BERWICK BANK WIND FARM
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Volume 2, Chapter 16: Cultural Heritage

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16. CULTURAL HERITAGE

16.1. INTRODUCTION

1. This chapter of the Offshore EIA Report presents the assessment of the likely significant effect (as per the "EIA Regulations") on the environment of the Berwick Bank Wind Farm offshore infrastructure which is the subject of this application (hereafter referred to as "the Proposed Development") on the setting of cultural heritage assets. Specifically, this chapter considers the likely significant effects of the Proposed Development seaward of Mean High Water Springs (MHWS) during the construction, operation and maintenance, and decommissioning phases.

2. Likely significant effect is a term used in both the "EIA Regulations" and the Habitat Regulations. Reference to likely significant effect in this Offshore EIA Report refers to "likely significant effect" as used by the "EIA Regulations". This Offshore EIA Report is accompanied by a Report to Inform Appropriate Assessment (RIAA) which uses the term as defined by the Habitats Regulations Appraisal (HRA) Regulations.

3. This chapter also assesses the likely significant effects of the Proposed Development on onshore receptors (landward of MHWS) during the construction, operation and maintenance, and decommissioning phases.

4. The assessment presented is informed by data regarding visibility and utilises the description of visual change presented in volume 2, chapter 15, and visual representations (photomontages) as shown in volume 3, appendix 15.2.

5. This chapter summarises information contained within volume 3, appendix 16.1.

16.2. PURPOSE OF THIS CHAPTER

6. The primary purpose of the Offshore EIA Report is outlined in volume 1, chapter 1. It is intended that the Offshore EIA Report will provide the Scottish Ministers, statutory and non-statutory stakeholders, with sufficient information to determine the likely significant effects of the Proposed Development on the receiving environment.

7. In particular, this Cultural Heritage Offshore EIA Report chapter:

   - presents the existing environmental baseline established from desk studies, site visits and consultation with stakeholders;
   - identifies any assumptions and limitations encountered in compiling the environmental information;
   - presents the likely environmental impacts on onshore cultural heritage assets as a result of changes in their setting arising from the Proposed Development and reaches a conclusion on the likely significant effects on onshore cultural heritage assets, based on the information gathered and the analysis and assessments undertaken; and
   - highlights any necessary monitoring and/or mitigation measures which are recommended to prevent, minimise, reduce or offset the likely significant adverse environmental effects of the Proposed Development on cultural heritage.

8. Following consultation, the potential effects of the Proposed Development upon the physical fabric of marine archaeological and paleoenvironmental assets have been scoped out of the EIA. Such potential effects are addressed in a Marine Archaeology Technical Report and Written Scheme of Investigation (WSI), presented as part of the Environmental Management Plan (EMP) (volume 4, appendix 22).

16.3. STUDY AREA

9. The Proposed Development array area is located offshore in the outer Firth of Forth and Firth of Tay region of the North Sea, approximately 47.6 km east of the East Lothian, 37.8 km from the Scottish Borders coastline (St. Abb's Head), 40.5 km from the Angus coastline at Red Head and 41.7 km from the Fife coast at Fife Ness.

10. The cultural heritage study area for the Proposed Development is illustrated in Figure 16.1. There is no discipline specific guidance on appropriate cultural heritage study areas. Consequently, the cultural heritage study area is based on that developed for the Seascape and Landscape and Visual Impact Assessment (SLVIA), which has been defined through consideration of the blade tip Zone of Theoretical Visibility (ZTV).

11. As reported in the Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021a), the cultural heritage study area for the Proposed Development applied at Scoping extended 60 km from the Proposed Development array area (as it was prior to subsequent boundary refinements). Following updates to the Project's boundary (announced in June 2022) and to align with the study area developed for the Seascape, Landscape and Visual Assessment (SLVIA) (volume 2, chapter 15) the cultural heritage study area has been updated and extends 60 km from the new boundary. Consequently, the extent of the study area haves been reduced. This modification had the potential to affect scoping outcomes for two receptors; both were identified at Scoping in 2021, but now lie immediately outside the cultural heritage study area. These receptors have been included in the EIA notwithstanding. The refinement of the cultural heritage study area is therefore considered to have had no material bearing on scoping for cultural heritage receptors.

12. Consideration of the blade tip ZTV shows that beyond 60 km the extent of visibility will be very restricted. Furthermore:

   - At distances over 60 km, the lateral (or horizontal) spread of the Proposed Development will also occupy a small portion of available views and the apparent height (or 'vertical angle') of the wind turbines would also appear very small, therefore significant visual effects are unlikely to arise at greater than this distance, even if the wind turbines are theoretically visible.
   - The influence of earth curvature begins to limit the apparent height and visual influence of the wind turbines visible at long distances (such as over 60 km), as the lower parts of the wind turbines would be partially hidden behind the apparent horizon, leaving only the upper parts visible above the skyline.
   - The variation of weather conditions influencing visibility off the coast has also informed the SLVIA study area. Based on understanding of Met Office data, visibility beyond 60 km is likely to be very infrequent.

13. Given the above, it is evident that there is negligible potential for the Proposed Development to alter the setting of cultural heritage assets that are more than 60 km from the Proposed Development array area in such a way that their cultural significance might be adversely affected. As such, there is negligible potential for significant effects to occur outside the cultural heritage study area. Guidance directs that the EIA process should focus on significant environmental effects (Scottish Government, 2013) and consequently, 60 km represents an appropriate outer limit to the cultural heritage study area.

14. The cultural heritage study area has been discussed through the scoping process with Marine Scotland – Licensing Operations Team (MS-LOT), East Lothian Council (ELC), Scottish Borders Council (SBC), Fife Council and Northumberland County Council. As outlined in volume 3, appendix 16.1, additional assets requested in response to Scoping have also been considered.

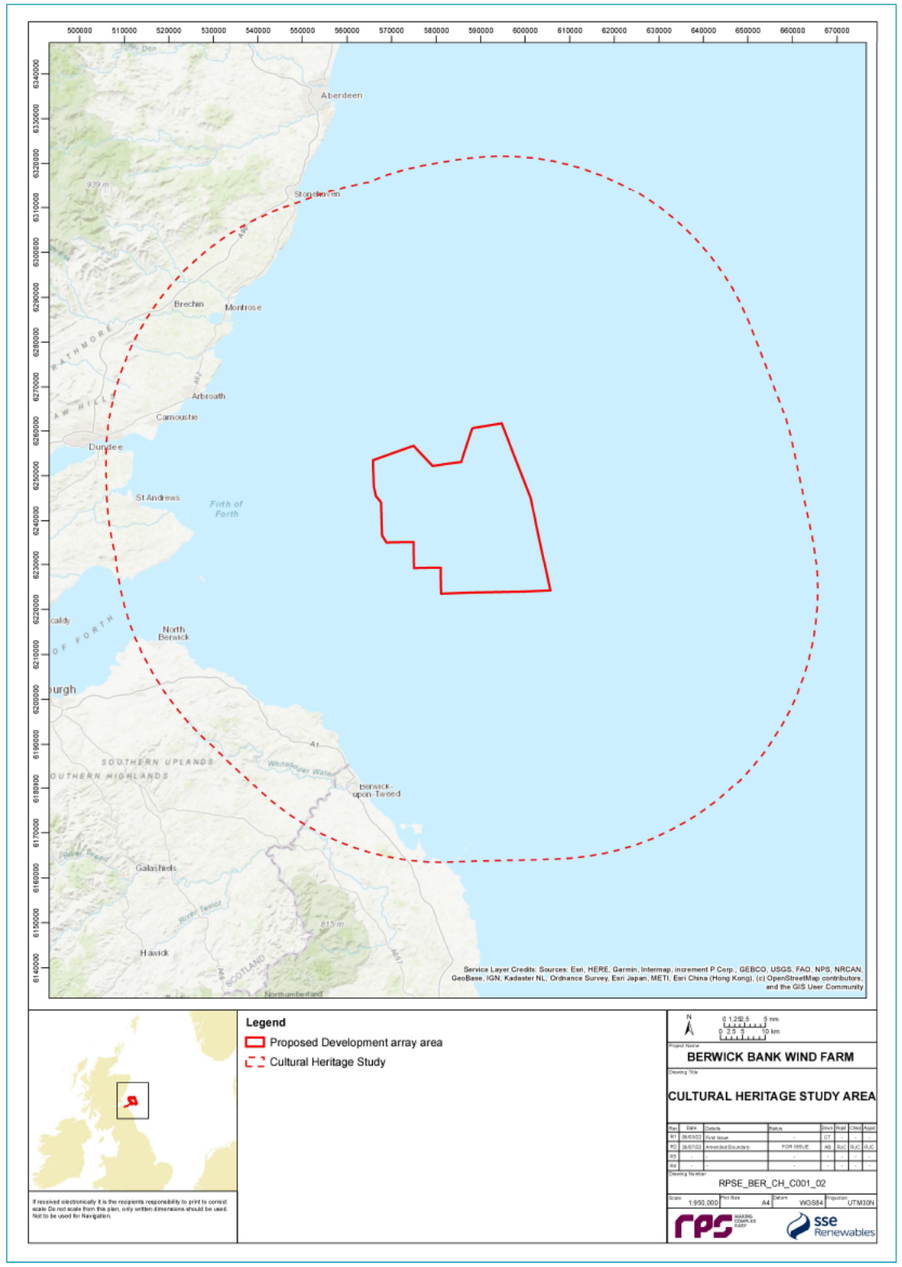

Figure 16.1: Cultural Heritage Study Area Which Extends 60 km from the Proposed Development Boundary

16.4. POLICY AND LEGISLATIVE CONTEXT

15. Policy and legislation on renewable energy infrastructure is presented in volume 1, chapter 2 of the Offshore EIA Report. Policy and legislation specifically in relation to cultural heritage, is contained in a large number of documents. A summary of the legislative provisions relevant to cultural heritage is provided in Table 16.1 , with other relevant policy provisions set out in Table 16.2. These are summarised here with further detail presented in volume 3, appendix 16.1.

16. Relevant local planning policies are contained within the relevant Local Development Plans, including Aberdeenshire Council (2017), Angus Council (2016), East Lothian Council (2018), Fife Council (2017), Scottish Borders Council (2016) and Northumberland Council (2019).

Table 16.1: Summary of Legislation of Relevance to Cultural Heritage

Summary of Relevant Legislation	How and Where Considered in the Offshore EIA Report
Planning (Listed Buildings and Conservation Areas) Act (Scotland) 1997	
This provides the legislative framework for the designation of and management of buildings and areas of special architectural or historic interest in Scotland. The following section is relevant in the current context: 59 General duty as respects listed buildings in exercise of planning functions. (1) In considering whether to grant planning permission for development which affects a listed building or its setting, a planning authority or the Secretary of State, as the case may be, shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses. (3) In this section, "preserving", in relation to a building, means preserving it either in its existing state or subject only to such alterations or extensions as can be carried out without serious detriment to its character, and "development" includes redevelopment.	The Proposed Development has the potential to result in change in the setting of Listed Buildings. This chapter has identified Listed Buildings and assessed the potential impact where this might conceivably not preserve the setting.
Planning (Listed Buildings and Conservation Areas) Act 1990	
This provides the legislative framework for the designation of and management of buildings and areas of special architectural or historic interest in England and Wales. The following section is relevant in the current context: 66 General duty as respects listed buildings in exercise of planning functions. (1) In considering whether to grant planning permission [F1or permission in principle] for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.	The Proposed Development has the potential to result in change in the setting of Listed Buildings. This chapter has identified Listed Buildings and assessed the potential impact where this might conceivably not preserve the setting.

Summary of Relevant Legislation	How and Where Considered in the Offshore EIA Report
UK Marine Planning Statement (MPS) (2011)	
Provides the United Kingdom (UK) framework for preparing marine plans. In relation to cultural heritage, the following are relevant here: 2.6.6.7 In considering the significance of heritage assets and their setting, the marine plan authority should take into account the particular nature of the interest in the assets and the value they hold for this and future generations. This understanding should be applied to avoid or minimise conflict between conservation of that significance and any proposals for development. 2.6.6.8 The marine plan authority, working with the relevant regulator and advisors, should take account of the desirability of sustaining and enhancing the significance of heritage assets and should adopt a general presumption in favour of the conservation of designated heritage assets within an appropriate setting. The more significant the asset, the greater should be the presumption in favour of its conservation. Substantial loss or harm to designated assets should be exceptional, and should not be permitted unless it can be demonstrated that the harm or loss is necessary in order to deliver social, economic or environmental benefits that outweigh the harm or loss.	This chapter has identified cultural heritage assets and assessed the potential impact with regard to their importance and in terms of their cultural significance.

Table 16.2: Summary of National Planning Policy Relevant to Cultural Heritage Receptors

Summary of Relevant Policy Framework	How and Where Considered in the Offshore EIA Report
Scotland's National Marine Plan: A Single Framework for Managing Our Seas	
The Scotland's National Marine Plan (Marine Scotland, 2015) sets out strategic policies for the sustainable development of Scotland's marine resources out to 200 nautical miles. General Policy 6 (GEN6) Historic environment, states: '*Development and use of the marine environment should protect and, where appropriate, enhance heritage assets in a manner proportionate to their significance.*' (p.19) The supporting text states: '*4.22 Marine planning should help to ensure that future marine activities and developments can be carried out in a way that respects the marine historic environment and the setting of important coastal heritage assets. It can also help to increase the social and economic contribution of the heritage assets, for example by encouraging opportunities for public access.* *4.23 To achieve this, marine planners and decision makers should consider implications and opportunities for the historic environment taking into account the potential impacts of development and use on:* *• Designated heritage assets – representing sites of national or international significance for which statutory requirements apply. Designated assets should be protected in situ within an appropriate setting. Substantial loss or harm to designated assets should be exceptional and should only be permitted if this is necessary to deliver social, economic or environmental benefits that outweigh the harm or loss.* *[…]* *4.24 Proposals for development and use that may affect the historic environment should provide information on the significance of known heritage assets and the potential for new discoveries to arise. They should demonstrate how any adverse impacts will be avoided, or, if not possible, minimised and mitigated. Where it is not possible to minimise or mitigate impacts, the benefits of proceeding with the proposal should be clearly set out.'* The Bell Rock lighthouse is identified on Map 3 of Scotland's National Marine Plan.	This chapter has assessed the potential impact upon cultural heritage assets in terms of the impact upon their cultural significance. The receptors considered include Bell Rock lighthouse.
Scottish Planning Policy	
Scottish Planning Policy (SPP) (Scottish Government, 2014) provides national policy for dealing with the historic environment in the planning process in paragraphs 135-151. SPP stresses that the planning system should promote the care and protection of the historic environment and that change should be sensitively managed to avoid or minimise adverse impacts on assets. It sets out the following principals relevant in the current context: *141. Change to a listed building should be managed to protect its special interest while enabling it to remain in active use. Where planning permission[…] sought for development to, or affecting, a listed building, special regard must be given to the importance of preserving and enhancing […], its setting and any features of special architectural or historic interest. The layout, design, materials, scale, siting and use of any development which will affect a listed building or its setting should be appropriate to the character and appearance of the building and setting. Listed buildings should be protected from demolition or other work that would adversely affect it or its setting.* *143. Proposals for development within conservation areas and proposals outwith which will impact on its appearance, character or setting, should preserve or enhance the character and appearance of the conservation area. Proposals that do not harm the character or appearance of the conservation area should be treated as preserving its character or appearance[…]* *145. Where there is potential for a proposed development to have an adverse effect on a scheduled monument or on the integrity of its setting, permission should only be granted where there are exceptional circumstances.*	This chapter provides the necessary information to understand the potential impact of the Proposed Development upon cultural heritage assets as a result of change in their setting.
Scotland 2045 (Fourth National Planning Framework – Draft)	
The Fourth National Planning Framework) (NPF4) will be the long term plan for Scotland. At the time of writing, it has been published for public consultation until 31 March 2022. It is expected that NPF4 will be approved by the Scottish Parliament and adopted by the Scottish Ministers during 2022. The potentially relevant sections of Draft Policy 28: Historic Assets and Places state:	This chapter considers the potential impact upon designated heritage assets that might conceivably be subject to significant adverse impacts in the cultural heritage study area.

