

9 Archaeology and Cultural Heritage

Contents

9.1	Executive Summary	9-1
9.2	Introduction	9-2
9.3	Legislation, Policy and Guidelines	9-3
9.4	Consultation	9-6
9.5	Assessment Methodology and Significance Criteria	9-10
9.6	Baseline Conditions	9-18
9.7	Standard Mitigation	9-25
9.8	Receptors Brought Forward for Assessment	9-25
9.9	Potential Effects	9-29
9.10	Additional Mitigation and Enhancement	9-48
9.11	Residual Effects	9-49
9.12	Cumulative Assessment	9-50
9.13	Summary	9-57
9.14	References	9-62

This page is intentionally blank.

9 Archaeology and Cultural Heritage

9.1 Executive Summary

- 9.1.1 This chapter identifies the archaeological and cultural heritage value of the site and assesses the potential for direct and setting effects on heritage assets resulting from the construction, operation and decommissioning of the Proposed Development. This chapter also identifies measures that will be taken to mitigate predicted adverse effects. Effects at a moderate or higher level (when magnitude and importance are compared as set out below) are assessed as significant for EIA purposes. However, with regard to planning decisions SPP 145 imposes a different test, that a proposal shall not 'have an adverse effect on a scheduled monument or on the integrity of its setting' thereby drawing a distinction between adverse effect on the monument itself and changes to its setting. The test for the latter being not whether a proposal would change or even effect the setting, but whether that change would effect its integrity.
- 9.1.2 In this context an effect upon integrity is considered to be a change that would seriously adversely affect those elements of setting which contribute to an asset's significance to the extent that its setting can no longer be understood or appreciated. A predicted significant effect therefore triggers further analysis of the nature of that predicted effect. This analysis is by its very nature qualitative, and will largely depend upon whether the effect predicted effect would result in a major impediment to the ability to understand or appreciate the heritage asset and therefore reduce its cultural significance.
- 9.1.3 For this reason it should not be automatically assumed that a predicted significant effect on the setting of a Scheduled Monument automatically equates to an adverse effect on the integrity of setting and so give rise to a breach of the advice in SPP 145.
- 9.1.4 This assessment has identified seven cultural heritage assets located within the site boundary. These assets include the Nisthill Burial mound (Asset 61, SM1318) and the Hundland Hill Enclosure (Asset 65, SM13451) both of which are Scheduled and consequently considered to be of national importance as well as five non-designated assets of negligible importance (Assets 163 to 167). The Proposed Development has been designed so as to avoid all known heritage assets of greater than negligible importance although direct impacts predicted to result in negligible/ neutral to minor significance of effect have been predicted for two of the non-designated assets (Assets 164 and 167) both of which are of probable post-medieval or modern date. negligible/ neutral to minor effects are not considered significant although mitigation works are proposed.
- 9.1.5 Planning policies and guidance require that account is taken of potential direct effects upon heritage features/assets by proposed developments and that where possible such effects are avoided. Where avoidance is not possible, effects on any significant remains should be minimised or offset. Given the potential for presently unknown archaeological remains, in particular of prehistoric and post-medieval date, to survive within the site, a programme of archaeological works designed to avoid inadvertent damage to known remains and to investigate and mitigate against the possibility of uncovering hitherto unknown remains will be undertaken.
- 9.1.6 Potential operational effects on the settings of all designated heritage assets within 10km of the Proposed Development, as well as the potential effects upon the Heart of Neolithic Orkney World Heritage Site (HONO WHS) which extends beyond this buffer have been considered in detail as part of this assessment. Moderate effects have been predicted upon the settings of five Scheduled Monuments: the Hundland Hill Enclosure (Asset 65, SM13451) and the Nisthouse burial mound (Asset 61 SM1318) both of which lie within the site boundary, as well as three Scheduled Monuments that are located within 1km (Park Holm Artificial Island and Causeway (Asset 72, SM1362), Stoney Holm Crannog (Asset 83 SM1394) and the two Mittens mounds (Asset 67, SM1350). Although moderate effects are considered to be significant, this assessment has found that the predicted effects upon these assets would not affect the integrity of their settings and that

consequently the predicted effects are compliant with Paragraph 145 of Scottish Planning Policy (SPP, 2014).

- 9.1.7 Given its international importance this assessment has given detailed consideration to the setting of the HONO WHS and its four individual component monuments Stones of Stenness Stone Circle And Henge (Asset 148, SM90285), Ring of Brodgar Stone Circle, Henge And Nearby Remains (Asset 146, SM90042), Maes Howe Chambered Cairn (Asset 147, SM90209) (these assets, which are located in the central part of West Mainland) and the Skara Brae Neolithic settlement (Asset 149, SM No. SM90276). However, in this instance the predicted levels of effect are considered to be minor and not significant, and it is therefore considered that the Proposed Development will not affect the attributes that are set out in the WHS's Statement of Outstanding Universal Value (SOUV). The proposals are therefore in accordance with Policy 8(B) of the Orkney Local Development Plan (LDP).
- 9.1.8 Setting effects are hard to mitigate for wind farm proposals, as conventional mitigation strategies such as the creation of tree belts can only be employed in very limited specific circumstances when it comes to this type of development. Therefore, setting effects have been mitigated as far as possible through design iteration.

9.2 Introduction

- 9.2.1 This chapter considers the issues associated with the potential historic environment effects of the proposed Nisthill Wind Farm (hereafter referred to as the 'Proposed Development'). The Proposed Development would consist of up to four wind turbines that would have a maximum blade tip height of up to 180 m.
- 9.2.2 This chapter has been produced by AOC Archaeology Group. AOC Archaeology Group was formed in 1991 and is a Registered Organisation of the Chartered Institute for Archaeologists (CIfA). The assessment has been carried out by Mark Littlewood. Mark is a Project Officer and an Associate of the Chartered Institute for Archaeologists. Mark joined AOC in 2017 after spending seven years working for Orkney College and has subsequently completed a number of Environmental Impact Assessments (EIAs) for proposed wind farms and overhead powerlines across Scotland. Mark has been a professional archaeologist since 1997.
- 9.2.3 The assessment has been overseen by Thomas Bradley-Lovekin. Tom is a Project Manager at AOC and has specialised in consultancy since joining the company in 2011. Tom has prepared desk-based assessments and EIA chapters for a range of development proposals including urban extensions, mineral extractions, road schemes and renewable energy projects, including a number of energy related projects on Orkney. Tom is an Associate of the Chartered Institute for Archaeologists and has worked in the profession since 1994, he also holds an RTPI accredited master's degree in Town and Country Planning.
- 9.2.4 Overall quality assurance for the assessment has been provided by Victoria Oleksy who has extensive experience of environmental impact assessment across Britain. Vicky is an Associate Director of AOC, a Member of the Chartered Institute for Archaeologists and acts as an assessor for the Institute's Registered Organisation scheme.

Scope of Assessment

- 9.2.5 This chapter identifies the archaeological and cultural heritage value of the site (**Figure 9.1**) and known heritage features within 1 km of it (**Figure 9.2**). All designated assets within 5 km (**Figure 9.3**), all nationally important designated assets within 10 km (**Figures 9.4 & 9.5**) and all World Heritage Assets within the Heart of Neolithic Orkney World Heritage Site (HONO WHS) that lie beyond the 10 km Study Area (**Figure 9.6**) have also been identified for this assessment. The covers four individual Scheduled Monuments on West Mainland which lie between 10.91 km and 14.32 km from the site boundary. The HONO WHS Management Plan (HES, RSPB, SNH & OIC, 2016) identifies a wider Sensitive Area which extends across West Mainland, whilst Orkney Islands Council (OIC) have published supplementary planning guidance (OIC, 2010) which identifies a series of Sensitive

Ridgelines on West Mainland. The site lies within the HONO Sensitive Area, whilst OIC identifies the summit of Hundland Hill, which lies within the site boundary as a Sensitive Ridgeline (**Figure 9.1**).

- 9.2.6 The assessment includes descriptions of the context of the assessment; methodology; baseline conditions; potential effects (both direct and indirect (setting)); and mitigation. The assessment considers the effects of the construction, operational and decommissioning phases of the Proposed Development in detail. An assessment of potential cumulative effects is also made.

Standards

This chapter has been produced by AOC Archaeology Group, a Registered Organisation of ClfA. This chapter conforms to the standards of professional conduct outlined in ClfA's *Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment* (ClfA, 2020b), *Standard and guidance for historic environment desk-based assessment* (ClfA, 2020c) and follows IEMA's EIA Guidelines (as updated) (IEMA, 2016).

- 9.2.7 This chapter has been prepared to meet the requirements of current planning policy set out in Scottish Planning Policy (SPP), Historic Environment Policy for Scotland (HEPS) and Planning Advice Note 2/2011 (PAN 2).
- 9.2.8 AOC Archaeology Group conforms to the standards of professional conduct outlined in ClfA's Code of Conduct, the ClfA Standards and guidance for historic environment desk-based Assessment, field evaluations and all other relevant ClfA guidance.
- 9.2.9 AOC Archaeology Group's status as a Registered Archaeological Organisation of ClfA ensures that there is regular monitoring and approval by external peers of our internal systems, standards and skills development.
- 9.2.10 AOC is ISO 9001:2015 accredited, in recognition of the Company's Quality Management System.

9.3 Legislation, Policy and Guidelines

Legislation

- 9.3.1 Relevant legislation and guidance documents have been reviewed and taken into account as part of this archaeology and cultural assessment. Of particular relevance are:
- Ancient Monuments and Archaeological Areas Act (1979) (as amended);
 - Planning (Listed Buildings and Conservation Areas) (Scotland) Act (1997) (as amended);
 - Planning etc. (Scotland) Act (2006): 2006 asp 17; and
 - Town and Country Planning (General Development Procedure) (Scotland) Order (1992).

Planning Policy

Relevant planning policy and guidance concerning cultural heritage matters includes:

- The National Planning Framework for Scotland (NPF3) (Scottish Government, 2014a);
- Scottish Planning Policy (SPP) (Scottish Government, 2014b);
- Historic Environment Policy for Scotland (HEPS) (Historic Environment Scotland (2019);
- Our Place in Time. The Historic Environment Strategy for Scotland (Scottish Government 2014);
- Planning Advice Note 2/2011 (PAN 2) (Scottish Government, 2011);
- Managing Change in the Historic Environment: Setting (Historic Environment Scotland, 2016, updated February 2020);

- Managing Change in the Historic Environment: World Heritage (Historic Environment Scotland, 2016, Updated 2020);
 - Managing Change in the Historic Environment: Gardens and Designed Landscapes (Historic Environment 2016d); and
 - The adopted Orkney Local Development Plan (Orkney Islands Council (OIC), 2017a).
- 9.3.2 The statutory framework for heritage in Scotland is outlined in the Town and Country Planning (Scotland) Act 1997, as amended in the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 and the Ancient Monuments and Archaeological Areas Act 1979. Both of these have been modified by the Historic Environment (Amendment) (Scotland) Act 2011.
- 9.3.3 SPP (Scottish Government, 2014), HEPS (HES, 2019a), PAN 2/2011 Archaeology and Planning (Scottish Government, 2011) and Policy 8 of the adopted Orkney Local Development Plan (LDP) (OIC, 2017a) deal specifically with planning policy and guidance in relation to heritage which collectively expresses a general presumption in favour of preserving heritage remains in situ (SPP 150). Their 'preservation by record' (i.e. through excavation and recording, followed by analysis and publication, by qualified archaeologists) is a less desirable alternative.
- 9.3.4 OIC's approach to proposals which effect the historic environment is set out in Policy 8(A) of the LDP which states that:
- 'Development which preserves or enhances the archaeological, architectural, artistic, commemorative or historic significance of cultural heritage assets, including their settings, will be supported. Development which would have an adverse impact on this significance will only be permitted where it can be demonstrated that:*
- i. Measures will be taken to mitigate any loss of this significance; and*
 - ii. Any lost significance which cannot be mitigated is outweighed by the social economic, environmental or safety benefits of the development.'* (OIC, 2017a: 32).
- 9.3.5 With regard to the HONO WHS, Policy 8(B) of the LDP states that:
- 'Development within the Inner Sensitive Zones will only be permitted where it is demonstrated that the development would not have a significant negative impact on the Outstanding Universal Value of the World Heritage Site or its setting.*
- Development will not be permitted where it breaks the skyline at the sensitive ridgelines of the World Heritage Site when viewed from any of its component parts, or where it will be sited in any location where there is the potential to impact upon the World Heritage Site, unless it is demonstrated that the development will not have a significant negative impact on either the Outstanding Universal Value or the setting of the World Heritage Site'* (OIC, 2017a: 32).
- 9.3.6 The setting of Scheduled Monuments is also an important consideration when determining applications. This principle is outlined in paragraph 145 of SPP and Policy 8 of the LDP. These policies express the importance of preservation of the integrity of the setting of Scheduled Monuments and also the preservation of the special interest and character of Listed Buildings and their settings.
- 9.3.7 The Historic Environment Policy for Scotland (HES, 2019a) sets out the Scottish Government's policy for the sustainable management of the historic environment. Key principles of the policy note that *'Changes to specific assets and their context should be managed in a way that protects the historic environment...If detrimental impact on the historic environment is unavoidable, it should be minimised. Steps should be taken to demonstrate that alternatives have been explored, and mitigation measures should be put in place'* (HEP4).
- 9.3.8 With regards to Conservation Areas, SPP makes the following statements:
- 'Proposals for development within conservation areas and proposals outwith which will impact on its appearance, character or setting, should preserve or enhance the character and appearance of*

the conservation area. Proposals that do not harm the character or appearance of the conservation area should be treated as preserving its character or appearance.' (paragraph 143).

9.3.9 Section 14.2 of the Planning (Listed Buildings and Conservation Areas) Act 1997 states that when determining applications for development which could impact upon the setting of a Listed Building:

'...the planning authority or the Secretary of State, as the case may be, shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.'

Paragraph 141 of SPP notes the importance of preserving the settings of Listed Buildings, stating that *'The layout, design, materials, scale, siting and use of any development which will affect a listed building or its setting should be appropriate to the character and appearance of the building and setting. Listed buildings should be protected from demolition or other work that would adversely affect it or its setting.'* (Scottish Government, 2014b:34)

Guidance

9.3.10 Consideration has been taken of the following best practice guidelines/guidance in preparing this assessment.

- OIC Supplementary Guidance; Historic Environment and Cultural Heritage (OIC, 2017c) and the further information which accompanies it; OIC Planning Policy Advice: Historic Environment(Topics and Themes) (OIC, 2017b);
- The Heart of Neolithic Orkney World Heritage Site Management Plan 2014-19 (Historic Environment Scotland (HES, 2020b);
- OIC Supplementary Planning Guidance: The Heart of Neolithic Orkney World Heritage Site (OIC, 2019);
- Chartered Institute for Archaeologists (CIfA) *Standard and guidance for historic environment desk-based assessment* (CIfA, 2020c) and *Standard and guidance for commissioning work or providing consultancy advice on the historic environment* (CIfA, 2020b);
- HES Managing Change in the Historic Environment guidance note series, particularly Historic Environment Scotland's *Managing Change in the Historic Environment: Setting* (HES, 2020a);
- Scottish Natural Heritage (now NatureScot) published guidance for *Assessing the Cumulative Impact of Onshore Wind Energy Developments* (SNH, 2012); and
- SNH & HES's *Environmental Impact Assessment Handbook v5* (SNH & HES, 2018).

9.3.11 HES's setting guidance defines setting as *'the way the surroundings of a historic asset or place contribute to how it is understood, appreciated, and experienced'* (HES 2016a). The guidance further notes that *'planning authorities must take into account the setting of historic assets or places when drawing up development plans and guidance, when considering various types of environmental and design assessments/statements, and in determining planning applications'* (*ibid*). It advocates a three-stage approach to assessing potential impacts upon setting.

- *Stage 1: identify the historic asset.*
- *Stage 2: define and analyse the setting.*
- *Stage 3: evaluate the potential impact of the proposed changes.*

9.3.12 OIC's Planning Policy Advice on the Historic Environment (Topics and Themes) contains further guidance on setting which it notes *'usually consists mainly of [a site's] visual relationships with the surrounding landscapes and other sites, such as the views to and from the site'*, observing that *'a site's setting may have changed over time, and is likely to be made up of a combination of:*

- *Its original extent, functional relationships and design.*
- *Associations, relationships and meanings which it has accumulated since it was created.*
- *How the site is experienced now.'* (OIC, 2017c: 2.03, 10).

9.3.13 OIC's *The Heart of Neolithic Orkney World Heritage Site Supplementary Planning Guidance 2010* States in World Heritage Site Policy B The Wider Landscape Setting:

'The wider setting of the World Heritage Site contributes directly to its Outstanding Universal Value. Certain developments outwith the 'Inner Sensitive Zones' therefore have the potential to have a significant negative impact upon the Outstanding Universal Value of the World Heritage Site, especially where large scale developments are proposed. Of particular significance are the ridgelines which frame the topographical landscape bowl of the West Mainland (fig.2).

Where a proposed development either:

a) breaks the skyline at the sensitive ridgelines (fig.2) when viewed from any of the component parts of the World Heritage Site; or

b) is to be sited in any other location where, in the opinion of the Planning Authority, it has the potential to impact upon the World Heritage Site, it will only be granted planning permission when it is demonstrated that the development will not have a significant negative impact upon either the Outstanding Universal Value or the setting of the World Heritage Site.' (OIC, 2010: 7)

9.4 Consultation

Table 9.1 summarises the responses from statutory and non-statutory consultation bodies in regard to cultural heritage and the Proposed Development.

Table 9.1 – Consultation

Consultee	Summary of Response	Where and how addressed
Historic Environment Scotland (HES)	<p>In their response on 23 March 2022 to a consultation request from AOC Archaeology on 25 February 2022 HES noted that:</p> <p><i>'Two scheduled monuments are located within the development boundary:</i></p> <ul style="list-style-type: none"> • <i>Nisthouse, burial mound 270m ENE of (SM1318)</i> • <i>Hundland Hill, enclosure 500m NE of Nisthouse (SM13451)</i> <p><i>Several other scheduled monuments are located within the immediate vicinity, for example:</i></p> <ul style="list-style-type: none"> • <i>Hundland, settlement mound 270m SW of (SM1284)</i> • <i>Mittens, two mounds 11m NE of, Swannay (SM1350)</i> • <i>Park Holm, artificial island and causeway, Loch of Swannay (SM1362)</i> • <i>Stoney Holm, crannog, Loch of Swannay (SM1394)'</i> <p>HES also commented on the presence of further Scheduled Monuments within the wider area of north Mainland and noted that the site is located within the</p>	<ul style="list-style-type: none"> ▪ Visits to the assets specified by HES for assessment of direct impacts and settings effects have been undertaken. ▪ A setting assessment survey was undertaken to all designated assets within 5 km of the site boundary and the ZTV. ▪ A setting assessment survey was undertaken to all nationally important designated assets that are within 10 km of the site boundary and the current ZTV. ▪ A setting assessment survey was undertaken to

Consultee	Summary of Response	Where and how addressed
	<p>sensitive area of the Heart of Neolithic Orkney World Heritage Site.</p> <p>With regard to the Scheduled enclosure on the site; Hundland Hill, enclosure 500m NE of Nisthouse (Asset 65, SM13451) HES commented that:</p> <p><i>'The enclosure is likely Neolithic or Bronze Age in date. Situated on the isthmus between the Loch of Swannay and Loch of Hundland, the monument is afforded excellent views in all directions.</i></p> <p><i>Prehistoric hilltop enclosures are extremely uncommon in the British Isles. Fewer than ten examples have been identified in England, with only a handful of putative examples known in Scotland...The enclosure on Hundland Hill is therefore an important example of an exceptionally rare type of prehistoric site in Scotland, particularly in Orkney. Its significance is enhanced by its marked survival, with its earthen bank visible for most of the circuit. Its hilltop position and the benign nature of later land-use are likely to have preserved important archaeological evidence. The enclosure's prominent location on the summit of Hundland Hill also contributes to its significance. From this position the monument overlooks a landscape rich in broadly contemporary funerary and ritual monuments. This results in good views across this prehistoric landscape from the monument, as well as correspondingly good views towards the monument from the surrounding area.</i></p> <p><i>Turbines of the size and number within the development boundary would likely severely disrupt these views, overwhelming the monument's presence in the landscape and distracting from and undermining the monument's relationship with the surrounding topography and relationships to other assets in its setting. The proximity of the turbines to the monument would exacerbate this significant impact.'</i></p> <p>With regard to the Scheduled mound on the site; Nisthouse, burial mound 270m ENE of (Asset 61, SM1318) HES noted:</p> <p><i>'The monument is located on the southwest slope of Hundland Hill, overlooking the Loch of Hundland with long views to the west and southwest.</i></p> <p><i>Set against the backdrop of Hundland Hill, the monument's setting is characteristic of similar</i></p>	<p>all HONO WHS within 15 km of the site boundary.</p> <p>The results of these visits have been used to inform the finalised design of the Proposed Development and are set out in this EIAR chapter.</p> <p>20 cultural heritage visualisations have been included with the EIAR and these are detailed in para 9.8.12</p>

Consultee	Summary of Response	Where and how addressed
	<p><i>monuments in the wider landscape, being a mound constructed on the shoulder of a hill. The monument is intervisible with several similar sites in the landscape to the south, west, and north-west.</i></p> <p><i>When viewed from these directions, the proposals would severely undermine the monument's relationship with other burial mounds in the area. The proximity and size of the turbines would introduce a very large and imposing element to the hilltop backdrop to the monument, distracting entirely from the monument's subtle but important relationship to its surroundings. The proximity of the development is such that the monument's immediate setting would be disrupted when experienced from the monument itself. Here, the mound would appear immediately adjacent to large and imposing wind turbines, resulting in a significant change to the character of setting to that which it currently exhibits.'</i></p> <p>With regards to Stoney Holm the most northerly of the two Scheduled monuments within the Loch of Swannay (Asset 83, SM1394) HES comment that:</p> <p><i>'The crannog is occupied almost entirely by a rectangular stone-built structure reduced to its foundations. The monument is of unknown date, but likely dates to the medieval period. The structure's masonry has been noted to consist of stones massive in size, which may point to an earlier medieval, or possibly Iron Age, origin.</i></p> <p><i>No causeway is visible to the island, but its proximity to the western shore suggest that access was gained from this area. Hundland Hill rises behind the monument to the west, forming a prominent topographic marker in the crannog's setting. It is likely that the surrounding land on the east side of Hundland Hill was worked (or at least regularly traversed) by the crannog's builders and users. This is also the case for the water of Loch of Swannay. The loch may also have provided an important element of security for the crannog by restricting access. Within the development boundary, the number and size of the turbines proposed would undermine the monument's connection with both and land water by introducing large wind turbines in very close proximity to the site. These would entirely overwhelm the monument's presence in the landscape</i></p>	

Consultee	Summary of Response	Where and how addressed
	<p><i>in any landward approaches from the north, west, and south, and any waterborne approaches from the east.</i></p> <p><i>The second Scheduled Monument within the loch, Park Holm, artificial island and causeway, (Asset 72, SM1362) lies to the south of Stony Holm and HES note that;</i></p> <p><i>‘Like Stony Holm, the monument is of national importance as a rare example of a crannog in Orkney. Its drystone construction of large stones is suggestive of a prehistoric origin for the site...The importance of both Stony Holm and Park Holm is enhanced by their proximity to each other, which offers the opportunity to study the evolution of how inland lochs were utilised in Orcadian life from the prehistoric to medieval periods.</i></p> <p><i>The monument’s setting is clearly defined by its connection to the Loch of Swannay and the land west of the loch. The causeway provides a clear indication of the importance of the land in this direction to the crannog’s occupants, who would have approached the site from the west, and may have used the land in the vicinity and around Hundland Hill for farming. The proposals would therefore introduce a substantial intrusion into the monument’s wider and immediate settings, altering the currently open, pastoral landscape to the west and north to one occupied by very large turbines. These would also backdrop the monument when viewed or approached from the east, overwhelming and distracting from the monument’s presence in the landscape.</i></p> <p><i>With regard to the Proposed Development HES note that mitigation options could include ‘...changes to the layout to increase separation distance between the proposed turbines and the scheduled monuments on the site and also to ensure that the location of other infrastructure such as tracks, substations etc. are located so as to minimise impacts on the setting of nearby assets.’</i></p> <p><i>However, they go onto argue that ‘it is very unlikely that any such changes to the scheme could meaningfully mitigate the predicted impacts.’ In order to be able to comment further HES would:</i></p>	

Consultee	Summary of Response	Where and how addressed
	<p><i>'...require at least wirelines in order to give more comprehensive advice. In the first instance we would suggest that these depict the scheme in views from SM13451 (Asset 65, Hundland Hill), SM1362 (Asset 72, Park Holm), SM1284 (Asset 32, Hundland settlement), and SM1477 (Asset 114, Vinquin Broch).'</i></p> <p>HES concluded that that: <i>'The proposals would be likely to raise issues in the national interest, which would warrant our objection...It is very unlikely that small revisions to the layout of the scheme of this scale, within the proposed site boundary, could adequately address our concerns. However, should AOC, as heritage advisors to the applicant, identify a revised scheme that would be unlikely to have significant adverse impacts on the setting of nationally important heritage assets in the area, we would be happy to look at further information.'</i></p>	
Orkney County Archaeologist (OIC)	<p>AOC attended a meeting with the Orkney County Archaeologist on 26 March 2022.</p> <p>The County Archaeologist agreed with HES's assessment of the significance of the Scheduled Hundland Hill enclosure (Asset 65, SM13451).</p> <p>During AOC's discussions with her, she suggested that a geophysical survey of the Hundland Hill enclosure be undertaken in order to inform our understanding of this designated asset and assess the extent to which burnt material, an indication of cremation activity, may be present.</p> <p>Whilst this approach makes sense, given that the enclosure is Scheduled, Metal and Mineral Detecting Consent (MMDC) would need to be obtained from HES prior to the work being undertaken .</p>	The Applicant has committed to undertaking a geophysical survey of the Hundland Hill enclosure (Asset 65, SM13451) prior to the commencement of development.

