stations at greater distances to the west would be negligible.</p> <p>Magnitude of cumulative impact – medium to low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
Dogger Deep Water Channel	<p>The sensitivity is described and assessed in Table 11.10.</p> <p><i>Value - low</i></p> <p><i>Susceptibility – medium</i></p> <p>Sensitivity – medium - low</p>	<p>Hornsea Project Two is located entirely within the Dogger Deep Water Channel MCA. It would increase the influence of the wind farm immediately to the north and west of Hornsea Project One.</p> <p>The majority of Hornsea Three is located within the MCA. It would further increase the wind farm influence to the east in a slightly separate area that also extends south. Both wind farms physically alter the features and patterns that characterise the seascape of the MCA as well as increasing the perception of wind farms across a wider area of the MCA, particularly in its eastern extents.</p> <p>Hornsea Four array area and part of the ECC are located within the Dogger Deep Water Channel MCA and will cause further direct, physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by Hornsea Project One as well as oil and gas platforms.</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
		<p>This extends the influence of the wind farm into the western sector of the MCA through the introduction of large-scale static and moving structures and vessels as well as other equipment over a wide spread area. In addition, there will be changes to the character through the perception of the operation and maintenance from a wider extent of the MCA, particularly in the western sector.</p> <p>The operation and maintenance of the Hornsea Four elements within the array area will result in some further changes to the visually unified, expansive and largely open character, partially interrupting the consistent panoramic horizons and providing further development influence; although large vessels, disposal activity, oil and gas installations, small vessels and offshore wind farms are already important points of orientation and scale. This would result in much of the central part of the MCA being characterised by wind farms. However, this occurs within a vast area of open sea where the boundaries of the MCA are not apparent.</p> <p>The character influence of the Offshore Export Cables would be relatively limited by comparison, and on the sea surface of the MCA only as additional vessels located temporarily along the ECC.</p> <p>The operation and maintenance of the HVAC booster stations to the west of this MCA would have a peripheral influence on character as a result of views to these as part of the wider context.</p> <p>Magnitude of cumulative impact- medium</p>	
East Midlands Offshore Gas Fields	The sensitivity is described and assessed in Table 11.10 . <i>Value - low</i> <i>Susceptibility - low</i> Sensitivity – low	<p>There is no physical alteration to the features and patterns that characterise the East Midlands MCA as a result of any of the Tier 1 wind farms or Hornsea Four array area, with the exception of the HVAC booster stations. These may be located within the MCA, so all changes to the character of the MCA result from the increased perception of wind farms located beyond the MCA boundary to the north.</p> <p>Hornsea Two would be located to the north of the East Midlands Offshore Gas Fields MCA at a distance of approximately 9 km. It would extend the existing wind farm influence in views towards Hornsea Project One through the increase in the field of view affected by wind farms extending further west.</p> <p>Hornsea Three would be located largely to the north of the East Midlands Offshore Gas Fields but partially extends into it beyond the Hornsea Four array area boundary to the east so that it would physically and perceptually alter the character of the MCA.</p> <p>Hornsea Four array area is located entirely beyond the boundary of the MCA and lies approximately 22.5 km to the north. It would further increase the field of view affected by wind farms in views north from the East Midlands Offshore Gas Fields MCA and would also bring taller turbines (compared to Tier 1 wind farms) to the wind farm array, although this may not be noticeable due to the increase in relative distance.</p> <p>The MCA will remain open and characterised by its existing elements which include oil and gas platforms and offshore wind farms.</p>	The effect is assessed as not significant , of long duration and reversible.

MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
		<p>The operation and maintenance of the Hornsea Four booster stations may occur within this MCA. There would be relatively limited physical alteration of the elements and features that together form the baseline characteristics of this MCA and the HVAC booster stations would have very little perceptual interaction with the Tier 1 wind farms or Hornsea Project one due to their visual and physical separation from them.</p> <p>Magnitude of impact – medium magnitude where there would be direct physical changes as a result of the HVAC booster stations being constructed. Such a magnitude of change would extend to a distance of approximately 1km around the HVAC booster stations. Beyond this the magnitude of impact would be low reducing to negligible with distance.</p>	
<p>North Yorkshire Coastal Waters</p>	<p>The sensitivity is described and assessed in Table 11.10. <i>Value – medium - high locally within the FHHC and medium - low elsewhere</i> <i>Susceptibility - low</i> Sensitivity – medium within the FHHC and medium - low elsewhere</p>	<p>There is no physical alteration to the features and patterns that characterise the North Yorkshire Coastal Waters MCA resulting from any of the Tier 1 wind farms. All changes to the character of the MCA would be as a result of the increased perception of wind farms located beyond the MCA boundary at a considerable distance to the east and largely beyond the Hornsea Four array area which would be located at a distance of approximately 40 km to the east.</p> <p>There would be relatively limited alteration of the elements and features that together form the baseline characteristics of this MCA.</p> <p>Magnitude of cumulative impact - negligible</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
<p>Holderness Coastal Waters</p>	<p>The sensitivity is described and assessed in Table 11.10. <i>Value – medium - high locally within the FHHC and medium - low elsewhere</i> <i>Susceptibility – low</i> Sensitivity – medium within the FHHC and medium to low elsewhere.</p>	<p>There is no physical alteration to the features and patterns that characterise the Holderness Coastal Waters MCA as a result of any of the Tier 1 wind farms. All changes to the character of the MCA would be as a result of the increased perception of wind farms located beyond the MCA boundary at a considerable distance to the east and largely beyond the Hornsea Four array area which would be located at a distance of over 45 km to the east.</p> <p>There would be relatively limited alteration of the elements and features that together form the baseline characteristics of this MCA.</p> <p>Magnitude of cumulative impact – negligible</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

MCA	Sensitivity	Potential impact	Significance of Cumulative Effect
Breagh Oil and Gas Field	<p>The sensitivity is described and assessed in Table 11.10.</p> <p><i>Value - low</i></p> <p><i>Susceptibility - low</i></p> <p>Sensitivity – low</p>	<p>There is no physical alteration to the features and patterns that characterise the Breagh Oil and Gas Field MCA resulting from any of the Tier 1 wind farms. All changes to the character of the MCA would be as a result of the increased perception of wind farms located beyond the MCA boundary at a considerable distance to the south-east and largely beyond the Hornsea Four array area which would be located at a distance of over 20 km to the east.</p> <p>The operation and maintenance of the Hornsea Four booster stations may occur within or close to this MCA. The area that would be affected by the operation and maintenance of these elements of Hornsea Four would be a very small proportion of the overall MCA.</p> <p>There would be relatively limited physical alteration of the elements and features that together form the baseline characteristics of this MCA, which are partially modified by oil and gas platforms and the baseline influence of large commercial and fishing vessels.</p> <p>The operation and maintenance of the elements within the Hornsea Four array area will result in some changes to the wider setting of the visually unified, expansive and largely open character to the east.</p> <p>Magnitude of cumulative impact - low</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

Cumulative Visual Effects on Offshore Visual Receptors

- 11.13.3.4 There is potential for cumulative visual impacts on offshore visual receptors as a result of operation and maintenance activities associated with Hornsea Four and other projects ([Table 11.19](#)). For the purposes of this PEIR, this additive impact has been assessed within a 50 km radius from the Hornsea Four array area which is considered to be the maximum area within which significant seascape effects may arise as a result of the addition of Hornsea Four. This is largely as a result of the fact that the Hornsea Four array area is part of a cluster of offshore wind farms which is separate from other offshore wind farms by a substantial distance. The only projects identified for this tier are Hornsea Project Two and Hornsea Three. The assessment is set out in [Table 11.24](#).
- 11.13.3.5 [Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations](#) contains a number of cumulative wireline views that illustrate the cumulative visibility of Hornsea Four array area and HVAC booster stations with the Tier 1 cumulative wind farms and Hornsea Project One, which forms part of the baseline. These are as described in relation to construction phase effects in [Section 11.13.2](#).
- 11.13.3.6 No Tier 2 or 3 projects have been identified for this impact.

