

11. CULTURAL HERITAGE

Executive Summary

This chapter provides the results of the assessment of cultural heritage and archaeological features (referred to as ‘assets’) potentially affected by the proposed varied development.

The assessment has been prepared by Ramboll Environment and Health UK Limited (Ramboll) with support from Headland Archaeology (UK) Ltd (Headland). Headland has reviewed the report against the methodologies described in the original ES and the ES Addendum for the consented Viking Wind Farm.

The ES, the ES Addendum and this EIAR have been undertaken in accordance with the standards of professional conduct outlined in the Chartered Institute for Archaeologists' (CIfA) Code of Conduct, the CIfA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, and the CIfA Standards and Guidance for Historic Environment Desk Based Assessments. The scope of the assessment is designed to be proportionate taking account of the fact that the footprint of the proposed varied development remains unchanged from the consented Viking Wind Farm, with material changes from a cultural heritage perspective limited to the proposed variation to the maximum turbine tip height from 145m to 155m, and associated change to the rotor diameter from 110 m to a maximum of 120 m.

The results of a desk-based study to identify cultural heritage assets within the site are presented in this chapter. The desk-based study confirmed that there are no cultural heritage assets that are the subject of statutory designation within the site. 63 cultural heritage assets, identified in the Sites and Monuments Records for the Shetland Islands are located within the site (Figure 11.1, annotated with Unique ID references provided in Technical Appendix 11.6). The ES identified three potential direct significant adverse effects on assets located within the site and within 10 m of access tracks or turbine base excavations (Laxo Burn settlement: Site 447 /UID8104, the horizontal mill at South Newing: Site 82/UID7984 and the Catfirth Linen Industry Landscape: Site 448). The Laxo Burn settlement and Catfirth Linen Industry Landscape assets remain within the consented Viking Wind Farm and proposed varied development site boundary. The ES Addendum design removed the proposed access track at South Newing, thus removing the potential for effects on the horizontal mill asset (site 82). Taking account of the mitigation proposed, the ES and ES Addendum concluded that the residual direct effects on heritage assets would be reduced to minor adverse and not significant. This conclusion remains valid both for the consented Viking Wind Farm and no change to the potential for residual direct effects is predicted as a result of the proposed varied development.

All designated assets, as identified in the Historic Environment Scotland database¹, within the 10 km study area and from which one or more turbines of the proposed varied development would be visible, were assessed for potential operational (settings) effects. The desk study identified 214 designated assets within the 10 km study area, of which 59 have no theoretical visibility of the consented Viking Wind Farm, based on the bare earth Zone of Theoretical Visibility (ZTV) mapping. The assets within the ZTV and study area include 84 scheduled monuments, 72 listed buildings (of which three are A listed), and one Garden and Designed Landscape. It is noted that since the preparation of the ES and ES Addendum, two additional heritage assets have been designated as scheduled monuments within 10 km of the site.

¹ URL: <http://portal.historicenvironment.scot/> (accessed 4/10/2018)

The ZTV for the proposed varied development identified 57 of the 214 assets have no visibility. It follows that two designated assets (SM2074 and LB18693) have potential visibility of the proposed varied development, where none existed for the consented Viking Farm. In both cases, the ZTV identified one turbine as being potentially visible. The number of turbines potentially visible (based on the ZTV) increases for the proposed varied development, compared to the consented Viking Wind Farm, for 132 of the 214 heritage assets considered. 92 of the 132 assets with increased theoretical visibility would increase visibility by between one and four turbines. The assessment of the consented Viking Wind Farm, based on the findings of the ES Addendum has identified no significant adverse indirect effects on the setting of heritage assets. Overall this assessment identified that the proposed varied development would result in a small increase in the number of turbines potentially visible from some assets; however not to the extent that would change the assessment conclusions reached for the consented Viking Wind Farm. As a result, the difference between the setting effects of the consented Viking Wind Farm and the proposed varied development is considered to be negligible.

An assessment of the potential for significant cumulative effects has been undertaken, considering the addition and in combination effects of the proposed varied development with the Beaw Field Wind Farm to the north, and the Lerwick Cluster (of turbines) to the south. Overall, the addition of the proposed varied development to other cumulative developments is not considered to give rise to effects any greater than predicted for the proposed varied development on its own, and therefore no significant cumulative effects have been identified.

The layout and infrastructure of the proposed varied development has not altered from that of the consented Viking Wind Farm which was finalised in design such as to avoid direct effects upon known heritage assets within the site as far as possible. Within the areas of known heritage sensitivity, heritage assets will be surveyed and fenced off under archaeological supervision prior to the commencement of construction operations. If disturbance of a previously unrecorded site cannot be avoided, an archaeological excavation may be required to ensure that the site is preserved by record. Depending on the result of any excavation, the Applicant may be required to commission post-excavation analyses and publication of findings to satisfy planning conditions. To mitigate the potential for previously unrecorded assets to be impacted during the construction phase, an archaeological watching brief will be maintained on a representative proportion of ground-breaking works across the site in accordance with the Archaeological Mitigation Plan. Any remains encountered will either be preserved in situ or will be recorded and removed as appropriate. On this basis, no significant direct effects have been identified on known cultural heritage assets during the construction of the proposed varied development.

11.1 Introduction

11.1.1 This chapter reports on the likely significant effects on cultural heritage and archaeology associated with the construction, operation and decommissioning of the proposed varied development. The specific objectives of the chapter are to:

- describe the baseline;
- summarise the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects of the consented Viking Wind Farm, and the proposed varied development based on the conclusions of the ES and ES Addendum;
- describe the mitigation measures proposed to address likely significant effects; and
- provide an assessment of the likely significant effects of the proposed varied development and describe how these differ from the effects of the consented Viking Wind Farm.

11.1.2 This chapter and supporting figures were prepared by Ramboll Environment and Health UK Limited (Ramboll) with support from Headland (Headland) Archaeology. Headland is a Registered Archaeological Organisation of the Institute for Archaeologists (IfA).

