



The Heart of Neolithic Orkney World
Heritage Site Draft Management Plan 2025-
2035

Strategic Environmental Assessment
Environmental Report

September 2024

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1 Introduction

1.1 Background to the Heart of Neolithic Orkney World Heritage Site

The Heart of Neolithic Orkney (HONO) was inscribed as a World Heritage Site (WHS) in 1999. The site comprises a series of discrete, but related, Neolithic monuments which fall into two complexes, 6 km apart. These are: Maeshowe, Skara Brae, the Stones of Stenness, the Watch Stone, the Barnhouse Stone, the Ring of Brodgar, and thirteen mounds and a stone setting, all of which are Scheduled Monuments. The monuments within the WHS are also all Properties in the Care of Scottish Ministers, managed by Historic Environment Scotland (HES) on their behalf. HES therefore has responsibilities as both the manager of this particular WHS and as the State Party under the terms of the World Heritage Convention 1972.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) requires that appropriate management systems are in place at WHS's. Management Plans specify how the Outstanding Universal Value (OUV) of the Site will be protected and managed for future generations. The draft Management Plan provides a framework for the management of the WHS over the next ten years, identifying key issues that affect or are likely to affect the Site and lays out how these will be addressed.

Best practice is for Management Plans to be regularly reviewed, monitored and implemented. The last Management Plan was published in 2014. Although technically past this period, dates for Management Plans are indicative only and the 2014-2019 Plan continues to be active. HES reviewed the current Management Plan in consultation with our partners¹ and stakeholders², and have now prepared a draft Management Plan for public consultation.

Table 1 sets out the key facts about the draft Management Plan. Key changes to note from the SEA scoping report is the long-term vision has moved to a period between 2025-2050, with the Plan now intended to cover a ten-year cycle with an evolving action plan.

Table 1: Key facts – HONO WHS Management Plan

Responsible Authority	Historic Environment Scotland
Title of the Plan	Heart of Neolithic Orkney World Heritage Site Management Plan 2025 - 2035
Period covered by the Plan	Ten years
What promoted the Plan	UNESCO Operational Guidelines for the Implementation of the World Heritage Convention state that effective management of WHS involves a cycle of short, medium and long-term actions to protect, conserve and present the inscribed property. This review of the Management Plan forms part of this cycle.
Plan area	Heart of Neolithic Orkney World Heritage Site and Buffer Zone (see maps in Appendix C)
Purpose of the Plan	The revised Management Plan will specify how the Outstanding Universal Value of the site will be preserved in line with the appropriate UNESCO Operational Guidelines for the implementation of the World Heritage Convention. It will set out the overarching framework and aspirations to

¹ Historic Environment Scotland and Orkney Islands Council are the signatory partners. NatureScot and the Royal Society for the Protection of Birds were previously delivery partners and are now advisory partners as are Highlands and Islands Enterprise.

² A wide range of individuals, organisations and groups have an interest in how the WHS is managed. These can be broadly grouped under the headings of community, tourism, business and agriculture, heritage and environment, and access and education.

	conserve and protect the site, defining a new period of a shared vision (2025-2050), its six long-term aims and strategic objectives. The plan is intended to balance the needs of conservation, access, the interests of the local community and sustainable economic development.
Contact point for queries on the Plan	Heart of Neolithic Orkney WHS Coordinator (Alice Lyall) Historic Environment Scotland Longmore House Edinburgh EH9 1SH 0131 668 8942 e: worldheritage@hes.scot
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1.2 Content of the draft Management Plan

The draft Management Plan must satisfy the current UNESCO Operational Guidelines for the implementation of the World Heritage Convention³. It includes the following sections:

- Summary & Vision
- World Heritage and the Management Plan
- The Heart of Neolithic Orkney
- People and the Plan: Partners, Stakeholders and Community
- Challenges and Themes
- Aims and Objectives
- Monitoring and Delivery
- Acronyms and Abbreviations Used in the Text
- Appendices

The draft Management Plan sets out the overarching framework and aspirations to conserve and protect the site, defining a new extended period of a shared vision (2025-2050), its six long-term aims and strategic objectives. The long-term aims are:

1. Protect and conserve the Outstanding Universal Value of the World Heritage Site for present and future generations.
2. Inspire and engage people with the Heart of Neolithic Orkney and deepen their understanding of the Site's values.
3. Benefit people and communities in Orkney and elsewhere.
4. Interpret and present the Heart of Neolithic Orkney to the highest standard.
5. Enhance access to and experience of the World Heritage Site responsibly, sustainably and equitably.
6. Facilitate a diversity of research connected to the Heart of Neolithic Orkney and draw on the results to pursue the Long Term Aims.

A suite of strategic objectives are designed to deliver on the long-term aims throughout the ten-year cycle of the Management Plan, delivered through more detailed actions set out in a regularly updated Action Plan. Many of the objectives relate to awareness-raising and partnership working activities but several will likely result in changes on the ground. For example, there are objectives to address the following:

- Consider review of the current Buffer Zone boundaries

³ For the latest revision of the Operational Guidelines see <https://whc.unesco.org/en/guidelines/>

- A programme of monitoring for the WHS and Buffer Zone to inform decision making and future management
- Providing a greater understanding, access to and awareness of the WHS and Buffer Zone through management, interpretation, and digital presence
- Responding to increased pressures on the WHS from the growth of tourism to Orkney
- Adapting to the effects of and combating the causes of climate change
- Monitoring the state of conservation

In providing a strategic framework, the draft Management Plan cannot include detail on how these issues will be/will begin to be resolved nor is the preferred solution always known during review of the Plan. In most cases options will be developed as the Management Plan is implemented through the Signatory partners' and other stakeholders' work and actions reviewed as part of a cycle of annual monitoring.

1.3 SEA process

The requirement for SEA comes from the European Directive 42/2001/EC on the assessment of the effects of certain plans and programmes on the environment (commonly known as the SEA Directive). This is implemented in Scotland through the Environmental Assessment (Scotland) Act 2005.

The purpose of SEA is to ensure that information on the environmental effects of a plan or programme is gathered and made available to plan-makers and decision takers as the plan is prepared and implemented. The overarching aim of SEA is to provide a high level of protection for the environment, to reduce environmental impact and to enhance environmental outcomes. It also ensures that policies and proposals are informed by relevant environmental information and provides further opportunities for people to get involved in the process.

Under section 5(4) of the Act, plans, programmes and strategies with the potential to have significant environmental effects are to be subject to environmental assessment prior to adoption. HES considered that the Management Plan has the potential to result in significant environmental effects and submitted a joint screening and scoping report to the Scottish Government's SEA Gateway on 17/12/2019. In this report we 'scoped' the environmental assessment and consulted the Consultation Authorities (NatureScot and SEPA) on the proposed scope and level of detail of the assessment. Helpful comments were received from both organisations who were supportive of our proposed approach. **Appendix A** summarises the comments provided by NatureScot and SEPA and shows how these have been considered in progressing the SEA.

Following on from the scoping stage, we carried out an environmental assessment of the draft Plan as it was being developed. This Environmental Report reports the results of the environmental assessment, sets out measures proposed to mitigate the potentially adverse effects of the plan and suggests indicators to monitor the environmental effects of the plan.

This Environmental Report accompanies the draft Management Plan for an 8-week period of public consultation from 18 March 2025 to 13 May 2025. We would welcome any comments that you would like to make on either document. We have included five questions in this Environmental Report which you may use to help structure your response if you wish. Links to the questions in the text: [Question 1](#); [Question 2](#); [Question 3](#); [Questions 4 and 5](#).