Table 11.24: Cumulative visual effects of operation and maintenance on offshore visual receptors.

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
<p>People in recreational vessels in areas of leisure fishing to the north of Flamborough Head or within the General Boating Areas shown in Figure 11.4</p>	<p>The sensitivity is described and assessed in Table 11.22. <i>Value –medium - high in FHHC and medium beyond the FHHC boundary</i> <i>Susceptibility – medium - low</i> Sensitivity – medium</p>	<p>All cumulative changes to the views would be caused by the visibility of the Tier 1 wind farms and Hornsea Four. The Tier 1 wind farms are located at a distance of over 90 km from the General Boating Area so that visibility is unlikely. The HVAC booster station for Hornsea Project Two lies at a range of 65 km, with that of Hornsea Three being considerably more distant. The Hornsea Four array area would be located at a distance of over 60 km to the east and although theoretically visible, as shown on Figure 11.7 at this range would only be visible during the clearest of excellent conditions. There would be very limited cumulative change to the views available to people in recreational vessels. Magnitude of cumulative impact - negligible</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
<p>People in recreational vessels using offshore routes as shown on Figure 11.5</p>	<p>The sensitivity is described and assessed in Table 11.22. <i>Value – medium</i> <i>Susceptibility – medium - low</i> Sensitivity – medium</p>	<p>All cumulative changes to the views would result from the visibility of the Tier 1 wind farms and Hornsea Four. Viewpoint 3 in Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations is a cumulative wireline illustrating the theoretical visibility from the offshore route shown on Figure 11.5. The Tier 1 wind farms are located over 75 km from the location mapped as the offshore route. The viewpoint indicates that there would be no visibility of these and therefore no cumulative effect from there. The HVAC booster station for Hornsea Project Two lies at a range of 65 km with that of Hornsea Three being considerably more distant. Hornsea Four array area would be located at a distance of 44.8 km to the east and although theoretically visible, as shown on Figure 11.7 at this range would only be visible in excellent conditions. The operation and maintenance of the Offshore Export Cables will occur close to the marked offshore route and this will require use of several vessels located in and moving along the ECC. The Hornsea Four HVAC booster stations would be located at 2 km from this offshore route and their operation and maintenance would involve a concentration of vessels as well as the structures as they materialise. The main cumulative effect would arise sequentially as vessels pass through the Hornsea Four study area mostly to the south of the Tier 1 wind farms and Hornsea Four. Viewpoints 2, 4, 5 and 6 illustrate the theoretical visibility of the cumulative wind farms from similar locations from where people using offshore routes may gain visibility. However, the vantage points are</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
		<p>higher in the viewpoints as they represent views from ferries or the oil platform, which are higher. The wirelines therefore over emphasise the theoretical visibility.</p> <p>From locations far out at sea the Tier 1 wind farms would be apparent as an expanse of turbines extending eastwards from the English coast from a point approximately 100 km offshore. They would collectively cover a wide sector of views and could take some considerable time to pass (depending on the route taken) due to their approximately 95 km combined length. They would be seen as part of the expansive seascape context.</p> <p>Hornsea Four would bring wind farm visibility closer to the shore by extending the Tier 1 wind farms north-west by approximately 45 km. This would mean that views of turbines may occur over an extended distance of the journeys. When travelling from the west or north-west turbines would become a feature of views more quickly than would be the case for the Tier 1 wind farms.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array. However, this would occur as part of a wider wind farm array and not as a separate isolated wind farm. The wind farm array would collectively be seen as part of the expansive seascape with large areas of open sea around it.</p> <p>Magnitude of cumulative impact – medium</p>	
<p>People at work on fishing boats or other commercial vessels</p>	<p>The sensitivity is described and assessed in Table 11.22.</p> <p><i>Value – medium to low</i></p> <p><i>Susceptibility – Medium - low</i></p> <p>Sensitivity – medium - low</p>	<p>The cumulative visibility of offshore wind farms would be similar to that described above in relation to people in recreational vessels using offshore routes.</p> <p>This would mean that views of turbines may occur over an extended distance of the journeys or they may be apparent within areas where the Tier 1 wind farms would not be visible to such a degree. If travelling from the west or north-west turbines would become a feature of views more quickly than would be the case for the Tier 1 wind farms.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array. However, this would occur as part of a wider wind farm array and not as a separate isolated wind farm. The wind farm array would collectively be seen as part of the expansive seascape with large areas of open sea around it.</p> <p>Magnitude of cumulative impact – medium</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>
<p>People working on manned oil and gas platforms as shown on Figure 11.6</p>	<p>The sensitivity is described and assessed in Table 11.22.</p>	<p>Hornsea Four would bring wind farm visibility closer to the manned platform by extending the Tier 1 wind farms north-west by approximately 45 km.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array. This would occur as part of a wider wind farm array and not as a separate isolated wind</p>	<p>The effect is assessed as not significant, of long</p>