11.1.3 This chapter is supported by:

- Technical Appendix 11.1: Designation Point Visibility Analysis;
- Technical Appendix 11.2: ES 2010 Site Gazetteer;
- Technical Appendix 11.3: ES 2010 Setting Assessment (Visual Impact) Tables;
- Technical Appendix 11.4: Archaeological Management Plan;
- Technical Appendix 11.5: Scope of Archaeological Clerk of Works Role; and
- Technical Appendix 11.6: Non-designated sites within the site boundary.

11.1.4 Figures 4.6, 4.7.4, 4.8.1, 4.8.2 and 11.1 – 11.5.8.2 are referenced in the text where relevant.

Scope of the Assessment

11.1.5 This EIA Report has been prepared using baseline information and survey data collected for the consented Viking Wind Farm ES and ES Addendum which has been reviewed and reused where appropriate. Since the consented Viking Wind Farm and the proposed varied development no longer incorporate the Delting and Collafirth turbine quadrants, the study area for direct and indirect effects has been reduced, with the assessment of direct effects restricted to considering the assets in the Nesting and Kergord quadrants only. This chapter provides an assessment of potential direct, indirect (setting) and cumulative effects on cultural heritage and archaeological assets, including archaeological sites and monuments, historic buildings and historic landscapes that may be affected by the proposed varied development. Where relevant, mitigation measures are proposed to address likely significant effects. Residual effects remaining, following the implementation of mitigation, are identified and assessed.

11.1.6 It is noted that following the submission of the ES, Historic Scotland (HS) (now Historic Environment Scotland) agreed that the effects on the settings of some monuments would be likely to be significant. HS lodged an objection to the proposal on the grounds that it would have a significant and adverse effect on the following eight monuments:

- Burravoe, chambered cairn and cairn 470 m NE of (index no 3469) – site 319;
- Graven, chambered cairn 150m NE of (index 3524) - site 173;
- Hill of Dale, chambered cairn (index no 3564) – site 83;

- Knowe of Bruland cairn Laxo (index no 2038) – site 27;
- Hayfield, chambered cairn 150m ESE of (index no 5722) - site 291;
- Crooksetter Hill, chambered cairn at SE summit (index no 3576) – site 327;
- Crooksetter Hill, chambered cairn near NW summit (index no 3608) – site 328; and
- Skeo of Gossaford, cairn 400m W of (index no 3483) – site 313.

11.1.7 The assessment in the ES Addendum confirmed that the re-assessment of the effects on setting, taking account of the removal of turbines, was that the significant effects were avoided (for a 127 turbine layout); a negligible effect (not significance) on its setting was identified for Skeo of Gossaford cairn, whilst minor effects (not significant) were identified for the other seven scheduled monuments (TA 11.3). The consented Viking Wind Farm (103 turbines) further reduces the potential for significant effects on setting, with the Crooksetter Hill assets (site 327 and 328) falling outside of the study area.

Baseline Conditions

11.1.8 The study area for direct effects is the land within the site boundary. Given that the footprint of the proposed varied development is unchanged from the consented Viking Wind Farm, there is no potential for additional significant direct effects on cultural heritage or archaeological assets.

11.1.9 A 10 km study area from the site boundary was used for the assessment of potential indirect effects on the setting of all designated heritage assets, including Scheduled Monuments; Listed Buildings; Inventoried Gardens and Designed Landscapes; Inventoried Battlefields and Conservation Areas.

Policy and guidance

11.1.10 The ES considered the following policy and guidance:

- Ancient Monuments and Archaeological Areas Act 1979;
- Town and Country Planning (Scotland) Act 1997;
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997;
- The Shetland Structure Plan 2001 – 2016;
- Scottish Natural Heritage 2002 ‘Visual Assessment of Windfarms: Best Practice’;
- Scottish Government: Planning Advice Note 45 (PAN 45) (2002);
- The Shetland Local Plan (June 2004); and
- Scottish Historic Environment Policy (SHEP) (Historic Scotland 2008).

11.1.11 Since the ES and ES Addendum, there have been a number of developments in legislation, policy and guidance, and these will be considered in the assessment of the proposed varied development:

- Scottish Planning Policy (SPP) was updated in 2014 and sets out how nationally important land use planning matters should be addressed. Paragraphs 135 - 151 set out the process for dealing with all types of historic environment assets within the planning framework.
- The Historic Environment Scotland Act 2014² sets out Historic Environment Scotland's (formerly Historic Scotland) role and legal status, including changes in processes for the designation of monuments and buildings. This Act establishes Historic Environment Scotland (HES) as a new Non-Department Public Body which will take over the functions of Historic Scotland (HS) and the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS).

² The Scottish Government (2014) The Historic Environment Scotland 2014 [online]. Available at: http://www.legislation.gov.uk/asp/2014/19/pdfs/asp_20140019_en.pdf

- The Town and Country Planning (Historic Environment Scotland) Amendment Regulations 2015 amends legislation on EIA, development planning and development procedures to reflect the formation of HES. This amendment will not impact the original assessment.
- Managing Change in the Historic Environment: Setting (HES, 2016) provides guidance on setting and recommends a three-stage process in assessing the impact of a development on the setting of a historic asset or place.
- Environmental Impact Handbook Appendix 1: Cultural Heritage Impact Assessment (April 2018) provides guidance on assessing impacts on cultural heritage in the context of the EIA process.
- The Shetland Local Development Plan 2014 and related supplementary guidance on Onshore Wind Energy is now the relevant development plan.
- PAN45 has been replaced with the Scottish Government web-based advice for onshore wind³.

11.1.12 In addition, the HES Policy Statement (HESPS) was updated in 2016⁴, replacing the Scottish Historic Environmental Policy (SHEP). This policy statement sets out how HES fulfils its regulatory and advisory roles and how it expects others to interpret and implement SPP.