Summary of Relevant Policy Framework	How and Where Considered in the Offshore EIA Report
b) In considering development proposals and projects with a potentially significant impact on historic assets or places, planning authorities should consider whether further and more detailed assessment is required to establish a shared understanding of the cultural significance of historic assets and places. This should then provide a sound basis for understanding the impact of any proposals for change. Development proposals should also be informed by Managing Change Guidance Notes published by Historic Environment Scotland. *c) Development proposals for the demolition of listed buildings or other works that adversely affect the special interest of a building or its setting should not be supported. This should only be accepted in exceptional circumstances and where it has been adequately demonstrated that all reasonable efforts have been made to retain, reuse and/or adapt the listed building.* *h) Scheduled monuments are designated to secure their long-term protection in the national interest, in situ and as far as possible in the form they have come down to us. This helps to ensure their long-term protection wherever possible. Development proposals which affect scheduled monuments should only be supported where they avoid direct impacts on scheduled monuments and any adverse impacts upon their setting, unless exceptional circumstances can be demonstrated. Where it has been satisfactorily demonstrated that there are exceptional circumstances, impacts on the monument or its setting should be minimised and mitigated as far as possible. Scheduled Monuments are designated by Historic Environment Scotland (HES) and regulated through their Scheduled Monument Consent process. Development management decisions should also be informed by HES's Scheduled Monument Consents Policy.* *i) Development proposals affecting sites within the Inventory of Gardens and Designed Landscapes should only be supported where they protect, preserve and enhance such places and do not impact adversely upon the cultural significance, character and integrity of the site; nor upon important views to, from and within them; nor upon the setting of component features which contribute to their historical, architectural, archaeological, artistic, scenic, horticultural and nature conservation interest.*	

Table 16.3: Summary of Policy Relevant to Cultural Heritage

Summary of Relevant Policy Framework	How and Where Considered in the Offshore EIA Report
Aberdeenshire Local Development Plan 2017 (Aberdeenshire Council, 2017)	
Policy HE1 Protecting historic buildings, sites, and monuments *We will protect all listed buildings contained on the statutory list of Buildings of Special Architectural or Historic Interest for Aberdeenshire, archaeological sites and scheduled monuments. We will encourage their protection, maintenance, enhancement, appropriate active use and conservation.* *We will not allow development that would have a negative effect on the character, integrity or setting of listed buildings, or scheduled monuments, or other archaeological sites.*	This chapter considers the potential impact of the Proposed Development upon designated heritage assets.
Angus Local Development Plan 2016 (Angus Council, 2016)	
PV8 Built and Cultural Heritage *Development proposals which are likely to affect protected sites, their setting or the integrity of their designation will be assessed within the context of the appropriate regulatory regime* <u>*National Sites*</u> *Development proposals which affect Scheduled Monuments, Listed Buildings and Inventory Gardens and Designed Landscapes will only be supported where:* *• the proposed development will not adversely affect the integrity of the site or the reasons for which it was designated;* *• any significant adverse effects on the site or its setting are significantly outweighed by social, environmental and/or economic benefits; and* *• appropriate measures are provided to mitigate any identified adverse impacts.*	This chapter considers the potential impact of the Proposed Development upon designated heritage assets.
East Lothian Local Development Plan 2017 (East Lothian Council, 2017)	
Policy CH1: Listed Buildings *[…]* *New development that harms the setting of a listed building will not be permitted.* *Policy CH4: Scheduled Monuments and Archaeological Sites* *Development that adversely impacts on a scheduled monument, or its setting, will not be permitted.*	This chapter considers the potential impact of the Proposed Development upon designated heritage assets.
Fife Local Development Plan 2017 (Fife Council, 2017)	
Policy 14: Built and Historic Environment Development which protects or enhances buildings or other built heritage of special architectural or historic interest will be supported. Proposals will not be supported where it is considered they will harm or damage designated sites and buildings including Listed Buildings and Scheduled Monuments and their setting.	This chapter considers the potential impact of the Proposed Development upon designated heritage assets.
Scottish Borders Local Development Plan 2016 (Scottish Borders Council, 2016)	
Policy EP7: Listed Buildings *The Council will support development proposals that conserve, protect, and enhance the character, integrity and setting of Listed Buildings.* *[…]*	This chapter considers the potential impact of the Proposed Development upon designated heritage assets.

Summary of Relevant Policy Framework	How and Where Considered in the Offshore EIA Report
New development that adversely affects the setting of a Listed Building will not be permitted. Policy EP8: Archaeology *Development proposals which would destroy or adversely affect the appearance, fabric or setting of Scheduled Monuments or other nationally important sites will not be permitted unless:* *The development offers substantial benefits, including those of a social or economic nature, that clearly outweigh the national value of the site, and* *There are no reasonable alternative means of meeting the development need.*	
Northumberland Draft Local Plan 2019 (Northumberland Council, 2019)	
Policy ENV 1 Approaches to assessing the impact of development on the natural, historic and built environment (Strategic Policy) The character of Northumberland's distinctive and valued natural, historic and built environments, will be conserved, protected and enhanced by giving appropriate weight to the statutory purposes and special qualities of the hierarchy of international, national and local designated and non-designated nature and historic conservation assets or sites and their settings. Recognition that development and associated activity out with designations can have indirect impacts on the designated assets or sites.	The effect of the Proposed Development on cultural heritage receptors has been undertaken with reference to their importance and statutory protection.
Policy ENV 7: Historic Environment and heritage assets 1.Development proposals will be assessed and decisions made that ensure the conservation and enhancement of the significance, quality and integrity of Northumberland's heritage assets and their settings. 2. Decisions affecting a heritage asset will be based on a sound understanding of the significance of that asset and the impact of any proposal upon that significance, involving: a. Use of the Historic Environment Record, the Historic Landscape Characterisation Study, any relevant character appraisals or design guides, and/or other relevant records to help inform decision making; b. A requirement for applicants to provide a heritage statement; describing the significance of the asset and any contribution made to this significance by its setting, and assessing the impact of the proposal on this significance.	This chapter considers the potential impact upon cultural heritage receptors in terms of the change in their cultural significance.

16.5. CONSULTATION

17. A summary of the key issues raised during consultation activities undertaken to date specific to cultural heritage is presented in Table 16.4 below, together with how these issues have been considered in the production of this Cultural Heritage EIA Report chapter. Further detail is presented within volume 1, chapter 5.

Table 16.4: Summary of Key Consultation of Relevance to Cultural Heritage

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
29 October 2021	Fife Council	From the Fife perspective, there is unlikely to be any significant visual impact on the built environment. With respect to historic environment and cultural heritage, there is potential for visual impact on the Category A listed Bell Rock lighthouse.	The potential impact upon Bell Rock lighthouse as a result of change in its setting has been assessed in this chapter (section 0)
1 November 2021	Northumberland County Council	Agreed with the list of potential receptors provided in the Scoping Report in Northumberland (Lindisfarne Priory, Lindisfarne Castle, Bamburgh Castle and Berwick upon Tweed), the proposed study area and approach to assessment.	-
16 November 2021	Angus Council	Angus Council had no comments to make.	-
18 November 2021	HES	No comments regarding cultural heritage.	-
8 December 2021	SBC	Recommended the inclusion of St Abb's Lighthouse (Category B Listed Building, LB4103) and the non-designated heritage asset Crosslaw radar station (Canmore ID 158569) Preference for photomontages in a variety of conditions.	St Abb's Lighthouse and Crosslaw Radar Station have been included in the assessment.
24 January 2022	ELC	Expect to see Dunbar Castle and North Berwick Law included in the assessment. Category B and C Listed Buildings are of national importance and some of these may need to be assessed – the study should identify these.	Dunbar Castle and North Berwick Law have been included in the assessment. In line with current guidance (HES and SNH, 2018, 63), Category B and C Listed Buildings are considered to be respectively of regional and local importance. There are a very large number of such

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
			Listed Buildings in the cultural heritage study area and ZTV. Given their importance is at most regional and hence their sensitivity is at most medium, an impact would need to be of high or medium magnitude to result in a significant effect. The potential for this to occur is very low given that the Proposed Development wind turbines are in excess of 40 km from such Listed Buildings. There is therefore minimal potential for significant effects. Nevertheless, ELC were invited to identify any specific assets that they wished to see included in the assessment (emails dated 29th April and 25th May 2022). No response was received, and Category B and C Listed Buildings have been scoped out.
4 February 2022	MS-LOT Scoping response	Agreed with study area and approach to baseline data gathering.	-
		Advised that Dunbar Castle, North Berwick Law, Crosslaw Radar Station and St Abbs Lighthouse be included in the assessment.	Dunbar Castle, North Berwick Law, St Abb's Lighthouse and Crosslaw Radar Station have been included in the assessment.
		ELC's representation relating to B and C Listed Buildings should be addressed.	ELC's representation regarding B and C Listed Buildings is addressed elsewhere in this table.

16.6. METHODOLOGY TO INFORM BASELINE

16.6.1. DESKTOP STUDY

18. Information on cultural heritage within the cultural heritage study area was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 16.5.

Table 16.5: Summary of Key Desktop Reports

Title	Source	Year	Author
Battlefields Inventory Boundaries	HES	2020	HES
Conservation Areas Dataset	HES	2020	HES
Gardens & Designed Landscapes Dataset	HES	2020	HES
Listed Building Dataset	HES	2020	HES
Scheduled Monument Dataset	HES	2020	HES
World Heritage Sites Dataset	HES	2020	HES
Conservation Areas Dataset	Historic England	2021	Historic England
Registered Battlefields Dataset	Historic England	2021	Historic England
World Heritage Sites Dataset	Historic England	2021	Historic England
Listed Buildings Dataset	Historic England	2022	Historic England
Registered Parks & Gardens Dataset	Historic England	2022	Historic England
Scheduled Monuments Dataset	Historic England	2022	Historic England

16.6.2. IDENTIFICATION OF DESIGNATED SITES

19. All designated sites within the cultural heritage study area and qualifying interest features that could be affected by the construction, operation and maintenance, and decommissioning phases of the Proposed Development were identified using the two-step process described below:

- Step 1: All designated sites of international, national and local importance within the cultural heritage study area were identified using a number of sources. These sources comprised HES and Historic England datasets.
- Step 2: Using the above information and expert judgement, sites were included for further consideration if:
  - their cultural significance drew heavily upon visual relationships with the seascape and they were of sufficient sensitivity for there to be some potential for significant effects; or
  - consultees requested that they are included.

16.6.3. SITE-SPECIFIC SURVEYS

20. To inform the Cultural Heritage Offshore EIA Report chapter, site-specific surveys were undertaken. A summary of the surveys undertaken to inform the cultural heritage assessment of effects are outlined in Table 16.6.

Table 16.6: Summary of Site-Specific Survey Data

Title	Extent of Survey	Overview of Survey	Survey Contractor	Date	Reference to Further Information
Site visits	Agreed receptors where publicly accessible and necessary	Visit to gain baseline setting data as necessary	RPS	2022	volume 3, appendix 16.1

Viewpoint photography and night time photography.	Cultural Heritage Receptors	Viewpoint photography in accordance with methodology such as in GLVIA3 (Landscape Institute, 2013) and TGN 06/19 (Landscape Institute, 2019).	Open	October 2021-January 2022	volume 3, appendix 15.1

16.7. BASELINE ENVIRONMENT

16.7.1. OVERVIEW OF BASELINE ENVIRONMENT

21. The closest designated cultural heritage asset to the Proposed Development array area is the Bell Rock lighthouse (LB45197). This is a Category A Listed Building and is approximately 28.1 km to the north-east of the Proposed Development array area and approximately 18 km from the Angus coast. Designated heritage assets are summarised in Table 16.7 and the locations of those that are nationally important are shown in Figure 16.2. Other designated assets are not illustrated.

Table 16.7: Summary of Designated Heritage Assets by Distance within the Cultural Heritage Study Area

Distance from Proposed Development Array Area (km)	Designated Heritage Assets
0 – 20	None
20 – 30	Category A Listed Building: 1
30 – 40	Scheduled Monuments: • Scotland: 10 Category A Listed Buildings: 2 Category B Listed Buildings: 25 Category C Listed Buildings: 66 Conservation Areas (Scotland): 2
40 – 50	Scheduled Monuments: • Scotland: 210; and • England: 10. Category A Listed Buildings: 104 Category B Listed Buildings:1056 Category C Listed Buildings: 960 Grade I and II* Listed Buildings: 41 Grade II Listed Buildings: 276 Inventory Gardens and Designed Landscapes: 9 Inventory Battlefields: 2 Registered Battlefields: 1 Conservation Areas (Scotland): 24 Conservation Areas (England): 3
50 – 60	Scheduled Monuments: • Scotland: 246; and • England: 24. Category A Listed Buildings: 227 Category B Listed Buildings: 1762 Category C Listed Buildings: 1923 Grade I and II* Listed Buildings: 12 Grade II Listed Buildings: 202 Inventory Gardens and Designed Landscapes: 25 Registered Parks and Gardens: 1 Conservation Areas (Scotland): 30 Conservation Areas (England): 3

22. The cultural heritage study area takes in the fertile coastal plains of south-east Scotland and Northumberland areas that have seen relatively intensive human activity through all periods of history. This results in a landscape with substantial and appreciable 'time depth' and the above designated heritage assets include Prehistoric settlements, burial cairns and hillforts, Medieval castles, forts and religious sites, Post-Medieval and Modern fortifications, industrial sites, designed landscapes, infrastructure and houses. In addition to these visible assets there are a large number of archaeological sites that have been effaced and survive only as subsurface remains.

23. Views to the sea are often available from many of the above designated heritage assets and in many instances, there are visual relationships between these assets and the sea that contribute positively to their cultural significance. These relationships may be functional, designed, fortuitous, or a combination of these.

24. Owing to the history of intensive activity, the setting of assets on the coastal plain and in the Lammermuirs, at the fringe of the cultural heritage study area, inevitably contains Modern features, including Torness power station, Dunbar cement works, wind farms, pylons, forestry, agricultural sheds, modern housing and infrastructure, seen at close range or in the middle distance. Consequently, whilst numerous assets in the cultural heritage study area have strong visual relationships with the sea, very few are sensitive to distant change. These are considered in the following section (see paragraph 25).

25. Cultural heritage assets have been identified as receptors where there is a known visual relationship with the sea that contributes to their cultural significance and which may be considered sensitive to distant change or where they have been raised by consultees in the 2020 Berwick Bank Wind Farm Scoping Opinion (Marine Scotland, 2021) or scoping for the Proposed Development (Marine Scotland, 2022). These are listed in Table 16.8 and appear on Figure 16.2.

Table 16.8: Heritage Assets Considered as Potential Receptors

SLVIA Viewpoint Reference(s)	Asset	Description	Distance from Array Area (km)
7	North Berwick Law (Scheduled Monument SM3863)	Raised by ELC Archaeologist. The North Berwick Law Scheduled Monument comprises a fort, hut-circles and enclosures, all of Prehistoric date. Also present on the Law are the remains of a Napoleonic-era signal station and World War One and Two observation posts. The Prehistoric remains are very slight. The gable ends and one wall of the Napoleonic watch house survive and the observation post is well-preserved. The Law is a volcanic plug that forms a prominent feature in the surrounding landscape and commands extensive views across East Lothian and over the Firth of Forth to Fife. Tantallon Castle, the Bass Rock and the Isle of May are clearly visible. It stands on the outskirts of North Berwick. The Prehistoric features were presumably placed in order to exploit the steeply sided law for defensive purposes, and it is likely that as a prominent landmark the law had some value beyond this. The signal station was part of a chain of stations stretching from Calton Hill in Edinburgh to St Abbs, which was itself part of a wider system that ran along the coasts of Britain and Ireland. The stations were built to monitor shipping, to provide early warning of attack and to relay signals along the coastline. The observation post was also built to monitor shipping and during World War Two also served with other posts to triangulate aircraft. Neart na Gaoithe (NnG), which is currently under construction, is located approximately 33.1 km to the north-east of Berwick Law.	55.7 km
8	Tantallon Castle (Scheduled Monument, SM13326)	Tantallon Castle dates from the second half of the 14th century (about AD 1360), with later additions. The castle survives as an upstanding ruin comprising three towers projecting from a massive red sandstone curtain wall, a two-storey hall-block and a series of substantial ditches and ramparts on the landward side. In 1651 it was besieged by General Monck and it is thought that some of the earthworks, including a ravelin, date to this time. The castle fell to Monck and was subsequently abandoned. The castle is situated at about 30 m OD on a high promontory. The curtain wall and ditches cut the promontory off, the hall block occupies the north-western side of the promontory, its wall augmenting the natural protection provided by the cliff, but the north-eastern and south-eastern sides are now open, the wall having collapsed. There are expansive views available from the curtain wall and the enclosed area. These include the surrounding farmland and Berwick Law, whilst out to sea the distinct form of the Bass Rock is seen in the middle distance, with the Isle of May near the horizon. The castle is a prominent feature in the surrounding landscape, where it is generally seen against a backdrop of the sea in combination with the Bass Rock. NnG lies on the horizon, approximately 29 km to the north-east of the castle.	52.0 km
10	Dunbar Castle (Scheduled Monument SM766)	Raised by ELC Archaeologist. Dunbar Castle comprises the fragmentary remains of a castle built in 1496 on the site of and earlier Medieval castle. It occupies a promontory overlooking the entrance to the 19th century Dunbar Harbour. It was slighted in 1567 and further demolished during the construction of the harbour. The remains of the castle are seen in the context of the working harbour and swimming pool. From higher ground, principally the cliff top path to the south-west and next to the swimming pool, where it is seen against the backdrop of the sea. NnG is located approximately 28.1 km to the north-east of Dunbar. The Scheduled Monument has intrinsic value owing to its potential as a source of archaeological data; the ruins of the final castle overlie those of the previous castle and there is likely to be evidence of Early Medieval and Prehistoric activity underlying this. The castle illustrates the origins of Dunbar, underlining its importance as a harbour between Berwick and Edinburgh, and forms a picturesque element in the harbour.	47.9 km
13	Fast Castle (Scheduled Monument, SM4328)	Fast Castle comprises the scheduled ruins of a castle built in 1522 and the buried remains of an earlier castle, first recorded in 1333 and destroyed in 1515. There is potential for earlier remains to be present. The castle changed hands between the English and Scots numerous times before falling out of use in the late 16th century and was ruinous in the 17th century. The ruins are extremely fragmentary, with only part of a tower and part of the keep surviving to any height. The footings of some buildings and the curtain wall	40.8 km