9.5 Assessment Methodology and Significance Criteria

- 9.5.1 The aim of this assessment is to identify the archaeological and cultural heritage value of the site and to identify the likely significant direct and setting effects which may result as a consequence of the Proposed Development.

Consultation

- 9.5.2 AOC Archaeology met with the Orkney County Archaeologist on 26 March 2022 to discuss the project and a walkover survey of the site was undertaken on 22 March 2022. Setting assessment visits were undertaken to designated assets within 10 km of the site from 22 March 2022 to 27 March 2022 along with setting assessments of HONO WHS within 15 km of the site. AOC consulted directly with Historic Environment Scotland (HES) with regard to the potential implications on

nationally important heritage assets. Detail regarding consultation responses and how points raised by consultees are addressed is presented in Table 9.1 above.

Study Area

Five study areas were identified for this assessment:

- A core study area (the site) which includes all land within the site boundary which has been subject to assessment for potential direct effects. This study area was subject to a detailed walkover survey to identify cultural heritage assets which may be directly affected by the Proposed Development;
- A 1 km study area for the identification of all known heritage assets and known previous archaeological interventions in order to help predict whether any similar hitherto unknown archaeological remains are likely to survive within the site and thus be impacted by the Proposed Development;
- A 5 km study area for the assessment of potential effects on the settings of all designated heritage assets including Scheduled Monuments; all Listed Buildings; Inventoried Gardens and Designed Landscapes and Conservation Areas;
- A 10 km study area for the assessment of potential effects on the settings of all nationally important designated heritage assets including Scheduled Monuments; Category A Listed Buildings; and Inventoried Gardens and Designed Landscapes; and
- A 15 km study area for the assessment of potential effects on the settings of the internationally important HONO WHS.

Desk Study

9.5.3 The following sources were consulted for the collation of data:

- The National Record for the Historic Environment (NRHE) as held by HES;
- Spatial data and descriptive information for designated assets held on Historic Environment Scotland Data website;
- Ordnance Survey maps (principally First and Second Edition), and other published historic maps held in the Map Library of the National Library of Scotland (NLS);
- Online aerial satellite imagery, google earth, bing, ESRI aerial mapping;
- Scottish Remote Sensing Portal for LiDAR data;
- Vertical and oblique aerial photographs held by the National Collection of Aerial Photographs (NCAP), as held by HES;
- Published bibliographic sources, including historical descriptions of the area (Statistical Accounts, Parish Records);
- The Scottish Palaeoecological Database;
- The Historic Land-use Assessment Data (HLAMap) for Scotland;
- Orkney Library and Archive for historic maps and documents; and
- Local knowledge.

Site Visit

9.5.4 An archaeological walkover survey of the site was undertaken with the aim of identifying any previously unknown archaeological features. All known and accessible heritage assets were assessed in the field to establish their survival, extent, significance and relationship to other sites. Any conditions affecting the visibility during the survey were also recorded. All heritage assets encountered were recorded and photographed. The location of features noted in the field was recorded on a US GPS Navstar enabled iPad using ESRI's ArcGIS Collector software. All features were recorded directly through ArcGIS Collector in full British National Grid coordinates.

Assessment of Potential Effect Significance

9.5.5 This assessment distinguishes between the terms ‘impact’ and ‘effect’. An impact is defined as a physical change to a heritage asset or its setting, whereas an effect refers to the significance of this impact. The first stage of the assessment involves establishing the significance and importance of the heritage assets and assessing the sensitivity of those assets to change (impact). Using the proposed design for the Proposed Development, an assessment of the impact magnitude is made and a judgement regarding the level and significance of effect is arrived at.

Requirements for Mitigation

9.5.6 The definition of cultural significance is readily accepted by heritage professionals both in the UK and internationally and was first fully outlined in the Burra Charter, which states in article one that ‘cultural significance’ or ‘cultural heritage value’ means aesthetic, historic, scientific, social or spiritual value for past, present or future generations (ICOMOS, 2013: Article 1.2, 3). This definition has since been adopted by heritage organisations around the world, including HES. HEPS notes that to have cultural significance an asset must have a particular ‘aesthetic, historic, scientific or social value for past, present and future generations’ (HES, 2019a: 5). Heritage assets also have value in the sense that they ‘...contribute to sense of place, cultural identity, social wellbeing, economic growth, civic participation and lifelong learning’ (Scottish Government, 2014b: 33).

9.5.7 All heritage assets have significance; however, some heritage 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 contribute to our understanding or appreciation of the past (HES, 2019a). 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.

9.5.8 The rating of importance of heritage assets is first and foremost made in reference to their designation. For non-designated assets importance has been assigned based on professional judgement and guided by the criteria presented in Table 9.2, which itself relates to the criteria for designations as set out in HES’s Designation Policy and Selection Guidance (HES 2019b) and Scotland’s Listed Buildings (HES, 2019c).

Table 9.2 – Criteria for Establishing Importance of Heritage Assets

Importance	Receptors
Very High	World Heritage Sites (As protected by SPP, Scottish Government, 2014b); Other designated or non-designated assets with demonstrable Outstanding Universal Value.
High	Scheduled Monuments (as protected by the Ancient Monuments and Archaeological Areas Act 1979 (the ‘1979 Act’);

Importance	Receptors
	<p>Category A Listed Buildings (as protected by the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997) (the '1997 Act');</p> <p>Inventory Gardens and Designed Landscapes (as protected by the 1979 Act, as amended by the Historic Environment (Amendment) (Scotland) Act 2011);</p> <p>Inventory Battlefields (as protected by the 1979 Act, as amended by the 2011 Act);</p> <p>Outstanding examples of some period, style or type;</p> <p>Non-designated assets considered to meet the criteria for the designations as set out above (as protected by SPP, Scottish Government, 2014b).</p>
Medium	<p>Category B and C Listed Buildings (as protected by the 1997 Act);</p> <p>Conservation Areas (as protected by the 1997 Act);</p> <p>Major or representative examples of some period, style or type; or</p> <p>Non-designated assets considered to meet the criteria for the designations as set out above (as protected by SPP, Scottish Government, 2014b).</p>
Low	<p>Locally Listed assets; and</p> <p>Examples of any period, style or type which contribute to our understanding of the historic environment at the local level.</p>
Negligible	<p>Relatively numerous types of assets;</p> <p>Findspots of artefacts that have no definite archaeological remains known in their context;</p> <p>The above non-designated assets are protected by Paragraph 137 of SPP, Scottish Government, 2014b.</p>

9.5.9 Determining cultural heritage significance can be made with reference to the intrinsic, contextual and associative characteristics of an asset as set out in HEPS (HES, 2019a) and its accompanying Designation Policy and Selection Guidance (HES, 2019b). HEPS Designation Policy and Selection Guidance (2019b) indicates that the relationship of an asset to its setting or the landscape makes up part of its contextual characteristics. The Xi'an Declaration (ICOMOS, 2005) set out the first internationally accepted definition of setting with regard to heritage assets, indicating that setting is important where it forms part of or contributes to the significance of a heritage asset. While SPP does not differentiate between the importance of the asset itself and the importance of the asset's setting, HES's Managing Change Guidance, in defining what factors need to be considered in assessing the impact of a change on the setting of a historic asset or place, states that the magnitude of the proposed change should be considered '*relative to the sensitivity of the setting of an asset*' (HES, 2020a: 11); thereby making clear that assets vary in their sensitivity to changes in setting and thus have a relative sensitivity.

9.5.10 The EIA Handbook suggests that cultural significance aligns with sensitivity but also states that '*the relationship between value and sensitivity should be clearly articulated in the assessment*' (SNH & HES, 2018: 184). It is therefore recognised (ibid) 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 significance of an asset. Thus, in determining the nature and level of effects upon

assets and their settings by the development, the contribution that setting makes to an asset's significance and thus its sensitivity to changes to setting need to be considered. For example, colliery headframes are rare survivals within the modern landscape and are consequently usually Listed and are of historical, architectural and technological significance. However, by their very nature their placement within the landscape was determined by their proximity to underground resources or practical considerations such as their proximity to rail connections, This means that whilst some value can be derived from the aesthetic contribution that these survivals make to the contemporary landscape, the bulk of their significance is derived from the social, economic and technological history that they signify. These assets could therefore be considered to be less sensitive to changes with the contemporary landscape.

9.5.11 This approach recognises the importance of preserving the integrity of the setting of an asset in the context of the contribution that setting makes to the understanding, appreciation and experience of a given asset. It recognises that setting is a key characteristic in understanding and appreciating some, but by no means all, assets. Indeed, assets of high or very high importance do not necessarily have high sensitivity to changes to their settings (e.g. do not necessarily have a high relative sensitivity). An asset's relative sensitivity to alterations to its setting refers to its capacity to retain its ability to contribute to our understanding and appreciation of the past in the face of changes to its setting. The ability of an asset's setting to contribute to an understanding, appreciation and experience of it and its significance also has a bearing on the sensitivity of that asset to changes to its setting. While heritage assets of high or very high importance are likely to be sensitive to direct effects, not all will have a similar sensitivity to effects on their setting; this would be true where setting does not appreciably contribute to their significance. HES's guidance on setting makes clear that the level of effect may relate to *'the ability of the setting [of an asset] to absorb new development without eroding its key characteristics'* (HES, 2020a: 11). Assets with very high or high relative sensitivity to settings effects may be vulnerable to any changes that affect their settings, and even slight changes may erode their key characteristics or the ability of their settings to contribute to the understanding, appreciation and experience of them. Assets whose relative sensitivity to changes to their setting is lower may be able to accommodate greater changes to their settings without having key characteristics eroded.

9.5.12 The criteria used for establishing an asset's relative sensitivity to changes to its setting is detailed in Table 9.3. This table has been developed based on AOC's professional judgement and experience in assessing setting effects. It has been developed with reference to the policy and guidance noted above including SPP (Scottish Government 2014b), HEPS (HES, 2019a) and its Designation Policy and Selection Guidance (HES, 2019b), the Xi'an Declaration (ICOMOS, 2005), the EIA Handbook (SNH & HES, 2018) and HES's guidance on the setting of heritage assets (HES, 2020a).

Table 9.3 – Criteria for Establishing Relative Sensitivity of a Heritage Asset to Changes to its Setting

Relative Sensitivity	Criteria
Very High	An asset, the setting of which is critical to an understanding, appreciation, and experience of it, should be thought of as having very high Sensitivity to changes to its setting. This is particularly relevant for assets whose settings, or elements thereof, make an essential direct contribution to their cultural significance (e.g. form part of their Contextual Characteristics (HES, 2019b, Annex 1)).
High	An asset, the setting, of which makes a major contribution to an understanding, appreciation, and experience of it, should be thought of as having high Sensitivity to changes to its setting. This is particularly relevant for assets whose settings, or elements

	thereof, contribute directly to their cultural significance (e.g. form part of their Contextual Characteristics (HES, 2019b, Annex 1)).
Medium	An asset, the setting of which makes a moderate contribution to an understanding, appreciation, and experience of it, should be thought of as having medium Sensitivity to changes to its setting. This could be an asset for which setting makes a contribution to significance but whereby its value is derived mainly from its other characteristics (HES, 2019b).
Low	An asset, the setting of which makes some contribution to an understanding, appreciation, and experience of it, should generally be thought of as having low Sensitivity to changes to its setting. This may be an asset whose significance is predominantly derived from its other characteristics.
Negligible	An asset whose setting makes minimal contribution to an understanding, appreciation, and experience of it should generally be thought of as having negligible Sensitivity to changes to its setting.

9.5.13 The determination of a heritage asset’s relative sensitivity to changes to its setting is first and foremost reliant upon the determination of its setting and the key characteristics of setting which contribute to its cultural significance and an understanding and appreciation of that cultural significance. This aligns with Stage 2 of the HES guidance on setting (HES, 2020a: 9). The criteria set out in Table 9.3 are intended as a guide. Assessment of individual heritage 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 will allow for the use of professional judgement and each asset is assessed on an individual basis.

Criteria for Assessing Magnitude of Impact

9.5.14 Potential impacts, that is the physical change to known heritage assets, and unknown buried archaeological remains, or changes to asset settings, in the case of the Proposed Development relate to the possibility of disturbing, removing or destroying in situ remains and artefacts during the construction phase or the placement of new features within their setting during the operational phase.

9.5.15 The magnitude of the impacts upon heritage assets caused by the Proposed Development is rated using the classifications and criteria outlined in Table 9.4.

Table 9.4 – Criteria for Classifying Magnitude of Impact

Impact Magnitude	Criteria
High	Substantial loss of information content resulting from total or large-scale removal of deposits from an asset; Major alteration of an asset’s baseline setting, which materially compromises the ability to understand, appreciate and experience the contribution that setting makes to the significance of the asset and erodes the key characteristics (HES, 2020a) of the setting.
Medium	Loss of information content resulting from material alteration of the baseline conditions by removal of part of an asset;

	Alteration of an asset’s baseline setting that effects the ability to understand, appreciate and experience the contribution that setting makes to the significance of the asset to a degree but whereby the cultural significance of the monument in its current setting remains legible. The key characteristics of the setting (HES, 2020a) are not eroded.
Low	Detectable impacts leading to minor loss of information content; Alterations to the asset’s baseline setting, which do not affect the observer’s ability to understand, appreciate and experience the contribution that setting makes to the asset’s overall significance.
Negligible	Loss of a small percentage of the area of an asset's peripheral deposits; A reversible alteration to the fabric of the asset; A marginal alteration to the asset’s baseline setting.
None	No impact predicted.

Criteria for Assessing Level of Effect

9.5.16 The predicted level of effect on each heritage asset is then determined by considering the asset’s importance and/or relative sensitivity in conjunction with the predicted magnitude of the impact. The method of deriving the level of effect is provided in Table 9.5.

Table 9.5: Level of Effect based on Inter-Relationship between the Importance and/or Sensitivity of a Heritage Asset and/or its setting and the Magnitude of Impact

Magnitude of Impact	Importance and/or Sensitivity				
	Negligible	Low	Medium	High	Very High
High	Minor	Moderate	Moderate	Major	Major
Medium	Negligible/Neutral	Minor	Moderate	Moderate	Major
Low	Negligible/Neutral	Negligible/Neutral	Minor	Minor	Moderate
Negligible	Negligible/Neutral	Negligible/Neutral	Negligible/Neutral	Minor	Minor

9.5.17 The level of effect is judged to be the interaction of the asset’s importance and/or relative sensitivity (Tables 9.2 and/or 9.3) and the magnitude of the impact (Table 9.4). In order to provide a level of consistency, the assessment of importance and relative sensitivity, the magnitude of impact and the assessment of level of effect are guided by pre-defined criteria. However, a qualitative descriptive narrative is also provided for each asset to summarise and explain each of the professional value judgements that have been made in establishing importance and/or sensitivity and magnitude of impact for each individual asset.

9.5.18 Using professional judgment and with reference to the Guidelines for Environmental Impact Assessment (as updated) (IEMA, 2017), and the EIA Handbook (SNH & HES, 2018), the assessment considers moderate and greater effects to be significant (shaded grey in Table 9.5), while minor and lesser effects are considered not significant.

Integrity of Setting

- 9.5.19 SPP notes 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'* (Scottish Government, 2020: para 145, 35). Adverse effects on integrity of setting are judged here to relate to whether a change would seriously adversely affect the asset's key attributes or elements of setting which contribute to an asset's significance to the extent that the setting of the asset can no longer be understood or appreciated.
- 9.5.20 In terms of effects upon the setting of heritage assets, it is considered that only those effects identified as *'significant'* in the assessment will have the potential to adversely affect integrity of setting. Where no significant effect is found it is considered that the integrity of an asset's setting will remain intact. This is because for many assets, setting may make a limited contribution to their significance and as such changes would not affect the integrity of their settings. Additionally, as set out in Table 9.4, lower ratings of magnitude of change relate to changes that would not obscure or erode key characteristics of setting.
- 9.5.21 Where significant effects are found, a detailed assessment of adverse effects upon integrity of setting is made. Whilst non-significant effects are unlikely to affect integrity of setting, the reverse is not always true. That is, the assessment of an effect as being *'significant'* does not necessarily mean that the adverse effect to the asset's setting will harm its integrity. The assessment of adverse effect upon the integrity of an asset's setting, where required, will be a qualitative one, and will largely depend upon whether the effect predicted would result in a major impediment to the ability to understand or appreciate the heritage asset and therefore reduce its cultural significance.

Cumulative Effect Assessment

- 9.5.22 It is necessary to consider whether the effects of other schemes in conjunction with the Proposed Development would result in an additional cumulative or combined change upon heritage assets, beyond the levels predicted for the Proposed Development alone. However, only those assets which are judged to have the potential to be subject to significant cumulative effects have been included in the detailed cumulative assessment provided.
- 9.5.23 The cumulative assessment has regard to the guidance on cumulative effects upon heritage assets as set out in Environmental Impact Assessment Handbook V5 (SNH & HES, 2018) and utilises the criteria used in determining effects from the Proposed Development as outlined in Tables 9.2 to 9.5 above. The assessment of cumulative effects considers whether there would be an increased impact, either additive or synergistic, upon the setting of heritage assets as a result of adding the Proposed Development to a baseline, which may include operational, under construction, consented or proposed developments as agreed with OIC.
- 9.5.24 In determining the degree to which a cumulative effect may occur as a result of the addition of the Proposed Development into the cumulative baseline a number of factors are taken into consideration including:
- the distance between wind farms;
 - the interrelationship between their Zones of Theoretical Visibility (ZTV);
 - the overall character of the asset and its sensitivity to wind farms;
 - the siting, scale and design of the wind farms themselves;
 - the way in which the asset is experienced;
 - the placing of the cumulative wind farm(s) in relation to both the individual proposal being assessed and the heritage asset under consideration; and

- the contribution of the cumulative baseline schemes to the significance of the effect, excluding the individual proposal being assessed, upon the setting of the heritage asset under consideration.
- 9.5.25 This assessment is based upon a list of operational or consented developments along with developments where planning permission has been applied for. Cumulative developments are listed in **Chapter 3** While all have been considered, only those which contribute to, or have the possibility to contribute to, cumulative effects on specific heritage assets are discussed in detail in the text. Additionally, given the emphasis NatureScot places on significant effects, cumulative effects have only been considered in detail for those assets where the effect on setting from the Proposed Development, alone, has been judged to be **minor** or greater. The setting of assets which would have a magnitude of impact of less than **minor** is judged to be unlikely to reach the threshold of significance as defined in Table 9.5.

Assessment of Residual Effect Significance

- 9.5.26 The residual effect is what remains following the application of mitigation and management measures, and construction has been completed and is thus the final level of impact associated with the Proposed Development. The level of direct residual effect is defined using criteria outlined in Tables 9.2, 9.4 and 9.5.

Limitations to Assessment

- 9.5.27 This chapter is based upon data obtained from publicly accessible archives as described in the Data Sources in Paragraph 9.5.3 above. National Record for the Historic Environment data and Historic Environment Scotland Designation data was downloaded from HES in February 2022 and is current to this date.
- 9.5.28 No intrusive archaeological evaluation has been undertaken to inform this assessment, as such there is the potential for hitherto unknown archaeological remains to survive within the site and to be disturbed by the works associated with the Proposed Development. This limitation is taken account of in the mitigation section where measures to avoid or minimise any such effects on hitherto unknown remains are provided for.
- 9.5.29 Each heritage asset referred to in the text is listed in the Gazetteer in **Appendix 9.1**. Each has been assigned an 'Asset No.' unique to this assessment, and the Gazetteer includes information regarding the type, period, grid reference, HER number, protective designation, and other descriptive information, as derived from the consulted sources. Photographic plates are in **Appendix 9.2**.

9.6 Baseline Conditions

The Site

- 9.6.1 Two Scheduled Monuments lie within the site boundary, whilst a further two lie within the adjacent Loch of Swannay, one of which is connected to the site boundary by a partially submerged causeway:
- Hundland Hill, enclosure 500m NE of Nisthouse (Asset 65, SM13451)
 - This monument has yet to be tested through either detailed survey or direct archaeological intervention, however it has been interpreted on morphological grounds as representing the remains of a prehistoric hilltop enclosure and has been Scheduled on that basis. Based on its current interpretation as set out in its Scheduling Document it is considered to have a **high** sensitivity to change.
 - Nisthouse Burial Mound (Asset 61, SM1318)

- This is a grass covered earthen prehistoric burial mound overlooking the Loch of Hundland to the southwest. As a prehistoric funerary monument it can be considered to have a **high** sensitivity to change.
 - Park Holm (Asset 72, SM1362)
 - This artificial island is connected to the site boundary via a surviving partially submerged causeway and as a possible prehistoric crannog and can be considered to have a **high** sensitivity to change, although this sensitivity relates primarily to its context within the loch.
 - Stoney Holm (Asset 83, SM1394)
 - This monument lies within the loch outwith the site boundary. The Scheduled area of Asset 83 is not within the site. As a possible prehistoric crannog Stoney Holm can be considered to have a **high** sensitivity to change, although this sensitivity relates primarily to its context within the loch.
- 9.6.2 Five non-designated heritage assets have also been identified on the site (Assets 163 -167) four of which were identified by AOC during the walkover undertaken in March 2022. Three of these assets are undated but are probably related to agricultural practices in the post-medieval period. The fourth site (Asset 167) is a modern dump of material within a hollow.