Once the consultation period is complete, the need for changes to the draft Management Plan will be reviewed. Where significant changes are made which could result in significant environmental effects, an assessment will be undertaken of their impact, and reported in the SEA Post Adoption Statement. This will be published along with the final Management Plan.

2 Context

2.1 Other legislation, plans, programmes, strategies and environmental objectives

One of the early stages of the SEA process is to consider the relationship of the plan to other relevant legislation and policies, plans, and strategies (PPS) and environmental objectives. This allows key environmental protection objectives to be identified for consideration during the plan preparation process. It is also important to identify both the plans and strategies that will influence the draft Management Plan and those that will be influenced by the draft Management Plan itself. An understanding of the context and the hierarchy that the Plan sits within is also useful for giving early thought to mitigation measures and where they may be best implemented.

Appendix B sets out the review of the legislation and PPS that are considered to be of most direct relevance to the draft Management Plan. We have assumed that key environmental protection objectives for each of the environmental parameters identified in schedule 3 of the Act are translated into national policy and strategy and we have not reviewed in detail the environmental protection framework provided by European legislation. Instead, we have tried to focus the review on the key pieces of legislation relevant to the draft Management Plan and its assessment.

The key environmental protection objectives identified from the review of legislation, policies, plans and strategies are:

- To promote sustainable development
- To reduce our contribution to climate change and be positioned to respond to the predicted effects of climate change
- To promote sustainable tourism
- To improve health and wellbeing through access (including equality of access) to good quality natural, historic and built environments
- To recognise the need to shape places which are nurturing of positive health, wellbeing and resilience
- To make plans for local areas which meet the needs and ambitions of local people, and which give weight to the voice and views of local communities
- To increase awareness, understanding and enjoyment of the natural and historic environment
- To protect, enhance and – where appropriate – restore landscape character, local distinctiveness and scenic value
- To protect and where appropriate enhance the historic environment
- To ensure that Scotland's cultural heritage remains one of the main motivators for visits to Scotland.
- To halt the loss of biodiversity and continue to reverse previous losses through targeted action for species and habitats
- To protect and enhance species, habitats and ecosystems
- To promote and encourage opportunities for people of all abilities to enjoy access to wildlife and the countryside

2.2 Environmental baseline

In order to establish the environmental effects of the draft Management Plan it is necessary to understand the environmental baseline of the area that is likely to be affected. Schedule 3 of the Act lists the environmental parameters that should be considered in SEA. To focus the SEA, we have gathered baseline information on the environmental issues that are likely to be affected by the plan. We have not gathered information on the environmental parameters that we have scoped out of the assessment.

We have not defined a boundary to the study area; however, we have included baseline information on the environmental features within the WHS and its environs. We have not provided baseline information on environmental features that will not be affected by the plan e.g., Special Area of Conservation in other parts of Orkney.

Table 2 sets out the key baseline information for each environmental topic. A fuller description of the environmental baseline, a list of data sources and maps of the WHS and Buffer Zone is provided in **Appendix C**.

Table 2: Key baseline information

Environmental Topic	Baseline Data	Sources
Climatic Factors	CO ₂ Emissions Carbon Footprint SNIFFER 2014 Online Handbook of Climate Trends across Scotland United Kingdom Climate Impacts Programme (UKCIP) Climate Modelling Climate Vulnerability Assessment for HONO WHS June 2019	SNIFFER UKCIP Scotland's Environment Web Climate Vulnerability Impact Assessment for HONO WHS
Population and Human Health	Access to historic environment sites, records and collections and access to natural heritage Tourism revenue and visitor numbers Health and Place data Socio-economic data	Historic Environment Scotland NatureScot RSPB Visit Scotland NHS Scotland Scottish Government Scotland's Environment Web
Landscape (including seascapes and urban and suburban landscapes)	National Scenic Areas Landscape character Historic land use Sites of Local Landscape Character (Special Landscape Areas and other areas of landscape value identified on Local Development Plan (LDP) proposals maps)	NatureScot NatureScot Orkney Landscape Character Assessment 1998 Scotland's Environment Web Historic Land Use Assessment Orkney Local Development Plan
Cultural Heritage	World Heritage Sites Designated Sites (listed buildings, scheduled monuments,	Heart of Neolithic Orkney World Heritage Plan (2014-2019) and associated research reports

Environmental Topic	Baseline Data	Sources
	gardens and designed landscapes, historic battlefields) Conservation Areas Regionally/locally important archaeological sites and unscheduled archaeology	Historic Environment Scotland GIS Data Scotland's Historic Environment Audit 2016 Scotland's Environment Web Orkney Local Development Plan Canmore (National Record of the Historic Environment)
Biodiversity, Flora and Fauna	Statutory Designated Sites (including SACs, SPAs, Ramsar Sites, SSSIs) European Protected Species Local Biodiversity Action Plan (LBAP) Local designations – LNR, Sites of Local Nature Conservation Importance etc RSPB reserves	NatureScot Joint Nature Conservation Committee (JNCC) Scotland's Environment Web Orkney Local Biodiversity Action Plan Orkney Local Development Plan

2.3 Environmental problems

A review of the baseline information shown in **Table 2** helped identify environmental problems relevant to the preparation of the Management Plan. This includes:

- A.** The impacts of climate change on the historic environment and the role of the historic environment in contributing to adaptation and mitigation:
- A workshop was held in April 2019 in Orkney, to determine the Climate Vulnerability Index (CVI) for HONO. This is a new methodology developed to assess climate change impacts on all types of WH properties: natural, cultural or mixed. It is based on a risk assessment approach but differs from other WH assessments by evaluating both the Outstanding Universal Value (OUV) Vulnerability and the Community Vulnerability (the latter being based on the economic, social and cultural dependencies related to the property and the adaptive capacity to cope with climate change). It has been developed to rapidly assess climate change impacts on WH properties and their OUV. The findings of the workshop identified three key climate change drivers: precipitation change, sea level change and changes in storm intensity and frequency.
 - Climate change impacts are likely to interact with a wide range of compounding issues including growing visitor numbers, infrastructure developments and agricultural practices, all of which impact on Orkney, its cultural heritage and its cultural resources.
 - Skara Brae is located on Skail Bay, and the surviving extent of the site is vulnerable to coastal erosion. One of the specific actions of previous Management Plans is to

monitor, assess and address coastal erosion at Skara Brae. An annual monitoring regime continues to monitor and review coastal erosion around Skara Brae. This issue remains a threat to the long-term survival of the site.

B. The pressures of increased numbers of visitors requires careful management to ensure the site is protected from footfall-linked soil erosion and to ensure local biodiversity interests are protected, while maintaining the visitor experience. Issues relating to physical access include:

- Car parking provision and pedestrian routes between car parks or drop-off points, visitor centres and the monuments have health and safety risks which have been identified and are being mitigated where possible.
- Planning for varying numbers of visitors with waves of coaches and projected future changes in both numbers and visitation patterns, including increasing rise in cruise ship numbers.
- The visitor centre at Skara Brae was not designed for the numbers of visitors now being served at peak times.
- Given rising visitor numbers, careful management is required to ensure that the WHS is conserved while at the same time maintaining local biodiversity interests, e.g., at Ring of Brodgar which is surrounded by the RSPB Brodgar Reserve.
- Facilitating access in terms of public transport provisions and pedestrian routes between the four physically separate sites comprising the WHS.

C. Understanding of the value of the historic environment to communities and the place-making agenda, including:

- Interpretation of the sites, public understanding of research etc.
- The WHS sits within an archaeological landscape and in order to improve the public's understanding and enjoyment of it, improving opportunities and better access to it for exploration of tangible and intangible links with other related archaeological sites and the landscape as a whole is desirable.
- The highly sensitive heritage, landscape and natural environment requires careful consideration in proposals for any potential developments and improvements to facilities at visitor centres, and at the sites themselves.