Visual Receptor	Sensitivity	Potential cumulative impact	Significance of Cumulative Effect
	<p><i>Value – low</i> <i>Susceptibility – low</i> Sensitivity – medium - low</p>	<p>farm. The wind farm array would collectively be part of the expansive seascape with large areas of open sea around it.</p> <p>Magnitude of cumulative impact – medium to- High for Ravenspurn. medium - low for other manned platforms.</p>	<p>duration and reversible.</p>
<p>People travelling on the Newcastle-Amsterdam ferry route</p>	<p>The sensitivity is described and assessed in Table 11.22.</p> <p><i>Value – medium</i> <i>Susceptibility – medium - low</i> Sensitivity – medium</p>	<p>All cumulative changes to the views result from the visibility of the Tier 1 wind farms and Hornsea Four. Viewpoints 2, 5 and 6 in Volume 5, Annex 11.2: Seascape, Landscape and Visual Resources Visualisations are cumulative wirelines illustrating the theoretical visibility from in the general vicinity of the likely diversion to the offshore ferry route shown on Figure 11.5.</p> <p>The increased visibility of offshore wind farms from this route would be similar to that experienced by people in recreational vessels using offshore routes as described above. This would mean that views of turbines may occur over an extended distance of the journeys or they may be apparent within areas where the Tier 1 wind farms would not be visible such as is illustrated by Viewpoint 2. If travelling from the north-west turbines would become a feature of views more quickly on the journey than would be the case for the Tier 1 wind farms.</p> <p>Hornsea Four would add to the visibility of the offshore wind farms through the addition of taller turbines to the array as shown in the Viewpoint 5 wireline. However, this would occur as part of a wider wind farm array and not as a separate isolated wind farm. The addition of Hornsea Four would not be as notable from locations to the south of the route such as is represented by Viewpoint 6 since Hornsea Four would be behind the Tier 1 wind farms and Hornsea Project One. The wind farm array would collectively be part of the expansive seascape with large areas of open sea around it.</p> <p>The Hornsea Four HVAC booster stations would be located at distances of over 20 km from the ferry route.</p> <p>The main cumulative effect would arise sequentially as vessels pass through the Hornsea Four study area mostly to the south of the Tier 1 wind farms and Hornsea Four.</p> <p>Magnitude of cumulative impact – medium.</p>	<p>The effect is assessed as not significant, of long duration and reversible.</p>

11.14 Transboundary Effects

11.14.1.1 Transboundary effects are defined as those effects upon the receiving environment of other European Economic Area (EEA) states, whether occurring from Hornsea Four alone, or cumulatively with other projects in the wider area. A transboundary screening exercise was undertaken at Scoping (Annex K of the Scoping Report), which identified that there was no potential for significant transboundary effects to occur in relation to Seascape, Landscape and Visual Resources.

11.15 Inter-related effects

11.15.1.1 Inter-related effects consider impacts from the construction, operation or decommissioning of Hornsea Four on the same receptor (or group). The potential inter-related effects that could arise in relation to Seascape, Landscape and Visual Receptors are presented in **Table 11.25**. Such inter-related effects include both:

- Project lifetime effects: i.e. those arising throughout more than one phase of the project (construction, operation, and decommissioning) to interact to potentially create a more significant effect on a receptor than if just one phase were assessed in isolation; and
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor (or group). Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

11.15.1.2 A description of the process to identify and assess these effects is presented in **Section 5.8** of **Volume 1 Chapter 5: Environmental Impact Assessment Methodology**.