1 km Study Area

- 9.6.3 Five Scheduled Monuments lie within the 1 km Study Area; these include the Park Holm artificial island that is discussed above, and the Stoney Holm Crannog, (Asset 83, SM1394) which lies to the east of the site within Loch of Swannay.
- 9.6.4 There are thirteen non-designated heritage assets within the 1 km Study Area.

5 km Study Area

- 9.6.5 A further 41 Scheduled Monuments lie within the 5 km Study Area along with five Category B Listed and seven Category C Listed Buildings.

10 km Study Area

- 9.6.6 Seventy-seven Scheduled Monuments, three Category A Listed Buildings and a single Conservation Area (Asset 145, Eynhallow Rural Conservation Area) lie within the 10 km Study Area. A single Category C Listed Building, Asset 151, the Kitchener Memorial, is located within the 10 km Study Area and has also been included within the scope of the assessment due to its prominent position within the landscape.

15 km Study Area

- 9.6.7 All four HONO WHS Monuments, the Ring of Brodgar stone circle, henge and nearby remains (Asset 146, SM90042); Maes Howe chambered cairn (Asset 147, SM90209), Stenness, stone circle and henge (Asset 148, SM90285) and Skara Brae, settlement mounds and other remains (Asset 149, SM90276) lie between 10.91 km and 14.32 km of the site boundary. All are also protected individually as Scheduled Monuments.

Archaeological and Historical Background

Context

- 9.6.8 The site is centred on Hundland Hill although its eastern boundary extends to the western shoreline of the Loch of Swannay. To the north and south field boundaries form the limit of the site whilst to the southwest the boundary is primarily formed by a non-designated northwest to southeast aligned road with the exception of the western portion of the site which includes half of a field on the southwest side of this road. A range of designated and non-designated assets are recorded both on the site and within the surrounding 1km study area and these discussed below. Designated assets set at a greater distance are considered in Section 9.9 and **Appendix 9.3** where they lie within the Proposed Development's Zone of Theoretical Visibility (ZTV).
- 9.6.9 The site is sub-divided into 13 separate land enclosures.

Prehistoric Evidence

- 9.6.10 Two Scheduled Monuments are located within the site boundary. The first, the Hundland Hill Enclosure (Asset 65, Asset 13451), is situated on the summit of Hundland Hill and is a comparatively recent discovery having been first recorded by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) (now HES) in 2008 and Scheduled in 2014. The Scheduling document states that the enclosure is clearly visible from the air on oblique aerial photographs and *'...can be traced on the ground intermittently as a low earth bank, about 0.5 m high.'*, and adds that: *'The monument survives to a marked degree with its earthen bank visible on the ground for most of the circuit. Its hilltop position and the benign nature of later land-use are likely to have preserved important archaeological evidence: the discovery of cramp in the enclosing bank demonstrates this potential. The significance of the monument is enhanced by its hilltop location overlooking a landscape rich in broadly contemporary, funerary and ritual monuments'* (HES 2014a).
- 9.6.11 No detailed archaeological surveys or interventions have been undertaken on the enclosure although a fragment of burnt human bone was reportedly recovered from a rabbit hole dug into the boundary bank (Cowley, 2011: 52).
- 9.6.12 In their response (23 March 2022) to AOC Archaeology's consultation request HES commented that: *'Prehistoric hilltop enclosures are extremely uncommon in the British Isles. Fewer than ten examples have been identified in England, with only a handful of putative examples known in Scotland... The enclosure on Hundland Hill is therefore an important example of an exceptionally rare type of prehistoric site in Scotland, particularly in Orkney.'*
- 9.6.13 This is however dependent on the interpretation that is placed upon the Hundland Hill enclosure, for whilst late-prehistoric (Iron Age) hill top enclosures are comparatively common, earlier Neolithic or Bronze Age examples are believed to be considerably rarer. This may reflect advances in radiocarbon dating which means that sites that would previously been considered to be later can now be understood to be earlier. Our understanding of the purpose of these assets would also differ. This is because whilst later prehistoric enclosures are generally understood within a domestic context, Neolithic or Bronze Age enclosures are typically interpreted as ceremonial structures often with a funerary dimension. Indeed, this is hinted at in the in the HES consultation response which notes that *'the monument overlooks a landscape rich in broadly contemporary funerary and ritual monuments'*.
- 9.6.14 The second on-site Scheduled Monument, the Nisthouse Burial Mound (Asset 61, SM1318), is a grass covered earthen mound which stands at approximately 80 m above sea level on the upper southwestern slopes of Hundland Hill overlooking the Loch of Hundland to the southwest and has clear views further to the southwest to the Loch of Boardhouse and the Loch of Isbister. The mound survives to a height of 1.1 m and is considered by its Scheduling document to be of national importance due to *'its potential to make a significant addition to our understanding of funerary*

practice in the Bronze Age. The burial mound retains its field characteristics to a marked degree, despite some antiquarian investigation (before 1880), which exposed a cist containing human bone and ashes' (HES 2014b).

- 9.6.15 A further five Scheduled Monuments lie within 1 km of the site boundary including two crannogs, or probable crannogs, Stoney Holm (Asset 83, SM1394) and Park Holm (Asset 72, SM1362) that lie within the waters of the Loch of Swannay to the northeast of the site. Park Holm is connected to the shoreline by an artificial causeway. Both monuments are listed in their Scheduling documents as 'prehistoric domestic and defensive' assets (HES 1937 & 1993), although it should be noted that in some instances the construction and use of artificial islands within Scottish lochs continued into the historic period.
- 9.6.16 Park Holm was subject to a topographic survey by a team from Orkney College that included the author of this chapter in October 2011, their report noted that:
- 'The isle was also snorkelled (sic) and around it was recorded as an underwater area characterised by many angular stones of various size with some upright stones that were seen especially in the north and east side, and that seemed man-made. At the base perimeter of the islet were observed some remains of a wall that seems to butt on the underwater layer of stones. This wall is characterised by some large angular stones. Higher up, this wall seems to butt another layer of stones until the top of the crannog, even if it was not easily observable because of vegetation and grass. It was observed that the south side of the islet seems wider than the others, and more stones were present. This side looks towards the causeway that connects to the shore.'* (Laureanti, 2012: 11-12)
- 9.6.17 The NRHE for Stoney Holm (Asset 83, SM1394), NRHE No. HY32NW 6 states that a rectangular structure measuring 37 ft/11.28 m by 23 ft/7.01 m was recorded by RCAHMS in 1946. This structure had been reduced to its foundation level with the lowest course of masonry visible only at the southeast corner. The wall thickness of the rest of the structure could not be determined. The Orkney SMR in July 1984 states that the masonry was only visible at the southeast corner with a single course wall face consisting of three long, massive stones; there was no definite corner visible. A submerged causeway can clearly be seen in aerial photographs from May 2010 that can be viewed within Google Earth. Parts of this submerged causeway were identified during the walkover survey of the site undertaken by AOC Archaeology on 22 March 2022.
- 9.6.18 Two Scheduled mounds lie to the north of the site at Mittens (Asset 67, SM1350) although unfortunately only the southernmost mound survives as an upstanding feature today. This measures approximately 15 m in diameter and survives to a height of around 1 m and the Scheduling document notes that '*according to early reports, the mound was once encircled by a bank and/or ditch*'. Traces of the now lost northern mound still reportedly survive to a height of 0.20 m, a stone-lined cist containing ashes was reportedly excavated within this mound in 1877, whilst a second cist was reportedly found within the vicinity in 2003 (HES 2003).
- 9.6.19 A further three Scheduled mounds (Asset 87, SM1402) lie to the west of the Loch of Hundland on the east facing slopes of Kirbister Hill at Quoyhorrie. When originally designated in 1940 the first two mounds reportedly stood to heights of 1.5 m and 1 m although they have now been so degraded by ploughing that little now remains of them above ground level whilst the third mound reportedly survives only to a height of 0.5 m.
- 9.6.20 In addition to the Scheduled Nisthouse, Mittens and Quoyhorrie mounds the former locations of four destroyed non-designated probable burial mounds are recorded within the 1km Study Area. The closest a prehistoric barrow at Asset 3 was reportedly excavated sometime before 1880 and was found to include a cist containing bones, ashes and other materials. Although it was still visible as a mound in 1880 no trace of this cist could be found when the barrow was revisited by RCAHMS in 1929. The second mound (Asset 5) was recorded 110 m southwest of the site boundary at Quoyhorrie (Asset 5) by RCAHMS in 1946 who found it to be '*...much broken up.*', but this mound had also been lost by the time that its site was revisited by the Ordnance Survey in 1967. The final two mounds (Asset 2) are recorded at Quoyhorrie, although confusingly these lay on the opposite western side of the Loch of Hundland, are reported to have been destroyed prior to 1967, although

a note of caution has to be sounded as these may potentially have been of comparatively recent origin.

- 9.6.21 Taken together the Scheduled Nisthill mound and the two lost mounds at Hundland and Quoyhorrie (Assets 3 & 5) suggest that there was a concentration of Bronze Age burial mounds on the southwest facing slope of Hundland Hill, placed where the ground drops westwards towards the banks of the Loch of Hundland.
- 9.6.22 A fourth Scheduled Monument, the Hundland Settlement Mound (SM1284, Asset 32) lies to the southwest of the site on the northeastern bank of the Loch of Hundland. Probable Iron Age pottery and bone have been recovered from the mound which suggests that it may contain the remains of a late prehistoric broch.
- 9.6.23 A final non-designated asset (Asset 1) located by an inlet at the northern end of the Loch of Hundland was simply described as a ‘...*mound of burnt stones...*’ when it was visited by RCAHMS in 1946, and no trace of it was found by the Ordnance Survey in 1967, although a ‘*low circular... NOT “burnt”*’ mound was subsequently spotted at the site by an Inspector of Ancient Monuments (now HES) in 1976. Given these sparse contradictory accounts this asset is hard to interpret although given its low-lying position alongside the loch, if it prehistoric then it is more likely to be either a Bronze Age burnt mound or a later Iron Age broch rather than a funerary feature.

Early Historic Evidence

- 9.6.24 No assets potentially dating to the early historic period have been identified either on the site or within the wider 1 km Study Area.

Medieval Evidence

- 9.6.25 No assets potentially dating to the medieval period have been identified on the site although the former site of a chapel (Asset 6) is recorded to the south of the site at Hundland within the 1km Study Area. The NRHE entry records that the ruins of this chapel formerly stood to a height of 6 ft/1.83 m before the ruins were robbed to provide building material for part of the nearby post-medieval Hundland farmhouse (Asset 13). The old long sellar type design of Hundland farmhouse can still be traced in the existing building structure.

Post-medieval Evidence

- 9.6.26 Two assets potentially dating to the post-medieval period have been identified within the site. These consist of Assets 165 & 166 on the west slope of Hundland Hill below the summit and beyond the scheduled area of Hundland Hill enclosure (Asset 65). They are slight hollows with exposed stone visible and slight banking on their western sides. Although assets 165 & 166 could not be dated during the walkover survey they are probably small post-medieval quarries.
- 9.6.27 The nearest recorded post-medieval site is the farmstead of Setter (Asset 12,) which lies 158 m to the northwest of the site and is depicted on the 1882 1st Edition Ordnance Survey as consisting of one unroofed L-shaped building, one partially roofed building, three roofed buildings and two enclosures (*Orkney and Shetland (Orkney) 1882, Sheet LXXXVIII*). The map also records three further post-medieval structures to the north of the site (Assets 7-9) whilst a further two farmsteads (Assets 12 & 13) lie to the north and south respectively.

Modern Evidence

- 9.6.28 One asset, probably dating to the modern period, has been identified within the site. Asset 167 consists of a hallow filled with dumped stone and modern material in an arable field to the south of Hundland Hill.
- 9.6.29 A concrete Ordnance Survey pillar trig point stands within the site on the summit of Hundland Hill (Flush Bracket Number: 10680, Station Number: 013, Secondary Block Number: HY52); this was computed or re-computed on the summit of Hundland Hill in 1961. It was levelled in 1978 and the

Ordnance Survey records that it was last maintained in 1984 (Ordnance Survey, 2022: Triangular Stations). This trig point stands within the Scheduled Hundland Hill enclosure (Asset 65).

Cartographic Evidence

- 9.6.30 Early maps of Orkney such as Blaeu’s 1654 map of Orkney and Shetland (not illustrated) are highly schematic although Blaeu does show Costa Head (labelled ‘*Cofta head*’).
- 9.6.31 Later 18th and 19th century maps are schematic and tended to be focused on the seaways which intertwine with Orkney rather than the islands themselves. Murdoch Mackenzie’s 1750 map of ‘*Pomona or Main-Land*’ (Figure 9.7) was a chart designed to aid navigation and thus shows few details regarding terrestrial elements further inland on Mainland Orkney. However it does depict the Loch of Swannay (labelled as ‘*Loch of Seater*’ and an area on the east shoreline of the Loch of Hundland as ‘*Hund-Land*’; there are no details depicted within the site.
- 9.6.32 The 1st edition Ordnance Survey 6-inch map (*Orkney and Shetland (Orkney) 1882, Sheet LXXXVIII*) show the site and the surrounding area in detail (Figure 9.8). This map was surveyed in 1881 and published in 1882. The site is depicted as rough pasture with the exception of two fields in the northwest corner; their agricultural nature is not specified. An enclosure (Asset 164) is clearly depicted; there is a track that leads north to the farm at Ludenhill beyond the northern boundary of the site.
- 9.6.33 The two Scheduled crannogs within the Loch of Swannay; Park Holm (Asset 72, SM1362) and Stoney Holm (Asset 83, SM1394) are clearly recorded by the Ordnance Survey, indicating that their presence within the loch must predate 1881. No discernible features are depicted on these assets and the causeway to Asset 72 is not depicted. This does not mean that the causeway was not present when the 1st edition Ordnance Survey map was undertaken; the walkover survey noted that the causeway is partially submerged, and such topographic assets tend not to be depicted on terrestrial Ordnance Survey maps.
- 9.6.34 The Scheduled Hundland Hill enclosure (Asset 65) is not recorded by the Ordnance Survey although this may simply reflect the low-lying nature of the surviving earthworks.
- 9.6.35 The Ordnance Survey does however record a farm track near the summit of Hundland Hill heading southwest to northeast. This track can still be seen on modern aerial photographs. It starts from the non-designated northwest to southeast road that forms the southwest boundary of the site and Hundland farmhouse (Asset 13) and heads into the southern portion of the site. It does not go within any appreciable distance of the summit of Hundland Hill and terminates before the land starts to slope down towards the Loch of Swannay.
- 9.6.36 The areas of post-medieval assets recorded in the NRHE to the north and south/southwest of the site appear to be situated at their location due to the proximity of through roads connecting such areas to the wider landscape within Orkney mainland. In comparison, the site is relatively undeveloped as agricultural land prior to the modern period.
- 9.6.37 The Ordnance Survey maps that were revised in 1900 and published in 1902 (Figure 9.9) show no appreciable changes since the 1st edition Ordnance Survey map.

Aerial Photographic Evidence

- 9.6.38 A search was made of aerial photographs in the care of The National Collection for Aerial Photography (NCAP) held by HES. Two photographs of the site were available to view online taken on 26th June 1987 (Sortie: ASS/60687: Frames 0233-0234). No new finds or features were observed in these images. Further images that potentially cover the site were also identified. However, these images are not digitised and are held as hard copies by NCAP. At the time of this assessment, due to the Covid-19 pandemic the NCAP Search Room was not open.
- 9.6.39 A search was made of aerial photography held on the Britain from Above website (<https://www.britainfromabove.org.uk/>). No photographs of the site were available to view.

- 9.6.40 A search was also made of the Cambridge University Centre for Aerial Photographs (CUCAP). No photographs of the site were available to view.

LiDAR Analysis

- 9.6.41 A search was made of the Scottish Remote Sensing Portal for LiDAR data; no publicly accessible LiDAR data of the site was available to view.

Oral History

- 9.6.42 Ludenhill and the adjacent farm of Dale have been occupied by the present landowner's family for at least three generations and members of the family remember the use of Hundland Hill by members of the armed forces during the Second World War. The current landowner's mother notes that she *'can clearly remember as a young child watching the Bren Gun carriers which carried personnel and equipment to and from the target practice sites coming over the hill from Nisthouse. They were big and noisy and came down towards the farm and along the road past the house. At such a young age, having known nothing other than quiet and peaceful surroundings, I remember feeling fearful and anxious at these new sights and experiences'* (Winnie Beck Pers. Comm.). Other relatives and their contemporaries also recall wartime activity on Hundland Hill, Mrs Breck's cousin Arthur Spence notes that *'I can remember this area being used for target practice. I remember the planes coming in along the loch and shooting towards targets at the north end of the loch. I remember a bren gun carrier getting stuck coming down towards Dale from Hundland hill as there was a lot of activity to get it out'* (Pers. Comm.). Mary Cragie who grew up at Slinghorn, Swannay remembers *'the top of Hundland Hill being developed and used for target practice during the war. The firing point was in the field just below our dwellinghouse and we would watch them shoot up towards the target area on Hundland hill. I was a young girl at the time and all this talk of war, seeing the big pieces of equipment and hearing the noises really stuck in my mind'* (Pers. Comm.).

- 9.6.43 Mrs Breck also recalls that the *'stepping stones towards the holm on the loch had to be moved and fenced off'* during the post-war period in order to prevent sheep crossing out to one of the island's, and she also notes that her *'father and other relatives at the time spoke of remembering the soldiers putting the stones in place in order to access the holm to fish from'*. These references are curious as the RCAHMS could not identify a causeway at Stoney Holm (Asset 83) when they visited in 1946 although the surviving causeway at Park Holm (Asset 72) was documented by the Commission at that time. It is therefore possible that at least a degree of reconstruction may have been undertaken to the Park Holm causeway.

Walkover Survey

- 9.6.44 An archaeological walkover survey of the site was undertaken on 22 March 2022 with the aim of identifying any previously unknown remains. The weather was warm and sunny with clear blue skies and good visibility on all directions.

- 9.6.45 The site is located in the northern part of West Mainland, between the Loch of Swannay to its northeast and the Loch of Hundland to the southwest. The western boundary does not extend as far as the Loch of Hundland, terminating at the minor road which serves the farms with a slight extension into an adjacent field at its northern end. The site is structured around Hundland Hill and the topography rises gradually towards the summit which lies within the western part of the site. The summit itself is relatively broad which, coupled with its gradual slopes gives Hundland a dome shaped profile when it is viewed from the surrounding landscape. An existing wind turbine stands on the southern slopes of the hill, within the site boundary.

- 9.6.46 Rough grazing extends across the eastern part of the site, as the ground rises gradually up from the shores of the Loch of Swannay. The ground was mostly firm although boggier areas were present in parts. An enclosure depicted on the Ordnance Survey map of 1881 (Asset 164) was located during the walkover survey and found to consist of a low earthen bank around 0.02 m high. The enclosure is now situated in slightly, marshy land. As such it was not always possible to make out the low bank from ground level or distinguish it from the surrounding topography. Enclosed improved fields

extend across both the upper slopes of Hundland Hill and the western part of the site, where the topography drops towards the Loch of Hundland. However the summit of the hill itself is covered by rough unenclosed open moorland.

- 9.6.47 Two Scheduled Monuments are located within the site boundary: the enclosure on the summit of Hundland Hill (Asset 65, SM13451) (Plate 1); and the Nisthouse burial mound (Asset 61, SM1318) (Plate 2) which lies on its southwestern slopes. A modern Ordnance Survey triangulation pillar stands on the summit of Hundland Hill (Plate 3) within the Scheduled enclosure. Two Scheduled Crannogs, Stoney Holm (Asset 83, SM1394) (Plate 4) and Park Holm (Asset 72, SM1362) (Plate 5), lie to the immediate east of the site within the waters of the Loch Swannay. Park Holm is connected to the shore, and the site boundary, via a causeway which was partially submerged at the time of the site visit; the Scheduled area of the causeway is connected to the site boundary.
- 9.6.48 Hundland Hill is situated within the of the site boundary although its slopes are relatively gradual. The majority of the land on the hill has been enclosed and improved however the summit remains covered by moorland vegetation and did not appear to be subject to regular grazing or other farming activities (Plate 7).
- 9.6.49 The southeastern portion of the site consisted of rough grazing. Although boggy areas were present in the southeast the ground tended to be firmer and more well drained along the western shoreline of Loch Swannay (Plate 6) and further to the north and up the eastern slope of Hundland Hill (Plate 8).
- 9.6.50 The enclosure depicted on the Ordnance Survey map of 1881 (Asset 164) was visible in places within the site and consisted of a low earthen bank around 0.2 m to 0.5 m high (Plate 9). The enclosure is now situated in slightly marshy land. As such it was not always possible to make out the low bank from ground level.
- 9.6.51 A low L-shaped earthwork (Asset 163) (**Figure 9.1**) (Plate 10) was recorded on the site near the eastern shoreline of Loch Swannay. The feature is a low-grassed earthwork with occasional stones protruding (Plate 11).
- 9.6.52 Two features, Assets 165 (Plate 12) & 166 (Plate 13) (**Figure 9.1**) were recorded on the west side of Hundland Hill just below and to the west of the Scheduled area of the Hundland Hill prehistoric enclosure (Asset 65, SM13541). They consist of hollows surrounded by a low earthwork and are probably small post-medieval quarries.
- 9.6.53 A final feature was recorded on the south side of Hundland Hill. Asset 167 (**Figure 9.1**) consisted of a hollow filled with dumped stone and modern materials. It is probably associated with the construction of the current Hundland Hill wind turbine that is located within the site.
- 9.6.54 No further archaeological evidence could be detected on the ground surface, however, given the improved nature of the fields this was to be expected and the potential that further buried remains survive on the site cannot be discounted.

9.7 Standard Mitigation

- 9.7.1 National planning policies and planning guidance as well as the local planning policies require that account is taken of potential effects upon heritage assets by proposed developments and that where possible such effects are avoided. Where avoidance is not possible these policies require that any significant effects on remains be minimised or offset. Potential direct and setting effects upon cultural heritage has been taken into account in site through design iteration.

9.8 Receptors Brought Forward for Assessment

- 9.8.1 This assessment has identified a range of assets within the 5 km, 10 km and 15 km Study Areas which could be sensitive to any changes to their settings that could potentially result from the implementation of the Proposed Development. These are discussed under settings effects below.

Receptors Brought Forwards for Assessment of Direct Effects

- 9.8.2 A total of seven cultural heritage assets have been identified within the site. These assets include the Scheduled Nisthill Burial Mound which probably dates to the Bronze Age (Asset 61, SM1318), the Scheduled Hundland Hill enclosure which is considered to be prehistoric (Asset 65, SM13451), and five non-designated assets. All seven assets will be carried forward for assessment. Their relative importance has been classified according to the method shown in Table 9.2, discussed below and summarised in Table 9.6.
- 9.8.3 The Nisthill burial mound is considered to be of high importance. Although earthen barrows like Nisthill (Asset 61) are an important and relatively widespread element of Bronze Age landscape within Orkney; they are less common across Scotland as a whole as stone cairns tend to predominate on the mainland. Such assets provide evidence for the significant changes which took place in society and funerary practice in the Bronze Age in Orkney.
- 9.8.4 Although the Hundland Hill Enclosure (Asset 65) is yet to be subject to detailed investigation or excavation, it is considered on morphological grounds to potentially be of Neolithic origin. If this interpretation were proved to be correct then it would elevate the significance of the asset as, on present evidence, monuments of this type and period are comparatively rare in the British Isles. The enclosure’s earthen bank is relatively intact, albeit well spread through long periods of settling. The low-lying nature of the earthwork itself means that whilst the hilltop upon which it stands can be appreciated from across the surrounding landscape the monument itself only comes into view when it is viewed from close quarters.
- 9.8.5 Historic map evidence suggests that the ground on the site was largely unimproved up until the 20th century. The two earthwork enclosures (Assets 163 and 164) are both low and undated although on a balance of probability they are considered to be post-medieval agricultural features and, as these are relatively common in upland Scotland, of negligible importance.
- 9.8.6 Given the known heritage assets within and surrounding the Proposed Development, there is some, albeit low potential, for hitherto unknown archaeological remains to survive within the Proposed Development Area as a whole although there is a medium to high potential for previously unrecorded assets and buried remains in particular to be encountered on the summit of Hundland Hill or within 100m of the Scheduled Monuments. By their very nature any such remains are unknown and the importance and sensitivity of such assets could range from negligible to high.