We have also identified environmental issues for other environmental parameters through a review of Environmental Reports prepared for Orkney wide plans e.g., Orkney LDP 2017-2022. Issues identified include:

- Loss of natural habitats through loss and fragmentation of habitat and protected species from increased development
- Renewable's development, a growing economic sector in Orkney, and contributing significantly to national climate change and carbon reduction targets, has potential to impact upon other environmental receptors e.g., cultural heritage

However, most of the above issues identified for other Orkney wide plans e.g., Orkney LDP 2017-2022 are unlikely to be affected by the Plan.

2.4 Evolution of the Environment without the Management Plan

If the Management Plan were not reviewed then the current Management Plan (2014-2019) would remain in effect. This may result in a lack of coordinated effort in the management of the WHS, with many aims and objectives becoming out of date. This is unlikely to have significant effects on the environmental parameters identified in schedule 3 other than human health and population.

Question 1

Do you have any comments on the baseline information, or the environmental problems/issues?

3 Assessment approach and methods

3.1 Scoping the environmental topics to be included in the assessment

A key part of the SEA process is scoping, where the environmental parameters (from schedule 3 of the Act) that are likely to be significantly affected by the Plan are identified. This can lead to some environmental topics being “scoped out” of the assessment and helps to focus the SEA on the key environmental issues. A scoping report was prepared in December 2019 which set out the proposed scope and level of detail of the assessment and comments were sought from NatureScot and SEPA.

The scoping report included an initial assessment to identify the environmental parameters that were likely to be affected by the draft management plan. Both NatureScot and SEPA provided comments on the scope of the assessment, and we have revised **Table 3** from the scoping report to take these into account. **Appendix A** describes these comments in more details.

Table 3 sets out the scope of the assessment with reference to the environmental topics included in Schedule 3 of the Act. Justification is provided for those environmental topics that are scoped out of the assessment.

Table 3: Scoping in/out of environmental topics

Environmental parameter	Scoped in / out	Potential issues arising from the draft Management Plan and justification for scoping in/out
Climatic Factors	In	<p>Contributing to addressing impacts on Climate Change from emissions of greenhouse gases</p> <p>Although the WHS covers a geographically small area, the WHS Management Plan will include aims that will seek to play an active role in addressing the causes of climate change.</p> <p>This may include the Plan considering ways to encourage sustainable approaches in its objectives to address the impacts of rapid growth of tourism to Orkney which can lead to rises in emissions of greenhouse gases from methods of travel e.g., cruise ships, bus tours.</p> <p>Risks to HONO WHS from climatic factors</p> <p>Findings from the Climate Risk Assessment for HONO WHS June 2019, using the Climate Vulnerability Index (CVI) show that the HONO WHS is at significant risk from three key climate drivers:</p> <ul style="list-style-type: none">• Sea level change• Precipitation change• Changes in storm intensity and frequency <p>Increases in storm intensity and frequency and sea level rise lead to increases in coastal erosion and risk of single extreme storm events; changes to precipitation increases risk of torrential rain and flooding and can lead to changes</p>

Environmental parameter	Scoped in / out	Potential issues arising from the draft Management Plan and justification for scoping in/out
		<p>to wetting and drying cycles, changes to the water table and changes to flora and fauna.</p> <p>The growth of renewable energy also has the potential to impact on the setting of the monuments.</p>
Population and Human Health	In	<p>The historic environment makes a key contribution to community, place making, housing, amenities and recreation. Although the local population of the WHS is relatively small, we consider that there are likely to be effects on population and human health as a result of some the Plan's objectives.</p>
Landscape	In	<p>The limited geographical extent and scope of the Plan suggests that it is unlikely to have significant adverse effects on landscape, however the WHS is an integral component of the landscape so from a precautionary perspective we have scoped landscape into the assessment.</p> <p>Based on comments from NatureScot, due consideration will be given to the Special Qualities of the Hoy and West Mainland National Scenic Area (NSA).</p>
Cultural Heritage	In	<p>This is the key issue to be considered by the Plan and we consider that significant effects on cultural heritage are likely and consequently we propose to scope cultural heritage into the assessment.</p>
Biodiversity, Flora, Fauna	In	<p>The sensitive location of the WHS means that some of the objectives to be included in the Plan may lead to adverse effects on biodiversity, flora and fauna.</p> <p>Increase pressures associated with increasing visitor numbers to the site may also lead to adverse effects on biodiversity, flora and fauna.</p> <p>After consultation, due consideration will be given to potential impacts on the Hoy and West Mainland National Scenic Area (NSA), Stromness Heaths and Coast SSSI and otters.</p>
Soil	Out	<p>As a precautionary measure, we initially scoped soil into the assessment. This was because although the Plan is unlikely to propose any archaeological investigations, watching briefs associated with infrastructure works could lead to impacts on soil. Increasing visitor numbers, combined with the changing weather patterns associated with climate change - such as increased storm intensity and changes in precipitation patterns - could also lead to increased vulnerability of soil to erosion which could have wide-ranging impacts from integrity of archaeological structures to biodiversity and water quality.</p> <p>After consultation, we have decided to scope out soil from the assessment as effects are considered to be localised rather than significant.</p>
Water	Out	<p>As there may be potential for effects on water quality, in particular at the Lochs of Stenness (saline) and Harray</p>

Environmental parameter	Scoped in / out	Potential issues arising from the draft Management Plan and justification for scoping in/out
		<p>(freshwater) - e.g., from works related to infrastructure such as foot paths that may be along these loch sides – alongside effects on coastal waters at Skail Bay - e.g., from coastal defences – water was initially scoped into the assessment. After consultation, we have decided to scope out water from the assessment as effects are considered to be localised rather than significant. Effects on coastal and fluvial flooding from any new developments e.g., car parks, visitor facilities, should not be located in areas at risk of flooding and/or should not exacerbate flooding elsewhere.</p> <p>We have not identified any interactions between the draft Management Plan and groundwater quality. None of the objectives will involve water abstraction or activities that may alter the groundwater table or discharge contaminants to it.</p>
Air	Out	We have opted to scope out Local Air Quality as this is generally not considered to be an issue in Orkney; local air quality is very good as there are few industrial processes and road traffic volumes are low, and we have not identified any interactions between the Plan and local air quality.
Material Assets	Out	We do not consider that the Plan will have a significant effect on material assets (waste, transport infrastructure, minerals, energy etc.). HES manages the WHS as a visitor attraction and the staffed sites are members of the Green Tourism Business Scheme (GTBS). The GTBS assesses businesses against a set of criteria, covering a range of areas, including energy and water efficiency, waste management and biodiversity. The GTBS will pick up site-specific issues for waste and energy management.

3.2 Scoping the parts of the draft Management Plan to be included in the assessment

As well as identifying the environmental topics that we considered were likely to be affected by the plan, the scoping report also described the proposed scope of the assessment in terms of the elements of the draft Management Plan that would be assessed. At that time, we considered that the environmental assessment would most likely be focussed on the vision, aims, issues and objectives. This approach has not changed with the exception that we recognised that identified issues crosscut different aims and are addressed by multiple objectives. **Table 4** identifies the parts of the draft Management Plan that have been assessed in the SEA.