Effects to be Assessed

- 11.1.13 This assessment considers potential effects on the setting of all designated heritage assets, including Scheduled Monuments; Listed Buildings; Inventoried Gardens and Designed Landscapes; Inventoried Battlefields and Conservation Areas identified in the Shetland Site and Monument Record.
- 11.1.14 This assessment considers the potential effects on hitherto unknown archaeological remains during the construction phase of the proposed varied development and effects on the setting of heritage assets arising from the operational phase of the proposed varied development.

Effects Scoped Out of Assessment

- 11.1.15 The changes in turbine dimensions are not anticipated to have any direct effects to known cultural heritage features as the footprint of the development will not change from the consented Viking Wind Farm. Cultural Heritage Assets within the site boundary are further protected by conditions 33 – 41 of the relevant section 36 consent. No material changes to those conditions are being sought.

11.2 Methodology

Overview

- 11.2.1 This assessment is based on publicly available data sources. All designated heritage assets are located within 10 km of the proposed varied development were identified (Figure 11.2). A ZTV (Figure 11.3 and Figure 11.4) has been used to identify the heritage assets which would have views of the consented Viking Wind Farm and the proposed varied development.

Method of Baseline Characterisation

Desk Surveys

- 11.2.2 The following data sources were consulted during the preparation of this assessment:

³ URL: <https://www.gov.scot/publications/onshore-wind-policy-statement-9781788515283/pages/3/>

⁴ Historic Environment Scotland Policy Statement [online]. Available at: <https://www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/historic-environment-scotland-policy-statement/>

- The consultation responses and data used for the Viking Wind Farm ES, from the following sources:
 - Historic Scotland, now Historic Environment Scotland data (Scheduled Monuments, Listed Buildings, and Inventory Garden & Designed Landscapes)⁵;
 - The Shetland Amenity Trust (Local Sites and Monuments Record Data)⁶;
 - The Royal Commission on the Ancient and Historical Monuments of Scotland (the National Monuments Record of Scotland; the Ordnance Survey Name Book, the Aerial Photographic Collection, various publications);
 - The National Map Library (early Ordnance Survey maps; early cartographic records of the area);
 - National Archives of Scotland;
 - Shetland Archives, Lerwick;
 - The Shetland Field Studies Group; and
 - Nesting Local History Society.

11.2.3 Aerial Photographs held by the National Monuments Record of Scotland (NMRS: now the National Record of the Historic Environment [NRHE]) and the local Sites and Monuments Record (SMR) were consulted with the aim of investigating whether the archaeological remains in this landscape could be more extensive than the recorded data indicates. Additional aerial photographs of the site taken during an oil reconnaissance survey in 1975 were also consulted in the SMR. Peat erosion scars identified during aerial photographic consultation were recorded and targeted during field survey to assess peat depth and evidence for archaeology.

11.2.4 The historical maps consulted during this assessment range in date from the 1600s (Blau) to the 1900s (Ordnance Survey). They provide useful data about changes in land-use, boundaries, buildings and place-names over the centuries.

Assessment of Effects

Direct Impacts

Receptor Sensitivity

11.2.5 HESPS (HES 2016a) notes that to have cultural significance, an asset must have a particular ‘artistic; archaeological; architectural; historic; traditional (factors listed in the 1979 Act⁷); aesthetic; scientific; [and/or] social [significance] – for past, present or future generations’. Heritage assets also have value in the sense that they ‘...create a sense of place, identity and physical and social wellbeing, and benefit the economy, civic participation, tourism and lifelong learning’ (Scottish Government 2014b). For clarity and to avoid confusion with the EIA term ‘significant’, the term ‘cultural value’ will be used throughout this assessment though, as outlined above, it is acknowledged that this is the same as ‘cultural significance’ as defined in HESPS.

11.2.6 All heritage assets have some value; however, some assets are judged to be more important than others. The level of that importance is, from a cultural resource management perspective, determined by establishing the asset’s capacity to inform present or future generations about the past. In the case of many heritage assets their importance has already been established through the designation (i.e. scheduling, listing and inventory) processes applied by HES.

⁵ NB. Data updated 26/09/2018 (URL: <https://portal.historicenvironment.scot/downloads>)

⁶ NB. Data updated 26/09/2018 (URL: <https://www.pastmap.org.uk/>)

⁷ Ancient Monuments and Archaeological Areas Act 1979

11.2.7 The criteria used to establish importance in this assessment are presented in Table 11.1 and are drawn from Appendices 1-6 of HESPS which outline the criteria for establishing National Importance.

Table 11.1: Criteria for Establishing Cultural Value	
Importance	Criteria
International National	World Heritage Sites. Scheduled Monuments (as protected by the Ancient Monuments and Archaeological Areas Act 1979 (“the 1979 Act”). Category A Listed Buildings (as protected by the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (“the 1997 Act”). Inventory Gardens and Designed Landscapes (as protected by the 1979 Act, as amended by the Historic Environment (Amendment) (Scotland) Act 2011 (“the 2011 Act”). Inventory Battlefields (as protected by the 1979 Act, as amended by the 2011 Act). Non-Designated Assets considered to be of National Importance including, fine, little-altered examples of some particular period, style or type (as protected by SPP, 2014).
Regional	Category B Listed Buildings (as protected by the 1997 Act). Conservation Areas (as protected by the 1997 Act). Major examples of some period, style or type, which may have been altered (as protected by SPP, 2014). Non-Designated assets of a type which would normally be considered of national importance that have been partially damaged (such that their ability to inform has been reduced) (as protected by Paragraph 137 of SPP, 2014).
Local	Category C Listed Buildings (as protected by the 1997 Act). Lesser examples of any period, style or type, as originally constructed or altered, and simple, traditional sites, which group well with other significant remains, or are part of a planned group such as an estate or an industrial complex (as protected by SPP, 2014). Cropmarks of indeterminate origin (as protected by SPP, 2014). Non-Designated assets of a type which would normally be considered of regional importance that have been partially damaged or asset types which would normally be considered of national importance that have been largely damaged (such that their ability to inform has been reduced) (as protected by SPP, 2014).
Negligible	Relatively numerous types of remains. Find spots of artefacts that have no definite archaeological remains known in their context. Non-Designated assets of a type which would normally be considered of local importance that have been largely damaged (such that their ability to inform has been reduced). The above assets are protected by Paragraph 137 of SPP, 2014).