Table 9.6: Archaeological and Cultural Heritage Importance of Features within the site

Asset No	Name	Description	Importance
61	Nisthouse, burial mound 270m ENE of: Scheduled Monument	Burial mound or barrow probably dating to the Bronze Age.	High
65	Hundland Hill, enclosure 500m NE of Nisthouse: Scheduled Monument	Prehistoric enclosure.	High
163	Earthwork	Low L-shaped earthwork recorded on Nisthill Farm Windfarm Site on Tuesday the 22nd of March 2022. Earthwork is a low grassed earthwork with occasional stones protruding.	Negligible

Asset No	Name	Description	Importance
164	Enclosure	Enclosure depicted on Ordnance Survey map of 1881. The enclosure is still visible in aerial images. On site the low bank could be perceived in places although the enclosure is now situated in more marshy land.	Negligible
165	Quarry (Hundland Hill)	Poorly defined area that has the feel of a small scale post-medieval quarry. This slight hollow with exposed stone and slight bank on west side is on the west slope of Hundland Hill just below and to the west of the Scheduled area of Asset 65.	Negligible
166	Quarry (Hundland Hill)	Poorly defined area that has the feel of a small scale post-medieval quarry. This slight hollow with exposed stone and slight bank on west side is on the west slope of Hundland Hill just below and to the west of the Scheduled area of Asset 65.	Negligible
167	Rubbish Dump	A hollow filled with dumped stone and modern material. This feature is visible on modern aerial photographs.	Negligible

Receptors Brought Forwards for Assessment of Settings Effects

- 9.8.7 One hundred and twenty-one Scheduled Monuments are situated within 10 km of the site with a further four Scheduled Monuments that form the HONO WHS situated within 15 km of the site. ZTV analysis (**Figures 9.5 & 9.6**) indicates that the Proposed Development will not be visible from 37 of these Scheduled monuments (Assets 14 to 18, 31, 39 to 40, 42, 45 to 47, 53, 58 to 59, 62, 77 to 79, 82, 86, 92, 95, 100, 102, 106, 109 to 110, 112, 115, 117 to 119, 131 to 133 and 157).
- 9.8.8 ZTV analysis indicates that all of the Listed Buildings (Assets 131 to 143) and Eynhallow Rural Conservation Area (Asset 145) will have intervisibility with the Proposed Development.
- 9.8.9 HMS *Hampshire*, a 1st class armoured cruiser was lost off Marwick Head on the northeast coast of Orkney on 5 June 1916. The death toll was substantial and included the Secretary of State for War, Earl Kitchener. In 1926 a tower was constructed on the headland as a memorial to Kitchener and the men lost on HMS *Hampshire*. In 2016 on the centenary anniversary of the sinking of HMS *Hampshire* the tower was updated with a memorial wall listing all the names of everyone lost on

HMS *Hampshire*. The tower is Category C Listed and forms a prominent landmark in views across the northwest part of Orkney mainland and has therefore been included within the scope of the setting assessment.

9.8.10 The assessment is supported by visualisations from twenty designated heritage assets located on West Mainland, Eynhallow or on Rousay. Photomontages have been provided for those assets that are highlighted in **bold**, whilst wirelines have been supplied for the remainder:

- Howana Gruna, cairn 270m SE of Whitehouse (Asset 30, SM1280): Wireline (Visualisation Figure 9.10);
- Hundland, settlement mound 270m SW of (Asset 32, SM1284): Wireline (Visualisation Figure 9.11);
- **Knowe of Rowiegar, chambered cairn and nearby remains (Asset 51, SM1307) Photomontage (Visualisation Figure 9.12);**
- Nisthouse, burial mound 270m ENE of (Asset 61, SM1318): Wireline (Visualisation Figure 9.13);
- **Hundland Hill, enclosure 500m NE of Nisthouse (Asset 65, SM13451): Photomontage (Visualisation Figure 9.14);**
- **Mittens, two mounds 11m NE of, Swannay (Asset 67, SM1350): Photomontage (Visualisation Figure 9.15);**
- Park Holm, artificial island and causeway, Loch of Swannay (Asset 72, SM1362): Wireline (Visualisation Figure 9.16);
- Stoney Holm, crannog, Loch of Swannay (Asset 83, SM1394): Wireline (Visualisation Figure 9.17);
- Vinquin, Broch, 145m SSW of Upper Arsdale (Asset 114, SM1477): Wireline (Visualisation Figure 9.18);
- Earl's Palace, Birsay (Asset 123, SM90033): Wireline (Visualisation Figure 9.19);
- **Brough of Birsay , settlements, church and related remains (Asset 124, SM90034): Photomontage (Visualisation Figure 9.20);**
- Eynhallow Church and settlement (Asset 126, SM90144), Wireline (Visualisation Figure 9.21);
- Aiker Ness, Broch of Gurness, broch and settlement (Asset 127, SM90157): Wireline (Visualisation Figure 9.22);
- Knowe of Yarso, Chambered Cairn, Rousay (Asset 128, SM90198): Wireline (Visualisation Figure 9.23);
- Midhowe Broch, broch and settlement, Rousay (Asset 129, SM90218): Wireline (Visualisation Figure 9.24);
- **Ring Of Brodgar, Stone Circle, Henge And Nearby Remains (Asset 146, SM90042, WHS): Photomontage (Visualisation Figure 9.25);**
- Maes Howe, Chambered Cairn (Asset 147, SM90209, WHS): Wireline (Visualisation Figure 9.26);
- Stenness, Stone Circle And Henge (Asset 148, SM90285, WHS): Wireline (Visualisation Figure 9.27);
- **Skara Brae, Settlement, Mounds And Other Remains (Asset 149, SM90276, WHS): Photomontage (Visualisation Figure 9.28); and**

- Linga Fields, mounds 220m NW of Upper Lyking Cottage (Asset 168, SM1348): Wireline (Visualisation Figure 9.29).

9.8.11 The assets listed above are covered in this EIAR chapter below. The remaining designated assets are covered in the attached Detailed Setting Assessment (**Appendix 9.3**) which discusses Assets 15, 19 to 29, 33 to 38, 43 to 44, 48 to 52, 54 to 60, 63 to 64, 66 to 71, 73, 75, 80 to 81, 84 to 85, 87 to 91, 93, 96 to 99, 101, 103 to 104, 107 to 108, 113, 116, 120 to 122, 125, 130, 134 to 139, 144 and 159 to 162. **Appendix 9.3** also includes a table summarising all the operational setting effects including those that are discussed in this chapter below.

9.9 Potential Effects

Construction

9.9.1 Construction effects on cultural heritage receptors, as discussed here, have been limited to direct impacts on heritage features and deposits. Whilst there is some limited potential for impacts upon the setting of designated heritage assets to occur during the construction phase, any such effects would be temporary, and it is considered that setting effects resulting from construction would not exceed the predicted operational effects upon the setting of heritage assets. As such, with aim of achieving proportionality, the potential for setting effects is considered under operational effects.

9.9.2 A total of seven heritage assets have been identified within the Proposed Development site. As previously discussed analysis undertaken by AOC Archaeology Group identified two Scheduled, and five non-designated assets that were either previously recorded on the site by the NRHE and HES or have been identified as part of this assessment (Table 9.6). The Proposed Development has been designed to avoid direct impacts on known heritage features where possible. Table 9.7 below provides a list of assets which may be subject to direct effects. Where LiDAR analysis has identified specific assets within a group of assets already recorded within the NRHE and HER the NRHE/HER asset will be listed in the table. The sensitivity of the assets has been classified according to the method shown in Table 9.3 and is summarised below in Table 9.7.

9.9.3 Table 9.7 below provides a list of assets which may be subject to direct effects and summarises the expected magnitude of impact and level of effect. Assets within the Proposed Development site not included within Table 9.7 are not expected to be subject to any impacts or effect.

Table 9.7: Summary of Direct Effects

Asset No	Receptor	Importance	Magnitude of Impact	Level of Effect
164	Non-designated enclosure depicted on Ordnance Survey map of 1881. Survives as a low bank	Negligible	Medium	Negligible/ Neutral
167	Non-designated hollow filled with modern rubbish	Negligible	High	Minor

9.9.4 A large non-designated enclosure (Asset 164) was first recorded in the southeast corner of the site on the 1881 Ordnance Survey and was observed to survive as a low turf bank on the 2022 walkover survey. The lies at the foot of Hundland Hill, on the initial terrace above the Loch of Swannay and is almost certainly an agricultural feature, presumably relating to the management of livestock. Although undated it is in all probability post-medieval and as post-medieval livestock enclosure are commonly found across upland Scotland it is considered to be of negligible importance. As **Figure**

9.1 shows the Proposed Development will clip the extreme eastern end of the enclosure and will result in the complete removal of this, its shortest side. The predicted direct impact can be balanced by the fact that , the enclosure is well recorded on historic maps and can be easily understood from them, indeed given its current state of preservation, it might be better understood from maps than from on the ground. For these reasons whilst the Proposed Development would result in a material alteration to the asset’s baseline condition it would not fundamentally change our ability to understand it and the magnitude of impact is therefore predicted to be medium and of **negligible/neutral** effect. Effects at this level are not considered to be significant.

9.9.5 A hollow filled with modern rubbish (Asset 167) was identified on the site during the walkover survey. The hollow is undated, although it is presumed to be a small quarry hollow and this, coupled with the subsequent deposition of modern rubbish suggests that it is of negligible importance as such assets are commonly found across Scotland. The Proposed Development will result in at least the partial truncation of the hollow, if not its complete removal and could therefore in a worst-case scenario result in a direct impact of high magnitude. However, given its negligible importance a high magnitude of impact would result in a **minor**, non-significant effect.

9.9.6 There remains a clear potential for further previously unknown buried remains being disturbed during the construction phase of the Proposed Development and mitigation measures to allow for avoidance or minimisation of any such direct effects is therefore set out in Section 9.10. The level of any potential effect on previously unrecorded remains cannot be quantified at present as the value of any further assets which may be present on the site is, by their very nature unknown. However, should any previously unrecorded significant remains be identified on the site during the implementation of the mitigation measures then this will contribute to our overall understanding of Orkney’s past and therefore create a beneficial legacy.

Operation

9.9.7 Direct effects upon any previously unknown archaeological remains which may be present on the site would cease with the completion of the groundworks stage of construction and consequently no direct effects are predicted during the operational phase of the Proposed Development.

9.9.8 Operational phase effects include impacts upon the settings of assets such as World Heritage Sites, Scheduled Monuments, Listed Buildings, Conservation Areas, Inventory Battlefields and Inventory Garden and Designed Landscapes. There are no Inventory Battlefields or Inventory Garden and Designed Landscapes within 10 km of the site whilst the individual assets that comprise the Heart of Neolithic Orkney World Heritage Site (HONO) lie between 10 km and 15 km from the site boundary.

9.9.9 The baseline asset data set for operational effects has been set out in Section 9.6 above. As was noted in Paragraph 9.5.26 above, Paragraph 145 of Scottish Planning Policy (SPP, 2014) 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*’. This assessment will therefore consider the potential for effects upon the integrity of the settings of those Scheduled Monuments that fall within the scope of this assessment. Where significant effects of **moderate** or above upon the setting of a Scheduled Monument are predicted then the potential for a resultant effect upon the integrity of that setting will be discussed below. Where a non-significant effect is predicted then, in line with the discussion in Paragraph 9.5.27 above, it is considered that there is no potential for an effect upon the integrity of an asset to occur. This is because it is considered that an effect upon the integrity of the setting of an asset will only occur where the degree of change that would be represented by the Proposed Development would adversely alter those factors of the monument’s setting that contribute to cultural significance such that the understanding, appreciation, and experience of an asset are not adequately retained. In accordance with the criteria that are set out in Tables 9.3 and 9.4 above it is not considered that non-significant effects of **minor** or below have the potential to adversely affect the integrity of a Scheduled Monument’s setting.

Hundland Hill Enclosure (Asset 65)

- 9.9.10 The Scheduled Hundland Hill enclosure (Asset 65, SM13451) is situated within the centre of the site on the summit of the hill. Although the enclosure has not yet been subject to detailed investigation the recovery of cramp and burnt human bone within its banks supports the HES interpretation of the asset as a prehistoric enclosure which may have been used for funerary practices. Its prominent location on the summit of Hundland Hill allows this monument to overlook a landscape that contains relict prehistoric funerary and ritual monuments which, assuming that the enclosure is prehistoric, could well be contemporary with it. If this were so, then the Hundland Hill enclosure may well have had a contextual relationship with both the surviving designated funerary monuments as well as those non-designated mounds that were recorded by antiquarians but have now been destroyed. If however the enclosure were to prove to be later and therefore not directly related to the Neolithic and Bronze Age funerary monuments, the role that it plays in their setting would be diminished, if not removed altogether. The setting of the Hundland Hill enclosure and the contribution that it makes to the settings of other Scheduled Monuments within the surrounding landscape is therefore dependant on its interpretation. However if it does, as it is assumed, prove to be a late Neolithic or Bronze Age funerary enclosure then it can be considered to have a high sensitivity to changes which affect not only its own setting but also its relationship with the surrounding funerary monuments, as they would also form part of its setting.
- 9.9.11 For these reasons the Hundland Hill enclosure is considered, on the present available evidence, to have a high sensitivity to changes which affect views both towards it as well as out from it. The core setting of the Hundland Hill enclosure can be considered to be the slopes of the hill itself, the two lochs; Hundland and Swannay, which lie astride it and the surrounding bowl of hills that includes Greeny Hill, Skelday Hill, Mid Hill, Burgar Hill, Himmon Hill, Vinquin Hill, Costa Hill (Plate 14), Abunethe-Hill and Kirbister Hill as well the Scheduled prehistoric monuments that lie within that defined setting.
- 9.9.12 ZTV analysis (**Figure 9.5**) indicates that all four turbines will be visible when viewed from the enclosure whilst photomontage evidence (Visualisation **Figure 9.14**) shows that all four would be visible at close quarters from below hub height. As **Figure 9.5** shows, the Proposed Development would also appear in views towards the hill from across the topographical bowl, which is unsurprising given the openness of the landscape. This would include visibility from three Scheduled funerary monuments which are located either on the site or within the 1km Study Area; the Nisthouse Burial Mound (Asset 61), the Mitten Mounds (Asset 67) and the three mounds at Quoyhorrie (Asset 87) as well as a range of similar funerary monuments that lie within the wider 10km Study Area, four of which are placed either on or close to the ridgelines that define the topographical bowl; the Knowes of Lingro (Asset 57), the Knowe of Crustan (Asset 36), the Queena Mounds (Asset 88), the Hillhead Burial Mounds (Asset 84) and the Howana Gruna (Asset 30). All these monuments lie within the 5km Study Area. Although the individual settings of these assets will be considered separately, the potential effect upon their possible contextual setting relationship with the 'central' enclosure on Hundland Hill is considered first. It should be noted from the outset that setting assessment visits to funerary monuments scattered across West Mainland have found that, in general, many of these monuments have clear views towards either the Stenness isthmus, the prominent cliffs of Hoy or both and this is true of many of these monuments as well; the views south-southwest from both the Nisthill Mound and the Mitten Mounds being particularly notable. However, the core views out from the Howana Gruna cairn, which stands south-southeast of the site are focused to the northwest and west and therefore take in Hundland Hill.
- 9.9.13 As **Figure 9.5** shows, the proposed turbines could potentially appear in relative proximity to the monuments, in views out from the enclosure towards Howana Gruna (Asset 30), Quoyhorrie (Asset 87), Queena (Asset 88), the Knowe of Crustan (Asset 36) and the Knowes of Lingro (Asset 57). Although it should be noted that the Quoyhorrie mounds have been largely destroyed whilst Howana Gruna stands in proximity to the operational Burgar Hill Wind Farm, the turbines of which are clearly audible from the cairn. It should also be recognised that the Hundland Hill Enclosure is severely denuded and cannot therefore be discerned from the surrounding monuments, whilst visibility of the surrounding monuments from the enclosure is at best limited. The Proposed

Development would be clearly visible in both views from these assets towards the Scheduled enclosure and also in views out from it towards them. Although the Proposed Development would inevitably affect the experience of these views and would therefore alter the baseline setting of the Hundland Hill enclosure, crucially the cultural significance of the monument within its setting would not be compromised, as the open landscape beyond the site boundary would remain clearly legible. For this reason and given the limitations in interpreting the monument discussed above, it is considered that the Proposed Development would have an impact of medium magnitude upon the setting of the enclosure; which, given its high relative sensitivity, would result in an effect of **moderate** significance upon the setting of the Scheduled Hundland Hill Enclosure (Asset 65). Moderate effects are considered to be **significant**, although in this instance the predicted effect would not affect the integrity of the setting of the asset as the contribution that its placement within the landscape makes to its cultural significance would remain clearly legible.

- 9.9.14 Given their proximity, the nearest turbine will stand 330 m from the enclosure. Noise from the turbines will be audible from the monument at least in certain wind conditions.

Nisthouse Burial Mound (Asset 61)

- 9.9.15 Nisthouse Burial Mound (Asset 61, SM1318) is a Scheduled Monument located within the site boundary. It is a grass covered earthen mound which was positioned so as to overlook the Lochs of Hundland, Boardhouse and Isbister, which when viewed from this vantage point extend in a chain to the southwest. Although the Stenness isthmus cannot be seen from Nisthouse, the cliffs of Hoy appear on the horizon (Plate 15). Despite its proximity, the Hundland Hill Enclosure (Asset 65) cannot be readily discerned from the mound; although it is possible that this may be due to the heather which covers the summit of the hill. The mound itself survives to a height of 1.1m and, although it is denuded, it remains readily legible as a funerary mound of a type and form that is characteristic of the Orcadian West Mainland. For this reason it is considered to retain a high relative sensitivity to changes to its setting, although give the prominence of views to the southwest it is arguably most sensitive to change in that direction.

- 9.9.16 **Figure 9.5** suggests that all four turbines would theoretically be visible when viewed from the mound and given the openness of the terrain, this is likely to prove the case. However, as the accompanying wireline (Visualisation **Figure 9.13**) shows, the intervening presence of the summit of Hundland Hill would limit visibility of the eastern pair of turbines to their blade tips only. It should also be noted that all four of the turbines would stand behind the asset's core setting which can be defined as the immediate southwest facing hillslope upon which it stands and the view to the southwest across the lochs towards Hoy. For these reasons, although the Proposed Development would alter the setting of the monument and, given its proximity would affect an observers experience of the asset, its setting would remain legible, and its key characteristics would not be eroded. For this reason the magnitude of impact is predicted to be medium and given its high relative sensitivity to changes to its setting the predicted effect upon the setting of the mound would be of **moderate** significance. Moderate effects are considered to be **significant**, although in this instance the predicted effect would not affect the integrity of the setting of the asset as the contribution that its placement within the landscape makes to its cultural significance would remain clearly legible.

Park Holm (Asset 72) and Stoney Holm (Asset 83)

- 9.9.17 Two Scheduled artificial islands, Park Holm (Asset 72, SM1362, Plate 32) and Stoney Holm (Asset 83, SM1394, Plate 33), lie to the east of the site, within the waters of the Loch of Swannay positioned sufficiently close of the loch's western bank so as to be accessible from the shore. Both assets were first Scheduled in 1937, although the earliest recorded reference to the causeway which connects Park Holm to the western bank (and the site boundary) is from 1946. Neither of the monuments have been subject to detailed archaeological excavation and their date and purpose is therefore unconfirmed, although HES consider both to be prehistoric; either crannogs or possible crannogs. Although their small size is noted, their morphology would fit this interpretation and this assessment will therefore be based on a 'worst case scenario' and consider them to be late prehistoric. Crannogs

such as these were deliberately placed within the waters of Scottish lochs and whilst the original functions of these examples are unknown, it is likely that setting was a significant factor in both their placement and their understanding. The Loch of Swannay is a comparatively remote loch located inside the far northern rim of West Mainland and isolated within its own topographical bowl which includes the Hill of Hundland which rises above its southwestern bank.

- 9.9.18 Although both monuments can be clearly seen when they are viewed from the site boundary, which extends along the southeastern bank, the closest landward shore to the assets, they are notably less evident when they are viewed from the road network to the north and east of the loch. When viewed from the closest point, the nearside bank, it is clear that the immediate setting of the assets is comparatively discrete. The surrounding ground drops gradually towards the shore as the topography levels out from the base of Hundland Hill, although the ground to the west of Stoney Holm remains comparatively high. Both monuments sit within the loch and consequently their immediate setting can be understood as the waters of the loch itself and its nearside western bank. Whilst the extent of any landholdings that may have been associated with the monuments are unknown, there must have been a functional relationship between them and the western shore.
- 9.9.19 The wider setting of these monuments was most probably defined by the ridgelines of the topographical bowl which surrounds the loch, including Hundland Hill itself. Although, without a detailed understanding of the chronology and purpose of these assets, it is hard to be confident as to how far their settings extended beyond the shores of the loch. Despite this uncertainty it is reasonable to argue that both monuments possess a high sensitivity to change within their setting, firstly because both clearly retain overtly intended relationships with their shared visual setting and secondly because a significant proportion of the current understanding of them is derived from their modern aesthetic setting of the loch. This means that whilst it is not necessarily possible to 'read' these assets as later prehistoric loch structures, it is clear that they represent intrusions of apparent antiquity within the waters of the loch. Aesthetics in this instance therefore make a notable contribution to the significance of both monuments and they therefore retain a high sensitivity to changes to their combined setting.
- 9.9.20 ZTV analysis indicates that all four turbines would be visible from both monuments (**Figure 9.5**) whilst wireline evidence indicates that all four turbines would appear from below hub height with the nearest eastern pair inevitably appearing particularly prominent (Visualisation **Figures 9.16 & 9.17**). However, as was noted above, the core setting of these assets is considered to be the waters of the loch and the surrounding bank whilst their wider setting is determined by the scale of the topographical bowl within which they are subsumed when they are viewed from afar. For this reason, although the Proposed Development would change the setting of the monuments to the extent that the ability to experience in their current setting would be altered, the contribution that setting makes to the cultural significance of these assets, and the ability to understand and appreciate this contribution, would remain unchanged. Therefore although three of the turbines would stand either within the topographical bowl or upon its ridge, the core setting of both monuments would remain clearly legible within the waters of the loch. For this reason the magnitude of impact upon the combined setting of both monuments is predicted to be medium, although given their high relative sensitivity to changes within their setting the predicted effect upon the setting of Park Holm and Stoney Holm would be of **moderate** significance. Moderate effects are considered to be **significant**, although in this instance the predicted effect would not affect the integrity of the setting of the assets as the contribution that their placement within the landscape makes to their cultural significance would remain clearly legible.