Table 4: Sections of the draft management plan that have been assessed

Section of the draft management plan	Is this assessed?
Summary and Vision	Yes, this section provides a summary of the Management Plan which is not included however it describes the long-term vision which is scoped into the assessment. The assessment of the vision is described in section 4.1 and in Appendix D .
World Heritage and the Management Plan	No, this section outlines what World Heritage is and its context within Scotland and the UK. It also provides information on the protection of World Heritage, the purpose of the management plan

Section of the draft management plan	Is this assessed?
	and a summary of the consultation and review during the production of the plan.
The Heart of Neolithic Orkney	No, this section provides a description of the World Heritage Site including its criteria and Outstanding Universal Value, attributes and wider values. It also outlines the extent and purpose of the Buffer Zone.
People and the Plan: Partners, Stakeholders and Community	No, this section outlines management plan partners alongside Orkney and wider afield stakeholders and communities related to the World Heritage Site. It also describes the partnership principles that should be considered at every level of decision making.
Challenges and Themes	No, this section provides an insight into the seven key issues facing the World Heritage Site.
Aims and Objectives	Yes, this includes the long-term aims, strategic objectives, action planning, and monitoring and reporting. The assessment of the aims and objectives is described in Section 4, and Annexes D, E and F. The strategic objectives have been sifted to focus the assessment on the objectives that are likely to have significant environmental effects.
Monitoring and Evaluation	No, this section outlines the periodic reporting process for the physical condition of the WHS. It also includes how, when and by who the implementation of the management and actions plans will be monitored. Note: this section was added during development of the draft Plan.
Abbreviations and Acronyms	No
Appendices	No

3.3 Scoping the level of detail of the assessment

At the scoping stage we suggested that the environmental assessment would be undertaken at a level of detail that was appropriate to the draft Management Plan. For example, the detailed aspects of the plan (i.e., long term vision and aims and the strategic objectives) would be assessed in a greater level of detail than the overarching vision. This is the approach that we have taken.

3.4 How was the draft Management Plan assessed?

As noted above, the following elements of the draft Management Plan were identified for inclusion in the assessment: vision, long-term aims, and strategic objectives.

At the scoping stage we developed an assessment framework to provide a consistent way of assessing each element of the Plan. In line with common practice, SEA objectives were developed for each of the environmental parameters scoped into the assessment. These are supported by more detailed assessment criteria which will be applied to the more detailed components of the Plan (i.e., objectives). The SEA objectives and criteria are set out in **Table 5**.

Table 5: SEA objectives and criteria

Environmental Topic	SEA Objective	How will the Plan affect...
Climatic Factors	<p>Reduce the causes of climate change</p> <p>Contribute to effective adaptation to the predicted effects of climate change</p>	<p>CO2 and greenhouse gas emissions</p> <p>Effective adaptation to the effects of climate change</p>
Population and Human Health	<p>Promote celebration, understanding, enjoyment and access to the natural and cultural heritage</p> <p>Support healthy living and working environments</p> <p>To reduce inequalities</p>	<p>Access to the historic environment</p> <p>Understanding of the value of the historic environment</p> <p>Community involvement in decisions affecting their places and spaces.</p> <p>The condition of the historic environment as a place to work and live.</p>
Landscape (including urban and suburban landscapes)	<p>To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole.</p>	<p>The safeguarding and enhancement of natural characteristics and qualities of Scotland's landscapes, especially the Hoy and West Mainland National Scenic Area (NSA).</p> <p>A unified approach to managing change in landscapes</p>
Cultural Heritage	<p>Safeguard and where appropriate enhance the historic environment</p>	<p>The safeguarding of designated tangible features of the historic environment</p> <p>The safeguarding of undesignated / unknown tangible features of the historic environment</p> <p>The safeguarding of intangible features of the historic environment</p> <p>Elements of the historic environment which have been identified as at risk</p> <p>Address the consequences of climate change for the historic environment</p>
Biodiversity, Flora, Fauna	<p>Maintain, protect and enhance biodiversity (species, habitats, ecosystems)</p>	<p>Loch of Stenness SAC</p> <p>Lochs of Harray and Stenness SSSI</p> <p>Bay of Skail SSSI</p> <p>Stromness Heaths and Coast SSSI</p> <p>Protected species, especially otters</p> <p>Wider biodiversity, including the RSPB Brodgar Reserve</p>

The assessment of impact was undertaken using a simple scoring system:

+	Positive effects
0	Neutral effects
-	Negative effects
+/-	Positive and/or negative effects
?	Uncertain effects

This framework was used to assess the draft Plan's vision and long-term aims alongside the detailed assessment of draft objectives. The results of the assessment are described in **Section 4**.

At the scoping stage we explained that we would undertake a two-stage approach to the assessment of the draft objectives, as we considered that several of the objectives may not have any direct or indirect environmental effects, and we wanted to focus the assessment on the objectives that were likely to have significant environmental effects. First, we carried out a screening exercise on the objectives included in the draft Management Plan to sift the objectives into those that are unlikely to have significant environmental effects and those that are likely to have significant environmental effects. We did this by reviewing each of the draft objectives against the environmental topics scoped into the assessment, with reference to the environmental baseline and problems, and judging if the objectives were likely to have significant environmental implications.

Appendix E documents this stage of the assessment, and each of the 20 objectives included in the draft plan were reviewed. 13 of the 20 objectives were not considered likely to have significant environmental effects and were not assessed further. These objectives were largely related to awareness raising, partnership working, governance, stakeholder engagement, etc. and have no direct or indirect physical impact. Several of these objectives will have positive effects on environmental parameters, in particular on cultural heritage, however it was not considered necessary to assess these further than simply identifying the positive relationship.

Seven objectives were assessed in more detail as part of the second stage of the assessment. The assessment framework in **Table 5** was used to assess these objectives and the results are described in **Section 4**.

3.5 Alternatives

At the scoping stage we noted that we would assess the environmental effects of the alternatives that were considered during the plan preparation process. For example, alternative wording for the vision and aims, or more detailed alternatives for the objectives that are taken forward into the finalised management plan.

The draft Management Plan has been prepared in consultation with the Partners and the vision, aims, and objectives have been refined through this process. The SEA team were advised of all revisions made to each element of the plan throughout its preparation. These were minor, iterative changes to phrasing and structure. The plan making process did not identify any significantly different or additional reasonable alternatives to the vision, aims and objectives presented in the draft Plan.

We have not assessed strategic alternatives i.e., the 'no plan' option or strategic options for the overall direction of the Plan, as these are largely prescribed by the UNESCO guidance and are not considered to be reasonable alternatives.

Question 2

Do you have any comments on the approach taken for the environmental assessment?

4 Assessment of the draft Management Plan

4.1 Vision

The vision for the WHS is intended to provide a strategic view between 2025 and 2050. The draft vision is:

The Heart of Neolithic Orkney and its exceptional testimony to the cultural achievements of the Neolithic peoples of northern Europe will be protected and conserved for present and future generations. The World Heritage Site will bring social, cultural, environmental and economic benefits to the wider community. It will offer an exceptional responsible visitor experience, and inspire and catalyse research and learning, widening engagement through participation and discovery. It will be managed sustainably in ways that contribute to reducing the causes of climate change and address its threat to the Site. It will contribute to a thriving, sustainable and equitable future for Orkney residents, visitors and communities of interest worldwide.

The draft vision was assessed against the SEA objectives and the assessment table is shown in **Appendix D**. We found that the vision has a generally positive relationship with climatic factors, population, human health, and cultural heritage, and will have no effect on other environmental topics. No recommendations were made to improve the vision.

4.2 Long-Term Aims

The long term aims flow from the vision and in turn inform the priorities for the medium term (10 years). The long terms aims for the WHS 2025-2035 are set out in section 5 of the Management Plan.

