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Abbreviations and Acronyms

AEZ	Archaeological Exclusion Zone
AHER	Angus Historic Environment Record
CIA	Cumulative Impact Assessment
ClfA	Chartered Institute for Archaeologists
COWRIE	Collaborative Offshore Wind Research into the Environment
EIA	Environment Impact Assessment
ELC	East Lothian Council
ELHER	East Lothian Historic Environment Record
HER	Historic Environment Record
HES	Historic Environment Scotland
ICOL	Inch Cape Offshore Limited
JNAPC	Joint Nautical Archaeology Policy Committee
MS-LOT	Marine Scotland Licensing Operations Team
NnG	Neart na Gaoithe
OfTW	Offshore Transmission Works
OSP	Offshore Substation Platform
O&M	Operation and Maintenance
PAD	Protocol for Archaeological Discoveries
ROV	Remotely Operated Vehicle
SLVIA	Seascape, Landscape and Visual Impact Assessment
SNH	Scottish Natural Heritage
SPP	Scottish Planning Policy
UK	United Kingdom
WA	Wessex Archaeology
WTG	Wind Turbine Generator
WSI	Written Scheme of Investigation
ZTV	Zone of Theoretical Visibility

13 Cultural Heritage and Marine Archaeology

13.1 Introduction

- 1 This chapter presents the assessment of potential impacts upon cultural heritage and marine archaeology predicted to arise from the Inch Cape Wind Farm and associated Inch Cape Offshore Transmission Works (OfTW).
- 2 The cultural heritage and marine archaeology baseline has been characterised within and around the Development Area and Offshore Export Cable Corridor through desk based studies, and the onshore area through those receptors that may experience an impact on their setting, as defined in *Managing Change in the Historic Environment: Setting* (HES, 2016b).
- 3 The following appendix and chapter should also be read in conjunction with this chapter and the introductory chapters (1-8):
 - *Appendix 13A: Geoarchaeological Assessment of the Offshore Export Cable Corridor*; and
 - *Chapter 12: Seascape, Landscape and Visual Impact Assessment* (SLVIA)

13.2 Consultation

- 4 Scoping responses relating to cultural heritage and marine archaeology were included within the formal Scoping Opinion¹, received from Marine Scotland Licensing Operations Team (MS-LOT) on 28 July 2017 which included a response from Historic Environment Scotland (HES), East Lothian Council (ELC) and Angus Council. *Table 13.1* summarises the responses received. A further meeting was held with ELC to discuss the scope of the Environment Impact Assessment (EIA), whereby a discussion was had on the setting impacts on the Historic Environment in East Lothian, a summary of which is provided in *Table 13.2*.

Table 13.1: Scoping responses and actions

Consultees	Scoping Response	ICOL Response
Historic Environment Scotland (HES)	<p>HES note that there has been a substantive review of historic environment baseline data and are content that this is sufficient to underpin the forthcoming assessment.</p> <p>HES welcome the proposal to ensure that appropriate mitigation is embedded into the revised scheme. As part of this, HES would highlight the requirement for the preparation of a project specific WSI with a Protocol for</p>	<p>Inch Cape Offshore Limited (ICOL) note that HES agree on the approach to the baseline, which is provided in <i>Section 13.6</i></p> <p><i>Section 13.5.2</i> identifies the embedded mitigation proposed to minimise impacts on marine archaeology. Both a WSI and a PAD are being proposed as the main ways of ensuring impacts are minimised. ICOL have proposed the wording of the consent conditions to deal with</p>

¹ At the time of writing these documents can be found at this link:
<http://www.gov.scot/Topics/marine/Licensing/marine/scoping/ICOLRevised-2017> [Accessed 25/04/2018]

Consultees	Scoping Response	ICOL Response
	<p>Archaeology Discoveries (PAD).</p> <p>HES recommend cumulative impacts are carefully considered and provided consulting Managing Change guidance note (HES 2016b). HES also recommended that particular attention is paid to Bell Rock Lighthouse as part of the Environmental Impact Assessment (EIA) Report and that the assessment is supported by visualisations.</p>	<p>these commitments, which are contained in <i>Section 13.5.3</i>.</p> <p>Setting effects upon the identified onshore receptors are assessed in <i>Section 13.8.1</i> and cumulatively in <i>Section 13.9</i>, both assessments include impacts on Bell Rock Lighthouse. The assessment uses <i>Managing Change in the Historic Environment: Setting</i> (HES, 2016b).</p> <p>New data searches have produced no updated records for seabed features such as ship and aircraft wrecks. It is confirmed here, that these known receptors are scoped-out, as agreed with MS-LOT and HES, of impact assessment in this chapter (<i>Section 13.3</i>).</p> <p>Geotechnical survey datasets (2012, 2013) have been geoarchaeologically assessed within the Export Cable Corridor to investigate submerged prehistory potential (see <i>Appendix 13A</i>).</p>
Angus Council	<p>Angus Council agree with the use of HES guidance note <i>Managing Change in Historic Environment: Setting</i> (HES 2016b) but refer back to their response to the Original Development EIA which noted that they were of the opinion that the impacts on the setting of the Bell Rock Lighthouse and Ladyloan Signal Tower required further consideration.</p>	<p>Setting effects upon the identified onshore receptors are assessed in <i>Section 13.8.1</i>, this assessment includes impacts on Bell Rock Lighthouse and Ladyloan Signal Tower. The assessment uses the <i>Managing Change in the Historic Environment: Setting</i> (HES, 2016b).</p>
East Lothian Council (ELC)	<p>ELC recommend that potential indirect effects should be considered, including onshore works.</p> <p>An increase in blade heights will potentially have significant impacts on a number of Heritage receptors in East Lothian including (but not limited to) North Berwick Law</p>	<p>Setting effects upon the identified onshore receptors are assessed in <i>Section 13.8.1</i>.</p> <p>This assessment considered, from review of the ZTV and SLVIA wirelines, designated assets with a maritime or marine element to their setting. Historic Environment receptors within East Lothian</p>

Consultees	Scoping Response	ICOL Response
	<p>and Dunbar Battery. Receptors are to be assessed based upon a ZTV, which identifies the potential heritage receptors that may be impacted upon.</p> <p>ELC recommend cumulative impacts are carefully considered for impacts associated with both offshore and onshore windfarms.</p>	<p>were not taken forward to EIA as it was judged that no likely significant effects resulted from indirect impacts to the setting and therefore not required to be assessed in this EIA.</p> <p>Viewpoint 25: Dunbar and Viewpoint 26: North Berwick Law (which can be viewed in <i>Chapter 12, Appendices 12C.26 and 12C.27 respectively</i>).</p> <p>Cumulative impacts are addressed in <i>Section 13.9</i>.</p>

Table 13.2: Key points from consultations carried out to clarify the Scope of the EIA

East Lothian Council (Pre-submission meeting) (13/03/2018)	ELC asked about the archaeology assessment, and what heritage features would be assessed for setting impacts in ELC. ICOL noted that historic environment receptors within East Lothian were not taken forward to EIA as it was judged that no likely significant effects resulted from indirect impacts to the setting and therefore not required to be assessed in this EIA. The wirelines from the SLVIA assessment for both Dunbar and North Berwick Law were reviewed, and it was confirmed in the opinion of the professional expert that these viewpoints were representative of potential visibility from heritage assets in ELC and from these there would be no significant effect experienced on setting.
East Lothian Council (telephone call between Andrew Bicket (Wessex Archaeology) and Andrew Robertson (East Lothian Council Archaeology Service (ELCAS)) (16/07/2018)	A brief discussion was held on the approach to incorporating onshore cultural heritage receptors in East Lothian, and the relevant draft EIA Report text was emailed to ELCAS for information. It was confirmed on the call that Wessex Archaeology had considered receptors along the East Lothian coast, however that as these were unlikely to rise to a significant effect that they were not taken forward for detailed setting assessment. At the time of the call ELCAS were content with the approach. Subsequently Wessex Archaeology asked for confirmation in email but at the time of writing no response was received.

- 5 The information received through this process and recognised best-practice, has informed the methodology and scope for the assessment of the impacts on cultural heritage and marine archaeology presented in this chapter.