The Mittens (Asset 67)

- 9.9.21 Two Scheduled mounds are located south of the road at Mittens (Asset 67, SM1350); the northern mound has been truncated by the plough and is no longer visible and survives only to a height of c.0.2 m. The surviving southern mound measures c.15 m in diameter and survives to a height of about 1m. The northern mound was reportedly excavated in 1877 and a stone lined cist containing ashes found within it. Given this finding both mounds are interpreted as Bronze Age funerary barrows. Although the northern mound has been severely diminished, the southern mound remains

easily legible as a barrow and its relationship with both its immediate and its wider setting is readily apparent. It is therefore considered to have high relative sensitivity to changes to its setting. The immediate setting of the mounds comprises the hillside upon which they are set, although it should be noted this context has been compromised by the installation of an adjacent farm-scale wind turbine with a rapid rotational speed in immediate proximity to the monument. As Plate 16 shows, when the monument is viewed in a south-westerly direction, from the northwest, the focal alignment of the barrow's wider setting becomes apparent. The barrow is placed at the head of the valley of the Loch of Hundland and directly overlooks the head of the loch on an alignment which takes in both the loch and Greeny Hill to the south. The view extends beyond Greeny Hill to take in the mountains of Hoy and its distinctive sea cliff, which can be glimpsed through a shallow drop in the intervening ridgeline.

- 9.9.22 ZTV analysis indicates that four turbines would be visible from the Mittens (Asset 67, SM1350) (**Figure 9.5**) whilst wireline and photomontage evidence show that all four would appear from below hub height within a landscape which includes four, much smaller, operational turbines (Visualisation **Figure 9.15**). Given the extent of visibility, the Proposed Development would frame Hundland Hill when viewed from the Mittens, and it is clear that it would alter the setting of the upstanding mound and could affect the ability to understand, appreciate and experience the contribution that setting makes to the significance of the monument. However, the cultural significance of the mound and its crucial setting relationship with the axis of view over the loch towards Hoy would remain unchanged. For these reasons the magnitude of impact upon the setting of this asset is predicted to be medium, and given its high sensitivity, the overall level of effect will be **moderate**. Moderate effects are considered to be **significant**, although in this instance the predicted effect would not affect the integrity of the setting of the asset as the contribution that its placement within the landscape makes to its cultural significance would remain clearly legible.

Vinquin Broch (Asset 114), the Broch of Gurness (Asset 127), Midhowe Broch (Asset 129) and Hundland Settlement Mound (Asset 32)

- 9.9.23 Three Scheduled brochs; Vinquin (Asset 114, SM1477), the Broch of Gurness (Asset 127, SM90157) and Midhowe Broch (Asset 129, SM90218), as well as a possible broch the Hundland Settlement Mound (Asset 32 SM1284) lie within the 10km Study Area and are discussed below, whilst others are considered within **Appendix 9.3**. The Broch of Gurness and Midhowe are properties in the care of HES (PIC) and both have been excavated, consolidated and prepared for public display.
- 9.9.24 Brochs can be interpreted as fortified farmsteads, which would imply that they were each associated with an individual landholding, which, if it could be identified, could be considered a component of their core settings. However, multiple changes in boundaries since prehistory, mean that it is no longer possible to determine these land holdings, although it is assumed that they included the land surrounding the brochs themselves.
- 9.9.25 Consideration also needs to be given to the condition of the brochs. As originally built, all the brochs are likely to have been conspicuous towers, however they are severely reduced, with the stonework largely buried within distinctive turf mounds. It is these mounds, the products of post-abandonment decay, collapse, and erosion, which are prominent within the modern landscape. Brochs were deliberately placed in the landscape by their original builders. In many cases they appear to have been positioned in order to be as visually conspicuous as possible, to demonstrate the status of their occupants. For this reason, brochs can be characterised as having a high relative sensitivity to changes to their settings. However, while broch mounds typically retain a high relative sensitivity, the greater proportion of their cultural heritage value lies in the significance of their buried remains, which have considerable research potential, offering opportunities for the detailed study of later prehistoric structures and their inhabitants.

Hundland Settlement Mound (Asset 32)

- 9.9.26 The Hundland Settlement Mound (Asset 32, SM1284) (**Figure 9.2**) lies on the eastern shore of the Loch of Hundland. The mound stands up to 2 m high and the upper surface of the mound is irregular with exposed masonry visible. The exposed masonry suggests the presence of stone-built structures

or chambers. The mound is eroding on its southwestern side where it projects slightly into the Loch of Hundland. Bone and pottery of probable Iron Age date have been recovered from Hundland settlement mound and it is possibly an Iron Age broch and therefore in line with the arguments that have been outlined above it is considered to have a high sensitivity to changes to its setting, although it needs to be recognised that, as a possible waterside broch, this setting relates primarily to the Loch of Hundland to its southwest and the land to its immediate north, within which any associated agricultural landholding presumably lay.

- 9.9.27 ZTV analysis indicates that four turbines would be visible with three turbines visible from below hub height and the fourth from at the level of the hub itself (**Figure 9.5**; Visualisation **Figure 9.11**). Although critically, the Proposed Development would lie to the north of the mound, on Hundland Hill and would therefore lie outwith the mound's core setting which can be described as the loch to the south and the immediate land to its rear. It also means that the Proposed Development would not appear in views out across the mound from the broch. Therefore the Proposed Development will not affect the ability to understand, appreciate or experience this monument and the integrity of its settings will not be adversely affected. For these reasons the magnitude of impact upon the settings of this asset is predicted to be low, and given its high sensitivity, the overall level of effect will be **minor** and not significant.

Vinquin Broch (Asset 114)

- 9.9.28 Vinquin Broch (Asset 114, SM1477) (Plate 17) (**Figure 9.3**) is set back from the southern coast of Eynhallow Sound. It occupies a pinnacle on a ridgeline and remains prominent when viewed from the Sound. Indeed, even on a cloudy day the pinnacle is discernible on the northern coast of the Sound when viewed from the southern coast of Rousay. The placing of brochs along the coast cannot be coincidental and it is likely that they were positioned so as to afford surveillance both along the coast and from across the Sound. Their coastal locales would also have allowed their occupants to exploit the marine resources within the Sound as well as marine communication alignments across the coast. Although it is set back from the coast, its vantage point on the pinnacle allowed the occupants of Vinquin considerable surveillance, across the farmland to its immediate north, across the coastline, over the Sound itself and onto the opposing shore of Rousay. It is therefore probable that Vinquin was purposefully placed in relation to the coast and therefore, although it has a high sensitivity to changes to its setting, it is particularly sensitive to changes which interject with its coastal relationship.

- 9.9.29 ZTV and wireline analysis suggests that four turbines from below hub height would be visible to the west of Vinquin Broch (**Figure 9.5**; Visualisation **Figure 9.18**) although views to the north and east, across Eynhallow Sound which form its principal setting would be unaffected as would diagonal views of the broch from along the coast road (the A966). For this reason the Proposed Development will not affect an observer's ability to understand, appreciate or experience this monument and the integrity of its settings will not be adversely affected and consequently the magnitude of impact upon the settings of this asset is predicted to be low. Therefore given the broch's high sensitivity, the overall level of effect will be **minor** and not significant.

Broch of Gurness (Asset 127)

- 9.9.30 The mound that formerly covered the Broch of Gurness (Asset 127, SM90157) was removed during excavations in 1929. As a HES Property in Care (PIC) the broch has now been laid out for visitors, and this appears to have involved a degree of consolidation and reconstruction (Plate 18). The Broch of Gurness is a multi-period site that initially started as a solitary broch tower. A cluster of houses and yards were added during a later period and there is evidence that the broch tower had been reduced in height. A triple link of ditch and rampart enclosed the Iron Age complex, and its site was subsequently occupied by both Pictish houses and Viking burials. Like Vinquin, the core setting of the broch can be defined by its contextual relationship with Eynhallow Sound, upon the southern bank of which it stands and its relationship with its immediate agricultural hinterland on its inland southern rear. For this reason although Gurness undoubtedly has a high sensitivity to changes to its setting, this sensitivity relates primarily to the coastline and the waters to its north.

9.9.31 Although, ZTV analysis suggests that four turbines would be visible from the Broch of Gurness (**Figure 9.5**) wireline evidence (Visualisation **Figure 9.22**) indicates that, in this worst-case scenario, only the blades would appear behind the ridge of hills to the west of the Broch of Gurness, whilst the hubs and the towers upon which they stand would remain concealed behind the hill. Therefore any visibility would fall considerably outwith the broch's core setting which can be defined as Eynhallow Sound and the northeastern coast of West Mainland. Therefore, the Proposed Development will not affect an observer's ability to understand, appreciate or experience this monument and the integrity of its setting will not be adversely affected. For these reasons the magnitude of impact upon the setting of this asset is predicted to be low, and given its high sensitivity, the overall level of effect will be **minor** and not significant.

Midhowe Broch (Asset 129)

9.9.32 The final broch, Midhowe (Asset 129, SM90218) is a HES PiC located on the south coast of Rousay at the western end of the northern shore of Eynhallow Sound. Like Gurness the broch and its adjacent settlement that has been excavated and laid out for the public (Plates 26 & 27). An adjacent and considerably earlier chambered cairn (Asset 131, SM90219) has also been excavated and laid out for public display, however in that instance its setting has been compromised by the erection of a modern building over it, whereas the broch remains open to the elements. Like Vinquin and Gurness on the opposing southern shore of Eynhallow Sound, the broch's setting relates primarily to the channel, its place on the shoreline and the sloping ground to the rear which formed its agricultural hinterland. Therefore whilst Midhowe undoubtedly has a high relative sensitivity to changes to its setting it is less sensitive to more distant changes located beyond the Costa Head to Burgar Hill ridgeline, that extends behind the southern coast of Eynhallow Sound.

9.9.33 ZTV analysis suggests that four turbines would be visible from Midhowe Broch. Wireline analysis (**Figure 9.5**; Visualisation **Figure 9.24**) suggests that the hubs of these four turbines would be visible on the opposing shore of Eynhallow Sound. However, they would stand to the rear of the Costa Head – Burgar Hill ridgeline and would therefore lie outwith the broch's core setting that is focussed on the channel and the other brochs and settlement remains that extend along both coasts, as well as the island of Eynhallow (Asset 145) itself. Therefore, the Proposed Development will not affect an observer's ability to understand, appreciate or experience this monument and the integrity of its setting will not be adversely affected. For these reasons the magnitude of impact upon the settings of this asset is predicted to be low, and given its high sensitivity, the overall level of effect will be **minor** and not significant.

Heart of Neolithic Orkney World Heritage Site (HONO WHS) (Asset 150)

9.9.34 The Heart of Neolithic Orkney (HONO) World Heritage Site (WHS) is located to the south of the site and consists of four core individual monuments: Stones of Stenness Stone Circle And Henge (Asset 148, SM90285); Ring of Brodgar Stone Circle, Henge And Nearby Remains (Asset 146, SM90042); Maes Howe Chambered Cairn (Asset 147, SM90209) (these assets, which are located in the central part of West Mainland); and the Skara Brae Neolithic settlement (Asset 149, SM No. SM90276) which lies, separate from the others, on the shore the Bay of Skail on the western coast of West Mainland. A fifth Scheduled Monument, the Watch Stone (SM90352), a monolith which stands between the Stenness and Brodgar stone circles, has been included within the WHS designation. Given the distance of separation and the intervening topography there is no intervisibility between the Stenness assets and Skara Brae and, in landscape terms at least, their settings are considered to be separate and therefore they will be considered as such in the discussion which follows.

9.9.35 Two separate management documents have been prepared for the WHS; a set of Supplementary Planning Guidance (SPG) that was issued by the local authority in 2010 (OIC 2010) and a formal management plan that was published jointly by the WHS's key stakeholders in 2016 (HES, RSPB, SNH & OIC 2016). The management plan was intended to cover the period from 2014 to 2019, although it remains in force whilst a new plan is prepared. Both documents set out a hierarchical approach to the management of the surrounding landscape, establishing two separate core zones centred on the Stenness assets and Skara Brae as well as a wider higher-level zone which covers the greater

proportion of West Mainland, as well as the northern end of Hoy. Although the boundaries remain the same the terminology differs between the two documents; the management plan follows standard WHS practice in referring to the core zones as ‘buffer zones’ whilst the earlier SPG considers them to be ‘inner sensitive zones’. Similarly, the management plan refers to the higher-level zone as a ‘Sensitive Area’ whilst the SPG classes it as a ‘potentially sensitive area’. To avoid confusion this assessment will use the same terms as the management plan and will refer to the two buffer zones and the sensitive area, although the reference to ‘potential’ with regard to sensitive areas in the SPG is noted.

- 9.9.36 The site lies outwith both buffer zones, although it falls within the sensitive area, the boundary of which extends as far as the northern coast of West Mainland. With respect to the sensitive area the management plan notes that:

‘Large-scale or tall development outwith the Buffer Zone also has the potential to impact adversely on the sensitive setting of the WHS. To address this, a wider, indicative, ‘Sensitive Area’ has also been defined. The Buffer Zone and the Sensitive Area indicate areas where the potential effects on the WHS and its Setting should be taken into account by developers and decision-makers, and act as a trigger for consultation’ (HES et. al. 2016, 9) .

- 9.9.37 The SPG also defines a series of sensitive ridge lines that are visible when viewed from either of the WHS monument groups, but from the Stenness assets in particular. These ridgelines extend around the perimeter of West Mainland and define the topographical bowl that envelops both the Stenness assets and the broader lochs of Stenness and Harray (OIC 2010, 12). The selection of the ridgelines as sensitive was informed by the findings of an earlier study of the setting of the WHS (Atkins 2008) and tie into the Statement of Outstanding Universal Value (OUV) for the WHS which notes that *‘the monuments on the Brodgar and Stenness peninsulas were deliberately situated within a vast topographic bowl formed by a series of visually interconnecting ridgelines stretching from Hoy to Greeny Hill and back’ (HES et. al. 2016, 64).*

- 9.9.38 As **Figure 9.1** shows, one of the WHS sensitive ridgelines bisects the site crossing from southwest to northeast over the broad summit of Hundland Hill.

- 9.9.39 The three Stenness assets: the Stones of Stenness, the Ring of Brodgar and Maes Howe, are all internationally renowned ‘iconic’ monuments, which rank on a par with Stonehenge, West Kennet, and Avebury. All three would be of demonstrable international importance, even if they did not have World Heritage status and they are therefore considered to be of very high importance (Table 9.2). Skara Brae was exposed by a storm within sand dunes on the remote Orcadian Coast in 1850 and, although other Neolithic settlements have subsequently been excavated both on Orkney and elsewhere, it remains *‘arguably the most famous Neolithic Settlement in Western Europe’ (Edmonds 2019, 129).* However, even if Skara Brae’s celebrity were to be discounted, the level of structural preservation within the exposed and displayed portions of the settlement, coupled with the research potential that is offered by those parts that are yet to be excavated, undoubtedly mean that it is reasonable to conclude that Skara Brae is of very high importance. Although only monuments within the care of Scottish Ministers (directly managed by HES) are included within the WHS, the management plan notes that *‘other sites within the immediate vicinity... contribute greatly to our understanding of the WHS and support its OUV’ (HES et.al.2016, 8).*

- 9.9.40 Given their importance it necessary to consider whether the four core monuments that comprise the WHS have a high or very high sensitivity to changes to their settings using the criteria set out in Table 9.3. The differential being whether their setting can be said to be critical to our understanding, appreciation and experience of the asset, or whether it ‘merely’ makes a major contribution to these considerations. Crucial to this will be an understanding of the setting of these assets and whether all elements of the setting contribute equally to an understanding of these assets. The potential effects upon the setting of the overall WHS are harder to quantify given that, unlike the comparable Stonehenge and Avebury WHS, only a small number of individual Scheduled Monuments have been included within the designation, rather than the landscapes that surround them. However, the WHS is a designation in its own right and therefore any effects upon its setting will not simply be the sum of those effects that are predicted for the individual assets. For this reason, this assessment will

consider the potential for the Proposed Development to affect the attributes that are set out in the WHS's Statement of Outstanding Universal Value (SOUV) (HES *et.al.*2016, 64) which are measured against UNESCO's World Heritage Selection Criteria (UNESCO 2021, 29-32)

HONO WHS: Stones of Stenness (Asset 148)

9.9.41 The Stones of Stenness is a stone circle and henge which stands on the southernmost of the two facing peninsulas at Stenness. Only five stones, out of a probable twelve, still stand, although the surrounding ditch remains evident. The ditch was a considerable undertaking in itself, being cut into bedrock to a depth of over 2 m. Radiocarbon dates obtained from bones found within the ditch date the asset to at least the early third millennium BC, which would make it contemporary with both Maes Howe and the Ring of Brodgar; although HES suggest that the earliest elements of the monument may in fact date to the late 4th millennium BC. Whilst the loss of the majority of the original stones will inevitably mean that some of the original authentic setting relationships are now hard to determine, it is clear that the monument's placement on the north facing peninsular is core to its setting. The surrounding lochs of Stenness and Harray add a degree of liminality to the monument's position, segregating it from the wider Orkney landscape beyond. Other monuments on the two facing Stenness peninsulas: the Ring of Brodgar, the Neolithic settlement at Barnhouse (SM90352) and the recently discovered major Neolithic complex on the Ness of Brodgar (NRHE No. HY31SW 112) all share this liminality, a sense of segregation from the wider Orcadian mainland, and it is therefore likely that the two Stenness peninsulas, and their attendant lochs, define the inner core setting of both the Stones of Stenness and the wider Stenness asset group. However, it should be acknowledged that the Stones of Stenness also have a wider setting that takes in other more distant monuments within their line of sight and also major topographical landmarks including, most obviously, the cliffs and mountains of Hoy to the southwest. Although, the topographical bowl which encircles West Mainland defines the edge of this wider visual setting none of the individual summits and hills that form the rim of the bowl, rival the Hoy summits in their conspicuousness.

HONO WHS: Ring of Brodgar (Asset 146)

9.9.42 The Ring of Brodgar Stone Circle and Henge is a substantial, well preserved Neolithic monument. Of the c.60 stones that were originally set within the stone circle, 36 still stand. The monument is surrounded by a substantial rock cut ditch and at least 13 burial mounds are located within the vicinity which, when considered alongside the as yet undesignated Ness of Brodgar structures to the immediate south, indicate that the Brodgar peninsula was a core focus of ceremonial activity both during the Neolithic period and the subsequent Bronze Age. The setting of the Ring is broadly similar to the setting of the Stones of Stenness, and its core setting is defined by the two peninsulas, and their attendant lochs as well as the adjacent Brodgar and Stenness monuments. Its wider setting is also similar to that of the Stones, terminating along the ridgeline of the topographical bowl, although none of the components of the bowl are as apparent as the summits of Hoy which lie to the south-southwest of the Ring. This leads to the crucial differential between an asset's setting being 'critical' to an understanding, appreciation and experience of it or it 'merely' making a 'major contribution' to these factors (Table 9.3). In this case critical can be understood as essential; those core factors within the surrounding landscape which if they were to be lost would radically change our understanding of these monuments leading to the irrevocable loss of core elements of an asset's setting, and along with it our ability to fundamentally understand and appreciate its authentic, contextual setting. For example, in the case of the Ring of Brodgar and the Stones of Stenness such changes would include proposals for land reclamation with in the Loch of Harray which would remove our ability to appreciate the monuments' contextual position on the two opposing peninsulas surrounded by water on either side. Such a drastic scheme would result in the loss of the ability to appreciate the essential liminality of these assets, that is their sense of segregation from the wider Orcadian landscape. This liminality is crucial to an understanding of these assets, and it is therefore reasonable to argue that they retain a very high level of sensitivity to any change that could threaten that component of their identity. It can therefore be said that the common core setting of both the Stones of Stenness and the Ring of Brodgar is critical to an understanding, appreciation, and experience of them. However, it can be argued that this liminality, does not simply

define the core settings of the two stone circles but it also delimits it and that they are therefore, with the arguable exception of views to the south-southwest towards Hoy, less sensitive to changes within the wider topographical bowl, views of which are open and expansive when they are considered from either asset. Although given their placement within the topographical bowl, their wider setting nevertheless makes a major contribution to our understanding, appreciation, and experience of these monuments. It is therefore reasonable to consider that the Ring of Brodgar and the Stones of Stenness have a very high sensitivity to changes to their core setting, whilst retaining a high sensitivity to change within their wider setting.

- 9.9.43 ZTV analysis (**Figure 9.6**) indicates that there would be four turbines visible from the Stones of Stenness (Asset 148) or the Ring of Brodgar (Asset 147). Wireline analysis suggests that two turbines would be visible from below hub height and one from hub height when viewed from the Stones of Stenness with the blade tip of the fourth turbine also visible (Visualisation **Figure 9.27**). Photomontage evidence suggests that three turbines would appear from below hub height when viewed from the Ring of Brodgar, whilst as was the case with the Stones of Stenness, the blade of the fourth turbine would also be visible (Visualisation **Figure 9.25**). The distance of separation would be 13.64 km from the Ring of Brodgar and 14.39km from the Stones of Stenness and consequently, as the visualisations indicate, the Proposed Development would appear closer when it is viewed from the Ring than it would when it is viewed from the Stones, although in both instance it would appear within the wider landscape on the perimeter of the topographical bowl, considerably distant from the core setting of these assets which as was discussed above can be defined by the two peninsulas and their attendant lochs. The effect would therefore be upon their wider setting, which has a high sensitivity to change, rather than their core setting.
- 9.9.44 Given that the Proposed Development would break the skyline along the ridge of the topographical bowl when it is viewed from both stone circles it is necessary to consider the requirements of Policy 8(B) of the Orkney LDP which states that proposals will not be permitted *'unless it is demonstrated that the development will not have a significant negative impact on either the Outstanding Universal Value or the setting of the World Heritage Site'* (OIC, 2017a: 32).
- 9.9.45 The Proposed Development would stand on the northern periphery of the wider setting of both the Ring of Brodgar and the Stones of Stenness and would be visible from both. However, when viewed from the stone circles this visibility would occur across a broad expansive open vista that includes numerous modern houses, farms and barns as well as the communication installations on the summits of Keelylang and Wideford Hills. Traffic on the A965 can also be a noticeable presence in the view from the south and east and of the Stones of Stenness and depending on the time of year large coaches make their way up the narrow B9055 over the isthmus to deposit cruise ship passengers at the two stone circles. The proposed turbines would also not be the only wind turbine generators visible from the two stone circles, as Visualisation **Figure 9.25** shows the operational Bargar Hill and Holodykes turbines can be seen from the Ring of Brodgar and, once built it may also be possible to glimpse the consented Costa Head turbines. The Stones of Stenness stand south of the Brodgar ring and therefore less visibility is to be expected, although Visualisation **Figure 9.27** does show very limited visibility of the operational Bargar Hill and Holodykes turbines, whilst, ironically given the greater distance of separation, the Costa Head turbines will be more visible from Stenness than Brodgar, standing behind the Proposed Development.
- 9.9.46 It is therefore clear that, whilst the Proposed Development would be visible from the two stone circles, that visibility would be across a largely remade 20th century landscape, within which even the field divisions are largely post-medieval and modern. The underlying physical geography that defines the wider setting of these assets would not be affected when the Proposed Development is viewed from either monument, as the topographical bowl would remain clearly legible in both instances. For these reasons whilst the change that the Proposed Development would represent would alter the baseline setting of the two stones circles, at least for the duration of its operational phase, it would not affect the ability to understand, appreciate and experience the contribution that setting makes to their overall significance which is derived from their core settings and their relationships with the broader topographic bowl. For these reasons the magnitude of impact upon the settings of both the Stones of Stenness and the Ring of Brodgar is predicted to be Low and given

their high sensitivity to changes within their wider setting the overall level of effect would be **minor** and not significant. This level of predicted effect would be compliant with Policy 8(B) of the Orkney LDP which states that developments that would have a ‘*significant negative impact*’ on the settings of the World Heritage monuments will not be permitted (OIC, 2017a: 32).