The long-term aims were assessed against the SEA objectives and the assessment tables are shown in **Appendix D**. We found that the aims had generally positive or neutral relationships for all environmental topics. No negative issues were identified though there was some uncertain effects identified for landscape. We made the following recommendations as a result of the assessment:

- Consider how people can have an increased awareness and understanding of the effects of climate change on the WHS to allow them to have a deeper understanding of the Site's values.
- Consider the way that the World Heritage status could benefit the landscape which the WHS sits in, especially the Hoy and West Mainland National Scenic Area.
- Consider clearer recognition of landscape interests and their role in interpreting and presenting the WHS should also be included within this aim.
- Consider whether the presentation and interpretation of the WHS could be affected by or used to better understand, climate change.
- Look into possibility of including a research objective specifically around sustainable tourism effects on climate change

These recommendations will be considered by HES in finalising the management plan and the SEA Post Adoption Statement will explain whether or not they have been taken forward into the management plan.

4.3 Objectives

As explained in section 3.4, the 16 objectives included in the draft plan were screened to focus the assessment on those that were likely to have significant environmental effects. **Appendix E** documents this process.

Seven objectives were assessed in more detail using the SEA objectives and the SEA criteria and **Appendix F** sets out the results of this assessment. We have summarised the key impacts for each of the environmental topics scoped into the assessment in **Table 6**.

As explained, the assessment has been undertaken at a level of detail that is appropriate to the information included in the draft Management Plan. A number of the objectives have been developed to ensure that particular issues are resolved during the lifetime of the plan, and detailed proposals will come forward as the plan is implemented through an evolving action plan. We have tried to identify the generic environmental impacts associated with these objectives and expect that more detailed environmental assessment will be incorporated into the development of specific actions.

Table 6: Summary of the results of the assessment of the draft objectives

Environmental topic	Key impacts
Climatic Factors	<p>Some of the objectives will have no effect on climatic factors as the SEA objective are unlikely to be affected.</p> <p>A programme of monitoring for the WHS and its Buffer Zone could include monitoring the effects of climate change. This can act as an important baseline for future decision making and long-term management but could have negative effects on access.</p> <p>Prioritising the adaptation to and mitigating the effects of climate change will have a positive effect on climatic factors.</p> <p>It is uncertain if increasing the digital presence of the WHS will have a positive effect on climatic factors by reducing the number of visitors to the site, resulting in a reduction in CO₂ and greenhouse gas emissions.</p> <p>Measures to ensure that tourism contributes to climate mitigation will have a positive effect by reducing the emissions caused by the rapid growth in visitor numbers and providing more sustainable transport options.</p>
Population and Human Health	<p>A number of the objectives were found to have positive effects on population and human health in terms of providing greater access to the WHS, physically, digitally and intellectually.</p> <p>There could however be instances where monitoring and management solutions, such as closure of areas of the WHS to manage erosion impacts, may have negative effects on access but these are expected to be small scale and short-term actions.</p> <p>Management will improve the condition of the historic environment as a place to live and work, improving opportunities and understanding of the WHS and the archaeological landscape it sits in.</p> <p>Ensuring tourism is responsible and beneficial to Orkney communities will have a positive effect by supporting healthy living and working environments.</p>
Landscape	<p>Many of the objectives were found to have positive effects on landscape in terms of protecting the special qualities of the archaeological landscape the WHS sits in.</p> <p>If required, any new physical measures, such as visitor infrastructure or new interpretive services, may adversely affect landscape character but this is not expected unless there is large scale developments.</p>

Environmental topic	Key impacts
Cultural Heritage	<p>All of the objectives were found to have positive effects on cultural heritage in terms by contributing to the safeguarding and appropriate enhancement of the historic environment.</p> <p>A programme of monitoring may be less effective in the Buffer Zone resulting in negative effects to cultural heritage. The zone covers a large area containing a range of designated and undesignated heritage assets. There are many different landowners and managers who have no obligations to monitor or manage heritage asset on their land.</p> <p>There may be conflicts between the management of natural heritage and cultural heritage.</p> <p>If required, any new physical measures, such as visitor infrastructure or new interpretive services, may disturb archaeological remains and adversely affect the setting of the WHS.</p> <p>Using digital interpretation may result in localised positive impacts by reducing or replacing access to fragile areas of the WHS.</p>
Biodiversity, Flora and Fauna	<p>There may be conflicts between the management of natural heritage and cultural heritage.</p> <p>Positive effects were identified for a number of objectives that incorporate natural heritage issues including the monitoring, management and interpretation of the WHS and Buffer Zone.</p> <p>Monitoring of climate change effects could result in management recommendations that could have adverse effects on biodiversity, in particular affecting natural processes and affecting coastal and landwards habitats and the species that they support.</p> <p>If required, any new physical measures, such as visitor infrastructure or new interpretive services, could adversely affect the areas designated for nature conservation and wider biodiversity.</p>

Question 3

Do you agree with the results of the environmental assessment? Have we identified the key issues?

4.4 Cumulative effects

We considered whether the Plan is likely to generate cumulative effects on any of the environmental topics scoped into the assessment or cross cutting effects as a result of inter-relationships between topics areas. It has been concluded that this will not result in any significant additional effects.

4.5 Mitigation

In strategic environmental assessments, mitigation can be achieved in a number of different ways. Mitigation can involve:

1. Making changes to the plan itself e.g., amending aims or objectives
2. Adding environmental aims or objectives to the plan to strengthen the inclusion of environmental issues
3. Proposing more detailed measures that should be considered as the plan is implemented.

In this SEA, the third approach has been used by developing a number of more detailed mitigation measures that aim to ensure that the findings of this environmental assessment are followed through into the design and development of specific actions. As noted in section 3.6, we see this as one of the key purposes of undertaking an SEA at this level of plan making.

The proposed mitigation measures are included in **Table 7** as a schedule of commitments. The measures proposed will be finalised following comments made during the public consultation and a final list be included in the SEA Post Adoption Statement. It is important to note that a number of the actions and related projects that may flow from the Management Plan are not the sole responsibility of HES and will be taken forward by the Partners, for example through the Orkney Gateway programme.

Table 7: Schedule of commitments

Commitment	Relevant environmental topic
Any proposals to alter the WHS Buffer Zone boundary will be developed in consultation with Partners and a public consultation exercise undertaken.	Population, human health, landscape, cultural heritage, biodiversity, flora and fauna
Environmental assessment will be integrated into the development of options for both short- and long-term large scale physical measures to identify in detail the potential environmental effects on environmental parameters.	Climatic factors, landscape, cultural heritage, biodiversity, flora and fauna
Steps taken to address carrying capacity issues should be sustainable in the long term and include natural heritage interests.	Population, human health, landscape, cultural heritage, biodiversity, flora and fauna
The sustainability checklist should be applied to actions from all objectives within the detailed assessment, to ensure that a holistic environmental approach is taken in their delivery.	Climatic factors, population, human health, landscape, cultural heritage, biodiversity, flora and fauna
Ensure careful consideration in proposals for any potential development or improvements to facilities at sites which may impact the sensitive heritage, landscape and natural environment.	Landscape, cultural heritage, biodiversity, flora and fauna
Suggest actions to encourage landowners or managers to contribute to the monitoring and management of the WHS Buffer Zone	Cultural heritage
Integrate environmental assessment and archaeological investigation of any new interpretive, digital or management services or infrastructure.	Population, human health, landscape, cultural heritage, biodiversity, flora and fauna.
Any new physical measures for digital, interpretive or management infrastructure should be sensitively located and designed to avoid effecting environmental parameters.	Landscape, cultural heritage, biodiversity, flora and fauna.
Active operational monitoring of the active travel and path networks is required to allow areas to be temporarily closed off if sensitive habitats shift in the future (bird nesting, seasonal growth etc).	Biodiversity, flora and fauna
Wider environmental issues will be included in interpretation plans.	Climatic factors, population, human health, landscape, cultural heritage, biodiversity, flora and fauna

The development and use of a sustainability checklist has been recommended in relation to all the objectives within the Plan which underwent detailed assessment. This is to ensure that the potential for achieving positive effects, and mitigating negative effects, is embedded within the process for delivering the Plan objectives. The sustainability checklist will be developed from the

environmental objectives and criteria which have been used in the assessment and will be published as part of the Post Adoption Statement.