13.3 Scope of Assessment

- 6 As part of this application ICOL has drawn on the detail presented in the Scoping Report and subsequent Scoping Opinion² from MS-LOT to agree on those impacts that may lead to a significant effect. Therefore, this chapter focusses on those impacts that have been agreed throughout this process as being necessary to be assessed.
- 7 For clarity, those impacts that have been agreed to be scoped in are included below in Table 13.3. Those that have been agreed to be scoped out are included in Table 13.4.

Table 13.3: Scope of assessment covered in this Chapter – Development Area

Potential Impact	Scope of Assessment	Reason
Operation & Maintenance (O&M) Phase		
Setting changes	Bell Rock Lighthouse Signal Tower, Bell Rock Lighthouse, Tentsmuir Coastal Defences, St Andrews Cathedral and adjacent ecclesiastical remains, St Andrews Castle and Crail Airfield pillbox.	Wind Turbine Generators (WTGs) of 291 m to tip are being proposed, therefore there is the potential that the turbines would have significant impacts on the setting of important cultural heritage assets.

- 8 The following impacts have been scoped out of the Environmental Impact Assessment (EIA), in agreement with MS-LOT and HES in the Scoping Opinion and subsequent consultation, as the impacts are unlikely to lead to significant effects.

Table 13.4: Impacts scoped out of this Chapter

Construction (& Decommissioning) Phase – Development Area & Offshore Export Cable Corridor
Damage to or removal of heritage features resulting from direct physical impacts (Known maritime features (A1), unconfirmed locations of shipwrecks (A3) and known intertidal heritage assets).
Damage to or removal of heritage features resulting from direct physical impacts (Unknown maritime, aviation and intertidal heritage features).
Damage to or removal of heritage features resulting from direct physical impacts (Potential seabed prehistory).
Operation & Maintenance Phase – Development Area & Offshore Export Cable Corridor
Damage to or removal of heritage features resulting from direct physical impacts (Known maritime features (A1), unconfirmed locations of shipwrecks (A3) and known intertidal heritage assets)
Damage to or removal of features (Unknown maritime, aviation and intertidal heritage features)

² At the time of writing these documents can be found at this link:
<http://www.gov.scot/Topics/marine/Licensing/marine/scoping/ICOLRevised-2017> [Accessed 25/04/2018]

- 9 For impacts on 'Known maritime features (A1), unconfirmed locations of shipwrecks (A3) and known intertidal heritage assets' updated data searches of the following records were carried out with no new records found:
- East Lothian Historic Environment Record (ELHER),
 - HES Records (Canmore); and
 - United Kingdom (UK) Hydrographic Office records.
- 10 It was agreed through email consultation, after receiving the formal Scoping Opinion, with MS-LOT in consultation with HES, that there was therefore no requirement to include this within the EIA.
- 11 It was also agreed, after receiving the formal Scoping Opinion, with MS LOT and HES that 'Damage to or removal of heritage features resulting from direct physical impacts' associated with the installation of the offshore export cable corridor could also be excluded from the EIA
- 12 This was based on the geoarchaeological assessment of the Export Cable Corridor through review of the geotechnical bore hole data (2012/2013) report (provided in *Appendix 13A*). The majority of the cores contain Forth Formation (FH) sediments, but there are a few core logs suggesting sediments of medium and high palaeoenvironmental potential which has informed the assessment within *Appendix 13A*.

13.4 Regulations and Guidance

- 13 In undertaking the assessment, the following legislation has been considered:
- *Ancient Monuments and Archaeological Areas Act 1979* (as amended); and,
 - *Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997*; as amended in,
 - *Historic Environment Scotland Act 2014*.
- 14 The principal policy and guidance documents and information used to inform the assessment of potential impacts on archaeology and cultural heritage are as follows:
- *Planning Advice Note 2/2011: Planning and Archaeology*. The Scottish Government (2011);
 - *Scottish Planning Policy (SPP)*. Scottish Government (2014);
 - *Scotland's Marine Plan*. Scottish Government (2016);
 - *Historic Environment Scotland Policy Statement* (HES, 2016a);
 - *Managing Change in the Historic Environment: Setting* (HES, 2016b);
 - *The Code of Practice for Seabed Developers* (The Joint Nautical Archaeology Policy Committee (JNAPC), 2006);

- Collaborative Offshore Wind Research into the Environment (COWRIE), *Historic Environment Guidance for the Renewable Energy Sector* (Wessex Archaeology (WA), 2007);
- COWRIE *Guidance for Assessment of Cumulative Impact on the Historic Environment from Offshore Renewable Energy* (Oxford Archaeology, 2008);
- *Model Clauses for Archaeological Written Schemes of Investigation*, Offshore Renewables Project (Crown Estate, 2010); and,
- *Standard and Guidance for Desk Based Assessment* (Chartered Institute for Archaeologists [CIfA], revised 2017).

15 Table 13.5 sets out the key provisions of the relevant policies and legislations.

Table 13.5: Relevant policies and legislations

Policy / Legislation	Key Provisions	Section where requirement is addressed
Ancient Monuments and Archaeological Areas Act 1979	Legal protection for scheduled cultural heritage assets of national importance.	Impacts to the setting of scheduled cultural heritage assets of national importance discussed in <i>Section 13.8</i> .
Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997	Legal protection for designated cultural heritage assets of national importance.	Impacts to the setting of cultural heritage assets of national importance is discussed in <i>Section 13.8</i> . These are identified in <i>Section 13.6.2</i> .
Scottish Planning Policy (SPP) 2014	Sets out the role of the planning system in protecting ancient monuments, archaeological sites and landscapes.	The standards and guidance within this document is applied to all discussions of impacts on cultural heritage assets in <i>Section 13.8</i> .
HES Policy Statement (HES 2016a)	Sets out guidance for the implementation of SPP 2014 in relation to the Historic Environment.	The standards and guidance within this document is applied to all discussions of impacts on cultural heritage assets in <i>Section 13.8</i> .

13.5 Design Envelope and Embedded Mitigation

13.5.1 Design Envelope

16 As the design of the Wind Farm is not fixed and flexibility in the design envelope is required, the following key parameters, detailed in Table 13.6, represents the worst case scenario for impacts on cultural heritage and marine archaeology interests. For the impacts on setting, the tallest turbines and the greatest number of structures at this height proposed are likely to be the most apparent from key receptors and therefore this would represent the worst case

impact. This approach is the same taken for the SLVIA and was agreed with Scottish Natural Heritage (SNH) as likely to cause the greatest impacts.

- 17 The below Table 13.6 sets out the worst case scenarios defined by the wind farm and OfTW for archaeology and cultural heritage.

Table 13.6: Worst case scenario definition - Development Area

Potential Impact	Design Envelope Scenario Assessed
Operational Phase	
Impacts on the setting of cultural heritage assets	Operational period for: Up to 40 WTGs with the largest visibility (291 m blade height); and, Two Offshore Substation Platforms (OSPs).

13.5.2 Embedded Mitigation

- 18 The primary method of mitigation when dealing with the unknown archaeological resource is the precautionary principle, based on the prevention of damage to receptors by proactively putting in place protective measures rather than attempting to repair damage after it has occurred. Therefore, a series of embedded mitigation measures to ensure that significant direct physical impacts will not occur during the construction, operation or decommissioning of the Wind Farm and associated infrastructure have been applied.
- 19 The following embedded mitigation is proposed for all physical impacts. This includes Archaeological Exclusion Zones (AEZs) around known marine and intertidal cultural heritage features (shown in Figure 6.1 of *Chapter 6: Site Selection and Alternatives*) and programmes of mitigation works where physical impacts are unavoidable. AEZs are the principal means by which any sites or deposits of known or potential archaeological interest are preserved in situ.
- Development specific WSI will be prepared, in consultation with HES, once the final layout of the Development Area and OfTW infrastructure is established (which will be post consent, will take into account all known features insofar as possible). The WSI will set out the design and implementation of a programme of detailed mitigation works. This will comply with guidance current at the time of its development (presently The Crown Estate, 2010).
 - Analysis of pre-construction survey data will be undertaken to refine the identified potential marine archaeology assets at infrastructure locations. Appropriate micro-siting allowance for identified assets will be agreed in consultation with HES. Known features will be avoided (with appropriate buffer) insofar as possible.
 - Both the micro-siting allowance and AEZs will be detailed in the WSI described above. This will reduce any potential impacts on marine archaeology.