Table 11.25: Inter-related effects assessment for Seascape, Landscape and Visual Receptors.

Project phase(s)	Nature of inter-related effect	Assessment alone	Inter-related effects assessment
<i>Project-lifetime effects</i>			
Construction, Operation and, decommissioning	Effects on seascape character across all three phases.	Seascape character impacts were assessed as being of medium to negligible magnitude across the MCAs. The effects on the MCAs were assessed as not significant.	The duration of the not significant effects would occur over a period of approximately 42.5 years, which is longer than the other phases considered individually. It is therefore considered that impacts in the operation phase will not materially contribute to inter-related effects, and that the construction and decommissioning phases are significantly temporally separate such that there will be no interaction between the two. There will therefore be no inter-related effects of greater significance compared to the impacts considered alone.

Project phase(s)	Nature of inter-related effect	Assessment alone	Inter-related effects assessment
Construction, Operation and, decommissioning	Effects on landscape character receptors across all three phases.	Impacts on landscape character receptors were assessed as being of low magnitude. The effects on the MCAs were assessed as not significant.	The duration of the not significant effects would occur over a period of over 38 years, which is longer than the other phases considered separately. It is therefore considered that impacts in the operation phase will not materially contribute to inter-related effects, and that the construction and decommissioning phases are significantly temporally separate such that there will be no interaction between the two. There will therefore be no inter-related effects of greater significance compared to the impacts considered alone.
Construction, Operation and, decommissioning	Effects on onshore visual receptors across all three phases.	Impacts on onshore visual receptors were assessed as being of medium to low magnitude. The effects on the MCAs were assessed as not significant.	The duration of the not significant effects would occur over a period of over 38 years, which is longer than the other phases considered separately. It is therefore considered that impacts in the operation phase will not materially contribute to inter-related effects, and that the construction and decommissioning phases are significantly temporally separate such that there will be no interaction between the two. There will therefore be no inter-related effects of greater significance compared to the impacts considered alone.

11.15.1.3 There is no potential for inter-related effects on seascape, landscape and visual resources to be of a higher magnitude or effect than those assessed for each phase individually. There may be inter-related impacts on the settings of cultural heritage assets both onshore and offshore. Reference should be made to [Chapter 10: Marine Archaeology and Volume 5, Annex 10.1: Marine Archaeology Technical Report](#).

11.16 Conclusion and summary

11.16.1.1 The assessment has found that there would be no significant seascape, landscape and visual effects or cumulative effects as a result of the construction, operation and maintenance or decommissioning of Hornsea Four.

11.16.1.2 Paragraph 5.9.19 of EN-1 advises that: *"It may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors.*

This may assist the IPC in judging the weight it should give to the assessed visual impacts of the proposed development."

11.16.1.3 Galloper and Greater Gabbard Offshore Windfarms are located at distances of 27.5 km and 23.4 km respectively from the Suffolk Heritage Coast. The WTGs of Galloper are 180.5 m to blade tip and those of Greater Gabbard are 170 m to blade tip. These offshore wind farms have been found to be acceptable at these distances to onshore Heritage Coast and the visual receptors such as residents and users of the coastal paths therein. In addition, the Greater Gabbard offshore wind farm is located 25 km from the nationally designated Suffolk Coast and Heath Area of Outstanding Natural Beauty (AONB).

11.16.1.4 **Table 15.1** presents a summary of the impacts assessed in detail within this PEIR, any mitigation and the residual effects.

Table 11.26: Summary of potential impacts assessed for SLVR.