4.6 Monitoring

Although no significant environmental effects have been predicted, it will still be important to understand how the Management Plan is affecting the environment over the next ten years of its implementation. This will help to identify any effects arising which were not predicted through the assessment and allow appropriate mitigation to be sought.

Monitoring of the environmental effects will be incorporated into overall monitoring strategy for the Plan. The HONO Steering Group will produce an annual monitoring report on the progress of the Management Plan which will focus on the Action Plan, key projects and report on the delivery of the finalised SEA commitments. The Sustainability Checklist will play an important role in monitoring the identified effects.

A mid-point evaluation of the Management Plan planned for 2030 will involve reviewing if the strategic objectives are still valid and allow for changes where they are needed. If there are any changes in objectives, a screening exercise will be undertaken to review if they will have significant environmental effects and a Screening Report will be submitted for views from Consultation Authorities before making our determination.

Question 4

Do you have any comments on the environmental mitigation measures, including the schedule of commitments?

Question 5

Do you have any comments on the proposed additional environmental monitoring approaches?

5 Next steps

The public consultation period on the draft Management Plan and SEA Environmental Report ends on 5 May 2025. A final version of the Management Plan will be prepared following the consultation period to take into account comments made. All changes will be screened to consider if they raise significant environmental issues that have not already been considered in the environmental assessment.

We are required by the SEA Act to demonstrate how we have taken the Environmental Report (and all the comments expressed on it) into account in the adopted Management Plan. This will be explained in the SEA Post Adoption Statement which will be published along with the final version of the Management Plan. The SEA Post Adoption Statement will also include a final version of the schedule of commitments and monitoring approaches to take into accounts comments made on this report.

Appendix A: Scoping Recommendations

Table A below summarises the comments made by NatureScot and SEPA in response to the scoping report and shows how these comments have been taken into account in the environmental assessment.

Table A – Summary of scoping recommendations

Section	Comments	HES Action/Comments
NatureScot		
Table 2: Scoping in/out of environmental topics	We note that you have scoped the topic of ‘air’ out of the assessment process but that you will be considering the effects of increased visitor numbers and associated traffic emissions within the ‘climatic factors’ topic. With one of the outcomes of the plan to potentially build a gateway centre within the Heart of Neolithic Orkney World Heritage Site (WHS) area, we welcome this consideration.	Noted and welcomed.
	We note the topic of ‘landscape’ has been scoped into the assessment and would agree with this determination. A large proportion of the WHS is located within the Hoy and West Mainland National Scenic Area (NSA). Therefore, due consideration should be given to the Special Qualities of the NSA. We would be happy to provide advice on specific aspects of the work where there may be an overlap between the designations.	Noted and welcomed.
Table 3: Baseline data and sources	Information in relation to designated sites and European Protected Species (EPS) can be found on our website at https://sitelink.nature.scot/home and https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/protected-species/legal-framework/habitats-directive-and-habitats-regulations/european . Information in relation to Local Nature Conservation Sites and Local Nature Reserves can be found within the Related Sites section at https://www.orkney.gov.uk/Service-Directory/D/natural-environment.htm	Noted and welcomed

Section	Comments	HES Action/Comments
Section 4: Proposed Assessment Framework	We welcome and support the use of the assessment to identify any opportunities to enhance the Plan to provide more positive benefits for the environment.	Noted and welcomed
Table 4: SEA Objectives and assessment criteria	Within the 'biodiversity, flora and fauna' row of the table it would be worth noting that in addition to the Bay of Skail Site of Special Scientific Interest (SSSI). Any proposed coastal works at Skara Brae, which may occur as a result of the Plan, could also have an impact on Stromness Heaths and Coast SSSI.	Noted. The assessment will take into consideration potential impacts to Stromness Heaths and Coast SSSI.
	We note that you intend to assess how the plan will affect protected species. Due to the proximity of the WHS to the Lochs of Harray and Stenness and Skail Bay, consideration of otter in particular, is welcomed.	Noted. The assessment will take into consideration how the plan may affect otter.
Habitats Regulation Appraisal (HRA)	As the Plan has the potential to impact at least one European site, a Habitat Regulations Appraisal will be required. Current Scottish Government SEA guidance recommends that the HRA is undertaken alongside the Environmental Assessment and although the guidance does not recommend full integration of SEA and HRA, there may be efficiencies and value gained from linking the two processes. I/ We would be happy to provide additional advice on the HRA if required.	HRA will be undertaken separately but alongside the Strategic Environmental Assessment in consultation with NatureScot.
SEPA		
General	We welcome the assessment will consider if "there are any opportunities to enhance the Plan to provide more positive effects for the environment."	Noted and welcomed
Scoping In/Out of environmental topics	We note that as a precautionary measure soil has been scoped in and, as there may be potential effects on water quality, water has also been scoped in. Based on the information provided we consider there could be localised effects on soil and water but not necessarily significant ones. As such we would have no concerns if these topics were scoped out and the report focused on the other scoped in environmental topics. However Historic Environment Scotland know the plan best and are best placed to decide on this.	Noted and welcome advice and we will scope out soil and water from the assessment. However, impacts from physical works to mitigate soil erosion at Ring of Brodgar and Stones of Stenness have been considered separately in the HRA alongside the Environmental Assessment that will accompany.

Appendix B: Review of other relevant plans, programmes, strategies and legislation

Table B lists the local and national (Scotland and UK wide) plans, programmes, strategies, legislation and environmental objectives considered in this Environmental Report.

SEA Topic	Plan, Programme, Policy or Strategy	Summary of Environmental Objectives
Climatic Factors	Orkney	
	Carbon Management Programme 2016-2026	The Council has commitments to reduce the Islands' total carbon dioxide emissions by 42% from the 2004-2015 baseline by 2026. The Carbon Management Programme sets out the Council's aims to move towards a low carbon operation, through careful planning of all their energy consuming activities and by assessing future plans in terms of their Carbon Impact in order to reduce their total Carbon Dioxide emissions.
	A Sustainable Energy Strategy for Orkney, (2017-2025)	The strategy provides a framework to ensure a secure, sustainable low carbon island economy driven uniquely by innovation and collaboration, enabling the community to achieve ambitious carbon reduction targets, address fuel poverty and provide energy systems solutions to the world
	National	
	<ul style="list-style-type: none"> • UK Climate Change Act 2008 • Climate Change (Scotland) Act 2009 • Climate Change Adaptation Framework (2009) • UK Low Carbon Transition Plan (2009) • Conserve and Save: Energy Efficiency Action Plan (2013) • Fuel Poverty Strategy (draft, 2018) • Scotland's Energy Strategy (2017) • Climate Change Plan: third report on proposals and policies 2018-2032 (RPP3) • HES Climate Action Plan (2020-2025) 	<p>Policies focus on the need to cut greenhouse gas emissions. As of June 2019, national targets are for a 100% reduction by 2050 making a contribution to climate change abatement targets set at the UK, EU and international levels.</p> <p>In May 2019, amendments to the Scottish Climate Change Bill have been lodged to set a legally binding target of net-zero greenhouse gas emissions by 2045 at the latest with Scotland becoming carbon neutral by 2040.</p> <p>Energy policy highlights the importance of energy efficiency, and the need to achieve a shift from fossil fuels to renewable sources of energy. There is also a need for adequate, planned adaptation to future climates in order to increase the resilience of communities, and natural and economic systems.</p>