		are also visible. A series of excavations took place in the 1970s and 1980s. The castle occupies a promontory projecting from the rugged cliffs that form the coastline in this area. The promontory's sides are formed by cliffs approximately 45 m high. The promontory is cut off from the mainland by a wide ravine, across which there is a modern bridge. The path leading down to the bridge descends the steep heathery slopes to the south of the ravine. There are panoramic views out to sea and along the Berwickshire coast. The castle's remains are slight and are not generally visible from the surrounding landscape. NnG is located approximately 31 km to the north of Fast Castle.	
13	Crosslaw Radar/Radar Station (non-designated)	Raised by SBC Archaeologist. This comprises disparate buildings associated with the Crosslaw ROTOR radar station built in 1952 to provide early warning of air attack. It comprises a guardhouse and bunker (NT86NE 35) and two groups of simple single-storey brick buildings that may have been a VHF fixer station. The associated wooden mast has been taken down. The guardhouse and bunker have been converted into a house and the other buildings are partially derelict, with some in use as animal sheds. The former guardhouse is surrounded by forestry but has some views to the north and to the sea. The other buildings are located in farmland over 700 m from the shore, but their elevated location affords views out to sea. All elements have minimal presence in the wider landscape. NnG is located approximately 33 km to the north.	41.3 km
15	St Abb's Kirk, church and monastic remains (Scheduled Monument, SM2975)	Raised by SBC Archaeologist St Abb's Kirk, church and monastic remains comprises a plateau surrounded by a low rampart, within which are a series of house platforms. Based on its form and the results of excavation in 1980, the monument is thought to represent the remains of St Abb's monastery (Coludesburh), an Early Medieval monastery and settlement recorded by Bede. The plateau lies at the top of cliffs south of St Abb's Head in the St Abb's nature reserve. There are panoramic views out to sea and along the craggy coastline. The earthwork remains are slight and have no presence in the surrounding landscape and the hill upon which they are sited is not particularly prominent. NnG is located approximately 32 km to the north of St Abb's Kirk.	38.0 km
15	St Abb's Lighthouse (Category B Listed Building, LB4103)	Raised by SBC Archaeologist The lighthouse and associated buildings were built in 1862. The lighthouse was intended to assist in navigation before and after sight of the Bell Rock and Isle of May lights was lost. It remains in operation. The lighthouse is located on St Abbs Head in a National Trust for Scotland nature reserve. It is not located on the highest point, but slightly lower down, owing to local weather conditions. Consequently, it is not prominent in views from the surrounding landscape, but is highly visible form the seaward side. NnG is located approximately 33 km to the north.	37.9 km
17	Berwick-upon-Tweed	Raised by Northumberland County Council The fortifications at Berwick-upon-Tweed are first recorded in 1296 when a ditch and earthen bank topped by a palisade. They were modified and strengthened over the following centuries, with the result that whilst elements of the Medieval defences remain visible, most have been buried or subsumed by the Elizabethan defences. These were designed by the eminent military engineer Sir Richard Lee and influenced by the latest defensive thinking. A particular feature of his work here are the bastions and the curtain wall backed internally by a substantial earthwork. Further gun batteries were added during the 18th century in response to the Jacobite threat and the 19th century owing to tensions with France. Berwick-upon-Tweed occupies the peninsula between the mouth of the River Tweed to the south and west and the North Sea to the east. A golf course lies between the town walls and the coast. To the north of this is a caravan park. To the north of the town is Victorian and later development. On the south side of the river are Berwick upon Tweed Harbour and extensive modern housing and other development. The defences are visible from the golf course, from across the river and from the bridges. All views to and from the defences contain modern elements in the form of buildings, cars etc, in close proximity to the defences.	46.3 km
19	Lindisfarne Castle (Grade I Listed Building, List 1042306)	Lindisfarne Castle is a Grade I castle. It was built in the 16th century and was converted into a house by Sir Edward Lutyens, with a garden designed by Gertrude Jekyll. Although the conversion saw the removal of 16th century elements many were retained in the fabric. The overall character is, however, Edwardian and the building exhibits much that is typical of his Arts and Crafts style. The furniture includes pieces commissioned by Lutyens and the garden is maintained to Jekyll's design. The castle occupies a rocky outcrop on the southern shore of Holy Island. The surrounding landscape is characterised by flat almost featureless farmland with stone walls, with settlement visible to the west. The walled garden is a short distance to the north. The castle is of three storeys and its elevated location in the flat landscape/seascape affords extensive views in all directions and makes the castle a prominent landmark in views from the coast to the north and south, for example in views from Bamburgh Castle (Viewpoint 20).	53.7 km
19	Lindisfarne Priory (Scheduled Monument, List 1011650)	Raised by Northumberland County Council The monument includes the site of the pre-Conquest monastery of Lindisfarne and the Benedictine cell of Durham Cathedral that succeeded it in the 11th century. The earliest building is the priory church which was begun at the end of the 11th century and extended eastward in c.1140. To the south of this are the remains	53.8 km

		of the various ancillary buildings, including the chapter house, refectory, bake house and brew-house, beyond which is the outer court with guest accommodation and stables. A striking feature of the ruined priory church is the rainbow arch. The priory lies immediately to the south of village. To its south is a rocky outcrop beyond which is a narrow strip of beach. There are relatively open views to the west and east, the latter include Lindisfarne Castle, but views to the north are curtailed by the built form and trees, and to the south by the outcrop. The priory is not visible from the surrounding landscape.	
20	Bamburgh Castle (Grade I Listed Building, List 128055)	Bamburgh Castle is a huge castle comprising a keep with three wards. Although occupied from at least the Early Historic period, the earliest elements of the castle, including the keep, chapel and main gateway, were built in the 12th century. During the Medieval period it was held by the English monarch and minor additions and alterations were made. In 1464, during the Wars of the Roses, was the first castle in England to fall to artillery but was disposed of in the 17th century. It proved too costly for the new owner to maintain and by 1704 the castle was ruinous. It was then acquired by the Bishop of Durham and the late 18th century saw some restoration. In 1894 it was bought by Lord Armstrong an industrialist who commissioned extensive rebuilding and restoration, overseen by C.J. Ferguson. This work saw the addition of elements in various styles including Tudor, Perpendicular, Arts and Crafts and Art Nouveau. The castle occupies a rocky outcrop and dominates the coastal strip and the road to Scotland. It commands views along the coastline and its distinctive silhouette is an iconic landmark, visible over a wide area.	60.0 km
A	Dunnottar Castle (Scheduled Monument, SM986)	Dunnottar Castle comprises remains from various periods. The earliest recorded elements of the castle are the keep and adjacent stables and storehouses, and the gatehouse dating to the late 14th/early 15th century. However, it is likely that there was a fort here in the 7th century and possibly a castle in the 12th and the church incorporates earlier elements. The remaining buildings, including the chapel, date to the 16th and 17th centuries. The 16th century buildings replaced the tower with more comfortable accommodation. The castle was forfeited in 1716 and stripped of everything of value. In 1925 a systematic programme of repair and excavation was begun. The castle occupies a promontory protected on all sides by precipitous cliffs. Access is by way of a path from the west that drops down steeply from the mainland before rising steeply to enter the castle via heavily defended tunnels. The promontory is enclosed by walls and consequently in its current condition views out are relatively limited, but it clearly once commanded extensive views. Its clifftop location results in there being widespread views of the castle from the mainland silhouetted against the sea. The operational Kincardine offshore wind farm is located approximately 20 km to the east of the castle. Seagreen 1 (under construction) is located approximately 34 km to the south-east of the castle.	60.8 km
C & D	Bell Rock lighthouse (Category A Listed Building, LB45197) and Bell Rock Lighthouse Signal Tower (Category A Listed Building, LB21230)	The Bell Rock lighthouse was designed by Robert Stevenson and built to mark a half-tide complex of reefs. It comprises a 36 m high tapering tower and was built between 1807 and 1810. It has been unmanned since 1988. Its operation was supported by the Bell Rock Lighthouse signal tower in Arbroath. Built in 1813, this comprises a castellated signal tower and twin classical lodges. The signal tower was used to communicate with the lighthouse keepers, whilst the lodges housed their families. The method of signal comprised the raising and lowering of balls on the top of the tower and lighthouse and hence worked only during daylight hours at pre-arranged times. The lighthouse stands on the Bell Rock, which is approximately 18 km offshore. The rock is submerged except at low tide and consequently was a major hazard for shipping, causing numerous wrecks. The signal tower stands at the entrance to Arbroath harbour, the closest point on the mainland to the lighthouse. It is orientated to look out to sea. NnG is located approximately 12.5 km to the south of the lighthouse and 30 km to the southeast of the signal station. Seagreen 1 (under construction) is located 29 km east of the lighthouse and 40 km east of the signal station.	28.1 km and 42.9 km, respectively
F	Isle of May lighthouse (SM887/LB2712)	Located on the highest part of the Isle of May are the original lighthouse, built in 1636 and a Scheduled Monument (SM887), and its replacement, built in 1815-1816 and a Category B-Listed Building. The earlier structure is a plain square tower and comprises only its lower storey; when it fell out of use its two upper storeys were taken down, but its lower part preserved and topped with battlements. This was done at the instigation of Sir Walter Scott who thought it would make a picturesque ruin. The second Isle of May lighthouse is a square three stage castellated tower with residential block. It was built by Robert Stevenson and remains operational. Its silhouetted form is visible from a substantial distance, including the East Lothian and Fife coasts (see volume 2, chapter 15, Figures 15.26, 15.28 and 15.29). Depending on lighting conditions the white-painted original lighthouse is also highly visible. NnG lies 16.4 km to the east-north-east. Seagreen 1 (under construction) is located approximately 52.8 km to the north-east of the lighthouses.	41.5 km
F	Isle of May Priory (SM838)	The monument consists of the upstanding and excavated remains of the Benedictine priory of the Isle of May, traditionally said to be on the site of a community established by St Ethernan or Adrian in the ninth century. The main upstanding part of the monument, the west range, still stands to two storeys and survives through having been adapted for domestic occupation after the abandonment of the rest of the priory. Its adaptation involved the addition of a three-quarter round south-western tower and an internal floor and subdivisions. The priory is located at the southern end of the Isle of May. It is only visible from locations on the island. NnG lies 16.4 km to the east-north-east. Seagreen 1 (under construction) is located approximately 52.8 km to the north-east of the priory.	41.2 km

16.7.2. FUTURE BASELINE SCENARIO

26. The EIA Regulations ((The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017; The Marine Works (Environmental Impact Assessment) Regulations 2007 and The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017)), require that a "*a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without development as far as natural changes from the baseline scenario can be assessed with reasonable effort, on the basis of the availability of environmental information and scientific knowledge*" is included within the Offshore EIA Report.

27. In the event that the Proposed Development does not come forward, an assessment of the future baseline conditions has been carried out and is described within this section.

28. The setting of the cultural heritage receptors considered by this assessment is subject to ongoing change as a result of development, land use and potentially climate change. Changes as a result of development and to a lesser degree land use will be controlled by relevant legislation and policy, such that adverse change will be minimised. Such change will include offshore wind farm developments. In the vicinity of the cultural heritage study area, the Kincardine offshore floating wind farm is operational to the north and the Seagreen 1 and NnG offshore wind farms are under construction in the Firths of Forth and Tay, both of which are expected to be fully operational in 2023. As these latter developments will be visible in the very near future, they are considered to form a part of the baseline environment. Further offshore wind development will be introduced by the consented Inch Cape wind farm, construction work upon which has yet to commence.

29. Seagreen was granted consent for 150 wind turbines split between two subprojects, Seagreen 1 (114 wind turbines) and Seagreen 1A Project (36 wind turbines), utilising different grid connections. Seagreen Wind Energy Ltd have submitted a screening request for a s36c variation in respect of Seagreen 1A. Consequently, Seagreen 1A is not expected to be constructed before the Proposed Development. Seagreen 1A is not therefore considered to form part of the baseline and is considered in the assessment of cumulative effects (section 16.12).

30. It has been assumed that the baseline condition of the cultural heritage receptors themselves will remain unchanged. However, climate change and extreme weather conditions are likely to accelerate the degradation of those receptors that are not actively maintained.

16.7.3. DATA LIMITATIONS AND ASSUMPTIONS

31. Owing to restrictions associated with the Covid-19 pandemic, access to some receptors was restricted. However, it is not considered that this has affected the baseline such that it might compromise the certainty of the EIA.

32. The assessment of effects is based on assumptions regarding visibility and visualisations detailed in volume 2, chapter 15.

33. Cultural heritage assessments of effects are based on clear visibility and hence a realistic maximum design scenario.

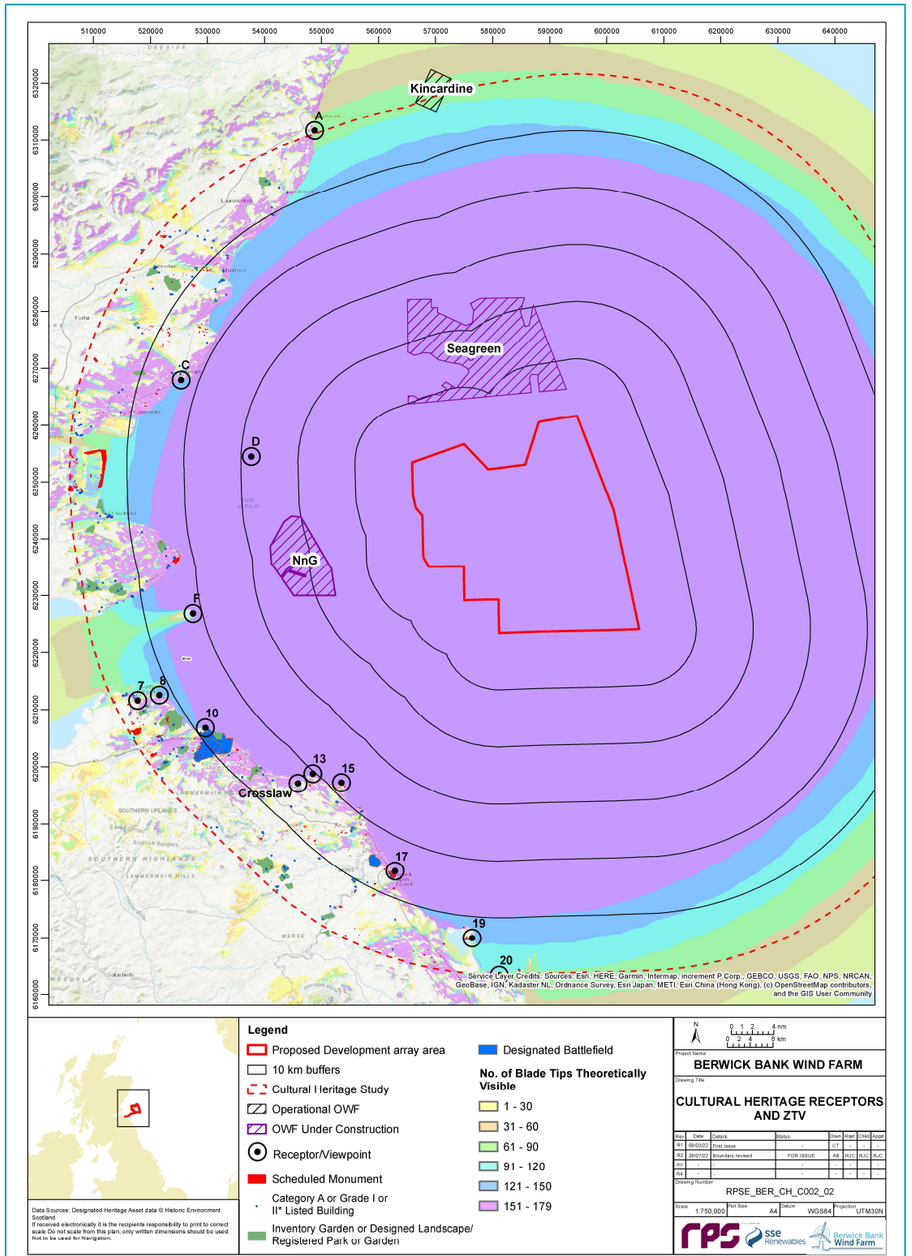

Figure 16.2: Cultural Heritage Receptors and ZTV

16.8. KEY PARAMETERS FOR ASSESSMENT

16.8.1. MAXIMUM DESIGN SCENARIO

34. The maximum design scenarios identified in Table 16.9 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 volume 1, chapter 3 of the Offshore EIA Report. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (PDE) (e.g. different infrastructure layout), to that assessed here, be taken forward in the final design scheme.