- The WSI will include a Protocol for Archaeological Discoveries (PAD) (The Crown Estate, 2014) which will be prepared in consultation HES. PAD will ensure that an agreed monitoring system is in place for unexpected or incidental archaeological finds. This will mitigate the risk of damage to any previously unrecorded archaeological remains.
- Mitigation relating to effects of the Development Area and OfTW on the setting of cultural heritage receptors will be as per SLVIA mitigation described in *Chapter 12, Section 12.5.4* and include:
 - WTGs will be placed in a grid or offset grid pattern (subject to micro siting requirements);
 - WTGs will all be of similar dimensions to hub height and blade tip subject to WTG and substructure design and installation specification; and,
 - The WTGs will all be pale grey in colour with a semi-matt finish. This tends to reduce the distance over which the WTGs are visible, especially in dull or overcast conditions, which often occur. As offshore WTGs are often viewed against the sky, pale grey is the most appropriate colour as it is closest to that of the lower part of the sky under the most frequent UK weather conditions.

13.5.3 Consent Conditions

- 20 As well as the embedded mitigation measures, ICOL proposes to commit to the purpose of the relevant consent conditions granted for the Inch Cape 2014 Consent, as they are still relevant to this application. This will provide reassurance to stakeholders that the relevant issues will be addressed and secured by way of appropriate conditions.
- 21 ICOL recognises that the wording and detail of the consent conditions will be at the discretion of the Scottish Ministers. For Cultural Heritage and Marine Archaeology interests, ICOL propose that the consent conditions address matters surrounding, but not limited to, the following:
 - Production of a WSI; and
 - Production of a Protocol for Archaeological Discoveries (PAD).
- 22 The WSI will be a live document with any changes in the development reflected in it. This will be in line with the model clauses set out by the Crown Estate (Crown Estate 2010).
- 23 The purpose of a WSI is to agree with consultees the need and scope of required mitigation measures for the marine works, with the overall aim of reducing risk and uncertainty. WSIs generally include a combination of the following:
 - Set out the responsibilities and lines of communication between the developer, main contractors, archaeological contractors/consultants, and the archaeological curators;
 - Ensure that any further geophysical and geotechnical investigations associated with the Development are subject to archaeological input and assessment.

- Provide for archaeological involvement in any diver and/or Remotely Operated Vehicle (ROV) obstruction surveys conducted for the marine works;
 - Provide information about AEZs and methodologies for their implementation;
 - Propose measures for mitigating effects on any archaeological material encountered during installation and maintenance activities; and
 - Establish the reporting, publication, conservation and archiving requirements for the archaeological works undertaken in the course of the scheme.
- 24 Additionally, it is anticipated that the Section 36 consent may state that to ensure any accidental discovery of archaeological interest is properly and correctly reported, a PAD similar to the established *Protocol for Archaeological Discoveries: Offshore Renewables Projects* (WA and The Crown Estate, 2014) and the *Marine Aggregate Industry Protocol for the Reporting of Finds of Archaeological Interest* (WA, 2005) will be established for the Development and agreed in consultation with HES within the body of the over-arching WSI.

13.6 Baseline Environment

- 25 The baseline characteristics for cultural heritage and marine archaeology, which includes known wrecks and obstructions, identified geophysical receptors, the potential for further maritime and aviation archaeological receptors and potential seabed prehistory and the setting of identified onshore cultural heritage receptors, has been set out in WA (2015a; 2015b; 2016a; 2016b).

13.6.1 Data Sources

- 26 This section identifies baseline data sources that were used to characterise the cultural heritage resource and within and around the Development Area, Offshore Export Cable Corridor and onshore receptors (for setting impacts).
- 27 The principal sources consulted during the archaeological assessment were:
- Records held by Historic Environment Records (HER) Angus Historic Environment Record (AHER) CANMORE updated in 2017;
 - Modern Admiralty and geological charts relevant to the study area; and
 - Secondary sources relating to previous archaeological and geophysical work in the region and including both academic papers and unpublished reports that are in the public domain.

13.6.2 Study Area

- 28 Two archaeological study areas were established by WA, consisting of:
- Development Area and Offshore Export Cable Corridor; and,
 - Identified designated cultural heritage receptors.

- 29 As previously discussed impacts to seabed prehistory, maritime and aviation archaeology have been scoped out, therefore only setting impacts will be discussed. Receptors identified for setting analysis are numbered using their relevant designation/catalogue number.

Setting Baseline

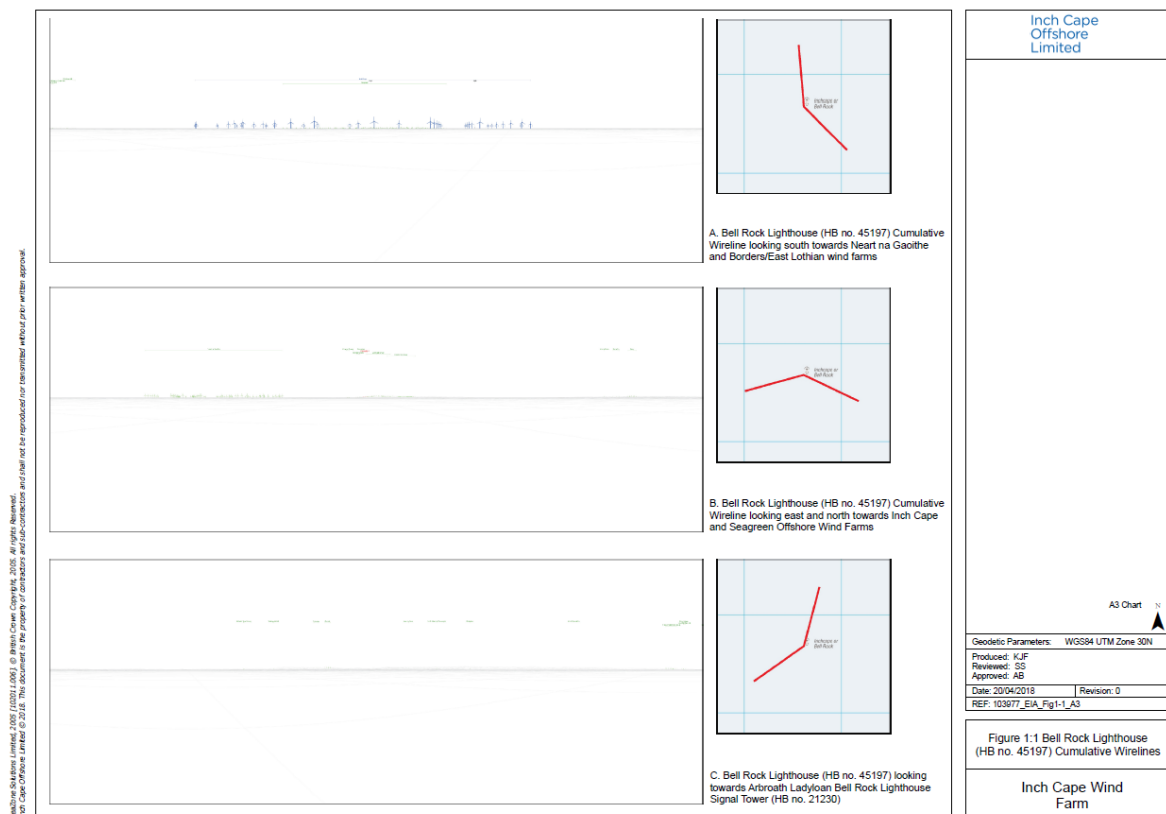
- 30 The receptors considered for the settings impact assessment are either designated sites or scheduled monuments. These sites were identified by Angus Council and Fife Council from their HERs as cultural heritage receptors within the Zone of Theoretical Visibility (ZTV) (shown in *Appendix 12E* and *12F* of *Chapter 12*) of the Development that have settings that are directly related to the sea or have significance in their visual and physical interaction with the sea. These are listed in the below Table 13.7.
- 31 Additional, sites were considered from the ZTV (shown in *Appendix 12E* and *12F* of *Chapter 12*) and SLVIA wirelines and viewpoints to identify designated assets which might have a marine or maritime element to their setting in relation to the worst-case scenario design. For example, further sites in Angus and Fife have been taken forward in the EIA. Following review of SLVIA visualisations from North Berwick Law and Dunbar (including schemes considered for the Cumulative Impact Assessment (CIA)) (which can be viewed in *Appendices 12C.26* and *12C.27*) no additional sites were identified in East Lothian that, in professional opinion, would likely to experience a significant effect from the Development. This is in part due to considerable distance from the Development and extremely small area on the horizon.