Magnitude of Change – Direct Effects

11.2.8 The magnitude of the physical impact upon monuments caused by the proposed varied development has been rated using the classifications and criteria outlined in Table 11.2 below.

Table 11.2: Criteria for Classifying Magnitude of Physical Impact	
Physical Impact	Criteria
High	Major loss of information content resulting from total or large-scale removal of deposits from a site whether or not the site is associated with a monument.

Physical Impact	Criteria
	Major alteration of a monument’s baseline condition. Any physical alteration to a Scheduled Ancient Monument. Any alteration to a Category A Listed Buildings, massive alterations to a Category B or Category C Listed Building.
Medium	Moderate loss of information content resulting from material alteration of the baseline conditions by removal of part of a site whether or not the site is associated with a monument. Slight alteration of a monument’s baseline condition.
Low	Minor detectable impacts leading to the loss of information content. Minor alterations to the baseline condition of a monument.
Marginal	Very slight or barely measurable loss of information content. Loss of a small percentage of the area of a site’s peripheral deposits. Very slight and reversible alterations to a monument.
None	No physical impact anticipated.

11.2.9 The predicted significance of impact upon each monument is determined with professional judgement by considering its relative cultural value in conjunction with the magnitude of impact predicted on it. The method of deriving the significance of impact classifications is shown in Table 11.3 below.

		Cultural Value				
		Negligible	Local	Regional	National	International
Impact of physical Magnitude	High	Minor-Major	Moderate	Moderate-Major	Major	Extreme
	Medium	Minor	Minor-Moderate	Moderate	Moderate-Major	Major
	Low	Negligible	Minor	Minor-Moderate	Moderate	Moderate-Major
	Marginal	Negligible	Negligible	Minor	Minor-Moderate	Moderate
	None	None	None	None	None	None

Indirect Impacts

11.2.10 HESPS indicates that the relationship of an asset to its setting or the landscape makes up part of its contextual characteristics. SPP does not differentiate between the importance of the asset itself and the importance of the asset’s setting. Indeed, under paragraph 145 on Scheduled Monuments it states that ‘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’. However, it is widely recognised (e.g. Historic England 2017) that the importance of an asset is not the same as its sensitivity to changes to its setting. Elements

of setting may make a positive, neutral or negative contribution to the value of an asset. Thus, in determining the nature and significance of impacts upon assets and their settings from the proposed varied development, the contribution that setting makes to an asset’s value and importance, and thus its sensitivity to changes to setting, need to be considered.

11.2.11 This approach recognises the importance of preserving the integrity of the setting in the context of the contribution that setting makes to the experience, understanding and appreciation of a given asset. It recognises that setting is a key characteristic in understanding and appreciation of some, but by no means all, assets. Indeed, a nationally important asset does not necessarily have high sensitivity to changes to its setting.

Receptor Sensitivity

11.2.12 The determination of an asset’s sensitivity to changes to its setting is, first and foremost, reliant upon the identification of its setting, including those elements that appreciably contribute to an understanding, appreciation and experience of it. Assessment of individual assets is informed by knowledge of the asset itself; of the asset type if applicable, and by site visits to establish the current setting of the assets. This allows for the use of professional judgement and each asset is assessed on an individual basis. It should be noted that individual assets may fall into a number of the sensitivity categories presented above, e.g. a country house may have a high sensitivity to alterations within its own landscaped park or garden, but its level of sensitivity to changes may be less when considered within the wider landscape context. Guideline criteria for establishing an asset’s relative sensitivity is detailed in Table 11.4.

Table 11.4: Criteria for Establishing Relative Sensitivity to Changes in Setting	
Relative sensitivity	Criteria
High	<p>An asset with a setting that contributes substantially to an observer’s understanding, appreciation and experience of it.</p> <p>The asset setting, or elements thereof, contribute directly to their significance (e.g. form part of their Key or Contextual Characteristics⁸). For example, an asset which retains an overtly intended relationship with its setting and the surrounding landscape. These may in particular be, but are not limited to, assets such as ritual monuments which have constructed sightlines to and/or from them or structures intended to be visually dominant within a wide landscape area e.g. castles, tower houses, prominent forts etc.</p> <p>An asset, where the setting is an important factor in its protection and in retention of its cultural value.</p>
Medium	<p>An asset with a setting that contributes moderately to an observer’s understanding, appreciation and experience of it.</p> <p>The asset setting makes a contribution to value but whereby its value is derived mainly from its other qualities⁹. This could for example include assets which had an overtly intended relationship with their setting and the surrounding landscape but where that relationship (and therefore the ability of the assets’ surroundings to contribute to an understanding, appreciation and experience of them) has been moderately compromised either by previous modern intrusion in their setting or the landscape or where the asset itself is in such a state of disrepair that the relationship cannot be fully understood.</p> <p>An asset, the current understanding, appreciation and experience of which, relies partially on its modern aesthetic setting regardless of whether or not this was intended by the original constructors or users of the asset.</p>

⁸ Historic Environment Scotland (2016a) HESPS

⁹ Historic Environment Scotland (2016a) Annex 1

Table 11.4: Criteria for Establishing Relative Sensitivity to Changes in Setting	
	An asset whose setting is a contributing factor to its protection and the retention of its cultural value.
Low	An asset with a setting that makes some contribution to an observer’s understanding, appreciation and experience of it. The understanding of the asset is mainly derived from its other characteristics and whereby changes to its setting will not materially diminish our understanding, appreciation and experience of it. This could for example include assets which had an overtly intended relationship with their setting and the surrounding landscape but where that relationship (and therefore the ability of the assets’ surroundings to contribute to an understanding, appreciation and experience of them) has been significantly compromised either by previous modern intrusion to its setting or the landscape or where the asset itself is in such a state of disrepair that the relationship cannot be determined.
Marginal	An asset with a setting that makes minimal contribution to an observer’s understanding, appreciation and experience of it. This may include assets for which the fundamental relationship with their surroundings has been lost.