HONO WHS: Maes Howe (Asset 147)

- 9.9.47 The great Neolithic chambered cairn of Maes Howe stands above the eastern shore of the Loch of Harray and its entrance faces southwest towards the cliffs and mountains of Hoy, taking in a vista within which the Stenness peninsular is clearly visible and the surviving stones of the Stones of Stenness stone circle are readily apparent, 945 m to the west. The entrance passage appears to have been purposefully aligned with the setting of the midwinter sun so that the light illuminates the interior of the chamber. Given this, it is reasonable to conclude that the Maes Howe’s principal setting relationship lies in this westward facing vista, the monuments and topographical landmarks visible from the chamber entrance and the apparent solar alignment.
- 9.9.48 As a class, chambered cairns and burial mounds are considered to have a high relative sensitivity to changes to their settings as they were placed purposefully within the landscape, often in relation to topographical features such as ridgelines, watercourses and coastlines or in relation to other monuments. This is undoubtedly the case with Maes Howe, which stands a class apart within an archipelago which was formerly dotted with such tombs. Edmonds notes that ‘*while many tombs were large and well put together, Maeshowe takes both qualities to a different level. At just under 5 metres wide, the square chamber is far larger than any other. It is also defined by some of the best drystone walling seen anywhere on Orkney*’ (Edmonds 2019: 209). However, it has to be recognised that there are other, as yet as unexcavated chambered cairns within the topographic bowl, most notably Howe Harper which stands around 3km east of Maes Howe and, in terms of its diameter is around three-quarters of its size. There may also have been further cairns that have now been lost for, as Edmonds has commented, ‘*it is no coincidence that the Mainland has a relatively low density of tombs and the most extensive tracks of improved land in the region*’ (*ibid.* 72-3). The possibility that Maeshowe is a unique survival, as opposed to a unique cairn cannot therefore be discounted, although given its fame and level of preservation it is reasonable to argue that in terms of its core setting which can be defined as its immediate surroundings and westward alignments, Maes Howe has a very high sensitivity to visual change. Beyond this, the great cairn stands upon the floor of the same topographical bowl as the Stenness and Brodgar circles and it can therefore be argued that its wider setting is demarcated by the parameters of the ridgelines which define the bowl. Whilst the floor of the bowl is extremely broad, Maes Howe is a notable feature within it, and it can therefore be argued that it retains a high sensitivity to change within this wider setting.
- 9.9.49 As was noted above the modern landscape which stretches across the bowl has been much changed since prehistory and in terms of its field divisions, buildings and structures is essentially a post-medieval modern creation, although the underlying physical geography, the topographical bowl, remains unchanged. Maes Howe extends into the field to the immediate north of the A965, which is one of Orkney’s principal roads and, unless it is approached from the north, the first appreciation of the monument is from this road, often when crossing it on foot from the visitor centre coach drop off point which lies to the immediate south of the road at Tormiston Mill.
- 9.9.50 ZTV evidence (**Figure 9.6**) suggests that there is only limited potential for the Proposed Development to be visible when viewed at ground level from the northern circumference of Maes Howe. However, this does not factor in the height of the mound itself and wireline evidence (Visualisation **Figure 9.26**) taken from the top of the mound suggests that when viewed from the top all four turbines would appear; two from below hub height, one from slightly below hub height and one from blade height. The operational Holodyke turbine and the blades of the consented Costa Head turbines also appear in this view. Whilst this visibility is noted, the Proposed Development would appear considerably to the north of the cairn’s core setting, which is derived from its immediate surroundings and its solar alignment, as well as its visual relationships with the Stenness assets and the peaks of Hoy, all of which either lie or extend west or southwest of Maes Howe.

- 9.9.51 For this reason although the Proposed Development would change the baseline of Maes Howe’s wider setting, it would not affect the ability to understand appreciate and experience the contribution that its setting makes to Maes Howe’s overall significance. Consequently, the impact upon the setting of Maes Howe is predicted to be low and given its high sensitivity to changes within its wider setting the overall level of effect would be **minor** and not significant. This level of predicted effect would be compliant with Policy 8(B) of the Orkney LDP (OIC, 2017a: 32).

HONO WHS: Skara Brae (Asset 149)

- 9.9.52 Skara Brae (Asset 149, SM90276) is an iconic Neolithic settlement. The WHS Statement of Outstanding Universal Value notes that the *‘state of preservation of Skara Brae is without parallel amongst Neolithic settlement sites in northern Europe’* whilst together with Maes Howe, the *‘sophisticated settlement of Skara Brae’ serves as a paradigm of the megalithic culture of north-western Europe that is without parallel’* (HES et.al.2016, 64-65) . However ,the Statement does not explicitly reference the setting of Skara Brae and the majority of its references to landscape, particularly references to formal connections, are arguably more applicable to the ceremonial monument groups that are focussed on Stenness and Brodgar. There is however a reference in the Statement to *‘the relationship with the wider topographic landscape [which] helps define the modern experience of the property and seems to have been inextricably linked to the reasons for its development and use in prehistory’* (HES et.al.2016, 65), although consideration needs to be given to the considerable landscape changes which have affected both Skara Brae and its environs since the Neolithic period.
- 9.9.53 Skara Brae may be a Neolithic settlement, but it is not currently set within a Neolithic landscape. The monument was first identified in 1850 when a winter storm shifted a high sand dune, the Skara Brae, and exposed the settlement within it. The landowner, the Laird of Skail, was an antiquarian and soon commenced explorations. That the settlement was discovered by chance within a sand dune is relevant to its setting as Skara Brae lies on an eroding coast, and when originally built and occupied, between about 3000 and 2000 BC, it was located inland. This means that the landscape context within which the Brae is now appreciated, and which contributes to many of the iconic modern views of Skara Brae, is a later evolution. In its authentic, contemporary prehistoric context, the Brae would have served as a base for a farming community. It also needs to be recognised that the modern preservation of the monument creates a false impression, as in its authentic Neolithic form the settlement was likely originally experienced through enclosure rather than viewed down from above as it is today. Plans of the settlement show no evidence of windows and the majority of the dwelling cells open through narrow doorways onto narrow enclosed passageways. The only cells which open outward are to the north onto the eroded broken shoreline. It is consequently hard to determine, from the physical remains of Skara Brae, the nature of the visual value which would have been attached to the wider landscape.
- 9.9.54 Skara Brae does nevertheless have a very high experiential value, derived from its current landscape context and setting. It is a Monument in Care, maintained by Historic Environment Scotland and is accessed via a large modern visitors centre, positioned sensitively to the east. A roofed reconstruction of part of the asset, adjacent to the visitors centre, allows visitors to appreciate the enclosed internal character which would have structured the occupants’ experience of the authentic intact roofed settlement. From the centre, visitors pass along the coastline before reaching the monument itself which is largely sunken beneath the level of the path. Conservation needs mean that it is no longer possible for visitors to enter the chambers or passages, so instead the modern experience of Skara Brae is from above, and the monument is either looked down upon or viewed cross ways from the modern footpath network. When viewed from the south, views northwards across the monument take in a wide panorama which includes the turfed capped walls of the monument’s structures, the Bay of Skail, which abuts it, and the land to the north of the bay.
- 9.9.55 Whilst the monument’s landscape context has clearly changed since the Neolithic, and not all the 20th century developments, most notably the farm buildings to the south, are sympathetic, it is clear that the setting of Skara Brae continues to make a major contribution to the way that the

monument is experienced and understood. Skara Brae is therefore clearly sensitive to visual change and can be said to have a high relative sensitivity to changes to its setting.

- 9.9.56 ZTV analysis suggests that there would be limited visibility of the Proposed Development in views to the northwest across the inland eastern edge of the Bay of Skail (Figure 9.6) and this is confirmed by the wirelines which shows that the tips of three turbines would appear in views out in this direction, although the accompanying photomontage suggests that in certain circumstances only two may be visible (Visualisation Figure 9.28). However, whilst the turbines would alter Skara Brae's baseline setting, this limited visibility would be set considerably beyond the monument's core setting which can be defined as its immediate surroundings, the modern coastline, the post-Neolithic Bay of Skail and Skail House, the Category A Listed residence to east of the of the settlement that was home to the laird who discovered it. Instead, as the photomontage shows, visibility would be both limited and set behind the intervening ridgeline, it would therefore be clearly outwith the monument's core setting, and this distinction would be readily legible. For these reasons, although the Proposed Development would be visible, this visibility would not affect the ability to understand, appreciate and experience the contribution that setting makes to Skara Brae's overall significance and the magnitude of impact upon its setting is predicted to be low, and given their high sensitivity, the overall level of effect will be **minor** and not significant. This level of predicted effect would be compliant with Policy 8(B) of the Orkney LDP (OIC, 2017a: 32).

HONO WHS (Asset 150) OUV

- 9.9.57 Having considered each World Heritage Monuments individually, it is necessary to assess the potential for an effect on the Outstanding Universal Value (OUV) of the WHS as a whole. This is to ensure compliance with Policy 8(B) of the Orkney LDP which states that proposals which would have a significant impact on the OUV will not be permitted. This policy is in compliance with Paragraph 147 of SPP which requires planning authorities to 'protect and preserve' the OUVs of Scottish World Heritage Sites (Scottish Government 2014, 35).
- 9.9.58 Article 1 (1) of the World Heritage Convention defines cultural heritage World Heritage Sites as 'architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of Outstanding Universal Value from the point of view of history, art or science' (UNESCO 2021, Para 45,21). Outstanding Universal Value is considered to be 'cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole' (UNESCO 2021, Para 49, 24). In determining whether an asset merits inscription on the World Heritage List, the International Council on Monuments and Sites (ICOMOS) assesses OUV against ten criteria, six of which relate to cultural heritage and four to natural heritage. ICOMOS consider the HONO WHS to meet four of the cultural heritage criteria:

Criterion (i) Represent a masterpiece of human creative genius

The major monuments of the Stones of Stenness, the Ring of Brodgar, the chambered tomb of Maeshowe, and the settlement of Skara Brae display the highest sophistication in architectural accomplishment; they are technologically ingenious and monumental masterpieces.

Criterion (ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;

The Heart of Neolithic Orkney exhibits an important interchange of human values during the development of the architecture of major ceremonial complexes in the British Isles, Ireland and north-west Europe.

Criterion (iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;

Through the combination of ceremonial, funerary and domestic sites, the Heart of Neolithic Orkney bears a unique testimony to a cultural tradition which flourished between about 3000 BC and 2000 BC. The state of preservation of Skara Brae is without parallel amongst Neolithic settlement sites in northern Europe.

Criterion (iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

The Heart of Neolithic Orkney is an outstanding example of an architectural ensemble and archaeological landscape which illustrate a significant stage of human history, that is, when the first large ceremonial monuments were built (UNESCO 2021, Para 77, 29 and HES et.al.2016, 64-5).

9.9.59 Although considerable weight is attached to these criteria ICOMOS consider that in order to pass the OUV threshold two further conditions must be addressed; an asset must have sufficient integrity and/ or authenticity. In World Heritage terms an asset can be considered to be authentic if its ‘*cultural values... are truthfully and credibly expressed through a variety of attributes*’. These attributes can include form and design; materials and substance; use and function; traditions, techniques and management systems, location, and setting; language and other forms of intangible heritage; spirit and feeling; and other internal and external factors (UNESCO 2021, Paras 78 and 82, 30-31). Integrity is defined as ‘*a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes*’.

9.9.60 The HONO WHS is perhaps unusual in that it is structured around a comparatively small number of individual Scheduled Monuments that appear to have at least in part selected on the basis of their modern shared management, they are all properties in the care of HES, whilst the wider Orcadian landscape within which they are set has been excluded from the inscription. The HONO’s own SOUV acknowledges this weakness noting with regard to integrity that the ‘*boundaries are tightly drawn and do not encompass the wider landscape setting of the monuments which provides their essential context, nor other monuments that can be seen to support the Outstanding Universal Value of the property*’ (HES et.al.2016, 65). Although it has been excluded from the inscription the SOUV’s statement on authenticity, emphasises the importance that can be attached to the setting of the more sensitive Stenness assets noting that:

‘The central west mainland monuments remain dominant features in the rural landscape. Their form and design are well-preserved, and visitors are easily able to appreciate their location, setting and interrelationships with one another, with contemporary monuments situated outwith the designated Property, and with their geographical setting. This relationship with the wider topographic landscape helps define the modern experience of the site and seems to have been inextricably linked to the reasons for its development and use in prehistory’ (HES et.al.2016, 65).

9.9.61 The Proposed Development would not affect Criterion (i) to (iii), which the HONO SUAV (above) relates primarily to the architecture of the structures themselves and the testimony that they provide for the cultural traditions of the Neolithic society that created them; distant changes within the wider landscape are not considered to have the capacity to impact upon these predominantly structural attributes. Criterion (iv) makes reference to landscapes, which the SUOV then ties to Orkney’s archaeological heritage, with explicit reference to the ceremonial monuments. However, as the SOUV makes clear with respect to integrity, the surrounding landscape has been excluded from the inscription. Although the SOUV acknowledges that the ‘*wider landscape setting*’ provides the monuments ‘*essential context*’ (HES et.al.2016, 65), given the limitations of the inscription, it is appropriate to consider the effect upon the setting of each asset group individually, as has been done above, rather than as a collective whole. Although the Proposed Development would be visible, at least to a degree, from each of HONO’s individual components, this visibility would fall considerably outwith the core settings of all of them, and the underlying wider topography would remain readily legible. The ability to appreciate the location and setting of each monument, along with the interrelationships that they retain with each other, with other monuments on West Mainland or with their geographical setting (HES et.al.2016, 65), would not be materially compromised and the OUV of the WHS will therefore remain intact.

- 9.9.62 The Proposed Development would not therefore have significant effect upon the HONO OUV and is therefore considered to be compliant with Policy 8(B) of the Orkney LDP (OIC, 2017a: 32).

Brough of Birsay (Asset 124)

- 9.9.63 The Brough of Birsay is a small island which lies to the west of the site off the northwest corner of West Mainland, which it is separated from by Brough Sounds, a rock plateau which is accessible at low tide but flooded and often treacherous for the remainder of the day. A complex series of interleaved multi-period monuments survive on the eastern tip of the island, shielded from the worst of the weather by the rising ground to the west. These remains include late Iron Age or Pictish settlements, Norse settlements and a church with ranges of monastic buildings (Plate 20) and have been protected through Scheduling (Asset 124, SM90034). They are in the care of HES and collectively they will be referenced in this text as the Brough of Birsay. Although the majority of the monument lies within the HES property, the Scheduled area continues westwards along the southern cliff edge to include a spring and various archaeological remains including buildings and other remains on the Little Brough. The curtailed nature of the exposed archaeological remains on the east side of the Brough highlight the extensive coastal erosion that has taken place since Norse period (Plate 21).
- 9.9.64 The Brough of Birsay is defined by its physicality; the geology, topography and marine waters which structure its relationship with West Mainland, the far larger adjacent land form. Although Brough Sound can be crossed with relative ease when the tide has retreated, its rocky outcrops mean that once the water has surged forward it is unpassable, indeed often treacherous. Access to the Brough is therefore in tune with the rhythm of the day and beyond the control of human action. Monastic settlement on the Brough may have originated during the 6th century and a new church, the ‘*Christ Church*’ may have been erected by Norse settlers on the island during the mid-11th century. However, the first confirmed church on the Brough was the early 12th century cathedral the remains of which are included within the Scheduled area. Whilst the cathedral was short lived, the See was relocated to the more hospitable climes of Kirkwall during the mid-12th century, the Bishop’s Palace on the adjacent mainland at Birsay remained in use until at least the 14th century. Early monastic communities were often established in remote places, their physical remoteness and isolation helping to define their liminality. The Brough is no exception to this rule, indeed given the rough waters that surround it, it could be argued that it is an extreme example. Although the innermost core settings of the monuments which lie upon it, are constrained by topography and limited to the Brough itself, the island’s relationship with the northwestern tip of West Mainland also makes a contribution to their setting, as this relatively sheltered block of good quality land would have supplied the resources that sustained the community.
- 9.9.65 Although the complex, multi period, multiphase Scheduled Monument on the Brough of Birsay clearly has a high sensitivity to changes in its setting, its significance is, at least in part determined by its physicality, its sense of geographical remoteness and above all its sometimes confrontational relationship with the waters that surround it. It can therefore be said that the Brough’s core setting is defined by the island, the adjacent settlements and landholdings on the northwest corner of West Mainland and the Earl’s Palace (Asset 123) that stands within Birsay itself. The Brough is therefore less sensitive to more distant changes on the distant ridgelines to the east.
- 9.9.66 ZTV analysis indicates that four turbines will be visible from the Scheduled area on the Brough of Birsay (**Figure 9.5**), whilst a photomontage (Visualisation **Figure 9.20**) shows that all four turbines will be visible from the Brough; one from below hub height, one from hub height itself and two at blade level. Whilst the Proposed Development will be visible, given that it will stand beyond the Brough’s core setting it will not affect the observer’s ability to understand, appreciate or experience this asset and the integrity of its setting will not be adversely affected. For these reasons the magnitude of impact upon the settings of this asset is predicted to be low, and given its high sensitivity, the overall level of effect will be **minor** and not significant.

Earl's Palace at Birsay (Asset 123)

- 9.9.67 A second Scheduled Monument in the care of HES, the Earl's Palace at Birsay (Asset 123, SM90033) stands to the west of the site on the northwest coast of West Mainland, southeast of the Brough of Birsay. The Palace is a former seat of the Earls of Orkney and was built between 1569 and 1574. Originally, the palace was laid around three sides of a rectangular courtyard with a wall enclosing the north side (Plate 22). These ranges were two storeyed. At three of the corners stood projecting rectangular towers with possibly a fourth projecting tower at the northwest corner. Large windows were present on the upper floors; the ground floor level sported multiple gunports. A second phase of construction was undertaken, probably in the 1580s; a north range was built which included a great hall and chamber on the first floor with a kitchen and storage cellars on the ground floor. The Palace had passed to the Earls of Morton by the 1650s but was ruinous by the early 1700s.
- 9.9.68 The ruins of the Palace are well preserved, and it can be seen from many vantage points within the surrounding landscape, most notably from the Brough of Birsay and from the A967 to the south. However, its principal context relates to Birsay Village, the small, nucleated settlement within which it stands, whilst primary historical relationship is with St. Magnus Church Birsay (Asset 134, Category B Listed, LB6171) which dates to 1664 although it occupies the site of an earlier church. The Palace dominates the cross roads at the northern end of the village, defining the approach to it from the north and its core setting can be described as the village and its former landholding which extends out from the village across the northwest corner of West Mainland. The former estate is still marked on modern Ordnance Survey maps as 'The Barony'. Whilst the Palace has a high sensitivity to visual change, this relates primarily to its core setting; the village and the barony.
- 9.9.69 ZTV analysis indicates that four turbines will be visible from the Earl's Palace (**Figure 9.5**). However, wireline evidence suggests that only one of these turbines will be visible from just below hub height, along with the blade of another and the extreme blade tips of the other two. (Visualisation **Figure 9.19**). The Palace's internal courtyard was by its very nature an enclosed space and whilst it is now severely ruined, and the surrounding land to the east can be seen through it, that sense of enclosure is retained. Historically, any views east to the site from the north range would have been restricted by the projecting defensive tower on the northeast corner of the Earl's Palace (plate 23), whilst the placement of the long gallery at first floor level within the west range (Plate 24) suggests that importance was attached to views west and northwest over Birsay Bay and towards the Brough. The Proposed Development will not affect an observer's ability to understand, appreciate or experience this monument and the integrity of its setting will not be adversely affected. For these reasons the magnitude of impact upon the setting of this asset is predicted to be low, and given its high sensitivity, the overall level of effect will be **minor** and not significant.

Howana Gruna (Asset 30)

- 9.9.70 The Howana Gruna cairn (Asset 30, SM1280) stands on the northwestern slopes of Burgar Hill overlooking the Loch of Swannay, Costa Hill, Peerie Water and the northern entrance to Eynhallow Sound, with Hundland Hill upon which the Proposed Development will stand visible in the middle distance behind the Loch of Swannay. The cairn is accessed from the operational Burgar Hill Wind Farm which stands in close proximity on the ridgeline to the east. Although rising, the topography means that the wind farm is set above the level of the cairn and does not therefore impact significantly upon its visual setting; the noise of the turbines is a clear audible presence when one is standing upon the monument. The cairn survives as a grass covered mound and appears as a comparatively low feature, although it in fact stands to c.3m in height. This difference between its height and the perception of its height being due to its position on the hillslope and the fact that it is covered with the same vegetation as the surrounding moorland, which means that it is camouflaged to a degree. A large conspicuous hollow in the top of the cairn shows that it has been excavated. Whilst there are unfortunately no records for this excavation, the National Record for the Historic Environment (NRHE) suggest that it occurred prior to 1946.
- 9.9.71 Funerary cairns were carefully placed in relation to their surrounding landscape and Howana Gruna is no exception, with clear views northwest and west towards Costa Head and the ridgeline that demarcates the northern coast of West Mainland. The Loch of Swannay appears in the middle

distance with Hundland Hill to its rear. Views to the south are however more limited, being curtailed by rising moorland. Although the damage caused by the historical excavation is noted, Howana Gruna remains clearly legible as a cairn and given that prehistoric funerary monuments are, as a class, generally considered to possess a high relative sensitivity to changes to their setting, it is reasonable that this is the case here.

- 9.9.72 The existing turbine of Hundland Hill is clearly visible from Asset 30. ZTV and wireline analysis (**Figure 9.5** and Visualisation **Figure 9.10**) show that all four turbines of the Proposed Development will be clearly visible from below hub height when viewed from the cairn. Two will stand spaced apart in front of Hundland Hill above the shores of the Loch of Swannay, one will sit to the east on the upper slopes of the hill, whilst the final turbine will appear to the rear of the hill (Plate 25). Although the Proposed Development will be clearly visible on the slopes of Hundland Hill, only one turbine will appear directly in front of the summit when viewed from this vantage point and given the broad nature of the ridge, the summit of Hundland Hill will remain clearly legible. Although the Proposed Development will appear in views northwest and west from the cairn, which given its placement within the landscape are more sensitive, as Visualisation **Figure 9.10** shows it will be set within a wide viewshed and topographical landform of Hundland Hill will remain clearly evident. The audible presence of the operational Burgar Hill Wind Farm also needs to be taken into consideration, as does the future presence of the consented Costa Head turbines which, when operational, will appear to the east of the Proposed Development. For these reasons whilst the Proposed Development will alter Howana Gruna's baseline setting it will not fundamentally affect the observer's ability to understand, appreciate or experience this monument and the integrity of its setting will not be adversely affected. For these reasons the magnitude of impact upon the setting of this asset is predicted to be low, and given the cairn's high sensitivity, the overall level of effect will be **minor** and not significant.

Scheduled Funerary Cairns on Rousay

- 9.9.73 Scheduled Monuments on the southwestern shore of Rousay which extends along the northeast coast of Eynhallow Sound, were also visited. The setting of these assets relates primarily to the island of Rousay, and the surrounding seascape and they are therefore considered to be less sensitive to inland changes on mainland Orkney to the west. It was also noted that many of the Neolithic chambered cairns were either aligned to run parallel with the coast, as was the case at Burgar, or had entrances which faced out to sea. It is therefore clear that their settings relate primarily to Eynhallow Sound and the coast. Two cairns; Midhowe (Asset 130, SM90219) and the Knowes of Yarso (Asset 128, SM90198) are in the care of HES and have now been encased within modern structures. This means that the authenticity of their settings has already been severely compromised. The cairn at Midhowe is discussed in **Appendix 9.3** whilst Rowiegar and the Knowes of Yarso are discussed below.