35. The cultural heritage assessment is informed by volume 3, appendix 16.1.

Table 16.9: Maximum Design Scenario Considered for Each Impact as Part of the Assessment of Likely Significant Effects on Cultural Heritage

Potential Impact	Phase[1]			Maximum Design Scenario[2]	Justification
	C	O	D		
Impacts (daytime) of the operation and maintenance of the offshore elements of the Proposed Development upon the setting of cultural heritage assets.	×	✓	×	Proposed Development array area located approximately 37.8 km from the mainland coastline covering an area of 1,010.2 km^2, see volume 2, chapter 15 (Figure 15.1a, Figure 15.1b and Figure 15.2). **Scenario 5 Wind Turbines** Maximum upper blade tip height above Lowest Astronomical Tide (LAT): 355 m. Maximum rotor diameter: 310 m. Maximum hub height above LAT: 200 m. **Offshore Substation Platform (OSP)/Offshore convertor station platforms** The maximum design scenario for the cultural heritage assessment of effects assumes five High Voltage Direct Current (HVDC) OSP/Offshore convertor station platforms within the Proposed Development array area indicatively located as shown in volume 2, chapter 15, Figure 15.1a, with a topside structure of 60 m height (top of main structure 80 m above LAT), length 100 m and width 80 m on jacket foundations (top of antenna structure 100 m above LAT). **Wind Turbine array layout** The maximum design scenario for the cultural heritage assessment of effects consists of 179 wind turbines at the maximum blade tip height (355 m). Minimum wind turbine spacing is 1000 m. Layouts are indicative and only based on the wind turbine maximum design scenario. The final layout will be subject to further seabed investigations and confirmed as part of the project design process. **Lighting** Red, medium intensity aviation warning lights (2000 candela (cd)), with the 2000 cd light conforming to ICAO specification. Aviation lighting will be subject to reduction in lighting intensity, to a minimum of 200 cd, when the visibility in all directions from every wind turbine is more than 5 km. Aviation lighting to be located on top of the nacelle for 360 degree visibility and on all peripheral wind turbines of the indicative layouts shown in Figure 15.1a and 15.1b. Aviation warning lights would flash simultaneously synchronised morse 'W' and be able to be switched on and off by means of twilight switches. Search and rescue (SAR) lighting of wind turbines will be combi infra-red (IR)/200 cd steady red aviation hazard lights, individually switchable. These low intensity lights are not assessed or shown in the photomontages, as they will not be switched during normal operations and only during SAR operations. The angle of the plane of the beam of peak intensity emitted by the light will be elevated to between three and four degrees above the horizontal plane. 20-45% of the minimum peak intensity is to be visible at the horizontal plane. No more than 10% of the minimum peak intensity will be visible at 1.5 degrees or more below the horizontal plane (CAA, 2016).	The maximum design scenario assessed for the cultural heritage assessment of effects utilises the maximum height wind turbine and consists of 179 x 355 m blade tip wind turbines, as shown in volume 2, chapter 15 (Figure 15.1a). This maximum design scenario has the highest wind turbine blade tip height (355 m), and largest rotor diameter (310 m). Wind turbines with the highest 355 m blade tip height will have a wider geographic extent of effect over a larger ZTV than any of the shorter (to blade tip) wind turbines. They will be visible from a wider geographic area, since they are up to 98 m higher and it is their height which contributes most to the geographic extent of visibility. The highest 355 m blade tip height wind turbines will appear to have a larger scale in views than the shorter wind turbines, both in terms of their blade tip height and in terms of the appearance of the larger rotor diameter of the wind turbine (which is up to 88 m greater than that of the minimum height wind turbines). They will also have larger apparent scale when compared with other wind farms in some views. The effect that results from the additional wind turbines of smaller size in the 307 x 267 m wind turbine layout is considered to be outweighed by the larger height and scale of the 355 m wind turbines, with the overall area occupied by wind turbines being equal. The exception to this will be at night, when only aviation lights would be
Impacts (night time) of the operation and maintenance of the Proposed Development upon the setting of cultural heritage assets.	×	✓	×		
Cumulative effect (daytime) of the operation and maintenance of the Proposed Development upon the setting of cultural heritage assets.	×	✓	×		
Cumulative effect (night time) of the operation and maintenance of the Proposed Development upon the setting of cultural heritage assets.	×	✓	×		

[1] C = Construction, O = Operation and maintenance, D = Decommissioning

[2] The maximum design scenario and justification is the same for all potential impacts listed and therefore is not repeated for each individual impact.

Potential Impact	Phase[1]			Maximum Design Scenario[2]	Justification
	C	O	D		
				All wind turbines will be fitted with a low intensity light for the purpose of helicopter winching (green hoist lamp), switched off as normal and only on when in use during night-time operations. All wind turbines will also be fitted with suitable illumination (minimum one 5 cd light) for ID signs. Marine navigational lights (aid to navigation lights) will be fitted at the platform level on significant peripheral structures (SPS). SPS will be all peripheral wind turbines of the indicative layouts shown indicatively in Figure 15.1a and 15.1b. Marine navigational lights will be synchronized to display simultaneously an IALA “special mark” characteristic, flashing yellow, with a range of not less than five (5) nautical miles. The marine navigational lights will be located at platform level. OSP/Offshore convertor station platforms are assumed to be internal to the wind turbine layouts (a-b) and are assumed not to require marine navigation lights but are assumed to have green SAR helihoist lights and low-level ID marking.	visible, when the maximum design scenario for receptors at night is considered to be the maximum number of wind turbines (307) (Figure 15.1b) and therefore maximum number of lights visible and it is therefore an alternative maximum design scenario comprising 307 wind turbines at 267 m blade tip height which is shown in the night-time visualisations in Figures 15.30h and 15.35i.

16.8.2. IMPACTS SCOPED OUT OF THE ASSESSMENT

36. On the basis of the baseline environment and the project description outlined in volume 1, chapter 3 of the Offshore EIA Report, a number of impacts are proposed to be scoped out of the assessment for cultural heritage. These have been agreed with key stakeholders through consultation. The exception to this are Category B and C Listed Buildings, which were raised by the ELC scoping response (February 2022). The reasoning for scoping out these receptors is presented in Table 16.10.

37. These impacts are outlined, together with a justification for scoping them out, in Table 16.10.

Table 16.10: Impacts Scoped Out of the Assessment for Cultural Heritage (Tick Confirms the Impact is Scoped Out)

Potential Impact	Phase[3]			Justification
	C	O	D	
Impacts upon the setting of onshore cultural heritage assets.	✓	x	✓	Impacts relating specifically to the construction and decommissioning phases will be transitory and short lived. There is therefore no potential for them to be significant. This has been agreed with consultees through the scoping process.
Impacts upon the setting of cultural heritage assets of less than national importance (Category B and C Listed Buildings), Grade II Listed Buildings and Conservation Areas and non-designated heritage assets.	✓	✓	✓	Given the distance of the Proposed Development array area from such assets, significant effects are only likely to occur where the receptor is of the highest sensitivity (i.e. of national or international importance). There is therefore no potential for significant effects to occur in respect of assets of less than national importance. ELC's scoping response stated that Category B and C Listed Buildings are of national importance and that they should therefore be considered. However, current guidance (HES and SNH, 2018) states that they are respectively of regional and local importance. C*onsequently, they are considered to be of medium and low sensitivity.* Given their sensitivity and distance from the Proposed Development (in excess of 40 km) significant effects are highly unlikely to occur. Furthermore, there are a total of 2843 Category B and C Listed Buildings in the cultural heritage study area. Given that significant effects are unlikely to occur they have been scoped out accordingly. This is in keeping with the approach espoused in current guidance (e.g. Scottish Government (2013)) that EIAs should be proportionate and focus on significant environmental effects. ELC was invited to identify specific buildings that should be considered but did not respond.
Impacts upon the setting of cultural heritage assets outside the cultural heritage study area.	✓	✓	✓	Potential visibility falls rapidly outside the cultural heritage study area which extends 60 km from the Proposed Development array area. cultural heritage assets are very rarely sensitive to such distant change, and it is considered that any such change has no potential to result in a significant effect. This has been agreed with consultees through the scoping process.
Impacts relating to the offshore export cables.	✓	✓	✓	The offshore export cables have no potential to affect the setting of cultural heritage assets. This has been agreed with consultees through the scoping process.
Impacts upon marine archaeology and deposits of paleoenvironmental interest.	✓	✓	✓	These have been scoped out of the EIA following consultation. Such potential effects are addressed in a Marine Archaeology Technical Report and Written Scheme of Investigation (WSI), included as part of the EMP (volume 4, appendix 22).

16.9. METHODOLOGY FOR ASSESSMENT OF EFFECTS

16.9.1. OVERVIEW

38. The cultural heritage assessment of effects has followed the methodology set out in volume 1, chapter 6 of the Offshore EIA Report. Specific to the cultural heritage EIA, the following guidance documents have also been considered:

- HES and SNH (2018) - EIA Handbook – Appendix 1;
- HES (2020) - Managing Change in the Historic Environment: Setting;
- Historic England (2021) - Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15; and
- Institute of Environmental Management of Assessment (IEMA) (2021) - Principles of Cultural Heritage Impact Assessment in the UK.

39. In addition, the cultural heritage assessment of effects has considered the legislative framework as defined by:

- Planning (Listed Buildings and Conservation Areas) Act (Scotland) 1997[4]; and
- Planning (Listed Buildings and Conservation Areas) Act 1990.

16.9.2. CRITERIA FOR ASSESSMENT OF EFFECTS

40. The process for determining the significance of effects is a two stage process that involves defining the magnitude of the potential impacts and the sensitivity of the receptors. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in volume 1, chapter 6 of the Offshore EIA Report.

41. The criteria for defining magnitude in this chapter are outlined in Table 16.11. In determining magnitude within this chapter, each assessment considered the spatial extent, duration, frequency and reversibility of impact and these are outlined within the magnitude section of each assessment of effect (e.g. a duration of hours or days would be considered for most receptors to be of short term duration, which is likely to result in a low magnitude of impact).

[3] C = Construction, O = Operation and maintenance, D = Decommissioning

[4] Acts related to Ancient Monuments and HES have been omitted on the basis they do not contain provisions of relevance in the current context.

Table 16.11: Definition of Terms Relating to the Magnitude of an Impact

Magnitude of Impact	Definition
High	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of its cultural significance, such that it may no longer be considered a heritage asset. (Adverse).
	Preservation of the asset *in situ* where it would be completely or almost completely lost in the do-nothing scenario. (Beneficial).
Medium	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is substantially altered (Adverse).
	Changes to key elements of the asset's fabric or setting that result in its cultural significance being preserved, where they would otherwise be lost, or restored. (Beneficial).
Low	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is slightly diminished. (Adverse).
	Changes that result in elements of the asset's fabric or setting that detract from its cultural significance being removed. (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements that contribute to cultural significance (Adverse).
	Very minor benefit to, or positive addition of one or more characteristics, features or elements that contribute to cultural significance (Beneficial).

42. The guideline criteria for defining sensitivity in this chapter are outlined in Table 16.12.

Table 16.12: Definition of Terms Relating to the Sensitivity of the Receptor

Value (Sensitivity of the Receptor)	Description
Very High	Very high importance and rarity, international receptor with no potential or very limited potential for recovery.
High	Assets valued at an international or national level (e.g. World Heritage Sites scheduled monuments), Category A/Grade I and II* listed buildings, Inventory gardens and designed landscapes, Inventory battlefields, registered parks and gardens and Registered Battlefields.
Medium	Assets valued at a regional level (e.g. Category B or Grade II Listed Buildings), some conservation areas.
Low	Assets valued at a local level (e.g. Category C listed buildings), some conservation areas.
Negligible	Very low importance and rarity.

43. The likely significance of the effect upon cultural heritage assets is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 16.13.

44. In cases where a range is suggested for the significance of effect, there remains the possibility that this may span the significance threshold (i.e. the range is given as minor to moderate). In such cases the final significance conclusion is based upon the author's professional judgement as to which outcome delineates the most likely effect, with an explanation as to why this is the case. Where professional judgement is applied to quantify final significance from a range, the assessment will set out the factors that result in the final assessment of significance. These factors may include the likelihood that an effect will occur, data certainty and relevant information about the wider environmental context.

45. For the purposes of this assessment:

- a level of residual effect of moderate or more will be considered a 'significant' effect in terms of the EIA Regulations; and
- a level of residual effect of minor or less will be considered 'not significant' in terms of the EIA Regulations.

46. Effects of moderate significance or above are therefore considered important in the decision-making process, whilst effects of minor significance or less warrant little, if any, weight in the decision making process.

Table 16.13: Matrix Used for the Assessment of the Significance of the Effect

Sensitivity of Receptor	Magnitude of Impact: Negligible	Low	Medium	High
Negligible	Negligible	Negligible to Minor	Negligible to Minor	Minor
Low	Negligible to Minor	Negligible to Minor	Minor	Minor to Moderate
Medium	Negligible to Minor	Minor	Moderate	Moderate to Major
High	Minor	Minor to Moderate	Moderate to Major	Major
Very High	Minor	Moderate to Major	Major	Major

16.10. MEASURES ADOPTED AS PART OF THE PROPOSED DEVELOPMENT

47. As part of the project design process, a number of measures have been proposed to reduce the potential for impacts on cultural heritage (see Table 16.14). All potential impacts relate to visibility and hence the designed in measures presented here relate to the Proposed Development's visibility. As there is a commitment to implementing these measures, they are considered inherently part of the design of the Proposed Development and have therefore been considered in the assessment presented in section 16.11 (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development.

Table 16.14: Designed In Measures Adopted as Part of the Proposed Development

Designed In Measures Adopted as Part of the Proposed Development	Justification
The Proposed Development array area has been sited 37.8 km offshore from closest part of the Proposed Development array area to the closest section of coast. The eastern edge of the Proposed Development array area is generally located at distances over 60 km from the coast.	The siting of the Proposed Development at long distance offshore forms the key designed in measure which minimises potential for significant cultural heritage effects relating to setting.
Maximum blade tip height is 355 m from LAT and maximum rotor diameter of 310 m.	The height of the Proposed Development will not exceed the maximum blade top height.

Designed In Measures Adopted as Part of the Proposed Development	Justification
The colour of the wind turbine tower and blades will be agreed with relevant stakeholders and will likely be RAL 7035 (light grey) above the interface level. The jacket foundation (including foundation piece) will likely be painted RAL 1023 (traffic yellow) up to the interface level at approximately +30 m above LAT.	The light grey (RAL 7035) colour of the Proposed Development wind turbines provides standard mitigation as a recessive colour in the seascape/sky backdrop. The brighter yellow jacket foundation will be limited to the jacket foundation (including transition piece) up to the interface level which is low lying and less visible in distant views from low lying areas.
Aviation warning lights will allow a further reduction in lighting intensity when the visibility in all directions from every wind turbine is more than 5 km. A lighting scheme for the aviation lighting of structures (wind turbines and offshore support platforms) above 60 m in height with the relevant authorities.	As provided for in Civil Aviation Authority (CAA) Air Navigation Order 2016, 2,000 cd aviation lights may be dimmed to 10% of their intensity (200 cd) in where visibility conditions permit, when visibility from every wind turbine within the wind farm group is more than 5 km. Visibility conditions are measured using a visibility sensor, which can then be dimmed automatically to respond to prevailing meteorological conditions. 2,000 cd lights will therefore only be experienced in visibility of less than 5 km; and their intensity may be dimmed to 200 cd in visibility of more than 5 km, thereby reducing the intensity of effects of light experienced in views at night.
The angle of the plane of the beam of peak intensity of aviation warning lights will be elevated to between 3-4° above the horizontal plane. The intensity of the emitted light will be reduced at the horizontal plane (20% to 45% of peak intensity) and below the horizontal plane (less than 10% of the minimum peak intensity at 1.5° or more below horizontal plane).	This directional intensity focusses the lighting to 3° to 4° above the horizontal plane and reduces the intensity of the light from below the horizontal plane, thereby reducing the intensity of effects of light experienced in views at night from locations that are below the horizontal plane (e.g. from the seascape below the wind turbines or from a distant low lying coastline).
Adherence to CAA (2016). CAP 393, Air Navigation: The Order and the Regulations (2016). This will require approval and implementation of a Lighting and Marking Plan (LMP) which will set out specific requirements in terms of aviation lighting to be installed on the wind turbines. The LMP will be prepared in consultation with the CAA, Ministry of Defence (MoD) and Maritime and Coastguard Agency (MCA) and will take into account requirements for aviation lighting as specified in Article 223 of the UK ANO, 2016 and changes to ICAO Annex 14 Volume 2, Chapter 6, paragraph 6.2.4 promulgated in November 2016.	To comply with CAA (2016). CAP 393, Air Navigation: The Order and the Regulations (2016) which sets out the mandatory requirements for the lighting of offshore wind turbines, and to ensure appropriate lighting is in place to facilitate aeronautical safety.

16.11. ASSESSMENT OF SIGNIFICANCE

48. The potential effects arising from the operation and maintenance phase of the Proposed Development are listed in Table 16.9, along with the maximum design scenario against which each impact has been assessed. An assessment of the likely significance of the effects of the Proposed Development on cultural heritage receptors caused by each identified impact is given below.

IMPACTS UPON THE SETTING OF ONSHORE CULTURAL HERITAGE ASSETS

North Berwick Law (Scheduled Monument, SM3863)

Magnitude of Impact

49. The predicted view of the Proposed Development from Viewpoint 7 North Berwick Law is shown in the photomontage in volume 2, chapter 15 (Figure 15.27).

50. The Proposed Development array area will be located at very long distance, between 56 km and (approximately) 91.8 km from the viewpoint at its closest and most distant points. At such distances, the Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long range and during the majority of prevailing visibility conditions; Met Office visibility data indicates only 10.7% visibility frequency of the wind turbines at 50 km and 0% at 60 km. Met Office data do not record visibility beyond 60 km.

51. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

52. Due to the elevation of the viewpoint, the vertical height/apparent scale of the Proposed Development wind turbines will be greater than at other viewpoints, but still relatively small, due to their long distance offshore and the larger scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the wind turbines will appear smaller in vertical scale than islands within the Firth of Forth, and hills inland of the nearby opposing coastlines. The Proposed Development will introduce new offshore wind turbine elements beyond those within NnG.

53. The lateral spread of the Proposed Development wind turbines may occupy up to up to 29° of the Horizontal Field of View (HFoV), which is a relatively narrow portion of the wider sea view panorama, in which much of open sea skyline and coastline will be retained and remain unaffected.

54. The Proposed Development wind turbines will be seen on and beyond the horizon, viewed as a 'horizon development' and clearly separated from the mainland coast, headlands and islands by intervening seascape. The Proposed Development wind turbines will appear behind and extend across a greater portion of the view than those of NnG.

55. The Scheduled Monument has intrinsic value owing to its archaeological potential; the North Berwick Law has a long history of occupation starting in the Prehistoric period and has seen minimal modern disturbance, and as an example of a Prehistoric hillfort. The signal station and observation post also have intrinsic value as examples of their kind and together illustrate the importance of the law as a viewpoint and Britain's responses to threats of invasion. Views from the law over the surrounding area allow an appreciation of the fort's situation in highly defensible location in an area of highly cultivable land, whilst views over the sea are important to an understanding of the signal station and observation post's function. Views along the coastline contribute to an appreciation of the signal station's function. More generally views to prominent historically significant features such as the Bass Rock, the Isle of May and Tantallon Castle allow an appreciation of the time-depth of the landscape. The law's prominence is likely to have been significant in the Prehistoric period and hence general views contribute to its cultural significance.