Magnitude of Change – Indirect Effects

11.2.13 The magnitude of indirect effect is an assessment of the magnitude of change to the setting of any given asset, in particular those elements of the setting that inform its cultural value. The main factors requiring consideration when assessing magnitude of indirect (setting) impact include the distance from the proposed varied development, the visibility of the proposed varied development, the complexity of the landscape and the design of the development.

Distance from Proposed Varied Development

11.2.14 The greater the distance the asset is from the proposed varied development, the more diminished the setting effects will be.

Visibility

11.2.15 The number of turbines that will be intervisible with the asset and the height to which each turbine will be visible will directly affect the magnitude of impact on its setting. The proportion of the view from each asset which will feature turbines will also affect the magnitude of impact.

Complexity of Landscape

11.2.16 The more visually complex a landscape is, the less the new development will intrude into it. This is because where a landscape is visually complex, the eye will be distracted by other features and will not focus exclusively on the wind turbines. Visual complexity describes the extent to which a landscape varies visually and the extent to which there are various land types, land uses, and built features producing variety in the landscape.

Design of the Proposed Varied Development

11.2.17 Depending on the individual asset, the design of the proposed varied development could affect the perception of dominance or foci of a particular asset and its relationship with other cultural and natural features within the landscape.¹⁰ For example, whether the turbines would be seen against the skyline or against a backdrop of hills may affect the perception of the prominence of an asset and/or the proposed varied development

¹⁰ SNH (2017) Siting and Designing windfarms in the landscape, Version 3 - <https://tethys.pnnl.gov/sites/default/files/publications/SNH-2017-Siting-Designing-Wind.pdf> Accessed October 2018

Criteria for Magnitude of Impact

11.2.18 The method of classifying the magnitude of visual impact is shown in Table 11.5 below.

Table 11.5: Criteria for Classifying Magnitude of Setting Impact	
Visual Impact	Criteria
High	<p>Direct and substantial visual impact on a significant sightline to or from a ritual monument or prominent fort.</p> <p>Major alteration to the penumbral or close settings of a Scheduled Monument.</p> <p>Major visual imposition within a Cultural Landscape.</p> <p>Direct severance of the relationship between an asset and its setting.</p> <p>An impact that changes the setting of an asset such that it threatens the protection of the asset and the understanding of its cultural value.</p>
Medium	<p>Oblique visual impact on an axis adjacent to a significant sightline to or from a ritual monument but where the significant sightline of the monument is not obscured.</p> <p>Glacis of a prominent fort (based on the proportion of the glacis that would be obscured).</p> <p>Significant alteration to the setting of a Scheduled Monument outwith its penumbral setting or significant alteration to the setting of a Category A, B or C Listed Building beyond its curtilage.</p> <p>Notable visual imposition within a Cultural Landscape.</p> <p>Partial severance of the relationship between an asset and its setting.</p> <p>Notable alteration to the setting of an asset beyond those elements of the setting which directly contribute to the understanding of the cultural value of the asset.</p> <p>An impact that changes the setting of an asset such that the understanding of the asset and its cultural value is marginally diminished.</p>
Low	<p>Peripheral visual impact on a significant sightline to or from a ritual monument.</p> <p>Insignificant alteration to the setting of a Scheduled Monument outwith its penumbral setting or insignificant alteration to the setting of a Category A, B or C Listed Building beyond its curtilage.</p> <p>Minor visual imposition with a Cultural Landscape.</p> <p>Slight alteration to the setting of an asset beyond those elements of the setting which directly contribute to the understanding of the cultural value of the asset.</p> <p>An impact that changes the setting of an asset, but where those changes do not materially affect an observer’s ability to understand, appreciate and experience the asset.</p>
Negligible	All other setting impacts.
None	No setting impacts.

11.2.19 The significance of setting effects was determined by considering its relative sensitivity in conjunction with the magnitude of impact. The method of deriving the significance of impact classifications is shown in Table 11.6 below.

Table 11.6: Significance of the Effects of Visual Impacts on the Cultural Value of Monuments

		Relative Sensitivity			
		Marginal	Low	Medium	High
Magnitude	High	Minor	Minor	Moderate	Major
	Medium	Negligible	Minor	Minor	Moderate
	Low	None / Negligible	Negligible	Minor	Minor
	Negligible	None	None	Negligible	Minor
	None	None	None	None	None

The impacts **shown in light grey** are considered in this chapter to be ‘significant’ in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

Limitations of Assessment

- 11.2.20 This assessment can only address the sensitivity of the proposed varied development upon known receptors. The extent of damage and significance of impact upon any buried archaeological remains that are currently unknown cannot be assessed beyond recognition of their possible existence.
- 11.2.21 It should also be noted that no additional field study for either direct or indirect effects was carried out as part of the preparing this EIA Report. The assessment relies on the data collected, the methodology and the interpretation made as part of the ES and ES Addendum. Baseline data on cultural heritage assets has been updated in 2018 from public sources. The assessment of potential intervisibility for the purpose of setting assessment has been based on the Zone of Theoretical Visibility mapping (ZTV) for the consented Viking Wind Farm and proposed varied development. This level of assessment is considered appropriate on the basis that examination of the comparative ZTV within a 50 km study area shows that additional visibility resulting from the 10 m increase in turbine tip height is very localised. The additional visibility resulting from the proposed 10 m increase in turbine tip height is considered unlikely to result in a significant change in the originally assessed level of effect in terms of the settings of the cultural heritage features. Wireline visualisations (Figure 11.5.1 – Figure 11.5.8) illustrating the change in tip height and rotor diameter proposed also confirm that the change is barely discernible.