Rowiegar (Asset 51)

- 9.9.74 The Knowe of Rowiegar (Asset 51, SM1307) is a multi-period Scheduled Monument that includes a partially excavated chambered cairn and the remains of a later Iron Age structure. The cairn lies on the very edge of the Rousay coast on the northeast shore of Eynhallow Sound and is orientated north-northwest to south-southeast, which means that it lies roughly parallel to the coastline at this location. It should also be noted that it lies directly opposite the island of Eynhallow itself. Whilst the cairn is much abraded it remains legible as a funerary monument and its core setting relationships with the Rousay coast, Eynhallow and Eynhallow Sound remain intact, and it is therefore considered to retain high sensitivity to changes to its setting.
- 9.9.75 ZTV analysis suggests that all four turbines will be visible from the chambered cairn (**Figure 9.5**) whilst a photomontage taken from the high-level road (B9064) to the southeast of the cairn southeast of Westness (Visualisation **Figure 9.12**) suggests that this visibility will occur across a broad field of view the full width of Eynhallow Sound as well as the opposing coast of West Mainland and within which the existing operational Burgar Hill turbines are already clearly visible. The Proposed Development will also stand separate and apart from the Knowe's core setting

relationships which relate to Eynhallow and the Rousay coast and it will also appear considerably to the cairn's axis of alignment. The Proposed Development will therefore not affect an observer's ability to understand, appreciate or experience this monument and the integrity of its setting will not be compromised. For these reasons the magnitude of impact upon the setting of this asset is predicted to be low, and given its medium sensitivity, the overall level of effect will be **minor** and not significant.

Knowes of Yarso (Asset 128)

9.9.76 The Scheduled Monument of the Knowes of Yarso (Asset 128, SM90198) (Plate 29) has been bunkerised, with the addition of a concrete roof following its excavation. This concrete roof gives the Neolithic chambered burial cairn an artificial height (Plates 30 & 31). Although it is possible that the cairn was originally built to such a height, its profile is likely to have been different at the time of its excavation and the surviving mound appears to have been lower than the height of the earth covered bunker that now shields the cairn. It needs to be recognised that it is the cairn that is Scheduled and not the overlying bunker and that given this degree of change and concealment, the sensitivity of the surviving cairn remains to changes to their visual setting is considered to have been reduced from high to medium.

9.9.77 The Knowes of Yarso' core setting can be defined as its northwest to southeast alignment which runs parallel to Eynhallow Sound along with the coast of Rousay and Eynhallow sound beyond. Whilst the Proposed Development will be visible, from the bunker which tops the Knowe, it will set to the southwest within the interior of West Mainland and will not therefore intervene with the monument's core setting. Therefore, the Proposed Development will not affect an observer's ability to understand, appreciate or experience these monuments and the integrity of their settings will not be adversely affected. For these reasons the magnitude of impact upon the settings of these assets is predicted to be low, and given their medium sensitivity, the overall level of effect will be **minor** and not significant.

Eynhallow Standing Stone and Mound (Assets 21 and 22), Eynhallow Church and Settlement (Asset 145) and Eynhallow Rural Conservation Area (Asset 145)

9.9.78 Consideration also needs to be given to the settings of the two Scheduled Monuments on Eynhallow itself: Eynhallow Standing Stone and Mound (Assets 21 and 22, SM1263) and Eynhallow Church and Settlement (Asset 126, SM90144); as well as Eynhallow Rural Conservation Area (Asset 145). These monuments have different chronologies and functions and the older monument, the mound, is believed to represent a Bronze Age cist burial. However, the standing stone Scheduled with it is considered by the NRHE to '*possibly [be] of no great age*' and could potentially have been set up to assist in the hauling of boats up from the adjacent shore. Eynhallow Church and Settlement comprises the remains of a 12th century church and a 16th century settlement. It is possible that the church was the site of a 12th century abbey, although there is no direct evidence for this. The Conservation Area covers the entirety of the island, and its character therefore correlates with that of the island, which is treeless and has a low dome shaped profile which rises to a low cliff at its norther, Atlantic end. Eynhallow is now uninhabited, is hard to access and was therefore not visited for this assessment. It is however in open view from both the Mainland and the Rousay shores, and the remains of the church and settlement are clearly visible.

9.9.79 The entirety of the Eynhallow Island has been designated as a Conservation Area and ZTV analysis suggests that four turbines could be visible from the western part of the island although no visibility is predicted from its eastern side (**Figure 9.5**). Wireline analysis suggests that two turbines will be visible from below hub height, one from hub height and one from blade level only on the western part of the island where the three Scheduled Monuments (Assets 21, 22 and 26) are located (Visualisation **Figure 9.21**). Given its location within the channel, it is reasonable to conclude that the setting of the island (the Conservation Area) and the monuments which stand upon it relate primarily to Eynhallow Sound and the surrounding waters. Whilst the church's monastic origins are unconfirmed, it has long been recognised that early monasteries were often purposefully placed in isolated locations such as islands. This would suggest that the setting of any putative early monastic

settlement would, in all likelihood, be limited to the island itself and its separation from the mainland. Given that the predicted visibility will fall considerably outwith the core settings of these assets it reasonable to conclude that the Proposed Development will not affect the observer's ability to understand, appreciate or experience these monuments and the integrity of their settings will not be adversely affected. For these reasons the magnitude of impact upon the settings of these assets is predicted to be low, and given their medium sensitivity, the overall level of effect will be **minor** and not significant.

Linga Fiolds (Asset 168)

- 9.9.80 The Scheduled Monument of Linga Fiolds, mounds 220m NW of Upper Lyking Cottage (Asset 168, SM1348) (**Figure 9.6**) is a group of thirteen prehistoric burials located to the northwest of HONO WHS on southeast facing slopes. The mounds stand beyond the 10km Study Area, 12.1km from the nearest turbine but they have been selected for inclusion on the basis of their position the hillslope that overlooks the northern end of the Brodgar peninsula which gives them a contextual relationship with the Stenness component of the HONO WHS. Investigations during the Orkney Barrows Project in the 1990s uncovered in situ secondary and/or satellite burials with evidence of further mortuary structures, funerary pyres and other related activities within the complex. These monuments have their setting focussed to the southeast towards the Loch of Stenness and HONO WHS and they are therefore considered to have a high relative sensitivity to changes to their setting. However, wireline evidence suggests that visibility of the Proposed Development will be both distant and limited and that only two of the turbines will be seen from hub height or below. (**Figure 9.6; Visualisation Figure 9.29**) Given these limitations, the Proposed Development will not affect an observer's ability to understand, appreciate or experience these monuments and the integrity of their settings will not be adversely affected. For these reasons the magnitude of impact upon the settings of these assets is predicted to be low, and given their high sensitivity, the overall level of effect will be **minor** and not significant.

Decommissioning

- 9.9.81 It is anticipated that direct impacts during the decommissioning phase would be limited and would only occur if new ground works are required beyond the areas disturbed during the original construction works. All operational effects upon the settings of designated assets would be reversed with the removal of the turbines following decommissioning leading to a neutral residual impact.
- 9.9.82 Detailed assessment of impacts on cultural heritage assets arising from the decommissioning phase have been scoped out of this assessment. A detailed assessment of the cultural heritage impacts of decommissioning the Proposed Development has not been undertaken as part of the EIA because: (i) the future baseline conditions (environmental and other developments) cannot be predicted accurately at this stage; (ii) the detailed proposals for decommissioning are not known at this stage, and (iii) the best practice decommissioning guidance methods will likely change during the lifetime of the Proposed Development.

9.10 Additional Mitigation and Enhancement

- 9.10.1 National and local planning policies and planning guidance require a mitigation response that is designed recognise the possible impacts upon heritage assets by a proposed development and avoid, minimise or offset any such impacts as appropriate. The planning guidance expresses a general presumption in favour of preserving heritage remains in situ. Their 'preservation by record' (i.e. through excavation and recording, followed by analysis and publication by qualified archaeologists) is a less desirable alternative.
- 9.10.2 The Proposed Development has been designed, where possible, to avoid direct impacts on known heritage assets. The only direct effects on known heritage assets would be on two non-designated assets of negligible importance with a negligible to medium sensitivity and the level of effect would not exceed minor in each case. A watching brief will be undertaken during all groundworks that are located either within or adjacent to these assets. Furthermore, all known heritage assets within 50 m of the Proposed Development (working areas) will be fenced off with a visible buffer under

archaeological supervision prior to the start of the construction phase in order to avoid accidental damage by heavy plant movement. A watching brief will also be maintained on a proportion of all other ground breaking works to assess the potential for hitherto unrecorded buried archaeological remains to survive within the Proposed Development Area. The aim of the watching brief will be to identify any archaeological remains threatened by the Proposed Development, to assess their significance and to mitigate any impact upon them either through avoidance or, if preservation in situ is not warranted, through preservation by record. If significant archaeological remains are identified during the batching brief there is the potential that further works, such as excavation and post-excavation analyses, could be required. Details of mitigation will be agreed with OIC in consultation with the Orkney County Archaeologist through a Written Scheme of Investigation (WSI).

- 9.10.3 During AOC’s discussions with the Orkney County Archaeologist, she suggested that a geophysical survey of the Hundland Hill enclosure be undertaken in order to inform our understanding of this designated asset and assess the extent to which burnt material, an indication of cremation activity, may be present. Based on AOC’s recommendation, the Applicant has committed to undertaking this survey post-determination, although given that the enclosure is Scheduled, Metal and Mineral Detecting Consent (MMDC) will need to be obtained from HES prior to the work being undertaken .

9.11 Residual Effects

Construction

- 9.11.1 Demarcation of known assets through fencing prior to commencement of the construction phase will prevent inadvertent damage to known heritage assets other those that have been set out in Section 9.9 (Table 9.7 above). The maintenance of an archaeological watching brief as outlined above will allow for recording of peripheral deposits associated with known remains and investigate the potential for previously unknown assets. This will further allow for the avoidance of direct effects or, in cases where this might not be possible, will allow for recording of elements of assets which would be removed. As such there would be minimal loss of information content and the residual effects would be **negligible** and not significant. Following the completion of construction, no further groundworks would be undertaken. Mitigation would allow for the detailed recording of any remains encountered during the construction phase and the results would therefore enhance our understanding of the area’s archaeological heritage.
- 9.11.2 The predicted residual construction effects on the settings of heritage assets would be the same as assessed for the operational effects above (Section 9.9).

Operation

- 9.11.3 Operational effects include impacts upon the settings of designated assets such as World Heritage Sites, Listed Buildings, Scheduled Monuments, Conservation Areas, Inventoried Battlefields and Inventoried Gardens and Designed Landscapes. Impacts upon setting are a material consideration in the planning process and the predicted effects of the Proposed Development, which would be largely restricted to the operational phase, have been set out in Section 9.9 above and also within **Appendix 9.3**. Predicted setting effects are by their very nature hard to mitigate (beyond design iteration to minimise such effects as far as practicable).

Decommissioning

- 9.11.4 No direct effects are anticipated to arise from decommissioning, provided works are contained within the construction footprint. Demarcation of archaeological assets in close proximity to working areas would ensure that accidental damage resulting from plant movement is avoided.
- 9.11.5 All operational effects upon the settings of designated assets would be reversed with the removal of the turbines following decommissioning, leading to a neutral residual effect.

9.12 Cumulative Assessment

- 9.12.1 The assessment of cumulative effects within this EIAR chapter is based upon a list of operational or consented developments along with developments where planning permission has been applied for. While all have been considered, only those which contribute to, or have the possibility to contribute to, cumulative effects on specific heritage assets are discussed in detail in the text. Additionally, given the emphasis NatureScot places on significant effects, cumulative effects have only been considered in detail for those assets that are either components of the HONO WHS or have been assessed as possessing a medium or high relative sensitivity to changes to their setting, and lie within 5 km of the nearest Proposed Development turbine and, crucially for which the effect on setting from the Proposed Development, alone, has been judged to be minor or greater. These parameters have been set in order to scope out assets where it is considered that the cumulative level of effect upon their setting is unlikely to reach the threshold of significance as defined in Table 9.5. As set out above, cumulative effects relating to cultural heritage are for the most part limited to effects upon the settings of heritage assets. While there can, in some rare cases, be cumulative direct effects, none are anticipated to result from the construction, operation or decommissioning of the Proposed Development. As such this assessment will consider the potential for cumulative effects upon the setting of heritage assets which have the potential to occur during the operational phase.
- 9.12.2 The assets that will be considered within the cumulative effects assessment are set out in Table 9.8 below which also sets out the cumulative levels of effect. The cumulative baseline used is mapped on **Figure 6.12** and described in **Chapter 6**. Schemes which appear or will appear more distant on the horizon are not considered to have the potential to elevate setting effects that have been predicted for the Proposed Development alone and have consequently been scoped out of further assessment.

Table 9.8: Summary of Predicted Cumulative Effects (Predicted significant effects are highlighted in **bold**)

Asset No	Receptor	Principal Cumulative Scheme(s)	Relative Sensitivity	Magnitude of Impact/ Level of Effect (Proposed Development Alone)	Magnitude of Impact/ Cumulative Level of Effect
15	Black Knowe, burial mound, 245m NNW of Westside: Scheduled Monument	Costa Head, Burgar Hill	High	Low/ Minor	Low/ Minor
19	Durka Dale, burnt mound 230m NNW of S of Loch Hundland: Scheduled Monument	Costa Head, Burgar Hill, Holodykes	Medium	Low/ Minor	Low/ Minor
27	Greene Knowe, burnt mound, 230m SW of Braeside: Scheduled Monument	Costa Head, Burgar Hill, Holodykes	Medium	Low/ Minor	Low/ Minor

Asset No	Receptor	Principal Cumulative Scheme(s)	Relative Sensitivity	Magnitude of Impact/ Level of Effect (Proposed Development Alone)	Magnitude of Impact/ Cumulative Level of Effect
30	Howana Gruna, cairn 270m SE of Whitehouse: Scheduled Monument (Visualisation Figure 9.10)	Burgar Hill, Costa Head	High	Low/ Minor	Low/ Minor
32	Hundland, settlement mound 270m SW of: Scheduled Monument (Visualisation Figure 9.11)	Burgar Hill, Costa Head	High	Low/ Minor	Low/ Minor
33	Kirbister Hill, barrow cemetery 410m ENE of Heatherlea: Scheduled Monument	Burgar Hill, Costa Head	Medium	Low/ Minor	Low/ Minor
34	Knowe of Brenda, burnt mound 260m WNW of Downtown: Scheduled Monument	Burgar Hill, Costa Head	Medium	Low/ Minor	Low/ Minor
36	Knowe of Crustan, mound, Crustan: Scheduled Monument	Costa Head	High	Low/ Minor	Low/ Minor
48	Runa, mound, Twatt: Scheduled Monument	Burgar Hill, Costa Head (ZTV suggests limited visibility)	Medium	Low/ Minor	Low/ Minor
49	Knowe of Nesthouse, settlement: Scheduled Monument	Burgar Hill	Medium	Low/ Minor	Low/ Minor
56	Knowes of Cuean, mounds 225m N of Sunnybrae: Scheduled Monument	Burgar Hill (ZTV suggests limited visibility), Holodykes	Medium	Low/ Minor	Low/ Minor

Asset No	Receptor	Principal Cumulative Scheme(s)	Relative Sensitivity	Magnitude of Impact/ Level of Effect (Proposed Development Alone)	Magnitude of Impact/ Cumulative Level of Effect
57	Knowes of Lingro, burial mounds 110m WNW of Waverley: Scheduled Monument	Costa Head	High	Low/ Minor	Low/ Minor
61	Nisthouse, burial mound 270m ENE of: Scheduled Monument (Visualisation Figure 9.13)	Costa Head, Burgar Hill	High	Medium/ Moderate	Medium/ Moderate
65	Hundland Hill, enclosure 500m NE of Nisthouse: Scheduled Monument (Visualisation Figure 9.14)	Costa Head, Burgar Hill	High	Medium/ Moderate	Medium/ Moderate
67	Mittens, two mounds 110m NE of, Swannay: Scheduled Monument (Visualisation Figure 9.15)	Costa Head, Burgar Hill	High	Medium/ Moderate	Medium/ Moderate
69	Bigbreck Cottage, burial mounds N of: Scheduled Monument	Costa Head (ZTV suggests limited visibility), Burgar Hill	High	Low/ Minor	Low/ Minor
72	Park Holm, artificial island and causeway, Loch of Swannay: Scheduled Monument (Visualisation Figure 9.16)	Costa Head, Burgar Hill	High	Medium/ Moderate	Medium/ Moderate
81	Stanerandy, mound and two standing stones 100m SSE of Little Favel: Scheduled Monument	Burgar Hill (ZTV suggests either limited or no visibility)	High	Low/ Minor	Low/ Minor

Asset No	Receptor	Principal Cumulative Scheme(s)	Relative Sensitivity	Magnitude of Impact/ Level of Effect (Proposed Development Alone)	Magnitude of Impact/ Cumulative Level of Effect
83	Stoney Holm, crannog, Loch of Swannay; Scheduled (Visualisation Figure 9.17)	Costa Head, Burgar Hill	High	Medium/ Moderate	Medium/ Moderate
84	Hillhead, three burial mounds 430m ENE of: Scheduled Monument	Costa Head, Burgar Hill	Medium	Low/ Minor	Low/ Minor
85	Summerfield, three mounds 470m WNW of, Greeny: Scheduled Monument	Costa Head, Burgar Hill	Medium	Low/ Minor	Low/ Minor
87	Quoyhorrie, three mounds 200m ESE of: Scheduled Monument	Costa Head, Burgar Hill	Medium	Low/ Minor	Low/ Minor
88	Queena, two mounds SSW of, Abune-the-Hill: Scheduled Monuments	Costa Head, Burgar Hill	High	Low/ Minor	Low/ Minor
91	Wheebin standing stone: Scheduled Monument	Costa Head, Burgar Hill	High	Low/ Minor	Low/ Minor
98	Oxtro or Oxta, broch, Boardhouse: Scheduled Monument	Costa Head, Burgar Hill (ZTV suggests that there may be only limited visibility from either scheme)	High	Low/ Minor	Low/ Minor
114	Vinquin, broch, 145m SSW of Upper Arsdale: Scheduled Monument (Visualisation Figure 9.18)	Costa Head, Burgar Hill	High	Low/ Minor	Low/ Minor

Asset No	Receptor	Principal Cumulative Scheme(s)	Relative Sensitivity	Magnitude of Impact/ Level of Effect (Proposed Development Alone)	Magnitude of Impact/ Cumulative Level of Effect
123	Earl's Palace, Birsay: Scheduled Monument & HES PiC (Visualisation Figure 9.19)	Costa Head, Burgar Hill	High	Low/ Minor	Low/ Minor
145	Eynhallow Rural Conservation Area: Conservation Area (Visualisation Figure 9.21)	Costa Head, Burgar Hill, Hammars Hill, Hammars Hill Extension.	High	Low/ Minor	Low/ Minor
146	Ring of Brodgar stone circle, henge and nearby remains: World Heritage Monument, Scheduled Monument & HES PiC (Visualisation Figure 9.25)	Hoy, Costa Head, Holodykes, Burgar Hill	Very High/ High	Low/ Minor	Low/ Minor
147	Maes Howe chambered cairn: World Heritage Monument, Scheduled Monument & HES PiC (Visualisation Figure 9.26)	Costa Head, Holodykes	Very High/ High	Low/ Minor	Low/ Minor
148	Stenness, stone circle and henge: World Heritage Monument, Scheduled Monument & HES PiC (Visualisation Figure 9.27)	Costa Head, Holodykes, Burgar Hill	Very High/ High	Low/ Minor	Low/ Minor
149	Skara Brae, settlement, mounds and other remains: World Heritage	Burgar Hill	High	Low/ Minor	Low/ Minor

Asset No	Receptor	Principal Cumulative Scheme(s)	Relative Sensitivity	Magnitude of Impact/ Level of Effect (Proposed Development Alone)	Magnitude of Impact/ Cumulative Level of Effect
	Monument, Scheduled Monument & HES PiC (Visualisation Figure 9.28)				

- 9.12.3 Moderate significant effects upon the settings of five Scheduled Monuments have been predicted with respect to the Proposed Development on its own. These monuments; the Nisthouse Burial Mound (Asset 61), the Hundland Hill Enclosure (Asset 65), the Mittens Mounds (Asset 67), Park Holm (Asset 72) and Stoney Holm (Asset 83) all lie either on the site (Assets 61 and 65) or within a kilometre of it and visualisations have been prepared for each.
- 9.12.4 The Hundland Hill Enclosure lies at the highest point of the site on the summit of Hundland Hill and the accompanying photomontage and wireline (Visualisation **Figure 9.14**) show two turbines would stand to the east of the enclosure and two to the west and all would be visible from the monument. As the visualisations show, the operational Bargar Hill wind farm appears in views to the southeast from the monument, along with the smaller operational turbine which stands on the southern slopes of Hundland Hill. The consented Costa Head turbines will also appear in views to the north from the monument when they are built. However, as the visualisations show the operational and consented schemes will all appear to the rear of the Proposed Development and, with the exception of the operational Hundland Hill turbine either stand or will stand on separate topographical landforms. It is therefore clear that the principal effects upon the setting on the monument would be from the Proposed Development itself. As Visualisation **Figure 9.13** shows this is also the case with the Nisthouse Burial Mound which stands within the site boundary to the southwest of the enclosure on the western slope of Hundland Hill. Consequently the cumulative level of effect upon the settings of the enclosure and the mound would not be increased from the **moderate** and significant effect that has been predicted for the Proposed Development alone.
- 9.12.5 Two Scheduled artificial islands, Park Holm (Asset 72) and Stoney Holm (Asset 83) lie within the waters of the Loch of Swannay, just off its southwestern shore. Both are considered to be of late prehistoric date, although as neither have been excavated this remains unconfirmed. This assessment considers that the core setting of both monuments relates to the waters of the loch and its immediate southwestern foreshore and that they are less sensitive to changes that are located at a greater distance. A site visit established that the operational Bargar Hill turbines are clearly visible when the monuments are viewed from the loch's adjacent southwest shore and that the consented Costa Head turbines will also be visible when the monuments are viewed from this vantage point. However, as the accompanying wirelines (Visualisation **Figures 9.16 and 9.17**) show the Proposed Development would stand to the rear of the monuments when they are viewed from this vantage point, and therefore whilst it would stand closer to Park Holm and Stoney Holm than the cumulative schemes it would not appear in views from this location that include them. Consequently the cumulative level of effect upon the settings of the two islands would not be increased from the **moderate** and significant effect that has been predicted for the Proposed Development alone.
- 9.12.6 The two Mittens mounds (Asset 67) lie to the north of the site and whilst both are Scheduled, one has been severely truncated by ploughing and survives only to a height of 0.20m. As the photomontage and wirelines (Visualisation **Figure 9.15**) show the operational Bargar Hill turbines

appear considerably to the south of the Proposed Development in southward facing views from the monument, whilst the consented Costa Head turbines will appear in the opposing northward view which would not include the Proposed Development. Both schemes will be set at a greater distance to the monument than the Proposed Development. Neither the cumulative turbines nor the proposed ones encroach upon the monument's core setting relationship, namely the axis of view over the Loch of Hundland towards Hoy. Consequently the cumulative level of effect upon the settings of the Mittens mounds would not be increased from the **moderate** and significant effect that has been predicted for the Proposed Development alone.