56. While the Proposed Development wind turbines will increase the level of artificial elements in the view, they are sufficiently distant and recessive in these views that there is no potential for them to interfere with

the appreciation of the views over the sea that the signal station and observation post were built with reference. Nor is there potential for them to distract from historically significant features in the landscape, as these are substantially closer and much more clearly visible. The Proposed Development will not affect views of the Law. It is concluded that the Proposed Development will result in no change in its cultural significance or the appreciation thereof.

57. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

58. North Berwick Law is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

59. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

60. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Tantallon Castle (Scheduled Monument, SM13326)

Magnitude of Impact

61. The predicted view of the Proposed Development from Viewpoint 8 Tantallon Castle is shown in the photomontage in volume 2, chapter 15 (Figure 15.28).

62. The Proposed Development array area will be located at very long distance, between 52 km and (approximately) 88 km from the viewpoint to its closest and most distant points. At such long distance, the Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long-range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 10.7% visibility frequency of the wind turbines at 50 km and 0% at 60 km.

63. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

64. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the wind turbines will be smaller in vertical scale than many of the other features in the view, including similar wind turbines within NnG, and the coastal landforms and islands. The Proposed Development will add new offshore wind turbine elements to those at NnG and Seagreen, visibility of the latter being limited to it blade tips.

65. The lateral spread of the Proposed Development wind turbines may occupy up to 31° of the HFoV, with the extent of NnG being approximately 25° HFoV. The Proposed Development will overlap with NnG and their combined extent (approximately 45° HFoV) represents a narrower portion of the wider sea view panorama.

66. The castle's cultural significance resides in its intrinsic value as the last great curtain-walled castle built in Scotland and is a remarkably intact example of a Medieval castle. It has the potential to contribute greatly to the understanding of the development of late Medieval fortified residences and expressions of status, whilst the later artillery defences may inform understanding of the development of artillery and siege warfare in the 17th century. This intrinsic value is augmented by its visual relationships with the Bass Rock, where there was a contemporary castle, as this places the castle into the context of the Medieval landscape. In addition, the combination of the red castle and white-capped Bass Rock creates a distinctive sense of place. This and the castle's dramatic clifftop location have led to the castle appearing in many paintings, including works by Turner and Nasmyth.

67. The Proposed Development wind turbines will be seen on and beyond the horizon, behind much of NnG. They will be seen at the very limit of views from the castle and will not affect the view to the Bass Rock. Theoretically it will be possible to see the wind turbines in combination with the castle from the car park area, but in practice it is likely to be difficult to achieve such views owing to hedges and local topography. Where such views are achieved the castle will remain the dominant feature owing to the colour of the wind turbines and their distance from the viewer. It is concluded that there is no potential for them to detract from the appreciation of the castle historic and aesthetic relationship with its setting.

68. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

69. Tantallon Castle is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

70. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

71. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Dunbar Castle (Scheduled Monument, SM766)

72. The predicted view of the Proposed Development from Viewpoint 10 Dunbar, which is on the clifftop path approximately 200m to the south-west of the castle, is shown in the photomontage in volume 2, chapter 15 (Figure 15.30).

73. The Proposed Development array area will be located at very long distance, between 48.4 km and (approximately) 85.2 km from the castle to its closest and most distant points. At such distances, the Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 20.2% visibility frequency of the wind turbines at 45 km, 10.7% at 50 km and 0% at 60 km.

74. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines are still likely to be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance. During these infrequent periods of excellent visibility,

75. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the new offshore wind turbines will appear smaller in vertical scale than those of NnG, with which it overlaps. Wind turbines within Seagreen 1 lie almost entirely below the horizon and will be imperceptible.

76. The lateral spread of the Proposed Development wind turbines may occupy up to approximately 39° of the HFoV, with NnG occupying approximately 28° HFoV. The combined extent of both wind farms (approximately 55° HFoV) will occupy a narrower portion of the wider sea view panorama, in which much of the open sea skyline and coastline will be retained and remain unaffected.

77. The Proposed Development and NnG wind turbines will be seen on and beyond the horizon and may be viewed as a single 'horizon development' to a large open seascape, rather than being viewed 'within' its seascape, clearly separated from the mainland coast, headlands and islands by areas of intervening seascape.

78. The Scheduled Monument has intrinsic value owing to its potential as a source of archaeological data; the ruins of the final castle overlie those of the previous castle and there is likely to be evidence of Early Medieval and Prehistoric activity underlying this. The castle illustrates the origins of Dunbar, underlining its importance as a harbour between Berwick and Edinburgh, and forms a picturesque element in the harbour. Views of the castle in the context of the harbour and from the cliff top path contribute to its aesthetic appreciation and historic relationship with the sea.

79. While the Proposed Development wind turbines will increase the level of artificial elements visible in seaward views from the clifftop path, they will be peripheral to views of the castle. They are sufficiently distant and recessive in these views that there is no potential for them to distract form the castle to adversely affect its aesthetic appreciation or the appreciation of its historic relationship with the sea. The Proposed Development wind turbines will not be visible from the harbour. It is concluded that the Proposed Development will result in no change in the castle's cultural significance or the appreciation thereof.

80. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

81. Dunbar Castle is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The receptor is therefore considered to be of high sensitivity.

Significance of the Effect

82. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

83. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Fast Castle (Scheduled Monument, SM4328)

Magnitude of Impact

84. The predicted view of the Proposed Development from Viewpoint 13 Fast Castle is shown in the photomontage in volume 2, chapter 15 (Figure 15.33).

85. The Proposed Development array area will be located approximately 40 km and 78 km from the castle to its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 36.7% visibility frequency of the wind turbines at 35 km, 10.7% at 50 km and 0% at 60 km.

86. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

87. The Proposed Development wind turbines will appear slightly larger than those of NnG, owing to the size of the former, but will appear much smaller than the coastal landform.

88. The lateral spread of the Proposed Development wind turbines may occupy up to 49° of the HFoV, with NnG occupying approximately 19° HFoV. A noticeable gap will separate the two wind farms such that their combined extent (approximately 81° HFoV) will be a notable portion of the wider sea view panorama, in which much of open sea skyline and coastline will be retained and remain unaffected.

89. The Proposed Development wind turbines will be seen on and beyond the horizon, viewed as a 'horizon development' to a large open seascape.

90. The castle's setting contributes to its cultural significance as the topography is key to its siting; the position is impregnable. Its isolation and dramatic character also tie in with its place in literature and art and contribute to the experience of the visitor and create a distinct sense of place; though it may be noted that the unmaintained castle's contribution to this is diminishing.

91. The Proposed Development wind turbines may be perceived as incongruous with the expected experience of the castle's romantic, isolated sense of place. This will occur infrequently and intermittently depending on weather conditions. This is considered to represent an adverse impact of low magnitude. This will be direct, long term and reversible.

Sensitivity of the Receptor

92. Fast Castle is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

93. Overall, the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be high. Taking into account the infrequent occurrence of the impact and that the NnG wind turbines form a part of the castle's baseline setting, the effect is considered to be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

94. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Crosslaw Radar/Radio Station (Non-designated heritage asset, NT86NE 35 and NT86NW 75 & 139)

Magnitude of Impact

95. No visualisation is presented in respect of this receptor as it comprises disparate buildings with varying degrees of predicted intervisibility with the Proposed Development wind turbines. Viewpoints 13 (Figure 15.33) and 14 (Figure 15.34) are nearby and have clear views towards the Proposed Development. They therefore provide suitable proxies to provide an indication of the scale of the Proposed Development wind turbines in views from the vicinity of the asset.

96. The Proposed Development array area will be located at approximately between 43 km and 81 km from the nearest element of the radar station to its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the distant seascape skyline, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 28.5% visibility frequency of the wind turbines at 45 km, 10.7% at 50 km and 0% at 60 km.

97. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

98. The lateral spread of the Proposed Development wind turbines may occupy up to 46° of the HFoV, with NnG occupying approximately 18° HFoV. A noticeable gap will separate the two wind farms such that their combined extent (approximately 72° HFoV) will be a notable portion of the wider sea view panorama, in which much of open sea skyline and coastline will be retained and remain unaffected. In these views, the Proposed Development wind turbines will appear slightly larger than those of NnG, owing to the size of the former, but will appear much smaller than the agricultural landscape in the foreground.

99. The Proposed Development wind turbines will be seen on and beyond the horizon, viewed as a 'horizon development' to a large open seascape.

100. The radio/radar station's setting makes a limited contribution to its cultural significance; the view to the sea from the northernmost elements (NT86NW 75 & 139), whilst not functionally linked to its operation allows an appreciation of its having been placed in proximity to the North Sea to allow the earliest possible detection of approaching threats.

101. The Proposed Development wind turbines will not adversely affect the appreciation of the intended relationship between the facility and the sea. Indeed, by providing a positive indicator of range, they may facilitate the appreciation of the reasoning behind the facility's siting. This will occur infrequently and intermittently depending on weather conditions. This is considered to represent an adverse impact of negligible magnitude. This will be direct, long term and reversible.

Sensitivity of the Receptor

102. Crosslaw Radio/Radar Station is a non-designated heritage asset. Whilst semi derelict, it is considered to be a relatively rare and unmodified example. For the purposes of this assessment, it is therefore considered to be of national importance and of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

103. Overall, the magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is considered to be high. Taking into account the infrequent occurrence of the impact and that the NnG wind turbines form a part of the facility's baseline setting, the effect is considered to be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

104. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

St Abb's Kirk, church and monastic remains (Scheduled Monument, SM2975)

Magnitude of Impact

105. The predicted view of the Proposed Development from St Abb's Head (Viewpoint 15) approximately 400 m to the north-west of the Scheduled Monument is shown in the photomontage in volume 2, chapter 15 (Figure 15.35).

106. The Proposed Development array area will be located at long distance, between 38.2 km and (approximately) 77 km offshore from the viewpoint to its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently

visible, having low contrast with the sky at such long range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 36% visibility frequency of the wind turbines at 35 km, 10.7% at 50 km and 0% at 60 km.

107. When conditions allow, the towers and rotors of up to 179 wind turbines will be seen above the skyline, with the semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

108. The Proposed Development wind turbines will appear slightly larger than those of NnG, which are located more inshore; and much larger than those of Seagreen, which are located behind and to the north of the Proposed Development and are likely to be barely perceptible. The towers of a relatively large number of the Proposed Development wind turbines will be visible in their entirety, while many other towers will be largely visible.

109. The lateral spread of the Proposed Development wind turbines may occupy up to 44° of the HFoV, with the combined extent of NnG and Seagreen 1 being approximately 40° HFoV. The Proposed Development will appear to encompass Seagreen 1, while a notable gap will separate it from NnG. In combination, the lateral extent of offshore wind turbine elements will increase to occupy a notable portion (approximately 85° HFoV) of the wider sea view panorama, in which much of the open sea skyline will be retained and will, along with the visible coastline, remain unaffected.

110. The Proposed Development wind turbines will be seen on and beyond the horizon.

111. The remains at St Abbs have high intrinsic archaeological value as they represent an undisturbed monastic settlement. Such sites are very rare and have the potential to add greatly to our understanding of the development of Christianity in Scotland. The elevated location is naturally defensible and this aids an appreciation of the defended nature of the settlement.

112. The cultural significance of the Scheduled Monument draws little upon its setting and views out to sea do not contribute to its cultural significance. Consequently, it is concluded that the appearance of the Proposed Development in these views will result in no change in its cultural significance or the appreciation thereof.

113. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

114. St Abb's Kirk, church and monastic remains is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

115. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

116. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

St Abb's Lighthouse (Category B Listed Building, LB4103)

Magnitude of Impact

117. The predicted view of the Proposed Development from St Abb's Head (Viewpoint 15) approximately 200 m to the north-west of the lighthouse is shown in the photomontage in volume 2, chapter 15 (Figure 15.35a-d).

118. The Proposed Development array area will be located at long distance, between 38.2 km and (approximately) 77 km offshore from the viewpoint to its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 36% visibility frequency of the wind turbines at 35 km, 10.7% at 50 km and 0% at 60 km.

119. When conditions allow, the towers and rotors of up to 179 wind turbines will be seen above the skyline, with the semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

120. The Proposed Development wind turbines will appear slightly larger than those of NnG, which are located closer inshore; and much larger than those of Seagreen 1, which are located behind and to the north of the Proposed Development and are likely to be barely perceptible. The towers of a relatively large number of the Proposed Development wind turbines will be visible in their entirety, while many other towers will be largely visible.

121. The lateral spread of the Proposed Development wind turbines may occupy up to 44° of the HFoV, with the combined extent of NnG and Seagreen 1 being approximately 40° HFoV. The Proposed Development will appear to encompass Seagreen 1, while a notable gap will separate it from NnG. In combination, the lateral extent of offshore wind turbine elements will increase to occupy a notable portion (approximately 85° HFoV) of the wider sea view panorama, in which much of the open sea skyline will be retained and will, along with the visible coastline, remain unaffected.

122. The Proposed Development wind turbines will be seen on and beyond the horizon.

123. The lighthouse has historic interest as an example of its kind, reflecting the development of the chain of lighthouses running up the eastern coast of Scotland. Its unusual design, which sees the lighthouse occupying a location below the cliff top, illustrates the care taken by the Northern Lighthouse Board in placing lighthouses, as it reflects local weather conditions. This position results in the lighthouse having minimal presence in views from onshore. The white-washed buildings and simple form of the lighthouse have a degree of aesthetic value.

124. The setting of the lighthouse contributes to its cultural significance as the elevated location has been chosen to maximise the lighthouse's visibility from the sea. In short range views, the sea provides a backdrop to the lighthouse and contributes to its aesthetic appreciation.

125. The Proposed Development will not affect the appreciation of the operational lighthouse's historic functional relationship with cliffs and North Sea or affect views of the lighthouse from the sea. However,

when visible, the Proposed Development wind turbines will appear behind the lighthouse in the limited views available. This may be perceived as distracting, detracting from its aesthetic appreciation, depending on the preferences of the viewer. This will occur infrequently and intermittently depending on weather conditions and is considered to represent an adverse impact of low magnitude. This will be direct, long term and reversible.

126. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be low.

Sensitivity of the Receptor

127. St Abb's Lighthouse is a Category B Listed Building and therefore deemed to be of medium vulnerability, low recoverability and medium value. The sensitivity of the receptor is therefore considered to be Medium.

Significance of the Effect

128. Overall, the magnitude of the impact is deemed to be low, and the sensitivity of the receptor is considered to be medium. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

129. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Berwick-upon-Tweed Medieval and Post-Medieval Fortifications (List 1015968)

Magnitude of Impact

130. The predicted view of the Proposed Development from Berwick-upon-Tweed's fortifications (Viewpoint 17) is shown in the photomontage in volume 2, chapter 15 (Figure 15.37).

131. The Proposed Development array area will be located at long distance, between 46 km and (approximately) 87 km offshore from the viewpoint to its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long-range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 20.2% visibility frequency of the wind turbines at 45 km,10.7% at 50 km and 0% at 60 km.

132. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

133. The Proposed Development will introduce offshore wind turbine elements to the view as those within NnG will be screened by landform and tree cover.

134. The lateral spread of the Proposed Development wind turbines (up to 38° HFoV) will occupy a portion of the wider sea view panorama, in which a larger proportion of the open sea skyline will be retained and the coastline unaffected.

135. Berwick upon Tweed is one of the most outstanding fortified towns of western Europe. Taken together with Berwick Castle and the earlier linear earthwork known as Spades Mire, the defences of Berwick upon Tweed provide a continuous sequence spanning more than 700 years. They provide one of the most complete overviews available anywhere for the understanding of the development of military architecture. Views from and to the defences, in particular Megs Mount bastion and the Saluting Battery which overlook the bridges, contribute to an appreciation of the strength of the defences and their dominance of the crossing. The setting of the fortifications therefore contributes to an appreciation of their historic interest. Views out to the horizon do not contribute to the cultural significance of the fortifications.

136. The Proposed Development wind turbines will be seen on and beyond the horizon. This will not affect the relationship between the fortifications and the peninsula or the river crossing. The Proposed Development will not affect the fortifications' cultural significance.

137. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

138. Berwick-upon-Tweed Medieval and Post-Medieval Fortifications are a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

139. Overall, the magnitude of the impact is deemed to be negligible as whilst the Proposed Development will be visible from the fringes of Berwick, these views that do not contribute substantively to the fortifications' cultural significance and hence it will not affect their cultural significance. The sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

140. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Lindisfarne Castle (Grade I Listed Building, List 1042306)

Magnitude of Impact

141. The predicted view of the Proposed Development from Viewpoint 19 Holy Island (near Lindisfarne Castle) is shown in the photomontage in volume 2, chapter 15 (Figure 15.39). The viewpoint is located a short distance to the east of the castle.

142. The Proposed Development array area will be located at very long distance, between (approximately) 53.7 km and 94 km from the viewpoint to its closest and most distant points. The Proposed Development

wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long-range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 10.7% visibility frequency of the wind turbines at 50 km and 0% at 60 km.

143. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

144. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline. The Proposed Development will introduce offshore wind turbine elements to the view as neither offshore nor onshore wind turbines are evident in the baseline view.