Baseline Conditions

Current Baseline

Context

- 11.2.22 Sites located in the study area are indicated on Figure 11.1. The majority of these sites are upstanding remains associated with the post-medieval crofting period. Additional possible prehistoric sites were identified during the walkover survey in addition to numerous field systems

in the lower lying coastal areas which form part of a wider multi-period relict landscape. The wider study area is rich in both prehistoric and historic archaeological remains. Within Shetland the quality and preservation of archaeological monuments of almost all types is remarkable. The absence of population pressure and mechanised land-use has resulted in a highly visible archaeological record. Characteristic of the Shetland region in the prehistoric period are a range of monument types including burial cairns, standing stones, burnt mounds, brochs and prehistoric homesteads associated with field systems and clearance heaps. Pictish and Norse influence during the medieval period is demonstrated by evidence of Pictish carvings and Viking burials within the assessment area. The remains of post-medieval and pre-Clearance society abound throughout the region and attest to the former thriving agricultural and fishing community.

11.2.23 The majority of the site is on undeveloped land which has been used in recent years for pastoral farming. Eastern limits and the coastal margins of the Kergord quadrant are occupied by active farmsteads and several unused farmsteads. Some archaeological survey has been undertaken within the margins of both Kergord and Nesting, however there has not as yet been a systematic archaeological survey of the area. It is possible that any groundwork will disturb previously unknown archaeology.

Designations

11.2.24 There are no designated assets registered by HES (World Heritage Sites; Scheduled Monuments; Inventoried Battlefields; Gardens and Designed Landscapes; and Conservation Areas) or listed buildings located within the site.

11.2.25 As shown on Figure 11.2a-d the 10 km study area includes:

- 116 Scheduled Monuments;
- 3 Category A Listed Buildings;
- 59 Category B Listed Buildings;
- 35 Category C Listed Buildings; and
- 1 Garden and Designated Landscape.

Non-Designated Assets

11.2.26 There are 63 non-designated assets within the site (See Figure 11.1).

Future Baseline

11.2.27 Future baselines (without the proposed varied development) would largely be expected to mirror the current baseline. Any alteration to the baseline condition of the heritage assets within the site would likely relate to slow encroachment of peat growth in open areas and very gradual deterioration of upstanding structures as a consequence of natural weathering. As a result, the current baseline is taken as the basis for the effects assessment presented here.

11.3 Assessment of Effects

Direct Impacts

11.3.1 The potential for direct impacts on known or unknown buried archaeological remains are identical for both the consented Viking Wind Farm and proposed varied development. The potential for direct impacts relate to the possibility of disturbing, removing or destroying in situ remains and artefacts during all ground-breaking works (including excavation, construction and other works associated with the development) on the site. Given that the footprint of the proposed varied development remains the same as the consented Viking Wind Farm, there would be no potential for difference in the effects.

- 11.3.2 Given the proposed turbine and access track layout, it is concluded that all of the known heritage assets will be avoided based on the previous assessment for the consented Viking Wind Farm. The ES identified three potential direct significant adverse effects on assets located within the site and within 10 m of access tracks or turbine base excavations (Laxo Burn settlement [Site 447/UID8104], South Newing horizontal mill [Site 82/UID7984] and the Catfirth Linen Industry Landscape [Site 448]). The Laxo Burn settlement and Catfirth Linen Industry Landscape remain within the site boundary for the consented Viking Wind Farm and proposed varied development.
- 11.3.3 It is noted that the layout of the wind farm was revised in the light of the discovery, by the Viking Wind Farm archaeological surveyors, of the Laxo Burn site. The effect of the revision was to delete one wind turbine and to adjust the locations of two others so as to reduce the potential effect on this site.
- 11.3.4 The proposed access track at South Newing (Site 82) was removed in the ES Addendum layout (and this remains the case for the consented Viking Wind Farm and proposed varied development). As such, no impact is predicted for Site 82.
- 11.3.5 In the absence of mitigation, Table 11.7 outlines the predicted significance of impact by the development upon the remains found within the site.

Site Number (ES 2009)	Site Name	Receptor Sensitivity	Magnitude of Direct Impact (Without Mitigation)	Significance Rating
447	Laxo Burn settlement	Regional	Medium	Moderate
448	Catfirth Linen Industry Landscape	Regional	Medium	Moderate

- 11.3.6 The significance of direct impacts upon the sites located within the site has been rated in Table 11.7 in the absence of further mitigation.
- 11.3.7 Without mitigation a moderate adverse and significant effect is anticipated upon Laxo Burn settlement (Site 447) identified during the walkover survey. While the site was previously unrecorded prior to the assessment for the ES, it is thought to be a prehistoric settlement site and therefore has been judged to be of Regional archaeological significance. A medium direct impact, through the construction of an access track in the immediate vicinity of the site, could result in the moderate loss of current information content.
- 11.3.8 Without mitigation a moderate adverse and significant effect is expected upon Catfirth Linen Industry Landscape (Site 448). In particular, an access track cuts the now infilled canal, which ran between Sand Water and Cat Firth, associated with the industry. The Linen Industry site is of regional archaeological significance in that it represents an attempt, albeit failed, at industrialisation in Shetland. A medium direct impact through the construction of an access track across the canal could result in a moderate loss of information content resulting from material alteration of the baseline conditions by removal of part of the site.

Indirect Effects

- 11.3.9 The baseline desk study identified 214 designated assets within the 10 km study area, of which 59 have no theoretical visibility of the consented Viking Wind Farm, based on the bare earth Zone of Theoretical Visibility (ZTV) mapping. The assets within the ZTV and study area include 84 scheduled

monuments, 72 listed buildings (of which three are A listed), and one Garden and Designed Landscape (GDL). It is noted that since the preparation of the ES, two additional heritage assets have been designated as scheduled monuments within 10 km of the site.