Table 13.7: Cultural heritage assets considered with respect to setting effects

Name	Designation	Reference Number	Distance to Development Area	Viewpoint
Bell Rock Lighthouse Signal Tower, Ladyloan	Category A – listed structure	HB no. 21230	19.63 km	11*
Bell Rock Lighthouse	Category A – listed structure	HB no. 45197	7.9 km	Figure 13.1
Tentsmuir Coastal Defences	Scheduled Monument	Index no. 9712	33.16 km	16*
St Andrews Cathedral and adjacent ecclesiastical remains	Scheduled Monument	Index no. 90260, HB nos. 40585, 40586, 40587, 40588, 40589, 40592	34.53 km	18*
St Andrews Castle	Scheduled Monument	Index no. 90259, HB no. 40599	34.53 km	18*
Crail Airfield, pillbox, Foreland Head	Scheduled Monument	Index no. 6461	27.37 km	23*

*Wirelines from each of these viewpoints can be found in *Appendix 12E* and *12F* of *Chapter 12*

Figure 13.1: Wireline models for Bell Rock Lighthouse (HB no. 45197)



13.6.3 Baseline without Development

- 32 Generally, without the Development natural processes will continue to affect the cultural heritage baseline influenced by local environmental conditions and climate change which may preserve or deteriorate their condition, above and below the ground. Natural processes may be of longer duration and occurring over longer timescales.

13.7 Assessment Methodology

- 33 This assessment considers the potential impacts associated with the operation and maintenance of the Development and the significance of their effect assessed regarding the sensitivity of receptors and the magnitude of the impact.

13.7.1 Guidance and Methods

Approach

- 34 Setting impacts on cultural heritage receptors are often considered to be indirect. These can occur where the visible elements of the Development Area and OfTW are intervisible with cultural heritage receptors and can also include non-visual changes. In order to assess setting impacts the setting of that receptor must first be defined. It is noted that a crucial factor in the assessment of physical impacts on cultural heritage features is the extent of ground disturbance. All damage to archaeological sites or material is effectively permanent and

recovery is limited to stabilisation or re-burial, limiting further impact. The exceptions to this are with regard to setting impacts from which full recovery is possible.

- 35 The importance of an archaeological receptor is assessed by examining the receptor's age, type, rarity, survival and/or condition, fragility and/or vulnerability, group value, documentation, associations, scientific potential and outreach potential. These factors help to characterise a site or feature, to assess how representative it is in comparison to other, similar sites, and to assess its potential to contribute to knowledge, understanding and outreach. In most cases, statutory protection is only provided to a site or feature judged to be the best known or an above average example in regard to these factors.

Setting Impacts

- 36 The methodology for assessment of setting impacts upon the cultural heritage significance of the selected receptors has been undertaken in line with Managing Change in the Historic Environment: Setting (HES, 2016b). The approach taken is to:
- Identify the cultural heritage assets that might be affected;
 - Define the setting of each asset (without reference to the development); and
 - Assess how the development would impact upon this defined setting.
- 37 Once an impact has been identified the final stage in this chapter is to consider the significance of any impact in EIA terms.
- 38 Although many of the viewpoint locations are the same for this chapter and for visualisations found in *Chapter 12*, it should be noted that the methodology for assessment of cultural heritage setting impacts is distinct from aesthetic heritage setting impacts and is undertaken in line with discipline-specific guidance (e.g. HES, 2016b). The setting assessment included in this chapter has been carried out to identify where changes in setting have a potential to impact upon the cultural heritage significance of assets as distinct from the aesthetic land and seascapes. Therefore, there is no direct correlation between the magnitude and significance of setting impacts identified in the separate chapters.
- 39 The cultural heritage assets have been defined through a process of consultation and discussion outlined in *Section 13.2*. The setting of assets has been established through site visits to all assets considered with the exception of the Bell Rock Lighthouse, where visitation was not possible or practical.
- 40 Setting as defined in the HES guidance is not limited to visual factors. Setting includes the way in which the surroundings of an historic asset or place contribute to how it is experienced, understood and appreciated. However, due to the distances involved between the receptors and the Development Area (with a minimum distance of approximately 8 km) mean that assessment of impacts upon the setting of these assets is considered to be limited to visual impacts in this instance.

- 41 Assessment of the setting impacts on cultural heritage assets is ultimately rooted in the professional judgement of the assessor but it is possible to highlight a number of key factors that have been considered in defining setting. Setting factors considered to be of particular importance in consideration of the Inch Cape Wind Farm include:
- the key vistas that give an asset a context, particularly where these relate to a direct link with the seascape;
 - the prominence of the cultural heritage asset or its place in views throughout the surrounding area and the character of the surrounding landscape; and
 - the relationships between built and natural features.
- 42 Assessment of the magnitude of setting effects on a cultural heritage asset is therefore complex and is not simply a function of the proximity of the development in question.
- 43 For terrestrial heritage assets, a ZTV has been generated for the assessment based on parameters provided by the SLVIA's proposed scope. The ZTV indicates areas whereby there is potential intervisibility between the Inch Cape Wind Farm and heritage assets, particularly those which have a distinct maritime aspect to their setting. The ZTV used to inform this assessment is shown in *Figure 12.3a of Chapter 12*.
- 44 It is also noted that impacts on setting relating to the construction and decommissioning of the OfTW will be short term and temporary. The assessment of setting impacts therefore focuses on the operational impacts arising from the Inch Cape Wind Farm.

13.7.2 Sensitivity of Receptor

- 45 The sensitivities of the setting of archaeology and cultural heritage assets are defined by both their potential vulnerability to an impact from the Inch Cape Wind Farm, their recoverability and value or importance of the asset.
- 46 The potential importance of an asset to setting changes is firstly based on relevant statutory designations e.g. scheduling under the *Ancient Monuments and Archaeological Areas Act 1979* or Category 'A' listed buildings through the Planning (*Listed Buildings and Conservation Areas*) (*Scotland*) *Act 1997*. These would all be considered as important, with all nationally designated assets being allotted at least a High value.
- 47 The vulnerability of an asset to setting impacts can be more finely assessed through site visits and analysis of the surroundings of the site e.g., does it have inter-visibility with the Inch Cape Wind Farm; does it specifically reference the area of the Inch Cape Wind Farm or deliberately ignore it; is the view important to the function and/or appreciation of the site.
- 48 The assessment of setting in this document follows the guidance discussed in the paragraphs above, is based on the baseline assessment, and is described using the following two factors:
- **Physical surroundings and views** – which includes the physical presence of the asset on the seabed, its surroundings, and relationship with other assets and navigational hazards

in the immediate area. Views to and from the asset, and how the asset is experienced in its immediate physical surroundings are also considered; and;

- **Non-visual factors** – including the way the asset is appreciated in a broader historical, artistic and intellectual capacity, and the asset’s associations.

49 The capability of a receptor to accommodate change and its ability to recover if affected is a function of its sensitivity. Receptor sensitivity is typically assessed via the following factors:

- **Adaptability** – the degree to which a receptor can avoid or adapt to an impact;
- **Tolerance** – the ability of a receptor to accommodate temporary or permanent change without significance adverse impact;
- **Recoverability** – the temporal scale over and extent to which a receptor will recover following an impact; and,
- **Value** – a measure of the receptor’s importance, rarity and worth.

50 Archaeological and cultural heritage receptors cannot typically adapt, tolerate or recover from physical impacts resulting in material damage or loss caused by development. Consequently, the sensitivity of each asset is predominantly quantified only by its value.

51 Based on *Historic Scotland’s Policy Statement* (HES, 2016), the significance of a historic asset ‘embraces all the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it’.

52 Within this document, significance is weighed by consideration of the potential for the asset to demonstrate the following value criteria:

- **Evidential value** – deriving from the potential of a place to yield evidence about past human activities;
- **Historical value** – deriving from the ways in which past people, events and aspects of life can be connected through a place to the present. It tends to be illustrative or associative;
- **Aesthetic value** – deriving from the ways in which people draw sensory and intellectual stimulation from a place; and,
- **Communal value** – deriving from the meaning of a place for the people who relate to it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values, but tend to have additional and specific aspects.

53 The value of known archaeological and cultural heritage assets were assessed on a five-point scale using professional judgement informed by criteria provided in Table 13.8 below.