145. The lateral spread of the Proposed Development wind turbines may occupy up to approximately 18° of the HFoV, which is a narrower portion of the wider sea view panorama, in which most of the open sea skyline will be retained and the coastline remain unaffected. A high number of wind turbines (172) and a relatively high number of blade tips (121 to 150) are theoretically visible, but the most distant wind turbines are unlikely to be visible.

146. The castle's cultural significance resides primarily in its fabric, deriving from its architectural interest as an example of the work of an important architect complemented by the work of an important garden designer. Its architectural interest and design quality gives a substantial degree of aesthetic value, primarily appreciated from the castle's immediate surroundings. The castle's dramatic location complements this and this is appreciated from a wider area on the island. As a local landmark, views of the castle from the mainland also contribute to its cultural significance.

147. The Proposed Development wind turbines will be seen on and beyond the horizon, viewed as a 'horizon development' to Holy Island and the surrounding seascape, rather than being viewed 'within' its seascape due to the intervening open sea.

148. Owing to their distance and scale, there is no potential for the Proposed Development wind turbines to distract from the castle in views from its immediate vicinity or otherwise distract from its aesthetic interest. Nor is there potential for them to distract from the castle in views from the mainland (see Viewpoint 20, volume 2, chapter 15, Figure 15.40), as they will be peripheral to views of the castle. The Proposed Development will not therefore affect the castle's cultural significance. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

149. Lindisfarne Castle is a Grade I Listed Building of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

150. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

151. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Lindisfarne Priory (Scheduled Monument, List 1011650)

Magnitude of Impact

152. The scheduling information states "*As a rare monument type and one which made a major contribution to the development of Anglo-Saxon England, all pre-Conquest monasteries exhibiting survival of archaeological remains are worthy of protection. In addition to being a rare pre-Conquest monastic site, Lindisfarne Priory is an important example of a small Benedictine house refounded to be a cell of Durham Cathedral. Its standing remains are well-preserved and provide a good illustration of a wide variety of monastic buildings*".

153. The priory's cultural significance therefore resides primarily in its fabric. However, the island setting also contributes as it adds to the remains' historic interest and aesthetic value. The priory lies at the fringe of the ZTV. Taking into account the screening effect of the built form and associated trees, the Proposed Development will not be visible from the Priory. Based on the ZTV, there is no potential for views of the priory that contribute to its cultural significance to be affected. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

154. Lindisfarne Priory is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

155. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

156. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Bamburgh Castle (Grade I Listed Building, List 128055)

Magnitude of Impact

157. The predicted view of the Proposed Development from Viewpoint 20 Bamburgh Castle is shown in the photomontage in volume 2, chapter 15 (Figure 15.40).

158. The Proposed Development array area will be located at very long distance, between 60 km and (approximately) 99.2 km from the viewpoint to its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 10.7% visibility frequency of the wind turbines at 50 km and 0% at 60 km.

159. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

160. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the wind turbines will be smaller in vertical scale than the coastal landforms in the view. The Proposed Development wind turbines will introduce offshore wind farm development to the views from the castle.

161. The lateral spread of the Proposed Development wind turbines may occupy up to 29° of the HFoV, which is a narrower portion of the wider 180° sea view panorama, in which a large proportion of the open sea skyline will be retained and the coastline remain unaffected.

162. The castle's cultural significance resides primarily in its architectural and historic interest as an example of a Medieval castle and the work of CJ Ferguson, a noted architect who specialised in the restoration of Medieval buildings. In addition, it has illustrative value; its great scale and strength underlining the strategic importance of the location. The castle's imposing form and dramatic location has resulted it in appearing in numerous paintings, including one by Turner.

163. Views from the castle contribute to its illustrative value as they allow an appreciation of its dominance of the surrounding area. The view to Lindisfarne Castle allows an appreciation of the historic links between Bamburgh Castle and Lindisfarne. Views of the castle along the coast are of similar if not greater importance as they allow an appreciation of this aspect and its architectural interest and iconic form.

164. From the castle, the Proposed Development wind turbines will be seen on and beyond the horizon, viewed as a 'horizon development' to a large open seascape. Given the distance of the Proposed Development wind turbines from Bamburgh Castle and that they will only be seen in succession with the coast, there is no potential for them to affect the appreciation of the castle's historic relationship with the coastal strip. The wind turbines will be peripheral in views from the castle to Lindisfarne Castle and, given this and their distance from Bamburgh Castle, there is no potential for them to affect the appreciation of the historic relationship between the two. The wind turbines will not appear in combination with the castle in views from the coastal strip or the sea and hence will not affect the appreciation of its architectural interest, dominance of its surroundings or value as an iconic landmark.

165. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

166. Bamburgh Castle is a Grade I Listed Building and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

167. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

168. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Dunnottar Castle (Scheduled Monument, SM986)

Magnitude of Impact

169. The predicted view of the Proposed Development from the mainland adjacent to Dunnottar Castle (Viewpoint A) is shown in the photomontage in volume 2, chapter 15 (Figure 15.43).

170. The Proposed Development array area will be located at very long distance, between 61.8 km and (approximately) 104 km from the viewpoint at its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long-range and during the majority of prevailing visibility conditions. Met Office visibility data indicates 0% visibility frequency of the wind turbines at 60 km, indicating they will very rarely be visible.

171. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. On the rare occasions that the wind turbines are visible they will be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

172. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the wind turbines will be smaller in vertical scale than many of the other features in the view, including similar wind turbines within Kincardine and Seagreen 1, and the coastal landforms. The Proposed Development will add new offshore wind turbine elements to those at Kincardine and Seagreen 1, and, if visible will be seen beyond the wind turbines of Seagreen 1.

173. The lateral spread of the Proposed Development wind turbines may occupy up to 28° of the HFoV. Seagreen 1 occupies approximately 33° HFoV and, if visible, the Proposed Development will be seen beyond Seagreen 1. As such the Proposed Development will not increase the proportion of the horizon occupied by wind turbines. Up to 170 wind turbines are theoretically visible, but given their distance from the castle, most of the wind turbines will never be visible from or in succession with the castle.

174. The castle's cultural significance resides in its intrinsic value as an example of a Medieval castle with later additions. It has the potential to inform understanding of the development of fortified residences and illustrates the transition from Scottish towers to more English-influenced houses and the relationship between military strength and status, as the castle's defences include elements that are thought to be primarily for show. The castle occupies a naturally defensive position in a strategic location that allows control of movement along the coastal plain. Its dramatic location and appearance have resulted in its being the subject of numerous artworks and it is an iconic local landmark.

175. The Proposed Development wind turbines may, on rare occasions, be seen in succession with the castle, on and beyond the horizon, beyond Seagreen. They will result in a barely perceptible change in the setting of the castle that has no potential to affect its cultural significance or the appreciation thereof.

176. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

177. Dunnottar Castle is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

178. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

179. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Bell Rock Lighthouse (Category A Listed Building, LB45197) and Bell Rock Lighthouse Signal Tower (Category A Listed Building, LB21230)

Magnitude of Impact

180. The predicted view of the Proposed Development from the lighthouse (Viewpoint D) is shown on the wireframe (in volume 2, chapter 15, Figure 15.46) and from the mainland adjacent the signal station (Viewpoint C) is shown in the photomontage in volume 2, chapter 15 (Figure 15.45).

181. The Proposed Development array area will be located between 28.2 km and (approximately) 74 km from the lighthouse and 43 km and (approximately) 91.4 km from the signal station. At such distances, the Proposed Development wind turbines will on the distant seascape skyline, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently visible, having low contrast with the sky at such long-range and during the majority of prevailing visibility conditions. Met Office visibility data indicates 47.7% visibility frequency at 28 km (i.e. at the lighthouse) and 28.5% visibility frequency of the wind turbines at 45 km (i.e. at the signal station) and 10.7% at 50 km and 0% at 60%.

182. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be seen above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

183. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the wind turbines will be similar in vertical scale to similar wind turbines within NnG and Seagreen 1. The Proposed Development will add new offshore wind turbine elements to those at NnG and Seagreen 1.

184. From the lighthouse, the lateral spread of the Proposed Development wind turbines may occupy up to 42.6° of the HFoV. Seagreen 1 will occupy 33° and NnG 69°. The Proposed Development will overlap with neither Seagreen nor NnG. There will be a large gap between the Proposed Development and NnG. A sizable proportion of the horizon will therefore be occupied by turbines.

185. From the signal station, the lateral spread of the Proposed Development wind turbines may occupy up to 33° of the HFoV. Seagreen 1 will occupy 25° and NnG 45°. From the signal station, the Proposed Development will form a single group with Seagreen 1 occupying a combined 58°. There will be a large gap between the Proposed Development and NnG. A sizable proportion of the horizon will therefore be occupied by turbines.

186. The lighthouse's cultural significance resides in its architectural and historic interest as the first lighthouse to be built on a half tide rock. Its construction was an extraordinary engineering achievement and the quality of its design and execution is reflected by the tower being almost entirely original after over 200 years of operation. Consequently, it is considered to be one of Robert Stevenson's finest achievements. In addition, the lighthouse represented a substantial investment to secure shipping and hence has historic interest reflecting a period of great investment in the country's infrastructure that facilitated economic growth. The signal tower's special interest derives from its functional relationship with the lighthouse.

187. The lighthouse's setting on the Bell Rock is key to understanding its function; Bell Rock was a major hazard because it was a near invisible hazard in a major shipping lane. The signal station's location on the coast and line of sight between it and the lighthouse are important to an appreciation of their functional relationship. General views from the lighthouse and signal station do not contribute to their cultural significance.

188. The Proposed Development wind turbines will not affect the line of sight between the lighthouse and signal station. From the signal station they will not appear behind the lighthouse but will appear off to the left. They will not be seen in views from the lighthouse to the signal station. They will not therefore affect the appreciation of the functional relationship between the two. The lighthouse will remain an isolated feature and its relationship with the shipping lane will remain unchanged. The wind turbines will therefore represent a neutral, long term and reversible change in the setting of the lighthouse and signal station.

189. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

190. Bell Rock lighthouse and Bell Rock Lighthouse Signal Tower are Category A Listed Buildings of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

191. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

192. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Isle of May Lighthouses (SM887 & LB2712)

Magnitude of Impact

193. The predicted view of the Proposed Development from the lighthouse (Viewpoint F) is shown on the wireframe (volume 2, chapter 15, Figure 15.43). Predicted views including the Isle of May are also provided in volume 2, chapter 15 (Figures 15.26, 15.28 and 15.48).

194. The Proposed Development array area will be located between 41.5 km and 78 km from the lighthouses at its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long-range and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 28.5% visibility frequency of the wind turbines at 41.5 km and 10.7% at 50 km and 0% at 60 km.

195. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be visible above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

196. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the wind turbines will be similar in vertical scale to similar wind turbines within NnG. The Proposed Development will add new offshore wind turbine elements to those at NnG.

197. From the lighthouses, the lateral spread of the Proposed Development wind turbines may occupy up to 37.5° of the HFoV. Seagreen 1 will occupy 25° of the HFoV and NnG 38°. The Proposed Development will for the most part be seen behind NnG and adjacent to Seagreen 1, the visibility of which will be largely restricted to blades. With NnG, the Proposed Development wind turbines will form a single group occupying approximately 51° of the HFoV.

198. The cultural significance of the original lighthouse resides primarily in its historic interest as one of the earliest surviving lighthouses in Britain. This is complemented early records relating to its operation held by the National Library of Scotland and, to a lesser degree its association with Sir Walter Scott and the picturesque fashion in landscape design of the early 19th century. The cultural significance of the second lighthouse lies in its historic interest as an example of the work or Robert Stevenson. It is built in a very similar style to Stevenson's Bell Rock signal station and this places it into the wider historic context of investment in Scotland's lighthouses. The proximity of the two lighthouses to each other illustrates developing lighthouse technology. Stevenson's lighthouse remains a landmark in the Firth of Forth.

199. The Proposed Development wind turbines will not affect the appreciation of the lighthouses elevated position on the Isle of May in a busy shipping lane. Nor will they affect the relationship between the two lighthouses. Owing to their distance from the island and their contrasting colour, there is no potential for them to distract from the silhouetted form of Stevenson's lighthouse in views from the mainland. The lighthouse will remain an isolated feature. The wind turbines will therefore represent a neutral, long term and reversible change in the setting of the lighthouses.

200. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

201. As a Scheduled Monument, the 1636 lighthouse is considered to be of national importance and high sensitivity. As a Category B Listed Building, the 1815 lighthouse is considered in isolation to be of regional importance but given its group value with the adjacent Scheduled Monument, it is also considered to be of high sensitivity.

Significance of the Effect

202. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

203. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Isle of May Priory (SM838)

Magnitude of Impact

204. The predicted view of the Proposed Development from near the priory (Viewpoint F) is shown on the wireframe (volume 2, chapter 15, Figure 15.43).

205. The Proposed Development array area will be located between 41.5 km and 78 km from the priory at its closest and most distant points. The Proposed Development wind turbines will be in the far distance on the seascape horizon, beyond the immediate seascape context. The Proposed Development wind turbines are likely to be intermittently and infrequently visible, having low contrast with the sky at such long-range

and during the majority of prevailing visibility conditions. Met Office visibility data indicates only 28.5% visibility frequency of the wind turbines at 41.5 km and 10.7% at 50 km and 0% at 60 km.

206. When conditions allow, the upper towers and rotors of up to 179 wind turbines will be visible above the skyline, with the lower parts of the towers and semi-submersible platforms hidden by the intervening horizon. Even during these 'maximum' visibility periods, the wind turbines will still likely be viewed as being recessive, due to the low contrast and visual acuity of the eye to distinguish shapes and details of wind turbines at such distance.

207. The vertical height/apparent scale of the Proposed Development wind turbines will be relatively small, due to their long distance offshore and the large scale of the seascape in the view. The vertical appearance of the wind turbines may contrast with the horizontal emphasis of the sea skyline, but the wind turbines will be similar in vertical scale to similar wind turbines within NnG and Seagreen. The Proposed Development will add new offshore wind turbine elements to those at NnG and Seagreen 1.

208. From the priory, the lateral spread of the Proposed Development wind turbines may occupy up to 37.5° of the HFoV. Seagreen 1 will occupy 25° of the HFoV and NnG 38°. The Proposed Development will for the most part be seen behind NnG and adjacent to Seagreen 1, the visibility of which will be largely restricted to blades. With NnG, the Proposed Development wind turbines will form a single group occupying approximately 51° of the HFoV.

209. The monument's cultural significance resides primarily in its intrinsic characteristics as one of the best illustrations of the ways in which the ideals of monastic planning might be adopted to meet the needs of a poorly endowed religious community on a marginally viable and relatively inaccessible site. It derives added cultural significance from the fact that it was a site hallowed by its associations with early religious recluses and with early missionary activity in eastern Scotland; its isolated location therefore contributes to an appreciation of its cultural significance and creates a distinct sense of place.

210. The Proposed Development wind turbines will not affect the appreciation of the priory's isolated location and at distances of in excess of 39 km the wind turbines will not erode any sense of isolation. The Proposed Development wind turbines will therefore represent a neutral, long term and reversible change in the setting of the priory.

211. The impact is predicted to be of local spatial extent, long term duration, continuous and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

212. Isle of May Priory is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

213. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

214. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

IMPACTS (NIGHT-TIME) OF THE OPERATION AND MAINTENANCE OF THE PROPOSED DEVELOPMENT UPON THE SETTING OF CULTURAL HERITAGE ASSETS

215. CAA guidance requires that 'en-route obstacles' at or above 150 m above ground level are lit with visible lighting to assist their detection by aircraft. As such, there is potential that parts of the Proposed Development may be visible at night, giving rise to the potential for impacts upon the setting of the identified cultural heritage receptors, where their cultural significance relates to night-time visibility. This potential is restricted to the lighthouses. The other receptors are not lit and therefore cannot be experienced at night. Night time views do not therefore contribute to their cultural significance and the Proposed Development's appearance in such views has no potential to result in adverse an adverse impact.

216. A description of the proposed lighting is found within volume 1, chapter 3. The effect of the Proposed Development at night would result primarily from visible medium intensity (2,000 cd) red coloured aviation light fittings located on the nacelles of the peripheral wind turbines. The following assessment is informed by ZTVs (volume 2, chapter 15, Figure 15.15).

Bell Rock Lighthouse (Category A Listed Building, LB45197)

Magnitude of Impact

217. The Proposed Development wind turbines will be fitted with medium intensity (2,000 cd) red aviation lights. The ZTV indicates that up to 28 such lights will be visible from the lighthouse itself and up to 21 lights will be visible from the mainland in combination with the lighthouse. Given that the lighthouse light is substantially brighter (1,900,000 cd), flashes and is a different colour from the aviation lights there is no potential for the Proposed Development's lighting to affect an appreciation of its operation.

218. The impact is predicted to be of local spatial extent, long term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

219. Bell Rock Lighthouse is a Category A Listed Building of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

220. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

221. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Isle of May Lighthouse (LB2712)

Magnitude of Impact

222. The Proposed Development wind turbines will be fitted with medium intensity (2,000 cd) red aviation lights. The ZTV indicates that up to 21 such lights will be visible from the lighthouse itself and up to 21 will be visible from the mainland in combination with the lighthouse. Given that the lighthouse light is substantially brighter and a different colour (white) there is no potential for the Proposed Development's lighting to affect an appreciation of its operation.