- 9.12.7 The Heart of Neolithic Orkney World Heritage Site (HONO WHS) encompasses four core Scheduled Monuments; the Stones of Stenness (Asset 148), the Ring of Brodgar (Asset 146) and Maes Howe (Asset 147) which can be grouped together as the 'Stenness assets' and the geographically separate Skara Brae Neolithic settlement (Asset 149). Either wirelines or photomontages have been prepared for all four assets (Visualisation **Figures 9.7 to 9.10**). The WHS monuments lie between 10.89km (Skara Brae) and 14.38km (Stones of Stenness) from the site and this distance of separation needs to be balanced with their sensitivity; the three Stenness assets are all significant, internationally important ceremonial monuments and have a very high sensitivity to changes to their core settings, although both the Proposed Development and the cumulative schemes lie beyond that.
- 9.12.8 As the photographic component of Visualisation **Figure 9.25** shows, the operational Holodykes and Burgar Hill turbines can currently be seen from the Ring of Brodgar at distances of 8.7km and 13.2km respectively. It is noted that this visibility can vary according to cloud and haze conditions, although they are usually detectable as a distant presence within an evolved landscape. The wirelines also suggest that, when built, two consented schemes may also be visible from the Ring of Brodgar: Costa Head 16.5km and Hoy 18.9km to the south, although neither will have the degree of visibility that the operational Burgar Hill Turbines currently have. Whilst the distance of separation between Burgar Hill and the monument is broadly similar, 13.2km as opposed to 13.6km, the Proposed Development would appear slightly larger, due to the size of the turbines proposed relative to those that are currently installed at Burgar Hill. However, whilst all the cumulative schemes are located either along or in proximity to the ridges of the topographical bowl that encircles the Stenness assets, they do not dominate it either individually or collectively. As Visualisation **Figures 9.7 and 9.8** show, visibility from Maes Howe and the Stones of Stenness would be broadly similar than to Brodgar however, due to changes in the topography the operational Burgar Hill turbines cannot be seen from Maes Howe, whilst the consented Hoy turbines will not be visible from either asset. Furthermore, given the increased distance of separation both the Proposed Development and the cumulative schemes would appear considerably more distant when viewed from Stenness and Maes Howe than they would when viewed from the Ring of Brodgar. Therefore the effect upon the settings of the Stenness assets would not increase from the **minor** and not significant effect that has been predicted for the Proposed Development alone. This level of predicted cumulative effect would be compliant with Policy 8(B) of the Orkney LDP.
- 9.12.9 Skara Brae (Asset 149) lies northwest of the Stenness assets, on the northwest coast of West Mainland. The cumulative schemes are located, along with the Proposed Development, on the eastern side of West Mainland and there is consequently a much lower potential for significant cumulative effects to occur. As Visualisation **Figure 9.25** shows, the operational Burgar Hill turbines can be seen from Skara Brae; however, as the accompanying photographs show, in certain light conditions that visibility is less than the wirelines would suggest. The Proposed Development would also appear in this view to the left of Burgar Hill; although, as the photomontage indicates, only the blades of three turbines of the Proposed Development would appear. Given the distance of separation and the limitations of visibility, with both schemes, the cumulative level of effect upon the setting of Skara Brae would not increase from the **minor** and not significant effect that has been predicted for the Proposed Development alone. This level of predicted cumulative effect would be compliant with Policy 8(B) of the Orkney LDP.
- 9.12.10 Table 9.8 contains details of all those designated assets that lie within 5km of the Proposed Development that are considered to have either medium or high sensitivities to changes to their settings and for which minor levels of effect have been predicted for the Proposed Development

alone. As **Figure 9.3** shows, the majority of these assets lie to the west of the Proposed Development, and it would therefore appear closer in any views which include both it and the principal cumulative schemes: the operational Bugar Hill Wind Farm and the consented Costa Head development. Two Scheduled funerary monuments; the Knowe of Crustan (Asset 36) and the Knowes of Lingro (Asset 57) lie to the north of the site, above the northern coast of West Mainland. These monuments are roughly equidistant between the Proposed Development and the consented Costa Head turbines. It is therefore likely that the effects of each development, when considered individually, will be comparable. However, the geography means that the two developments would be set notably apart from each other on different topographical land forms. The final two Scheduled Monuments, Vinquin Broch (Asset 114) and Howana Gruna Cairn (Asset 30) lie to the east of the site. As was noted previously Howana Gruna lies immediately adjacent to the operational Bugar Hill development, and the sound of the turbines is clearly audible from the cairn. Whilst the Proposed Development would be visible when viewed from the cairn it would appear in the opposing view to Bugar Hill and there would therefore be no linked visual effect between the two developments. Although, as Visualisation **Figure 9.10** shows, the Costa Head turbines will appear to the east of the Proposed Development when viewed from Howana Gruna they will be both set apart from it and located at a greater distance. Vinquin Broch (Asset 114) stands on a pinnacle in the ridgeline to the northeast of the site and the operational Bugar Hill turbines to the south can be clearly seen from it. Although the Proposed Development would be clearly visible from Vinquin, along with the consented Costa Head turbines to the north, the three schemes would be broadly spaced within a wide landscape and the underlying topography of the landscape would remain clearly legible. For the reasons that have been outlined above the cumulative effects upon the settings of these assets would be unchanged from the **minor** and not significant effect that has been predicted for the Proposed Development alone.

- 9.12.11 Setting effects are hard to mitigate for wind farm proposals, as conventional mitigation strategies such as the creation of tree belts can only be employed in very limited specific circumstances when it comes to this type of development. With cumulative effects the situation could potentially be further complicated by the need to liaise with third party developers with regard to land that is outwith the Applicant's control. As such no mitigation, beyond that inherent in design is proposed. Consequently, the predicted effects that have been discussed above should be considered to be post-mitigation residual effects.

9.13 Summary

- 9.13.1 This chapter identifies the archaeological and cultural heritage value of the site and assesses the potential for direct and setting effects on heritage assets resulting from the construction, operation and decommissioning of the Proposed Development. This chapter also identifies measures that will be taken to mitigate predicted adverse effects.
- 9.13.2 This assessment has identified seven cultural heritage assets located within the site boundary. These assets include the Nisthill Burial mound (Asset 61, SM1318) and the Hundland Hill Enclosure (Asset 65, SM13451) both of which are Scheduled and consequently considered to be of National importance as well as five non-designated assets of negligible importance (Assets 163 to 167). The Proposed Development has been designed so as to avoid all known heritage assets of greater than negligible importance although direct impacts of negligible/ neutral to minor levels of effect have been predicted for two of the non-designated assets (Assets 164 and 167) both of which are of probable post-medieval or modern date. negligible/ neutral to minor levels of effect are not considered significant although mitigation measures will be undertaken.
- 9.13.3 Planning policies and guidance require that account is taken of potential effects upon heritage features/assets by proposed developments and that where possible such effects are avoided. Where avoidance is not possible, effects on any significant remains should be minimised or offset. Given the potential for presently unknown archaeological remains, in particular of prehistoric and post-medieval date, to survive within the site, a programme of archaeological works designed to avoid inadvertent damage to known remains and to investigate and mitigate against the possibility of uncovering hitherto unknown remains will be undertaken.

- 9.13.4 Potential operational effects on the settings of all designated heritage assets within 10km of the Proposed Development, as well as the potential effects upon the Heart of Neolithic Orkney World Heritage Site (HONO WHS) which extends beyond this buffer have been considered in detail as part of this assessment. **Moderate** significant effects have been predicted upon the settings of five Scheduled Monuments: the Hundland Hill Enclosure (Asset 65, SM13451) and the Nisthouse burial mound (Asset 61 SM1318) both of which lie within the site boundary; as well as three Scheduled Monuments that are located within 1km (Park Holm Artificial Island and Causeway (Asset 72, SM1362), Stoney Holm Crannog (Asset 83 SM1394) and the two Mittens mounds (Asset 67, SM1350). Although **moderate** effects are considered to be significant, this assessment has found that the predicted effects upon these assets would not affect the integrity of their settings and that consequently the predicted effects are compliant with Paragraph 145 of Scottish Planning Policy (SPP, 2014).
- 9.13.5 Given its international importance this assessment has given detailed consideration to the setting of the HONO WHS and its four individual component monuments Stones of Stenness Stone Circle And Henge (Asset 148, SM90285), Ring of Brodgar Stone Circle, Henge And Nearby Remains (Asset 146, SM90042), Maes Howe Chambered Cairn (Asset 147, SM90209) (these assets, which are located in the central part of West Mainland) and the Skara Brae Neolithic settlement (Asset 149, SM No. SM90276). The predicted levels of effect are considered to be **minor** and not significant, and it is therefore considered that the Proposed Development will not affect the attributes that are set out in the WHS's Statement of Outstanding Universal Value (SOUV). The proposals are therefore in accordance with Policy 8(B) of the Orkney Local Development Plan (LDP).
- 9.13.6 Setting effects are hard to mitigate for wind farm proposals, as conventional mitigation strategies such as the creation of tree belts can only be employed in very limited specific circumstances when it comes to this type of development. Therefore setting effects have been mitigated as far as possible through design iteration.

Table 9.9 – Summary of Effects

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Construction					
Direct impacts on known non-designated regionally or nationally important archaeological remains present on the site	Major (worst case scenario if substantial damage were to occur without fencing being in place)	Adverse	<p>The Proposed Development has been designed so as to avoid direct impacts upon the two Scheduled Monuments at Hundland Hill Enclosure and the Nisthouse Burial Mound which lie within the site boundary and will both be enclosed with fencing prior to the onset of construction.</p> <p>The possibility of further previously unrecorded buried archaeological associated with these sites being present elsewhere on the site will be addressed through the mitigation measures that are outlined below.</p>	None	Neutral
Direct impacts on known non-designated remains of negligible importance that are present on the site.	Negligible/ Neutral to Minor	Adverse	Direct impacts of negligible/ neutral to minor levels of effect have been predicted for two of the non-designated assets (Assets 164 and 167) located within the site boundary both of which are of probable post-medieval or modern date. Negligible/ neutral to minor levels of effect are not considered significant although mitigation works in the form of a watching brief are proposed.	None	Neutral

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
			In addition to the watching brief all known assets within 50m of the development boundary will be fenced prior to the onset of construction.		
Direct impacts on previously unrecorded non-designated regionally or nationally important archaeological remains that could be present on the site	Major	Adverse	A watching brief would also be maintained on a proportion of all other ground breaking works to assess the potential for hitherto unrecorded buried archaeological remains to survive within the Proposed Development Area. The aim of the watching brief would be to identify any archaeological remains threatened by the Proposed Development, to assess their significance and to mitigate any impact upon them either through avoidance or, if preservation in situ is not warranted, through preservation by record. If significant archaeological remains are identified during the watching brief there is the potential that further works, such as excavation and post-excavation analyses, could be required. Details of mitigation would be agreed with OIC in consultation with the Orkney County Archaeologist through a Written Scheme of Investigation (WSI).	Negligible	Neutral
Operation					

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Moderate significant setting effects on the settings of five Scheduled Monuments: Hundland Hill Enclosure; the Nisthouse burial mound; Park Holm Artificial Island and Causeway; Stoney Holm Crannog; and the Mittens Mounds	Moderate	Adverse	<p>Although moderate effects are considered to be significant, this assessment has found that the predicted effects upon these assets would not affect the integrity of their settings and that consequently the predicted effects are compliant with Paragraph 145 of Scottish Planning Policy (SPP, 2014).</p> <p>Setting effects are hard to mitigate for wind farm proposals, as conventional mitigation strategies such as the creation of tree belts can only be employed in very limited specific circumstances when it comes to this type of development. Therefore, no mitigation is proposed beyond embedded mitigation in the form of design iteration which has sought to minimise effects as far as practical.</p>	Moderate	Adverse
Decommissioning					
In the event of decommissioning, or replacement of turbines, it is anticipated that the levels of effect would be similar but of a lesser level than those during construction. Decommissioning would be undertaken in line with best practice processes and methods at that time and will be managed through an agreed Decommissioning Environmental Management Plan.					

No additional cumulative effects are predicted.

9.14 References

- Atkins (2008). *The Heart of Neolithic Orkney World Heritage Site Setting Project*
- CIfA. (2020a). *Standard and guidance for archaeological field evaluation. Published December 2014. Updated June 2020. Updated October 2020.* Available at:
https://www.archaeologists.net/sites/default/files/CIfAS%26GFieldevaluation_2.pdf
- CIfA. (2020b). *Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment. The Chartered Institute for Archaeologists. Published December 2014. Updated October 2020.* Available at:
https://www.archaeologists.net/sites/default/files/CIfAS&GCommissioning_1.pdf
- CIfA. (2020c). *Standard and guidance for historic environment desk-based assessment. The Chartered Institute for Archaeologists. Published December 2014. Updated October 2020.* Available at:
https://www.archaeologists.net/sites/default/files/CIfAS&GCommissioning_1.pdf
- CIfA. (2021a). *Code of Conduct. Published December 2014. Revised October 2021.* Available at:
<https://www.archaeologists.net/sites/default/files/CodesofConduct.pdf>
- CIfA. (2021b). *Regulations for professional conduct. The Chartered Institute for Archaeologists. Published May 2019. Revised July 2021.* Available at:
<https://www.archaeologists.net/sites/default/files/Regulations%20for%20professional%20conduct.pdf>
- Cowley, D. C. (ed.). (January 2011). *EAC Occasional Paper No. 5: Remote Sensing for Archaeological Heritage Management.* Available at:
https://www.academia.edu/6730535/Remote_Sensing_for_Archaeological_Heritage_Management
- Council of Europe. (2000). *The European Landscape Convention.* Available at:
<https://www.coe.int/en/web/landscape>
- Council of Europe. (2005). *Council of Europe Framework Convention on the Value of Cultural Heritage for Society.* Available at:
<https://rm.coe.int/1680083746>
- Edmonds (2019), *Orcadia*, London, Head of Zeus,
- HES. (2014a), *Hundland Hill, enclosure 500m NE of Nisthouse: SM13451.* Available at:
<http://portal.historicenvironment.scot/designation/SM13451>
- HES. (2014b), *Nisthouse, burial mound 270m ENE of: SM1318.* Available at:
<http://portal.historicenvironment.scot/designation/SM1318>
- HES, RSPB, SNH & OIC. (2016). *Heart of Neolithic Orkney World Heritage Site Management Plan 2014 – 2019.* Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=c96546cf-ff4d-409e-9f96-a5c900a4f5f2>.
- HES. (2019a). *Historic Environment Policy for Scotland. Edinburgh: Historic Environment Scotland.* Available at:

<https://www.historicenvironment.scot/advice-and-support/planning-and-guidance/historic-environment-policy-for-scotland-heps/>

HES. (2019b). *Designation Policy and Selection Guidance*. Edinburgh: Historic Environment Scotland. Available at:

<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=8d8bbaeb-ce5a-46c1-a558-aa2500ff7d3b>

HES. (2019c). *Scotland's Listed Buildings*. Edinburgh: Historic Environment Scotland. Available at:

<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=34c90cb9-5ff3-45c3-8bc3-a58400fcbc44>

HES. (2020a). *Managing Change in the Historic Environment: Setting*. Edinburgh: Historic Environment Scotland. Published 01 June 2016. Updated 03 February 2020. Available at:

<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationid=80b7c0a0-584b-4625-b1fd-a60b009c2549>

HES. (2020b). *Managing Change in the Historic Environment: World Heritage*. Edinburgh: Historic Environment Scotland. Published 05 September 2016. Updated 03 February 2020. Available at:

<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationid=89d391d9-9be2-4267-919f-a678009ab9df>

ICOMOS. (2005). *Xi'an Declaration on The Conservation Of The Setting of Heritage Structures, Sites And Areas. Adopted in Xi'an, China, by the 15th General Assembly of ICOMOS on 21 October 2005. China: Incorporated International Council on Monuments and Sites*. Available at:

<https://www.icomos.org/charters/xian-declaration.pdf>

ICOMOS. (2013). *The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance*. Australia: Australia ICOMOS Incorporated International Council on Monuments and Sites. Available at:

<https://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf>

IEMA. (2017). *Guidelines for Environmental Impact Assessment*. Published 2016. Updated 2017. Available at:

<https://www.iema.net/download-document/7014>

Lambrick, G. (2008). *Setting Standards: A Review prepared on behalf of the IFA*. Available at:

<http://www.archaeologists.net/modules/icontent/inPages/docs/Setting.pdf>.

Laureanti, M. (2012). *Crannogs as Cultural Soil Artefacts? An Approach to the study of crannogs: Loch of Isbister, Mainland Orkney*. Available at:

<https://www.academia.edu/1520083>

Orkney Islands Council. (2010). *The Heart of Neolithic Orkney World Heritage Site: Supplementary Planning Guidance*. 7 December 2010. Available at:

<https://www.orkney.gov.uk/Service-Directory/R/heart-of-neolithic-orkney-world-heritage-site-spg.htm>

Orkney Islands Council. (2017a). *Orkney Local Development Plan*. Adopted April 2017. Available at:

https://www.orkney.gov.uk/Files/Planning/Development-and-Marine-Planning/Local-Plan/OLDP_2017/Orkney_Local_Development_Plan_2017_2022.pdf

Orkney Island Council. (2017b). *Planning Policy Advice: Historic Environment (Topics and Themes)*. March 2017. Available at:

https://www.orkney.gov.uk/Files/Planning/Development-and-Marine-Planning/Adopted_PPA_and_SG/Guidance_for_the_Plan/Planning_Policy_Advice_Historic_Environment_Topics_Themes.pdf

Orkney Island Council. (2017c). *Supplementary Guidance: Historic Environment and Cultural Heritage*. March 2017. Available at:

https://www.orkney.gov.uk/Files/Planning/Development-and-Marine-Planning/Adopted_PPA_and_SG/Historic_Environment_SG/Hist_Env_SG.pdf

Ordnance Survey. (1855-1882). *Ordnance Survey Books of Reference: Parish of Birsay*.

Ordnance Survey. (2022). *Triangular Stations*. Available at:

<https://www.ordnancesurvey.co.uk/gps/legacy-control-information/triangulation-stations>.

Scottish Government (2011). *PAN2/2011 Planning and Archaeology*. Available at:

<http://www.scotland.gov.uk/Resource/Doc/355385/0120020.pdf>.

Scottish Government (2011). *Planning Circular 3/2011 Guidance on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011*. Available at:

<https://www.gov.scot/publications/planning-circular-3-2011-town-country-planning-environmental-impact-assessment/>.

Scottish Government (2013). *Planning Advice Note 1/2013: Environmental Impact Assessment. Guidance on the integration of Environmental Impact Assessment (EIA) procedures into overall development management process (replaces PAN 58)*. Available at:

<https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/>.

Scottish Government (2014a). *National Planning Framework 3*. Published 23 June 2014. Available at: <https://www.gov.scot/publications/national-planning-framework-3/>.

Scottish Government (2014b). *Scottish Planning Policy*. Available at:

<https://www.gov.scot/publications/scottish-planning-policy/documents/>.

SNH. (2012). *Assessing The Cumulative Impact Of Onshore Wind Energy Developments*. Inverness: Scottish Natural History. Available at: [https://www.nature.scot/sites/default/files/2017-](https://www.nature.scot/sites/default/files/2017-09/Guidance%20note%20-%20Assessing%20the%20cumulative%20impact%20of%20onshore%20wind%20energy%20developments.pdf)

[09/Guidance%20note%20-%20Assessing%20the%20cumulative%20impact%20of%20onshore%20wind%20energy%20developments.pdf](https://www.nature.scot/sites/default/files/2017-09/Guidance%20note%20-%20Assessing%20the%20cumulative%20impact%20of%20onshore%20wind%20energy%20developments.pdf).

SNH. (2017). *Siting and Designing windfarms in the landscape, Version 3a*. Inverness: Scottish Natural History. Available at:

<https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf>

SNH & HES. (2018). *Environmental Impact Assessment Handbook v5*. Inverness; Edinburgh: Scottish Natural Heritage & Historic Environment Scotland. Published 22 May 2018. Available at:

<https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf>.

UNESCO (2021), *Operational Guidelines for the Implementation of the World Heritage Convention*, Published 31 July 2021. Available at: <https://whc.unesco.org/en/guidelines/>

United Kingdom Government (1979). *The Ancient Monuments and Archaeological Areas Act 1979: Elizabeth II. Chapter 14*. London: Her Majesty's Stationary Office. Available at:

https://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf

United Kingdom Government (2011). *Historic Environment (Amendment) (Scotland) Act 2011: Elizabeth II. 2011 asp 3*. The Queen's Printer for Scotland: The Stationery Office Limited. Available at: <https://www.legislation.gov.uk/asp/2011/3/contents/enacted>

United Kingdom Government (1997). *Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997: Elizabeth II. Chapter 9*. London: Her Majesty's Stationary Office. Available at:

<https://www.legislation.gov.uk/ukpga/1997/9/contents>

United Kingdom Government (1986). *Protection of Military Remains Act 1986: Elizabeth II. Chapter 35 (1986)*. London: Her Majesty's Stationary Office. Available at:

<https://www.legislation.gov.uk/ukpga/1986/35/introduction#:~:text=1986%20CHAPTER%2035,remains%3B%20and%20for%20connected%20purposes.>

United Kingdom Government (1992). *The Town and Country Planning (General Development Procedure) (Scotland) Amendment Order 1992*. London: Her Majesty's Stationary Office. Available at:

<https://www.legislation.gov.uk/uksi/1992/224/contents/made>

United Kingdom Government (2006). *Planning etc. (Scotland) Act 2006: 2006 asp 17: Elizabeth II*. London: Her Majesty's Stationary Office. Available at:

<https://www.legislation.gov.uk/asp/2006/17/contents>

UNESCO. (1972). *Convention Concerning the Protection of the World Cultural and Natural Heritage 1972*. United Nations Educational, Scientific and Cultural Organization. Available at:

<https://whc.unesco.org/archive/convention-en.pdf>.

UNESCO. (2017). *UNESCO Operational Guidelines for the Implementation of the World Heritage Convention*. United Nations Educational, Scientific and Cultural Organization. Available at:

<http://whc.unesco.org/en/guidelines/>.

Cartographic References

Blaeu, J. (1654). *Orcadum et Schetlandiae Insularum accuratissima descriptio*.

(c. 1870). *Plan of the Commonty of Birsay*. (Copy with NLS). (Orkney Archive Reference, D8/W31 [FC2]).

(c. 1890). *Lithographed Plan of the Commonty of Birsay*. (Orkney Archive Reference, D7/3/1 [F5]).

MacKenzie, M. (Senior). (1750). *North west coast of Orkney*.

MacKenzie, M. (Senior). (1750). *Pomona or Main-Land*.

Aberdeen, W, fl. (1769). *A chart of the Orkney Islands*.

Hydrographic Office. (1850). *The Orkneys*.

- Ordnance Survey. (1881). *Orkney LXXXIX.9 (Birsay)*. Surveyed: 1880. Published: 1881.
- Ordnance Survey. (1881). *Orkney LXXXVIII.12 (Birsay)*. Surveyed: 1880. Published: 1881.
- Ordnance Survey. (1882). *Orkney, Sheet LXXXVII*. Surveyed: 1880. Published: 1882.
- Ordnance Survey. (1882). *Orkney, Sheet LXXXIX*. Surveyed: 1879-80. Published: 1882.
- Ordnance Survey. (1902). *Orkney LXXXIX.9*. Revised: 1900. Published: 1902.
- Ordnance Survey. (1902). *Orkney LXXXVIII.12*. Revised: 1900. Published: 1902.
- Ordnance Survey. (1903). *Orkney Sheet LXXXIX*. Revised: 1900. Published: 1903.
- Ordnance Survey. (1882). *Orkney, Sheet LXXXVII*. Revised: 1900. Published: 1903.
- Ordnance Survey. (1959). *Orkney Islands (Kirkwall)*. Surveyed: 1957. Published: 1959
- Royal Geographical Society. (1908). *Loches of Boardhouse, Hundland and Swannay (Vol. 6, Plate 92)*. Surveyed: 1906. Published: 1908