- 11.3.10 The ZTV for the proposed varied development identified 57 of the 214 assets have no visibility. It follows that an additional two designated assets (SM2074 and LB18693) have potential visibility of the proposed varied development, where none existed for the consented Viking Farm. In both cases, the ZTV identified one turbine as being potentially visible. At a distance of between 7 km and 8 km from the proposed varied development, the introduction of potential visibility to one turbine is considered to be negligible and not significant.
- 11.3.11 Overall, the number of turbines potentially visible (based on the ZTV) increases for the proposed varied development, compared to the consented Viking Wind Farm, for 132 of the 214 heritage assets considered. However, for 92 of the 132 assets with increased theoretical visibility, the number of turbines visible would increase by between one and four turbines. In general, examination of the wirelines and photomontages (Figure 11.5.1 – 11.5.8) confirms that additional visibility associated with the proposed varied development is barely discernible when compared to the consented Viking Wind Farm, and as such the effect on the understanding, appreciation and experience of the setting of cultural heritage assets ranges from none to negligible and not significant.
- 11.3.12 Three Category A Listed Buildings (national value) (Sites 299 & 401-402) were identified in the 10 km search area. The ZTV analysis confirms that no turbines will be visible from the Trader's House (The Store) at Tresta (LB18693) for the consented Viking Wind Farm. The proposed varied development would introduce potential visibility to one turbine, as such there would be a negligible effect on its setting. Negligible and not significant effects have been predicted upon the Haa of Sand and its associated cottage (Sites 401-402). These sites are circa 6.5 km from the edge of the wind farm and as such turbines only appear on the horizon. The assessment made in the ES stated that turbines viewed from this distance only appear prominent in clear visibility and are seen as a wider part of the landscape. This conclusion is considered to remain valid for the assessment of the consented Viking Wind Farm and the proposed varied development.
- 11.3.13 Most of the buildings at Lunna House (Sites 90-98) are Category B Listed (regional value) and together they are included in the Inventory of Designed Landscape of Lunna House. The ZTV analysis for these assets confirms that turbines will be visible from parts of the designed landscape, while for Sites 95 – 98, 102 and 103, no turbines will be visible. Where there is intervisibility (from Sites 90 and 92), the visible turbines would appear on the horizon. As the turbines are located approximately 6 km from the structures at Lunna House, turbines will only appear prominent in clear visibility and are seen as a part of the wider landscape, forming a relatively small part of the overall view (as illustrated by Figure 4.7.4 wireline and photomontage). The wider landscape setting (at the distance of the proposed varied development) is considered to be secondary in importance to the understanding, appreciation and experience of the more immediate setting and interrelationships between the landscape components within the GDL (i.e. the house, garths, walled enclosures, gardens, eyecatchers and ancillary buildings situated within the GDL in direct relationship to one another). As such the effect upon these assets is assessed to be none to minor and not significant on the individual assets for both the consented Viking Wind Farm and the proposed varied development. The setting of the designed landscape as a whole would be subject to minor adverse effect (not significant).
- 11.3.14 Category B and C Listed Buildings within the 10 km assessment area are for the most part of a post-medieval and/or residential nature and it should be noted that for the majority of such sites, the setting would not have been an important aspect of their original design. As such this assessment considers that these assets have a marginal to low relative sensitivity to changes in their setting.

Additionally, the majority of these sites already lie within a modern agricultural landscape, some distance from the proposed varied development. It is therefore predicted that there will be no more than negligible or minor adverse effects (not significant) for the remaining Category B and C listed buildings.

- 11.3.15 Impacts upon scheduled monuments have been judged to be negligible or minor adverse (not significant). For many sites, such as farmsteads and hut circles, the relative sensitivity of the setting is considered to be low on the basis that the wider landscape setting does not play a fundamental role in the understanding, appreciation and experience of these assets. Furthermore, several of the assets' settings have already been affected by other modern developments and therefore the sensitivity of the setting to effect from the consented Viking Wind Farm or the proposed varied development will not be as high. The relative sensitivity to setting effect on sites such as cairns and standing stones is considered to be higher, as their location within the landscape context plays a more important role in the appreciation, understanding and experience of the assets.
- 11.3.16 Based on the findings of the ES Addendum, which considered a combination of factors, including the proximity of the proposed development, the landscape complexity, visibility and where relevant, key sightlines, the consented Viking Wind Farm was assessed to have no significant indirect effect on scheduled monuments.
- 11.3.17 Overall this assessment identified that the proposed varied development would result in a small increase in the number of turbines potentially visible from some assets; however not to the extent that would change the assessment conclusions reached for the consented Viking Wind Farm. As a result, the difference between the setting effects of the consented Viking Wind Farm and the proposed varied development is considered to be negligible.
- 11.3.18 Additional notes on the assessment of the setting of assets are provided in Technical Appendix 11.3 (reproduced from the ES 2010 (originally appendix 13.4)).

11.4 Cumulative Effects

- 11.4.1 The potential for cumulative effects is limited to indirect effects upon the settings of heritage assets. With regard to potential cumulative effects on cultural heritage, the assessment considers the additional and in combination cumulative effect of the proposed varied development with operational, consented (not yet constructed) and developments which are the subject of valid applications within 20 km from the proposed varied development. Figure 4.6 maps the known cumulative developments within the Shetland Islands. Developments at the scoping stage are not considered. The consented Beaw Field Wind Farm is located approximately 20 km to the north of the consented Viking Wind Farm (see Figure 4.8.1 for the cumulative ZTV). The operational turbines at Luggies Knowe, Burradale and Gremista are located between 10 km and 15 km south, along with the consented Luggies Knowe and application stage Mossy Hill turbines (collectively referred to as the Lerwick Cluster – see Figure 4.8.2 for the cumulative ZTV).
- 11.4.2 To the north, the only designated heritage assets within the cumulative effects study area are the Graven chambered cairn (site 173, SM3524), which has no visibility to the proposed varied development, and the Lunna House GDL (and the constituent listed buildings). The Lunna House GDL is approximately 8.5 km from the nearest proposed varied development turbine, and, is over 10 km from the Beaw Field Wind Farm. At this distance the turbines would only be perceptible on clear days. Furthermore, it would not be possible to see the proposed varied development and Beaw Field Wind Farm in the same view (i.e. they are in opposite directions). In addition, in considering the difference between the proposed varied development and consented Viking Wind Farm, the change is considered to be negligible. For this reason, the addition of the proposed

varied development turbines to Beaw Field would not, cumulatively, be any greater than the impact of the consented Viking Wind Farm. Overall the assessment predicts a minor adverse cumulative indirect effect (not significant) on the Lunna House GDL.