223. The impact is predicted to be of local spatial extent, long term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of Receptor

224. The Isle of May lighthouse is a Category B Listed Building considered to be of regional importance. Owing to its group value with its scheduled predecessor (SM887), it is considered to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

225. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms

Secondary Mitigation and Residual Effect

226. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

St Abb's Lighthouse (Category B Listed Building, LB4103)

Magnitude of Impact

227. The Proposed Development wind turbines will be fitted with medium intensity (2,000 cd) red aviation lights. The predicted night-time view from St Abbs in conditions of excellent visibility is shown in volume 2, chapter 15, Figure 15.3. As the light of the lighthouse is shrouded to prevent its shining inland and its position, which limits visibility from its landward side, there is no potential for the Proposed Development's lighting to affect an appreciation of its operation.

228. The impact is predicted to be of local spatial extent, long term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the Receptor

229. St Abb's Lighthouse is a Category B Listed Building of regional importance and therefore deemed to be of medium vulnerability, low recoverability and medium value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the Effect

230. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be medium. The effect will, therefore, be of **negligible** adverse significance, which is not significant in EIA terms.

Secondary Mitigation and Residual Effect

231. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

16.11.2. PROPOSED MONITORING

232. No cultural heritage monitoring to test the predictions made within the assessment of likely significant effects on cultural heritage is considered necessary.

16.12. CUMULATIVE EFFECTS ASSESSMENT

16.12.1. METHODOLOGY

233. The Cumulative Effects Assessment (CEA) assesses the impact associated with the Proposed Development together with other relevant plans, projects and activities. Cumulative effects are therefore the combined effect of the Proposed Development in combination with the effects from a number of different projects, on the same receptor or resource. Please see volume 1, chapter 6 for detail on CEA methodology.

234. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see volume 3, appendix 6.3 of the Offshore EIA Report). Volume 3, appendix 6.4 further provides information regarding how information pertaining to other plans and projects is gained and applied to the assessment. Each project or plan has been considered on a case by case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

235. In undertaking the CEA for the Proposed Development, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside the Proposed Development. Therefore, a tiered approach has be adopted. This provides a framework for placing relative weight upon the potential for each project/plan to be included in the CEA to ultimately be realised, based

upon the project/plan's current stage of maturity and certainty in the projects' parameters. The tiered approach which will be utilised within the Proposed Development CEA employs the following tiers:

- tier 1 assessment – Proposed Development (Berwick Bank Wind Farm offshore) with Berwick Bank Wind Farm onshore;
- tier 2 assessment – All plans/projects assessed under Tier 1, plus projects which became operational since baseline characterisation, those under construction, those with consent and submitted but not yet determined;
- tier 3 assessment – All plans/projects assessed under Tier 2, plus those projects with a Scoping Report; and
- tier 4 assessment – All plans/projects assessed under Tier 3, which are reasonably foreseeable, plus those projects likely to come forward where an Agreement for Lease (AfL) has been granted.

236. In respect of cultural heritage, Tier 1 projects have been scoped out of the assessment. By dint of their nature and location in relation to the cultural heritage receptors, the onshore export cables and substation have no potential to result in cumulative effects. In respect of Tier 2, only Inch Cape has been considered as NnG, Seagreen 1 and Kincardine have all been considered as part of the baseline. The assessment of cumulative effects has considered the worst-case scenario, which for cultural heritage has been determined with reference to visibility; for Inch Cape the maximum number of wind turbines (72) of maximum tip height (291 m) has been used and, similarly, for Seagreen 1A the maximum number of wind turbines (36) of maximum tip height (285 m) has been used.

237. The specific projects scoped into the CEA for cultural heritage, are outlined in Table 16.15 and the potential for them to result in cumulative effects is considered. Owing to the specific sensitivities of the cultural heritage receptors considered, only offshore wind farms have been considered.

238. As described in volume 1, chapter 3, the Applicant is developing an additional export cable grid connection to Blyth, Northumberland (the Cambois connection). Applications for necessary consents (including marine licenses) will be applied for separately. The CEA for the Cambois connection is based on information presented in the Cambois connection Scoping Report (SSER, 2022e), submitted in October 2022. The Cambois connection has been scoped into the CEA for cultural heritage on the basis that Cambois connection will overlap spatially and temporally with the Proposed Development and the project will engage in activities such as cable burial and installation of cable protection which will impact cultural heritage receptors.

Table 16.15: List of Other Developments Considered within the CEA for Cultural Heritage

Developments	Status	Distance from Array Area (km)	Distance from Offshore Export Cable Routes (km)	Description of Development/Maximum Design Scenarios	Overlap with the Proposed Development	Cumulative Effect of Potential Significance	Phase[5]	How assessed?
Baseline (Operational and under-Construction Projects that are part of the Baseline and Considered as part of the Assessment of Effects)								
Offshore Wind Projects and Associated Cables								
Kincardine	Operational	57.0	86.0	Five Vestas V164-9.5 MW at 191 m blade tip height and One V80-2 MW wind turbine (KOWL, 2019). Each installed on WindFloat® semi-submersible platforms. Red 2,000 cd 360° wind turbine aviation lighting at nacelle height (166 m) on all wind turbines (KOWL, 2019). When visibility exceeds 5 km, light intensity of aviation lighting will be reduced to 10% (200 candela) of the minimum peak intensity. Yellow 360° marine navigation lighting at platform level (at least 6m above water but not above 30 m) with a nominal range of 5 nm (KOWL, 2019).	Operational since August 2021. Project operation and maintenance phase overlaps with Proposed Development operation and maintenance phase.	None	O	Considered as part of the baseline conditions in assessment of significance (section 16.11).
Neart na Gaoithe	Under construction	16.0	15.0	54 wind turbines with assumed maximum blade tip height 208 m above LAT (rotor diameter 167 m and hub height 125 m) as a worst-case, using consented wind turbine layout from the Development Specification and Layout Plan (DSLP) (NNG OWF, June 2020). Red 2,000 cd 360° wind turbine aviation lighting at nacelle height (125 m) on all peripheral wind turbines (NNG Offshore Wind Farm, 2020 – Figure 4.1), when visibility exceeds 5 km light intensity of aviation lighting will be reduced to 10% (200 cd) of the minimum peak intensity. All other internal structures will also have a low intensity search and rescue (SAR) light, switched off during normal operations. SPS marked with yellow 360° marine navigation lighting at platform level (at least 6m above water but not above 30m) with a nominal range of 5nm (NNG Offshore Wind Farm, 2020 - Figure 5.2).	Under construction offshore August 2020 – 2023 expected to be operational. Project operation and maintenance phase overlaps with Proposed Development operation and maintenance phase.	None	O	Considered as part of the baseline conditions in assessment of significance (section 16.11).
Seagreen 1	Under construction	5.0	35.0	114 x 10MW Vestas V164 (164 m Rotor Diameter), with assumed blade	Under construction	None	O	Considered as part of the baseline conditions in assessment of significance (section 16.11).

[5] C = Construction, O = Operation and maintenance, D = Decommissioning

Developments	Status	Distance from Array Area (km)	Distance from Offshore Export Cable Routes (km)	Description of Development/Maximum Design Scenarios	Overlap with the Proposed Development	Cumulative Effect of Potential Significance	Phase[5]	How assessed?
				tip height 205 m above LAT (and hub height 123 m) ('Seagreen 1') are currently under construction, assumed to be located as per the layout in the Seagreen s36 Application Screening Report (SWEL, 2022). Red 2,000 candela 360° wind turbine aviation lighting at nacelle height (123m) on all peripheral wind turbines (SWEL, 2020 – Figure 3.2), when visibility exceeds 5 kilometres light intensity of aviation lighting will be reduced to 10% (200 candela) of the minimum peak intensity. All other internal structures will also have a low intensity search and rescue (SAR) light, switched off during normal operations. SPS marked with yellow 360° marine navigation lighting at platform level (at least 6m above water but not above 30m) with a nominal range of 5nm (SWEL, 2020 – Figure 4.3).	offshore December 2020 – early 2023 expected to be operational. Project operation and maintenance phase overlaps with Proposed Development operation and maintenance phase.			
***Tier 1** (Proposed Development with Berwick Bank Wind Farm Onshore)*								
Offshore Wind Projects and Associated Cables								
Berwick Bank Wind Farm onshore	Application	49 km	Not Applicable (N/A)	Onshore export cables and onshore substation for Berwick Bank Wind Farm	Project construction and operation and maintenance phase overlaps with Proposed Development construction and operation and maintenance phases	Cultural heritage assets beyond 5 km from the onshore substation have been scoped out of the onshore EIA and this approach has been agreed with consultees. This includes all cultural heritage receptors assessed in the current chapter. Given the connection's character and location, there is no potential to affect the cultural significance of the terrestrial heritage assets considered in respect of the Proposed Development.	O	Scoped out with reference to nature and location of the project in relation to the cultural heritage receptors.
Tier 2 (Projects with Consent and Submitted but not yet Determined)								
Offshore Wind Projects and Associated Cables								
Seagreen 1A Project	Consented	5.0	36.0	Screening Report (SWEL, 2022) has been submitted for a s36C variation	Project operation and maintenance	Seagreen 1A will be subsumed within	O	Considered as part of the baseline conditions in assessment of significance (section 16.11).

Developments	Status	Distance from Array Area (km)	Distance from Offshore Export Cable Routes (km)	Description of Development/Maximum Design Scenarios	Overlap with the Proposed Development	Cumulative Effect of Potential Significance	Phase[5]	How assessed?
				to increase the wind turbine parameters of 36 consented wind turbines which have not yet been constructed, up to a maximum blade tip height of 285 m above LAT, with maximum rotor diameter of 242 m (Seagreen 1A Project).	phase overlaps with Proposed Development operation and maintenance phase.	Seagreen 1 in views from and of the cultural heritage receptors. It will not extend the proportion of the HFoV containing wind turbines in views from or of the cultural heritage receptors that contribute to their cultural significance. There is therefore no potential for greater or additional effects in respect of heritage receptors to arise.		
Inch Cape	Consented	4.2	36.7	Up to 72 wind turbines with assumed maximum blade tip height 291 m above LAT (rotor diameter 250 m and hub height 166 m) as a worst-case, using consented wind turbine layout from Inch Cape Offshore Wind Farm (ICOL) ES 2018. Although it is noted that an indicative layout of 40 wind turbines at the maximum 291 m blade tip height is considered in the SLVIA for the ICOL ES, the assessment considers a worst-case of 72 wind turbines at the maximum blade tip height, given recent section 36 consent granted to ICOL removing the 1 GW maximum generating capacity of this up to 72 wind turbine offshore wind project. Wind turbine aviation lighting at nacelle height (166 m) on SPS wind turbines. Marine navigation lighting at platform level on SPS.	Project operation and maintenance phase overlaps with Proposed Development operation and maintenance phase.	Cumulative effects (daytime and night-time) of the operation and maintenance of the offshore elements of the Proposed Development on the setting of heritage assets.	O	Considered as part of the Tier 2 assessment in Section 16.12.2.
Tier 3 (Projects with a Scoping Report)								
Cambois connection	Application	N/A	N/A	Offshore export cables.	Project operation and maintenance phase overlaps with Proposed Development construction and operation and maintenance phases	Given the connections character and location, there is no potential to affect the cultural significance of the terrestrial heritage assets considered in respect of the Proposed Development.	N/A	N/A	Scoped out

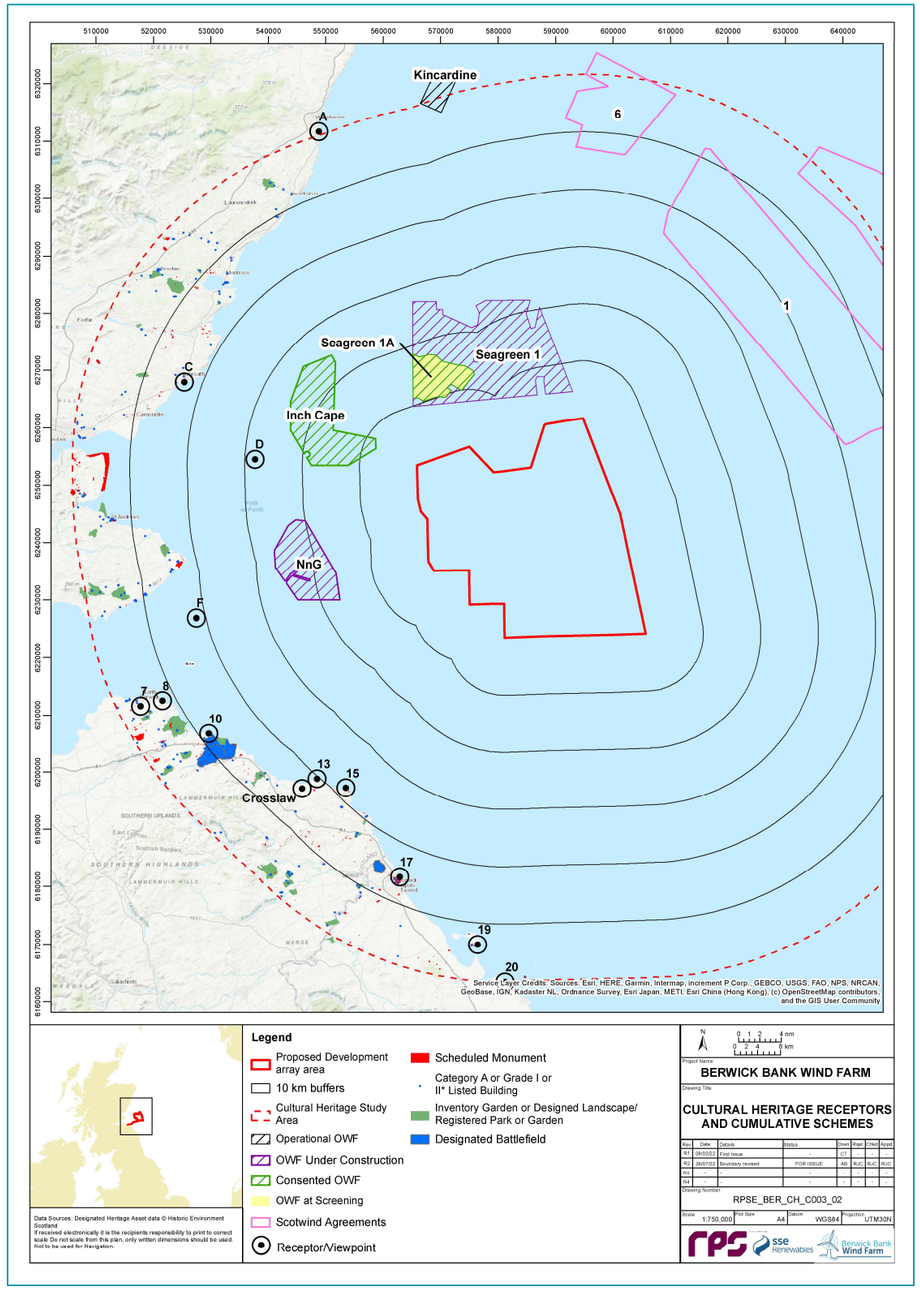

Figure 16.3: Cultural Heritage Receptors and Cumulative Schemes

16.12.2. CUMULATIVE EFFECTS ASSESSMENT

174. An assessment of the likely significance of the cumulative effects of the Proposed Development upon cultural heritage receptors arising from each identified impact is given below.

IMPACTS (DAY-TIME) OF THE OPERATION AND MAINTENANCE OF THE PROPOSED DEVELOPMENT UPON THE SETTING OF CULTURAL HERITAGE ASSETS

Tier 1

Operation and maintenance phase

175. Tier 1 cumulative impacts have been scoped out as there is no potential for the onshore substation and export cables to affect the setting of the cultural heritage receptors.

Tier 2

Operation and maintenance phase

Operation and maintenance phase

North Berwick Law (Scheduled Monument SM3863)

Magnitude of impact

176. From Berwick Law, Inch Cape wind turbines will theoretically be visible at a distance of at least 52.4 km. They will be seen to the left of NnG (33.1 km) and the Proposed Development (56 km) extending the proportion of the HFoV containing wind turbines from 46° to 60°. Met Office visibility data indicates 10.7% visibility frequency of the wind turbines at 50 km. They will represent a barely perceptible addition to the monument's setting, with no potential to result in additional or greater impacts in combination with the Proposed Development.

177. It is concluded that the cumulative magnitude of impact will be negligible.

Sensitivity of the receptor

178. North Berwick Law is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore, considered to be high sensitivity.

Significance of the effect

179. Taking into account the contribution of setting to Berwick Law's cultural significance and the distance of Inch Cape from the Law, the cumulative impact of the Proposed Development in combination with Inch Cape is considered to be of negligible magnitude and **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

180. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Dunbar Castle (Scheduled Monument, SM766)

Magnitude of impact

181. From Dunbar Castle, the Inch Cape wind turbines will theoretically be visible at a distance of at least 51.1 km. They will be seen to the left and behind those of NnG (28.1 km) and the Proposed Development 48.1 km) extending the proportion of the HFoV containing wind turbines from 62° to 67°. Met Office visibility data indicates 10.7% visibility frequency of the wind turbines at 50 km. They will represent a barely perceptible addition to the castle's setting, with no potential to result in additional or greater impacts in combination with the Proposed Development.

182. It is concluded that the cumulative magnitude of impact will be negligible.

Sensitivity of the receptor

183. Dunbar Castle is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The receptor is therefore, considered to be high sensitivity.

Significance of the effect

184. Taking into account the contribution of setting to the castle's cultural significance, the position of the Inch Cape wind turbines beyond those of NnG and their distance from the castle, the cumulative impact of the Proposed Development in combination with Inch Cape is considered to be of negligible magnitude and **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

185. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Fast Castle (Scheduled Monument, SM4328)

Magnitude of impact

186. From Fast Castle, the Inch Cape wind turbines will theoretically be seen behind those of NnG at a distance of at least 54.9 km. Met Office visibility data indicates 10.7% visibility frequency of the wind turbines at 50 km. They will hence represent a barely perceptible addition to the castle's setting, with no potential to result in additional or greater impacts in combination with the Proposed Development.