SEA Topic	Plan, Programme, Policy or Strategy	Summary of Environmental Objectives
		The HES Climate Action Plan details our climate action ambitions for the historic environment for 2020–2025
Population and Human Health	Orkney	
	Orkney Outdoor Access Strategy (2017)	The Orkney Outdoor Access Strategy was first published in 2006 and was reviewed and updated in 2016. The strategy provides a framework to guide the development and management of outdoor access throughout the islands.
	The Orkney Core Paths Plan (2018)	The Plan identifies a series of paths to promote outdoor access across Orkney set out a new right of responsible access in Scotland. Core paths are to be identified in each local authority area, promoting more widespread and functional walking, cycling and riding and thereby supporting improved levels of physical activity
	Orkney Community Plan 2023-30, incorporating the Local Outcomes Improvement Plan (LOIP)	The Plan will allow for providers of public services to work together with the community to deliver improved, more joined-up public services for individuals, families, and communities, and especially to combat inequality and prevent disadvantage.
	National	
	<ul style="list-style-type: none"> Improving Health in Scotland – the Challenge (2003) Community Empowerment Act (Scotland) 2015 Creating Places – A policy statement on architecture and place for Scotland Homes fit for the 21st century – the Scottish Government’s Strategy for Housing 2011-2020 Good Places Better Health (2008) Equally Well: Implementation Plan (2008) and 2010 Review Recommendations 	<p>Policy outlines the need to seek to improve health and quality of life.</p> <p>There is now a growing recognition of an additional need to shape places which are nurturing of positive health, wellbeing and resilience.</p> <p>Community Planning Partnerships, which involve a number of public bodies, including HES, have a duty to make plans for local areas which meet the needs and ambitions of local people. Community planning priorities stress the important role played by communities in shaping and making local decisions.</p>
	The Islands (Scotland) Act (2018)	The Islands (Scotland) Act is legislation with provision to ‘island-proof’ decision-making across the public sector that will ensure the interests of islanders are reflected in future legislation and policy from the very outset.

SEA Topic	Plan, Programme, Policy or Strategy	Summary of Environmental Objectives
	The Land Reform (Scotland) Act 2003	Land reform legislation establishes rights of responsible access to most land and inland water for informal recreation and includes requirement for local authorities to draw up a plan for a system of paths (core paths) to give public reasonable access throughout their area
Landscape	Orkney	
	Orkney Landscape Character Assessment, Land Use Consultants (1998)	The assessment provides a detailed assessment of the landscape character of Orkney; considers the likely pressures and opportunities for change in the landscape; assesses the sensitivity of the landscape to change; and includes guidelines indicating how landscape character may be conserved, enhanced or restructured as appropriate.
	The Heart of Neolithic Orkney World Heritage Site Setting Project Atkins. Ltd 2008	Commissioned in 2008 by Historic Scotland to provide an objective description of the setting of the Heart of Neolithic Orkney World Heritage Site and to provide recommendations on approaches to defining the future Buffer Zone and the nature of policies that may apply to that Buffer Zone. Supports the HONO Management Plan and the Orkney Local Development Plan
	National	
	<ul style="list-style-type: none"> • Council of Europe, European Landscape Convention (2000) • NatureScot Natural Heritage Futures • SNH (now NatureScot) National Scenic Areas Programme (2009) • Scotland's Landscape Charter • Landscape and the Historic Environment – A Common Statement (Strategic Historic Environment Forum) • Scottish Natural Heritage's Landscape Policy Framework: Policy Statement No. 05/01 • People, Place and Landscape: A position statement from NatureScot and Historic Environment Scotland (2019) 	<p>Landscape policies aim to not only safeguard protected areas, but to recognise and conserve wider landscapes. These may not be formally designated but make an important contribution to the quality of environment.</p> <p>The Strategic Historic Environment Forum's vision is for the historic dimension of landscape to be fully acknowledged and valued. It is at the core of a shared and unifying approach to managing change in our landscape in ways which maximise public benefit for present and future generations.</p> <p>Natural Heritage Futures policies aim to guide the sustainable management and use of Scotland's nature and landscapes up until 2025.</p> <p>Our landscapes are changing and will continue to change. People, Place and Landscape sets out our approach, working towards a shared vision</p>

SEA Topic	Plan, Programme, Policy or Strategy	Summary of Environmental Objectives
		where all of our landscapes are vibrant, resilient, inspiring and beneficial.
	Guidance on Local Landscape Designations SNH (2006)	Guidance that assists Local Authorities in reviewing their local landscape designations
Cultural Heritage	Orkney	
	Orkney Local Development Plan 2017	The Orkney LDP establishes the main principles of the policy to protect the WHS and its setting from inappropriate development.
	Supplementary Guidance: Historic Environment and Cultural Heritage (Orkney LDP 2017)	The SG provides a context for managing the impact of land use planning decisions on the Outstanding Universal Value of the Heart of Neolithic Orkney World Heritage Site. The scope of the SG includes issues associated with the component sites themselves and their wider setting.
	National	

SEA Topic	Plan, Programme, Policy or Strategy	Summary of Environmental Objectives
	<ul style="list-style-type: none"> • Historic Environment Scotland Act 2014 • Historic Environment Policy for Scotland (2019) • Our Past, Our Future: The Strategy for Scotland’s Historic Environment (2023) • National Planning Framework 4 2023 • The Ancient Monuments and Archaeological Areas Act 1979; • The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 • PAN 2/2011 Planning and Archaeology • Historic Environment Scotland Corporate Plan 2019 onwards • Managing Change in the Historic Environment Guidance Notes 	<p>Historic environment policies aim to identify and protect historic buildings and sites from inappropriate development and damage. Policies extend beyond specific designated sites to reflect the value of undesignated/unknown sites, wider townscapes, the setting of monuments and historic buildings, and wider cultural landscapes.</p> <p>The Historic Environment Policy for Scotland (HEPS) sets out principles and policies to direct decision-making which affects the historic environment.</p>
Biodiversity, flora and fauna	Orkney	<p>The Local Biodiversity Action Plan (LBAP) is the third in a series of focused revisions based on the original Orkney LBAP 2002 identifies actions which can be taken locally, and which make a contribution to the conservation of those species and habitats identified as being “at risk” or “threatened” in the UK as a whole.</p>
	The Orkney Local Biodiversity Action Plan 2018–2022	
	National	

SEA Topic	Plan, Programme, Policy or Strategy	Summary of Environmental Objectives
	<ul style="list-style-type: none"> • The Birds Directive 2009/147/EC • The Habitats Directive 1992/43/EEC • Wildlife and Countryside Act 1981 • Conservation (Natural habitats &c.) Amendment (Scotland) Regulations 2007 • Nature Conservation (Scotland) Act 2007 • UK Post-2010 Biodiversity Framework • Biodiversity strategy to 2045: tackling the nature emergency (2022) 	<p>Biodiversity policies from international to local levels aim to conserve habitats, species and ecosystems. Halting the decline of key species is important, and where possible remedial action and enhancement should be implemented in degraded areas. Policies also note the importance of an ecosystem approach – a holistic, landscape approach to biodiversity conservation that goes beyond the traditional emphasis on protecting individual sites.</p> <p>Scottish Biodiversity Strategy sets out the Scottish Governments clear ambition for Scotland to be Nature Positive by 2030, and to have restored and regenerated biodiversity across the country by 2045.</p>
	<ul style="list-style-type: none"> • Scotland’s Biodiversity – It’s In Your Hands (2004) supplemented by the <u>2020 Challenge for Scotland’s Biodiversity</u> 	<p>The 2020 Challenge for Scotland’s Biodiversity sets out the major steps needed to improve the state of nature in Scotland. The work needed to deliver this is, however, complex and challenging. The two documents together now constitute the Scottish Biodiversity Strategy.</p>

Appendix C: Baseline Information

Introduction

In order to establish the environmental effects of the draft Management Plan it is necessary to understand the environmental baseline of the area that is likely to be affected. Some of the baseline information is provided for the Orkney Islands as a whole, however where possible we have provided specific information for the study area, which is the World Heritage Site and the Buffer Zone, as shown in Figures C0–C4.