Table 13.8: Criteria to assess the archaeological value of cultural heritage assets

Value	Definition
Very High	Best known or only example and/or significant potential to contribute to knowledge and understanding and/or outreach. Assets with a demonstrable international dimension to their importance are likely to fall within this category.
	Enlisted as a World Heritage Site – cultural and/or natural sites considered to be of ‘Outstanding Universal Value’, inscribed on the World Heritage List by the World Heritage Committee.
High	Above average example and/or high potential to contribute to knowledge and understanding and/or outreach. Assets with a demonstrable national dimension to their importance are likely to fall within this category.
	Receptors of recognised national significance such as Inventory Battlefields or Inventory Gardens and Designed Landscapes.
	Category A-listed Structures – buildings of national or international importance, either architectural or historic; or fine, little-altered examples of some particular period, style or building type.
Medium	Average example and/or moderate potential to contribute to knowledge and understanding and/or outreach.
	Category B-listed structures – buildings of regional or more than local importance; or major examples of some particular period, style or building type, which may have been altered.
Low	Below average example and/or low potential to contribute to knowledge and understanding and/or outreach.
	Category C-listed structures – buildings of local importance; lesser examples of any period, style or building type, as originally constructed or moderately altered.
Negligible	Poor example and/or little or no potential to contribute to knowledge and understanding and/or outreach. Assets with little or no surviving archaeological interest.

Sensitivity of the Setting Receptors

- 54 It is noted that the setting impacts may cease upon decommissioning of the Development, which would give all impacts a high degree of recoverability. However, all operational impacts should be assumed to be at least semi-permanent due to the long life of the operational Development (up to 50 years). The definitions of terms relating to the sensitivity of archaeology and cultural heritage assets are detailed in Table 13.9.

Table 13.9: Criteria for classifying sensitivity of receptor to setting effects

Sensitivity	Definition
High	Asset of international, or importance, retaining a clearly defined setting that can easily be appreciated on the ground and remains important to their cultural heritage significance.
Moderate	Asset of regional or local importance, retaining a moderately defined setting that can be appreciated on the ground and remains moderately important to their cultural heritage significance.
Low	Asset of regional or local importance, retaining some, potentially poorly defined setting that may be difficult to appreciate readily on the ground and may be slightly important to their cultural heritage significance.
Negligible	Asset where the setting has either already been heavily compromised, rendering it very difficult or impossible to appreciate on the ground, or, is considered unimportant to their cultural heritage significance.

13.7.3 Magnitude of Impact

- 55 The magnitude of an impact is defined by a series of factors including the spatial extent of any interaction, the likelihood, duration, frequency and reversibility of a potential impact. The definitions of the levels of magnitude used in this assessment for scoped-in archaeology and cultural heritage assets are described in Table 13.10.

Table 13.10: Classification of magnitude of setting impact

Magnitude	Definition
High	Comprehensive, long term or permanent physical damage or changes to the defined setting.
Moderate	Considerable medium/long term semi-permanent or long-term temporary changes that affect the character of the asset, resulting in considerable physical damage.
Low	Minor medium-term temporary or semi-permanent change that partially affect the setting of the asset, resulting in some physical damage.
Negligible	Very minor or negligible temporary or semi-permanent change to the defined setting of the asset, with physical damage leading to an imperceptible change to the baseline.

- 56 The magnitude of an impact looks at the extent of change to an asset's setting. Several factors can affect the overall magnitude of an impact including:

- **Obstruction of, or distraction from, key views**- some assets are placed deliberately in the landscape to be afforded a certain view which visitors can still enjoy e.g. prehistoric tombs overlooking a particular bay or the designed vista of a country house;
- **Changes in prominence**- Assets can be placed on a prominent place in the landscape which is key to their value and experience e.g. ridgetop cairns and castles on hilltops;
- **Changes in landscape character**- Assets may be linked to a particular land use, the changing or removal of may compromise their setting and the value of the asset as a whole e.g. the extra mural fortifications of a town are of significance to the defensive town wall;
- **Duration of impact**- the longer the impact will continue, the larger the magnitude of the impact will be; and
- **Reversibility of impacts**- if the setting will be restored at the end of the development or can be easily reversed then it will be of lesser magnitude than an irreversible change.

13.7.4 Method for assigning significance of effect

- 57 The magnitude of the impact is correlated against the sensitivity of the asset to provide a level of significance. For the purposes of this assessment any effect that is considered major, in the matrix in Table 13.11, is considered to be significant in EIA terms. Any effect that is moderate or below is not considered significant.

Table 13.11: Significance of potential effects

Magnitude	Sensitivity		
	Low	Moderate	High
Negligible	Negligible	Minor	Minor
Low	Minor	Minor/Moderate	Moderate
Moderate	Minor	Moderate	Moderate/Major
High	Moderate	Moderate/Major	Major

- 58 The matrix is not used as a prescriptive tool and the methodology and analysis of potential effects at any particular asset will require the exercise of professional judgement. Therefore, the final judgement on whether or not the effect is likely to be significant has been made on professional judgement, with a clear explanation and justification provided.

13.8 Impact Assessment- Development Area

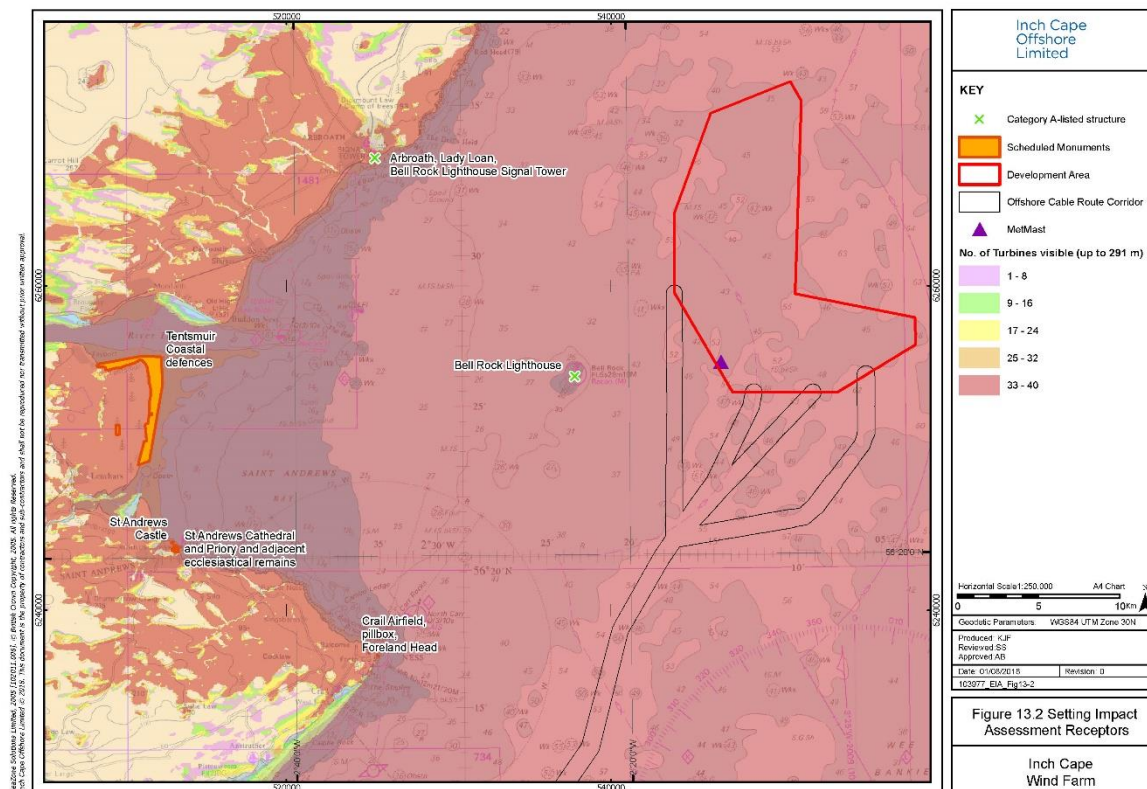
- 59 This section considers the source and nature of the effects of the Inch Cape Wind Farm on the cultural heritage resources and the degree to which the setting of the archaeological receptors (listed in Table 13.12) are exposed to and affected by the Inch Cape Wind Farm. The impact

assessment is considered in relation to the Operation and Maintenance (O&M) of the Inch Cape Wind Farm (Figure 13.2).