- 11.4.3 To the south, nine heritage assets with potential to experience cumulative effects from the addition of the proposed varied development to the turbines referred to as the Lerwick Cluster have been identified.
- 11.4.4 The Cruester Standing Stone (SM2034) is outside of the 10 km study area used for the assessment of the proposed varied development. It is noted that the Burradale, Gremista and Luggie Knowe operational turbines are currently visible from the asset, and the proposed Mossy Hill turbines would be seen at approximately 4 km. The proposed varied development would be visible, but on the distant horizon at close to 15 km to the north. In considering the difference between the proposed varied development and consented Viking Wind Farm, the change is considered to be negligible. Overall, the combined effect with the Lerwick Cluster is considered to be minor and not significant.
- 11.4.5 The group of seven scheduled monuments located in south Nesting (Site 131, 132, 133, 136, 137, 140, 141) would have visibility of both the consented and proposed Viking Wind Farm, approximately 2 km to the north, with the turbines of the Lerwick Cluster relatively distant at over 10 km to the south. The interrelationship between the monuments within the landscape would not be affected by the wider increase in surrounding wind farm development. In considering the difference between the proposed varied development and consented Viking Wind Farm, the change is considered to be negligible. Overall, the combined effect with the Lerwick Cluster is considered to be minor and not significant.
- 11.4.6 The proposed varied development will also have combined visibility with the Lerwick Cluster from the Kirk Score chambered cairn and associated landscape (Site 403). The addition of the consented Viking Wind Farm in combination with the Lerwick Cluster would be a slight alteration to the wider setting of the monument. In considering the difference between the proposed varied development and consented Viking Wind Farm, the change is considered to be negligible. Overall, the combined effect with the Lerwick Cluster is considered to be minor and not significant.

11.5 Mitigation

- 11.5.1 Given the scale of known archaeological sites within and surrounding the proposed varied development there is a possibility of encountering hitherto unknown remains, which may survive as subsurface features, during ground breaking works associated with the development. A programme of archaeological work was proposed in the ES Addendum, supplemented by an Archaeological Management Plan (AMP) (provided with this EIA Report in Technical Appendix 11.4). The AMP commits to producing a revised report of archaeological potential based on geophysical works, which would be used to identified areas requiring an archaeological watching brief during ground breaking works.
- 11.5.2 Technical Appendix 11.4 provides details regarding a programme of archaeological works designed in consultation with the Shetland Regional Archaeologist to investigate the potential for archaeological sites within the development area and allow for the preservation or recording of any significant archaeological remains. It is noted that known sites within 100 m of the proposed varied development would be fenced off during construction works. Conditions 33 to 41 of the relevant section 36 consent provide protection for archaeology and cultural heritage. No material changes to these conditions are proposed as part of the variation application.

11.6 Residual Effects

- 11.6.1 The undertaking of the mitigation measures outlined above and described in more detail in Technical Appendix 11.4 ensure that overall direct residual effects on cultural heritage assets would range from none to minor (not significant). The fencing off of known heritage assets within 100 m of the proposed varied development to at least a distance of 10 m from the visual edge of each asset will ensure that these sites are preserved in situ and thus will not be impacted upon by the construction of the wind farm. The compliance with the requirements of the AMP (set out in Technical Appendix 11.4) will ensure that any archaeology encountered will be identified and recorded to an appropriate level. This will also ensure preservation by record.
- 11.6.2 The assessment of indirect effects has confirmed that there would be no significant effects on the setting of designated heritage assets either associated with the proposed varied development alone, or cumulatively with other operational, consented/under construction or proposed wind farm developments. Overall there would be no material difference in the effects predicted for the proposed varied development when compared to the consented Viking Wind Farm.

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Figure 11.1: Cultural Heritage Assets Within Site Boundary

Figure 11.2: Designated Cultural Heritage Assets within 10km

Figure 11.3: Consented Viking Wind Farm ZTV (145m) with Designated Cultural Heritage Assets

Figure 11.4: proposed varied development ZTV (155m) with Designated Cultural Heritage Assets

Figure 11.5.1-11.5.8.2: Cultural Heritage Visual Representations

Glossary and Abbreviations

Abbreviation	Expanded term / Definition
CIfA	Chartered Institute for Archaeologists
ZTV	Zone of Theoretical Visibility
IfA	Institute for Archaeologists
HES	Historic Environment Scotland
PAN 45	Scottish Government (2002): Planning Advice Note 45
SHEP	Scottish Historic Environment Policy
SPP	Scottish Planning Policy
RCAHMS	Royal Commission on the Ancient and Historical Monuments of Scotland
HESPS	Historic Environment Scotland Policy Statement
NRHE	National Record of the Historic Environment (previously National Monuments Record of Scotland (NMRS))
SMR	Sites and Monuments Record
GDL	Garden and Designed Landscape
the 1979 Act (Scheduled Monuments)	Scheduled Monuments (as protected by the Ancient Monuments and Archaeological Areas Act 1979)

Abbreviation	Expanded term / Definition
the 1997 Act (Listed Buildings)	Category A Listed Buildings (as protected by the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997
the 2011 Act	Inventory Gardens and Designed Landscapes (as protected by the 1979 Act, as amended by the Historic Environment (Amendment) (Scotland) Act 2011