187. It is concluded that the cumulative impact will be of low magnitude.

Sensitivity of the receptor

188. Fast Castle is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the effect

189. Taking into account the contribution of setting to the castle's cultural significance, the position of the Inch Cape wind turbines beyond those of NnG and their distance from the castle, the cumulative impact of the Proposed Development in combination with Inch Cape is considered to be of low magnitude and **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

190. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Crosslaw Radar/Radio Station (Non-designated heritage asset, NT86NE 35 and NT86NW 75 & 139)

Magnitude of impact

191. From Crosslaw, the Inch Cape wind turbines will theoretically be seen behind those of NnG at a distance of at least 57 km. Met Office visibility data indicates 10.7% visibility frequency of the wind turbines at 50 km. They will hence represent a barely perceptible addition to the radio/radar station's setting, with no potential to result in additional or greater impacts in combination with the Proposed Development.

192. It is concluded that the cumulative impact will be of negligible magnitude.

Sensitivity of the receptor

193. Crosslaw Radio/Radar Station is a non-designated heritage asset. Whilst semi derelict, it is considered to be a relatively rare and unmodified example. For the purposes of this assessment, it is therefore considered to be of national importance and of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the effect

194. Taking into account the contribution of setting to the radio/radar station's cultural significance, the position of the Inch Cape wind turbines beyond those of NnG and their distance from the castle, the cumulative impact of the Proposed Development in combination with Inch Cape is considered to be of negligible magnitude and **negligible** significance, which is not significant in EIA terms.

Further mitigation and residual effect

195. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

St Abb's Kirk, church and monastic remains (Scheduled Monument, SM2975)

Magnitude of impact

196. From St Abb's Kirk, the Inch Cape wind turbines theoretically will be seen beyond those of NnG at a distance of approximately 56.8 km. Met Office visibility data indicates 10.7% visibility frequency of the wind turbines at 50 km. Hence, they will represent a barely perceptible addition to the kirk's setting, with no potential to result in additional or greater impacts in combination with the Proposed Development.

197. It is concluded that the cumulative impact will be of negligible magnitude.

Sensitivity of the receptor

198. St Abb's Kirk is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the effect

199. Taking into account the degree of change in the kirk's setting and the position of the Inch Cape wind turbines beyond those of NnG, the cumulative effect is considered to be of **negligible** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

200. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

St Abb's Lighthouse (Category B Listed Building, LB4103)

Magnitude of impact

201. From St Abb's lighthouse (Viewpoint 15), the Inch Cape wind turbines theoretically will be seen beyond those of NnG at a distance of approximately 56.8 km. Met Office visibility data indicates 10.7% visibility frequency of the wind turbines at 50 km. Hence, they will represent a barely perceptible addition to the lighthouse's setting, with no potential to result in additional or greater impacts in combination with the Proposed Development.

202. It is concluded that the cumulative impact will be of negligible magnitude.

Sensitivity of the receptor

203. St Abb's Lighthouse is a Category B Listed Building and therefore deemed to be of medium vulnerability, low recoverability and medium value. The sensitivity of the receptor is therefore considered to be Medium.

Significance of the effect

204. Taking into account the degree of change in the lighthouse's setting and the position of the Inch Cape wind turbines beyond those of NnG, the cumulative effect is considered to be of **negligible** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

205. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Berwick-upon-Tweed Fortifications

Magnitude of impact

206. Inch Cape is approximately 73.5 km from Berwick-upon-Tweed. Met Office visibility data indicates 0% visibility frequency of the wind turbines at 70 km. There is therefore no potential for cumulative effects.

Lindisfarne Castle (Grade I Listed Building, List 1042306)

Magnitude of impact

207. Inch Cape will not be visible from Lindisfarne Castle. There is therefore no potential for cumulative effects.

Lindisfarne Priory (Scheduled Monument, List 1011650)

Magnitude of impact

208. Inch Cape will not be visible from Lindisfarne Priory. There is therefore no potential for cumulative effects.

Bamburgh Castle (Grade I Listed Building, List 128055)

Magnitude of impact

209. Inch Cape will not be visible from Bamburgh Castle. There is therefore no potential for cumulative effects.

Tantallon Castle (Scheduled Monument, SM13326)

Magnitude of impact

210. From Tantallon Castle, the Inch Cape wind turbines will be seen at a distance of at least 49.5 km. Met Office visibility data indicates 10.7% visibility frequency of the wind turbines at 50 km. They will lie partially behind NnG, but will extend the proportion of the HFoV containing wind turbines from approximately 50° to 60°. They will represent a barely perceptible addition to the castle's setting, with no potential to result in additional or greater impacts in combination with the Proposed Development.

211. It is concluded that the cumulative magnitude of impact will be negligible.

Sensitivity of the receptor

212. Tantallon Castle is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the effect

213. Taking into account the contribution of setting to the castle's cultural significance, the position of the Inch Cape wind turbines beyond those of NnG and their distance from the castle, the cumulative impact of the Proposed Development in combination with Inch Cape is considered to be of negligible magnitude and **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

214. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Dunnottar Castle (Scheduled Monument, SM986)

Magnitude of impact

215. Inch Cape will not be visible from Dunnottar Castle. There is therefore no potential for cumulative effects.

Bell Rock lighthouse (Category A Listed Building, LB45197) and Bell Rock Lighthouse Signal Tower (Category A Listed Building, LB21230)

Magnitude of impact

216. From Bell Rock Lighthouse, the Inch Cape wind turbines will be seen at a distance of approximately 8.1 km. Met Office visibility data indicates 83.8% visibility frequency of the wind turbines at 8 km. They will be seen in front of Seagreen 1 (29.7 km), and part of the Proposed Development (28.2 km). Inch Cape will bring turbines substantially closer to the lighthouse and increase the number visible from it, resulting in a greater degree of visual change in its setting. However, there is no additional or greater impact upon the cultural significance of the lighthouse from the combination of the Proposed Development and Inch Cape.

217. From the signal station, the Inch Cape wind turbines will be seen at a distance of approximately 19.5 km. Met Office visibility data indicates 62.3% visibility frequency of the wind turbines at 19 km. They will be seen in front of Seagreen 1 (40.4 km), and part of the Proposed Development (43 km). Inch Cape will bring turbines closer to the signal station and increase the number visible from it, resulting in a greater degree of visual change in its setting. However, there is no additional or greater impact upon the cultural significance of the signal station from the combination of the Proposed Development and Inch Cape.

218. The cumulative magnitude of change in the lighthouse and signal station's cultural significance caused by the Proposed Development in combination with Inch Cape is therefore assessed as negligible.

Sensitivity of the receptor

219. Bell Rock lighthouse and Bell Rock Lighthouse Signal Tower are Category A Listed Buildings of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the effect

220. Taking into account the contribution of setting to the cultural significance of the Bell Rock Lighthouse and Signal Station, the cumulative effect is considered to be of **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

221. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Isle of May lighthouses (SM887/LB2712)

Magnitude of impact

222. From the Isle of May lighthouses, the Inch Cape wind turbines will be seen at a distance of approximately 34 km. Met Office visibility data indicates 44.5% visibility frequency of the wind turbines at 35 km. They will be seen in front of Seagreen 1 (53.8 km), and to the left of NnG (16.4 km) and the Proposed Development (41.5 km). Inch Cape will extend the proportion of the HFoV containing wind turbines from 51° to 75°. However, there is no additional or greater impact upon the cultural significance of the lighthouses from the combination of the Proposed Development and Inch Cape.

223. The cumulative magnitude of impact on the lighthouses' cultural significance is therefore considered to be negligible.

Sensitivity of the receptor

224. As a Scheduled Monument, the 1636 lighthouse is considered to be of national importance and high sensitivity. As a Category B Listed Building, the 1815 lighthouse is considered in isolation to be of regional importance but given its group value with the adjacent Scheduled Monument, it is also considered to be of high sensitivity.

Significance of the effect

225. Taking into account the contribution of setting to the cultural significance of the lighthouses, it is considered that the cumulative effect is of **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

226. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Isle of May Priory (SM838)

Magnitude of impact

227. From the Isle of May priory, the Inch Cape wind turbines will be seen at a distance of approximately 34 km. Met Office visibility data indicates 44.5% visibility frequency of the wind turbines at 35 km. They will be seen in front of Seagreen 1 (53.8 km), and to the left of NnG (16.4 km) and the Proposed Development (41.5 km). Inch Cape will extend the proportion of the HFoV containing wind turbines from 51° to 75°. However, there is no additional or greater impact upon the cultural significance of the priory from the combination of the Proposed Development and Inch Cape.

228. The cumulative magnitude of change in the priory's cultural significance caused by the Proposed Development in combination with Inch Cape is therefore assessed as negligible.

229. The additional cumulative magnitude of change in the lighthouses' cultural significance caused by the Proposed Development is assessed as negligible.

Sensitivity of the receptor

230. Isle of May Priory is a Scheduled Monument of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the effect

231. Taking into account the contribution of setting to the cultural significance of the priory, it is considered that the cumulative effect is of **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

232. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Tier 3

233. Tier 3 developments comprise onshore wind farms. These will not appear in combination with the Proposed Development in seaward views. Consequently, it is considered that there is no potential for them to result in significant cumulative effects and they have not been considered further.

Tier 4

234. Following the considerations in Table 16.15, Tier 4 cumulative effects have been scoped out owing to the distance of the Tier 4 schemes from the cultural heritage receptors. Given the distance of these projects from the receptors the degree of visual change is likely to be negligible and consequently there is negligible potential for them to affect the setting of the cultural heritage receptors.

IMPACTS (NIGHT-TIME) OF THE OPERATION AND MAINTENANCE OF THE PROPOSED DEVELOPMENT UPON THE SETTING OF CULTURAL HERITAGE ASSETS

235. This section only considers those assets that are potentially visible at night and hence is restricted to the three lighthouses assessed.

Bell Rock Lighthouse (Category A Listed Building, LB45197)

Magnitude of impact

236. Inch Cape will increase the number of aviation lights visible from and in combination with the lighthouse. Given that the lighthouse light is substantially brighter (1,900,000 cd), flashes and is a different colour from the aviation lights there is no potential for this to affect an appreciation of its operation.

237. The impact is predicted to be of local spatial extent, long term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the receptor

238. Bell Rock Lighthouse is a Category A Listed Building of national importance and therefore deemed to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the effect

239. Taking into account the contribution of setting to the cultural significance of the Bell Rock Lighthouse, the cumulative effect is considered to be of **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

240. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

Isle of May Lighthouse (Category B Listed Building, LB2712)

Magnitude of impact

241. Inch Cape will increase the number of aviation lights visible from and in combination with the lighthouse. Given that the lighthouse light is substantially brighter, flashes and is a different colour from the aviation lights there is no potential for this to affect an appreciation of its operation.

242. The impact is predicted to be of local spatial extent, long term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of Receptor

243. The Isle of May lighthouse is a Category B Listed Building considered to be of regional importance. Owing to its group value with its scheduled predecessor (SM887), it is considered to be of high vulnerability, low recoverability and high value. The sensitivity of the receptor is therefore considered to be high.

Significance of the Effect

244. Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **minor** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

245. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

St Abb's Lighthouse (Category B Listed Building, LB4103)

Magnitude of impact

246. Inch Cape will increase the number of aviation lights visible from the lighthouse. These will not appear in combination with the lighthouse light as it is shrouded on its landward side. From the sea the wind farm lighting and lighthouse will only be visible in succession. There is therefore no potential for this to affect an appreciation of its operation.

247. The impact is predicted to be of local spatial extent, long term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Sensitivity of the receptor

248. St Abb's Lighthouse is a Category B Listed Building of regional importance and therefore deemed to be of medium vulnerability, low recoverability and medium value. The sensitivity of the receptor is therefore considered to be medium.

Significance of the effect

249. As the increased number of aviation lights visible from the lighthouse will not affect its cultural significance, the cumulative effect is considered to be of **negligible** adverse significance, which is not significant in EIA terms.

Further mitigation and residual effect

250. No cultural heritage mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 16.14) is not significant in EIA terms.

16.12.3. PROPOSED MONITORING

251. No monitoring is proposed.

16.13. TRANSBOUNDARY EFFECTS

252. A screening of transboundary impacts has been carried out (volume 3, appendix 6.6) and has identified that there were no likely significant transboundary effects with regard to cultural heritage from the Proposed Development upon the interests of other European Economic Area (EEA) States.

16.14. SUMMARY OF IMPACTS, MITIGATION MEASURES, LIKELY SIGNIFICANT EFFECTS AND MONITORING

253. Information on cultural heritage within the cultural heritage study area was collected through desktop review and where necessary site visits.

254. Table 16.16 presents a summary of the potential impacts, mitigation measures and the conclusion of likely significant effects on cultural heritage in EIA terms. Cumulative effects area summarised in Table 16.17. The impacts assessed comprise operation and maintenance phase effects relating to the setting of cultural heritage receptors. Overall, it is concluded that there will be negligible or minor effects arising from the Proposed Development during the construction, operation and maintenance or decommissioning phases, which are not significant in EIA terms.

255. Overall, it is concluded that there will be negligible or minor adverse cumulative effects on the setting of the cultural heritage receptors from the Proposed Development alongside other projects/plans, which are not significant in EIA terms.

Table 16.16: Summary of Likely Significant Environmental Effects, Mitigation and Monitoring

Description of Impact	Receptor	Phase			Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Additional Measures	Residual Effect	Proposed Monitoring
		C	O	D						
Change in setting (daytime)	North Berwick Law scheduled monument	×	✓	×	Negligible	High	Minor	None	Minor	None
	Tantallon Castle scheduled monument	×	✓	×	Negligible	High	Minor	None	Minor	None
	Dunbar Castle scheduled monument	×	✓	×	Negligible	High	Minor	None	Minor	None
	Fast Castle scheduled monument	×	✓	×	Low	High	Minor	None	Minor	None
	Crosslaw radio/radar station non-designated heritage asset	×	✓	×	Negligible	High	Minor	None	Minor	None
	St Abb's Kirk church and monastic remains scheduled monument	×	✓	×	Negligible	High	Minor	None	Minor	None
	St Abb's Lighthouse Category B Listed Building	×	✓	×	Negligible	Medium	Negligible	None	Negligible	None
	Berwick upon Tweed Medieval and Post-Medieval defences scheduled monument	×	✓	×	Negligible	High	Minor	None	Minor	None
	Lindisfarne Castle Grade I Listed Building	×	✓	×	Negligible	High	Minor	None	Minor	None
	Lindisfarne Priory scheduled monument	×	✓	×	Negligible	High	Minor	None	Minor	None
	Bamburgh Castle Grade I Listed Building	×	✓	×	Negligible	High	Minor	None	Minor	None
	Dunottar Castle scheduled monument	×	✓	×	Negligible	High	Minor	None	Minor	None
	Bell Rock Lighthouse and Signal Station Category A Listed Buildings	×	✓	×	Negligible	High	Minor	None	Minor	None
	Isle of May Lighthouses	×	✓	×	Negligible	High	Minor	None	Minor	None
	Isle of May Priory Scheduled Monument	×	✓	×	Negligible	High	Minor	None	Minor	None
Change in setting (night time)	St Abb's Lighthouse Category B Listed Building	×	✓	×	Negligible	Medium	Negligible	None	Negligible	None
	Bell Rock Lighthouse and Signal Station Category A Listed Buildings	×	✓	×	Negligible	High	Minor	None	Minor	None
	Isle of May Lighthouses	×	✓	×	Negligible	High	Minor	None	Minor	None

Table 16.17: Summary of Likely Significant Cumulative Environment Effects, Mitigation and Monitoring

Description of Impact	Receptor	Phase			Cumulative Tier	Magnitude of Impact	Sensitivity of Receptor	Significance of Effect
		C	O	D				
Change in setting (daytime)	North Berwick Law scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Negligible		Not significant (minor)
	Tantallon Castle scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Negligible		Not significant (minor)

Description of Impact	Receptor	Phase			Cumulative Tier	Magnitude of Impact	Sensitivity of Receptor	Significance of Effect
		C	O	D				
	Dunbar Castle scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Negligible		Not significant (minor)
	Fast Castle scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Low		Not significant (minor)
	Crosslaw radio/radar station non-designated heritage asset	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Negligible		Not significant (negligible)
	St Abb's Kirk church and monastic remains scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Negligible		Not significant (negligible)
	St Abb's Lighthouse Category B Listed Building	×	✓	×	Tier 1	No additional change	Medium	Not significant (no additional change)
					Tier 2	Negligible		Not significant (negligible)
	Berwick upon Tweed Medieval and Post-Medieval defences scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	No additional change		Not significant (no additional change)
	Lindisfarne Castle Grade I Listed Building	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	No additional change		Not significant (no additional change)
	Lindisfarne Priory scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	No additional change		Not significant (no additional change)
	Bamburgh Castle Grade I Listed Building	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	No additional change		Not significant (no additional change)
	Dunottar Castle scheduled monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)

Description of Impact	Receptor	Phase			Cumulative Tier	Magnitude of Impact	Sensitivity of Receptor	Significance of Effect
		C	O	D				
					Tier 2	No additional change		Not significant (no additional change)
	Bell Rock Lighthouse and Signal Station Category A Listed Buildings	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Minor		Not significant (minor)
	Isle of May Lighthouses	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Negligible		Not significant (negligible)
	Isle of May Priory Scheduled Monument	×	✓	×	Tier 1	No additional change	High	Not significant (no additional change)
					Tier 2	Negligible		Not significant (negligible)

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