Table 13.12: Cultural heritage receptors – Development Area study area

Receptor (Setting)
Bell Rock Lighthouse Signal Tower, Ladyloan
Bell Rock Lighthouse
Tentsmuir Coastal Defences
St Andrews Cathedral and adjacent ecclesiastical remains
St Andrews Castle
Crail Airfield, pillbox, Foreland Head

Figure 13.2: Setting Impact Assessment Receptors



13.8.1 Effects of Operation and Maintenance

Setting Changes

60 The following section details the assessment carried out on each of the receptors.

Bell Rock Lighthouse Signal Tower, Ladyloan (HB no. 21230)

- 61 The Signal Tower is Category A-listed and is also linked with the Bell Rock Lighthouse to mark the functional relationship between the subjects. The setting of the Signal Tower is considered to be the open coastal location with an appreciable relationship with the adjacent town of Arbroath. The key view from the tower is the intervisibility with the Bell Rock Lighthouse although this can only be appreciated in optimal weather conditions. The Signal Tower retains a clearly-defined setting that forms a central part of its cultural heritage significance and it is therefore considered that the structure has a High Sensitivity to effects upon this defined setting.
- 62 In optimal weather conditions the WTGs will be visible in the view from the Bell Rock Lighthouse Signal Tower to the Bell Rock Lighthouse and will lie to west of it, occupying part of the horizon and appearing above the entrance to the harbour. However, given the distance of over 18 km between the Signal Tower and lighthouse and the very focused nature of that view it is considered that the Inch Cape Wind Farm will not dominate or detract from this view. It is considered the effect upon setting will be of Negligible Magnitude leading to a **Minor** effect and therefore not significant for the purposes of this assessment.

Bell Rock Lighthouse (HB no. 45197)

- 63 The Bell Rock Lighthouse is Category A-listed with the known functional relationship between Bell Rock Lighthouse Signal Tower, in Arbroath (see separate entry above). The Bell Rock Lighthouse is sited on a half-tide complex of reefs with panoramic views of the sea. Significant remains of structural elements surviving from the period of its construction can still be noted nearby including elements of a cast-iron railway and the site of a beacon house erected to house the workers on an adjacent spot on the reef. The closest land to the lighthouse is over 18 km distant.
- 64 The key elements of the setting of the Bell Rock Lighthouse are considered to be the open views of the sea around it, the reefs on which it was built (including related structural elements and landing points still in occasional use) and the view towards the Bell Rock Lighthouse Signal Tower. When these elements are considered together it is apparent that the lighthouse retains a clearly-defined setting that can easily be appreciated on the ground and that the setting forms a central part of its cultural heritage significance. It is therefore considered that the lighthouse has a High Sensitivity to impacts upon its defined setting.
- 65 The Inch Cape Wind Farm will be visible to the east of the lighthouse at a distance of just under eight kilometres. This Wind Farm will appear as a relatively contiguous group of WTGs and OSPs on the horizon. It will appear as a modern element in views directly to the east. It should be noted that the lighthouse stands on a busy seaway, which is rarely empty of modern maritime receptors such as cargo ships, oil rigs in transportation and fishing boats, and therefore the setting is not one of total isolation. The WTGs and OSPs will occupy a small percentage of the sea view around the lighthouse and will not detract from its open and panoramic quality. Although this assessment is based upon a WTG tip height of 291 m and the lighthouse is 36 m tall, at this distance the lighthouse will not appear to be surrounded or

competing in scale with the WTGs and OSPs. Key views from the lighthouse to the surrounding reef will be unaffected. The other known key view is towards the signal tower and has been considered as part of the setting assessment; this key view is considered to be unaffected as the Inch Cape Wind Farm is located to the east of the lighthouse, and does not restrict it. Although the lighthouse is considered to have a High Sensitivity to effects on its defined setting it is considered that the impact on the setting of the Bell Rock Lighthouse will be of Negligible Magnitude and will therefore have a **Minor** effect and therefore not significant for the purposes of this assessment.

Tentsmuir Coastal Defences (Index no. 9712)

- 66 The entry for Tentsmuir Coastal Defences in the register of Scheduled Monuments (HES) states that:

‘the monument is of national importance as one of the best preserved stretches of coastal defences dating from the period of WWII in Scotland, and as a complex of defences in which a widely representative range of defensive types is still to be seen.’

- 67 The original setting of the defences is largely intact although many of the defences themselves have decayed, have been removed or are now covered by sand. A significant proportion of the identified remains of the coastal defences have open views of the sea across dunes and intertidal sands. Despite the relatively good preservation of this area relative to similar examples, there are large areas within the scheduled extent of the coast where no coastal defences are apparent. The key elements of the setting of the coastal defences here are the views to other parts of the defences, i.e. north and south along the coast and westwards towards the camp. It is also considered that the generally open nature of the seaward views of the coastal parts of the monument is relevant to its setting. This asset is considered to have a High Sensitivity to setting effects.
- 68 The WTGs and OSPs will be visible from east-facing coastal parts of the scheduled area at a distance of 33 km over a relatively small area on the horizon. Operation of the Inch Cape Wind Farm will introduce an additional modern element to the views to the east. Given the distance and horizontal spread it is considered that the impact on the setting of this asset will be of Low Magnitude leading to a **Moderate** effect and therefore not significant for the purposes of this assessment.

St Andrews Cathedral and Adjacent Ecclesiastical Remains (Index no. 90260, HB nos. 40585, 40586, 40587, 40588, 40589, 40592)

- 69 Key elements of the setting of St Andrews Cathedral are considered to be its position in relation to the adjacent town and views within the walled enclosure. Views from within the cathedral precinct are very limited at ground level due to the high walls although there is some visibility towards the town. Key views from the cathedral to locations outside the precincts include the view of St Andrews Castle and the nearby harbour. The views of both these features are key in appreciating the historic context of the site. Key views towards the cathedral include the view from the harbour and seafront as well as the views of the cathedral

from other parts of the town. This asset is considered to have a High Sensitivity to setting effects.

- 70 The Inch Cape Wind Farm will be visible in views from outside the precinct walls to the east and from the tops of two surviving cathedral towers. It will appear on a small part of the horizon to the north east at a distance of 34 km. Given the distance it is considered that the impact on the setting of this asset will be of Low Magnitude leading to a **Moderate** effect and therefore not significant for the purposes of this assessment.

St Andrews Castle (Index no. 90259, HB no.40599)

- 71 Key elements of the setting of St Andrews Castle are considered to be its position in relation to the adjacent town. Key views from the castle to other locations include the view of St Andrews Cathedral. The view of the cathedral is central to the historic context of the castle. Key views towards the castle include the view from the landward side of the castle by its entrance. Views from the cathedral are considered under the entry for the castle. This asset is considered to have a High Sensitivity to setting effects.
- 72 The Inch Cape Wind Farm will be visible in views from the walls of the castle to the east. It will appear on a small part of the horizon to the north east at a distance of 34 km. Given the distance it is considered that the impact on the setting of this asset will be of Low Magnitude leading to a **Moderate** effect and therefore not significant for the purposes of this assessment.

Crail Airfield, Pillbox, Foreland Head (Index no. 6461)

- 73 The entry for the pillbox at Foreland Head in the register of Scheduled Monuments (HES) states that:

‘the monument is of national importance for its group value as part of the defences of the Crail Airfield complex. As such it is part of a complex which is probably the finest of its class in Scotland, and serves to illustrate in concrete form the intense effort which went into defensive construction during the earlier years of WWII.’

- 74 The principal elements of the setting are considered to be the coastal setting of the pillbox, and its views across the beach, intertidal zone and immediate sea, given its function of coastal defence. This setting has been somewhat degraded by the construction of a modern lighthouse immediately adjacent to it in 1975. The pillbox is not a prominent feature and the views from inside it are very constrained but there are extensive and open views from the exterior to its key view. It is therefore considered that the pillbox has a Moderate Sensitivity to setting effects due to these limitations.
- 75 The Inch Cape Wind Farm will be visible as a modern element occupying a small area on the horizon to the north-east of the pillbox at a distance of over 27 km. It is considered that the effect on the setting of the pillbox will be of Low Magnitude leading to an impact of **minor / moderate** effect and therefore not significant for the purposes of this assessment.

- 76 A summary of the effects on the setting of cultural heritage assets is provided below in Table 13.13.