Impact and Phase	Receptor and sensitivity	Magnitude and significance	Mitigation	Residual impact
<i>Construction /Decommissioning</i>				
Impact on seascape character of MCAs as a result of physical presence and views of all offshore project elements (SVR-C-1B & SVR-D-9).	Dogger Bank Medium - Low	Low Not significant	None proposed beyond existing commitments	Not significant
	Dogger Deep Water Channel- Medium-Low-	Medium or medium-low Not significant		Not significant
	East Midlands Offshore Gas Fields Low	Medium reducing to negligible with distance Not significant		Not significant
	North Yorkshire Coastal Waters Medium within the FHHC and Medium to Low elsewhere	Low Not significant		Not significant
	Holderness Coastal Waters Medium within the FHHC and Medium to Low elsewhere.	Low Not significant		Not significant
	Breagh Oil and Gas Field Low	Medium reducing to negligible with distance Not significant		Not significant
Impact on landscape character of FHHC as a result of views of HVAC booster station and cable construction/decommissioning (SVR-C-2 & SVR-D-10).	Flamborough Head Landscape Character Medium	Low Not significant	None proposed beyond existing commitments	Not significant
Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster station and cable	East bound users of the B1259 from east of the junction with the PRoW that runs south past Old Fall Plantation.	Low Not significant	None proposed beyond existing commitments	Not significant

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Impact and Phase	Receptor and sensitivity	Magnitude and significance	Mitigation	Residual impact
construction/decommissioning (SVR-C-3 & SVR-D-11).	Medium			
	Flamborough Head Golf Course Medium	Low Not significant		Not significant
	Small settlement at Selwicks Bay Beach Medium-high	Low Not significant		Not significant
	Coastal and connecting Public Rights of Way between East Landing and North Landing Medium-high	Low Not significant		Not significant
	The Flamborough Head Lighthouse, Parking and Visitor Centre Medium	Low Not significant		Not significant
	Visitors to Selwicks Bay Beach Medium-high	Low Not significant		Not significant
Impact on views and visual receptors located within FHHC as a result of HVAC booster station and cable corridor construction/decommissioning lighting (SVR-C-4 & SVR-D-12).	Visual receptors located within FHHC. Medium	Medium-low Not significant	None proposed beyond existing commitments	Not significant
<i>Operation and maintenance</i>				
Impact on seascape character of MCAs as a result of physical presence and views of the array area and HVAC booster stations (SVR-O-5A).	Dogger Bank Medium - Low	Low Not significant	None proposed beyond existing commitments	Not significant
	Dogger Deep Water Channel- Medium-Low-	Medium or medium-low Not significant		Not significant
	East Midlands Offshore Gas Fields	Medium reducing to negligible with distance		Not significant

Impact and Phase	Receptor and sensitivity	Magnitude and significance	Mitigation	Residual impact
	Low	Not significant		
	North Yorkshire Coastal Waters Medium within the FHHC and Medium to Low elsewhere	Low Not significant		Not significant
	Holderness Coastal Waters Medium within the FHHC and Medium to Low elsewhere.	Low Not significant		Not significant
	Breagh Oil and Gas Field Low	Medium reducing to negligible with distance Not significant		Not significant
Impact on landscape character of FHHC as a result of views of HVAC booster stations (SVR-O-5B).	Flamborough Head Landscape Character Medium	Low Not significant	None proposed beyond existing commitments	Not significant
Impact on the views and visual receptors located within the FHHC as a result of views of HVAC booster stations (SVR-O-6).	East bound users of the B1259 from east of the junction with the PRoW that runs south past Old Fall Plantation. Medium	Low Not significant	None proposed beyond existing commitments	Not significant
	Flamborough Head Golf Course Medium	Low Not significant		Not significant
	Small settlement at Selwicks Bay Beach Medium-high	Low Not significant		Not significant
	Coastal and connecting Public Rights of Way between East Landing and North Landing Medium-high	Low Not significant		Not significant

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Impact and Phase	Receptor and sensitivity	Magnitude and significance	Mitigation	Residual impact
	The Flamborough Head Lighthouse, Parking and Visitor Centre Medium	Low Not significant		Not significant
	Visitors to Selwicks Bay Beach Medium-high	Low Not significant		Not significant
Impact on views and visual receptors located within FHHC as a result of HVAC booster station lighting (SVR-O-7).	Visual receptors located within FHHC. Medium	Low Not significant	None proposed beyond existing commitments	Not significant

11.17 References

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