Table 13.13: Summary of effects on the setting of cultural heritage assets

Name	Sensitivity	Magnitude of Change	Effect	SLVIA Viewpoint
Bell Rock Lighthouse Signal Tower, Ladyloan	High	Negligible	Minor	11
Bell Rock Lighthouse	High	Negligible	Minor	Figure 13.1 (of this assessment)
Tentsmuir Coastal Defences	High	Low	Moderate	16
St Andrews Cathedral and adjacent ecclesiastical remains	High	Low	Moderate	18
St Andrews Castle	High	Low	Moderate	18
Crail Airfield, pillbox, Foreland Head	Moderate	Low	Minor/ Moderate	23

- 77 In summary, following this assessment the effects from the operation of the Inch Cape Wind Farm upon the setting of cultural heritage receptors are judged to be not significant for the purposes of this assessment.

13.8.2 Effects of Decommissioning

- 78 The potential effects of decommissioning are considered to have occurred during construction phase assuming the footprint of decommissioning is the same as the construction phase, leading to a situation of no further physical impacts. The approach to decommissioning is described in *Chapter 7: Description of Development*.
- 79 Development impact assessment scoped-in effects assessed for the Inch Cape Wind Farm (impacts on setting) are no worse when considered as a Development, as the Offshore Export Cable is buried and not visible. Therefore, the assessment carried out above remains relevant for the Development impact assessment

13.9 Cumulative Impact Assessment (CIA)

Developments Considered

- 80 Other marine activities considered as part of the CIA have been included on the basis that they have the potential to have a visual or physical impact on the setting of cultural heritage receptors. Types of activities considered may include:
- Other wind farms;

- Sub-sea cables; and
 - Commercial fisheries within the Development Area and Offshore Export Cable Corridor.
- 81 This assessment has considered existing and consented wind farms, as identified in Table 13.14. These include both offshore wind farms, such as Neart na Gaoithe (NnG) and Seagreen, and onshore wind farms such as Crystal Rig, Tullo and Twinshiels. It should be noted that in line with the SLVIA, the worst case scenario for the CIA considers the consented NnG and Seagreen developments. All inclusions have been agreed as part of consultation, as outlined in *Section 13.2*. The developments considered for physical impacts on cultural heritage are those closest to the Development Area and Offshore Export Cable Corridor.
- 82 As the baseline and status for cumulative projects are ever evolving a cut-off date of November 2017 was used to allow the EIA and CIA to progress. ICOL appreciates and acknowledges that the status of some of these projects may have changed since this date and note however that the individual status of projects has not been updated in the EIA Report due to the time restrictions associated with the assessment.

Table 13.14: Developments considered within cumulative assessment

Offshore Wind Farms within Cumulative Assessment	
Neart na Gaoithe (NnG) OWF	Consented
Seagreen	Consented
Onshore Wind Farms within Cumulative Assessment	
St Johns Hill	Built
Hillhead of Auquhirie	Built
Clochnahill	Built
Brownieleys	Built
Paul Matthew Hill	Built
Tullo and Twinshiels Group	Built
Hill of Strathcathro	Built
Pickerton	Built
North Mains of Cononsyth	Built
Ascurry Farm	Built
Govals	Built
Frawney	Built
Tealing Airfield	Built

Michelin Tyre Factory	Built
Kenly	Built
Bonerbo	Built
Airdrie Farm	Built
Crystal Rig Group	Built
Aikengall Group	Built
Ferneylea	Built
Ferneylea 2	Consent pending
Hopsprigshiels	Built
Kinegar Quarry	Built

13.9.1 Effects of Operation and Maintenance

- 83 Cumulative effects on cultural heritage receptors arising from the O&M of the Development are likely to relate to changes in the setting of onshore cultural heritage.

Setting Impacts

- 84 Setting impacts on cultural heritage receptors arising from the Development in combination with other developments have been considered. For those receptors considered to have a potential for setting impacts, cumulative visualisations have been prepared (see Table 13.13 for list of key viewpoints assessed).

Bell Rock Lighthouse Signal Tower, Ladyloan (HB no. 21230)

- 85 The cumulative assessment on Bell Rock Lighthouse Signal Tower has considered those cumulative schemes that may influence the impact on the panoramic sea views surrounding the signal tower and those that would influence the intervisibility between it and the Bell Rock Lighthouse (assessed below).
- 86 No onshore wind farms have been considered cumulatively at this receptor as they would not influence the setting impact.
- 87 Seagreen will theoretically be visible from this location, however at over 40 km from the viewpoint the Seagreen turbines will be barely discernible. Further to this Seagreen will be viewed to the north of Inch Cape, and not influence the key view from the Signal Tower and intervisibility with the Bell Rock Lighthouse. Therefore, Seagreen is not considered to influence the cumulative setting effects.

- 88 NnG will be seen to the south east of Inch Cape in slightly closer proximity and wider extent than Seagreen. NnG will be viewed to the south of Bell Rock from the Signal Tower and whilst not influencing the key view it will be viewed to the south of Bell Rock, albeit in the distance (approximately 32km from the Signal Tower).
- 89 Therefore, as the setting is potentially only partially affected by the cumulative effect of two discrete concentrations of turbines it is considered the effect upon setting will be of Low Magnitude leading to a **Moderate** cumulative effect and therefore not significant for the purposes of this assessment.

Bell Rock Lighthouse (HB no. 45197)

- 90 The cumulative assessment on Bell Rock Lighthouse has considered those cumulative schemes that may influence the impact on the panoramic sea views surrounding the lighthouse and those that would influence the intervisibility between it and the Bell Rock Lighthouse Signal Tower (as assessed above). Inch Cape is located to the east of this view and therefore does not influence the intervisibility.
- 91 Figure 13.1 shows the wire line of the theoretical cumulative visibility of all the wind farms visible from Bell Rock Lighthouse. As can be seen from these wirelines, wind farms are potentially visible from all views from the lighthouse. However, in views to the east (towards NnG) and north (Inch Cape- wire lines B and C respectively) the wind farms will lie at distances that it is not anticipated that the setting from these views would be impacted. In the view to the south (wire line A) Inch Cape will be visible at a distance of just under 8 kilometres, with Seagreen sitting directly behind much further away in the distance, with the turbines only discernible on very clear days.
- 92 As noted in the individual setting assessment above, the setting of the receptor is not clear of modern maritime receptors, due to the busy nature of the seaway. It could also be argued that the presence of construction, O&M craft during the lifetime of the developments, will have a positive effect on the setting of the lighthouse, giving more individuals the opportunity to appreciate its role as a vital navigational aid as they operate vessels within its operational range.
- 93 Therefore, the impacts on cumulative setting are considered to be of Low Magnitude and will therefore have a **Moderate** effect and therefore not significant for the purposes of this assessment.

Tentsmuir Coastal Defences (Index no. 9712)

- 94 The cumulative assessment on the Tentsmuir Coastal Defences has considered those projects that may affect the key views to other parts of the defences, i.e. north and south along the coast and westwards towards the camp as well as those that may affect the generally open nature of the seaward views of the coastal parts of the monument relevant to its setting.
- 95 The introduction of Inch Cape Wind Farm will introduce a modern element to the views to the east from the coastal defences over a relatively small area on the horizon. Both Seagreen and

NnG have been considered cumulatively and the impacts on setting considered. The inclusion of Seagreen which sits behind Inch Cape from this view is not likely to be visible due to distance, which means that all but blade tips will be screened by the horizon and therefore will not influence the cumulative effect from the coastal defences.

- 96 From this location, NnG will appear on the open sea horizon to the right of, but separated from, the Inch Cape WTGs and OSPs. NnG, will be viewed at similar distances to Inch Cape and its introduction will increase the visibility of wind turbines along the horizon.
- 97 The consented Kenly wind farm, south of St Andrews, will also be viewed from this location at approximately 13 km south and would likely be discernible on the skyline.
- 98 Cumulatively, both NnG and Kenly will add to inclusion of a modern element along key views, however at the distance in which they'll be viewed, and that they'll be viewed separately, not as one continuous block of WTGs, the setting will only partially affected. Therefore, it is considered the effect will be of Low Magnitude leading to a **Moderate** cumulative effect and therefore not significant for the purposes of this assessment.

St Andrews Cathedral and Adjacent Ecclesiastical Remains (Index no. 90260, HB nos. 40585, 40586, 40587, 40588, 40589, 40592)

- 99 With the exception of the Michelin Tyre Factory, Govals, Frawney and Tealing Airfield other existing and consented onshore wind farms are not seen, or will be unlikely to be visible, in views from outside the precinct walls due to their distance from the viewpoint. Onshore developments that are visible would be at distances of over 17 km and likely to be minor elements in the view and will not be seen in the same field of view as the Inch Cape WTGs and OSPs.
- 100 Seagreen will be located at a distance of around 57 km. Due to the curvature of the earth, only the blade tips would be theoretically visible, although this is unlikely at this distance. NnG will be seen at a distance of around 28 km to the east. Some WTGs at the southern extent of the NnG array will be screened by the coast, with only blade tips being visible above the skyline.
- 101 Given the distance it is considered that the cumulative impact on the setting of this asset will be of Low Magnitude leading to a **Moderate** effect and therefore not significant for the purposes of this assessment.

St Andrews Castle (Index no. 90259, HB no.40599)

- 102 With the exception of the Michelin Tyre Factory, Govals, Frawney and Tealing Airfield, other existing and consented onshore wind farms are not seen, or will be unlikely to be visible, in views from the walls of the castle due to their distance from the viewpoint. Onshore developments that are visible would be at distances of over 17 km and likely to be minor elements in the view and will not be seen in the same field of view as the Inch Cape WTGs and OSPs.

- 103 Of the two other offshore wind farms, Seagreen will be located at a distance of around 57 km. Due to the curvature of the earth, only the blade tips would be theoretically visible, although this is unlikely at this distance. NnG will be seen at a distance of around 28 km to the east. Some WTGs at the southern extent of the NnG array will be screened by the coast, with only blade tips being visible above the skyline.
- 104 Given the distance it is considered that the cumulative impact on the setting of this asset will be of Low Magnitude leading to a **Moderate** effect and therefore not significant for the purposes of this assessment.

Crail Airfield, Pillbox, Foreland Head (Index no. 6461)

- 105 The photograph and wireline visualisations in Figure 12.57b show that the Michelin Tyre Factory WTGs are visible to the north-west; however other existing and consented WTGs to the north of Fife Ness are unlikely to be seen due to the intervening distance. The existing wind farms at Aikengall and Crystal Rig may be visible in conditions of good visibility, arrayed on the distant skyline of the Lammermuir Hills at distances of over 39 km. These onshore developments are not seen in the same field of view as the Inch Cape WTGs and OSPs and occupying a small proportion of the view.
- 106 Seagreen will be located to the north-east of the Development Area, over 49 km from the viewpoint with only blade tips being visible. NnG will be closer, at around 16 km distance and occupying a greater extent of the view, although will not affect the immediate setting or key views of the receptor.
- 107 It is considered that the cumulative effect is not deemed to alter the understanding and appreciation of the pillbox and the impact will be of Low Magnitude leading to a **minor / moderate** effect and therefore not significant for the purposes of this assessment.

Summary of Cumulative Setting

- 108 Summary of the cumulative effects on the setting of cultural heritage assets is provided below in Table 13.14.

Table 13.14: Summary of cumulative effects on the setting of cultural heritage assets

Name	Sensitivity	Magnitude of Change	Effect	SLVIA Viewpoint
Bell Rock Lighthouse Signal Tower, Ladyloan	High	Low	Moderate	11
Bell Rock Lighthouse	High	Low	Moderate	Figure 13.1 (of this assessment)
Tentsmuir Coastal Defences	High	Low	Moderate	16

St Andrews Cathedral and adjacent ecclesiastical remains	High	Low	Moderate	18
St Andrews Castle	High	Low	Moderate	18
Crail Airfield, pillbox, Foreland Head	Moderate	Low	Minor/ Moderate	23

13.9.2 Effects of Decommissioning

109 No cumulative impacts have been identified with regards to decommissioning.

13.10 Impact Interactions

110 The potential for individual impacts identified through the impact assessment above to interact and create new, or more significant impacts on cultural heritage receptor has been reviewed and no such interactions have been identified.

111 This chapter has identified linkages between different areas or disciplines covered in this EIA Report. Potential impacts on SLVIA receptors within the SLVIA Study Area have been fully assessed in *Chapter 16: Socio-economic* and are also referenced where appropriate.

112 The cumulative effects of the Development, in conjunction with other schemes are separately addressed within the cumulative section above (*Section 13.9*).

13.11 Additional Mitigation

113 The cultural heritage and archaeology assessment has assessed worst-case scenario impacts of the Development in isolation and cumulatively. This assessment has concluded that impacts on receptors within the Development Area and Offshore Export Cable Corridor from some Development related activities will be of **minor / moderate** effect and therefore not significant for the purposes of this assessment.

114 Based on the outputs from this impact assessment, it has been concluded that the Embedded Mitigation detailed in *Section 13.5* would be sufficient with respect to archaeology and cultural heritage and no further mitigation is recommended.

13.12 Conclusion and Residual Effects

13.12.1 Development Area

115 It is expected that the residual effects of the development on the setting of cultural heritage receptors will be **Minor to Moderate** (see Table 13.15 for summary of effects and mitigation).

Table 13.15: Summary of effects

Impact	Receptor	Effect
Operation and Maintenance		
Setting changes	Bell Rock Lighthouse Signal Tower, Ladyloan	Minor
	Bell Rock Lighthouse	Minor
	Tentsmuir Coastal Defences	Moderate
	St Andrews Cathedral and adjacent ecclesiastical remains	Moderate
	St Andrews Castle	Moderate
	Crail Airfield, pillbox, Foreland Head	Minor/ Moderate

- 116 Setting impacts have been considered for a number of designated coastal heritage assets, with a total of six receptors assessed through the use of site visits, wirelines and visualisations. Effects on setting have been established in the case of Bell Rock Lighthouse and Bell Rock Lighthouse Signal Tower; in each case these are considered to be **Minor**. Effects on setting have been established in the case of Crail Airfield pillbox as **Minor/Moderate**. Effects' on setting have been assessed for Tentsmuir Coastal Defences, St Andrews Cathedral and adjacent ecclesiastical remains, and St Andrews Castle and in each case considered to be **Moderate**. In all of these cases the impacts to the setting of these receptors is considered to be not significant with regard to the methodology presented above. Although intervisibility with the Inch Cape Wind Farm is possible in each case, no significant impacts have been identified on their settings. No mitigation has been proposed for indirect setting impacts. The effect of decommissioning on the setting of cultural heritage sites will be to remove all impacts arising from the Development.

13.12.2 Cumulative Impacts

The Development and OnTW (as defined)

- 117 Cumulative setting impacts for the Development and OnTW would be no greater than that assessed for the Development alone, and thus not considered to be significant.

The Development with Other Projects

- 118 An assessment has been made of the potential for impacts of the Development on cultural heritage assets in combination with other projects. A non-significant impact has been identified in the case of cumulative setting impacts on cultural heritage receptors (Table 13.16 below); no mitigation has been proposed.

- 119 The visualisations demonstrate, in all cases where other developments are considered to have a potential to combine setting impacts with the Inch Cape Wind Farm, these developments will appear either behind the WTGs and OSPs and will be obscured by it or will appear on the horizon adjacent to it. It is considered that in all cases the increased presence of the Development together with adjacent wind farms will lead to an effect of Low Magnitude on receptors of High Sensitivity leading to **Moderate** effects and for the purposes of this assessment therefore not significant. All assessed receptors are deemed be of High Sensitivity, with the exception of Crail Airfield pillbox.
- 120 Cumulative effects on Crail Airfield pillbox are considered to be of Low Magnitude on a receptor of Moderate Sensitivity leading to **minor / moderate** effects and for the purposes of this assessment therefore not significant.
- 121 In all cases the resulting impacts are considered to be not significant with regard to the methodology presented above.

Table 13.16: Summary of significance of cumulative impacts on cultural heritage assets

Impact	Receptor	Effect
Operation and Maintenance		
Setting changes	Bell Rock Lighthouse Signal Tower, Ladyloan	Moderate
	Bell Rock Lighthouse	Moderate
	Tentsmuir Coastal Defences	Moderate
	St Andrews Cathedral and adjacent ecclesiastical remains	Moderate
	St Andrews Castle	Moderate
	Crail Airfield, pillbox, Foreland Head	Minor/ Moderate

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