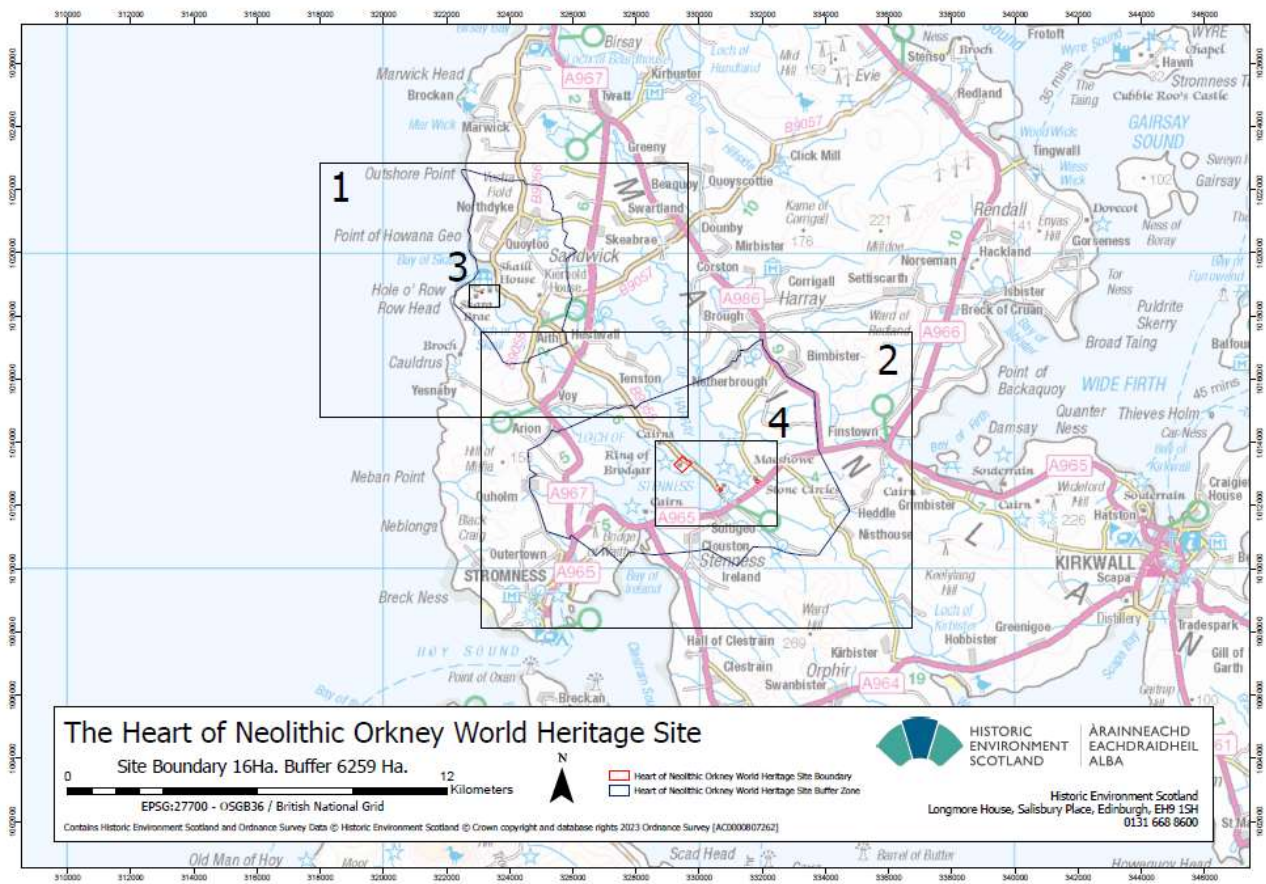


Figure C0: The Heart of Neolithic Orkney World Heritage Site – location of monuments and the two-part Buffer Zone.

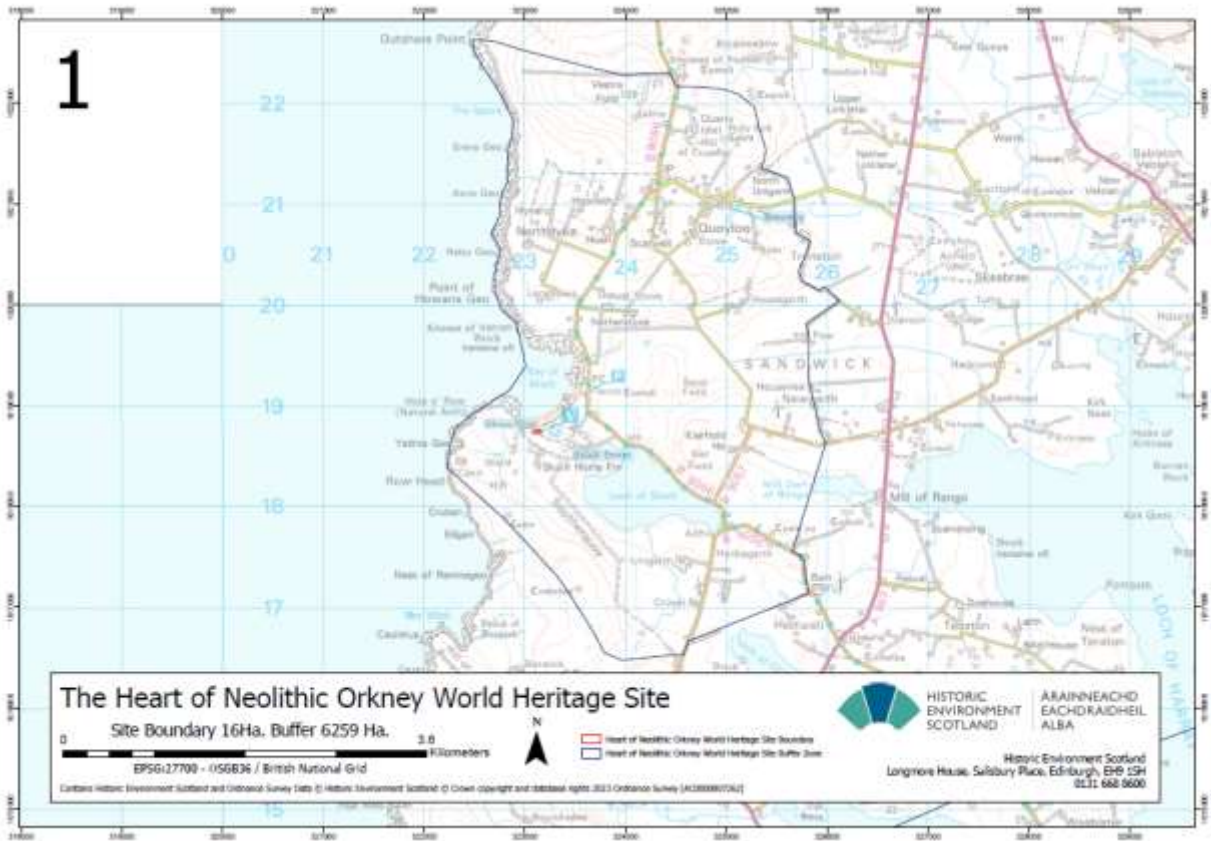


Figure C1: Skara Brae location and surrounding Buffer Zone boundary.

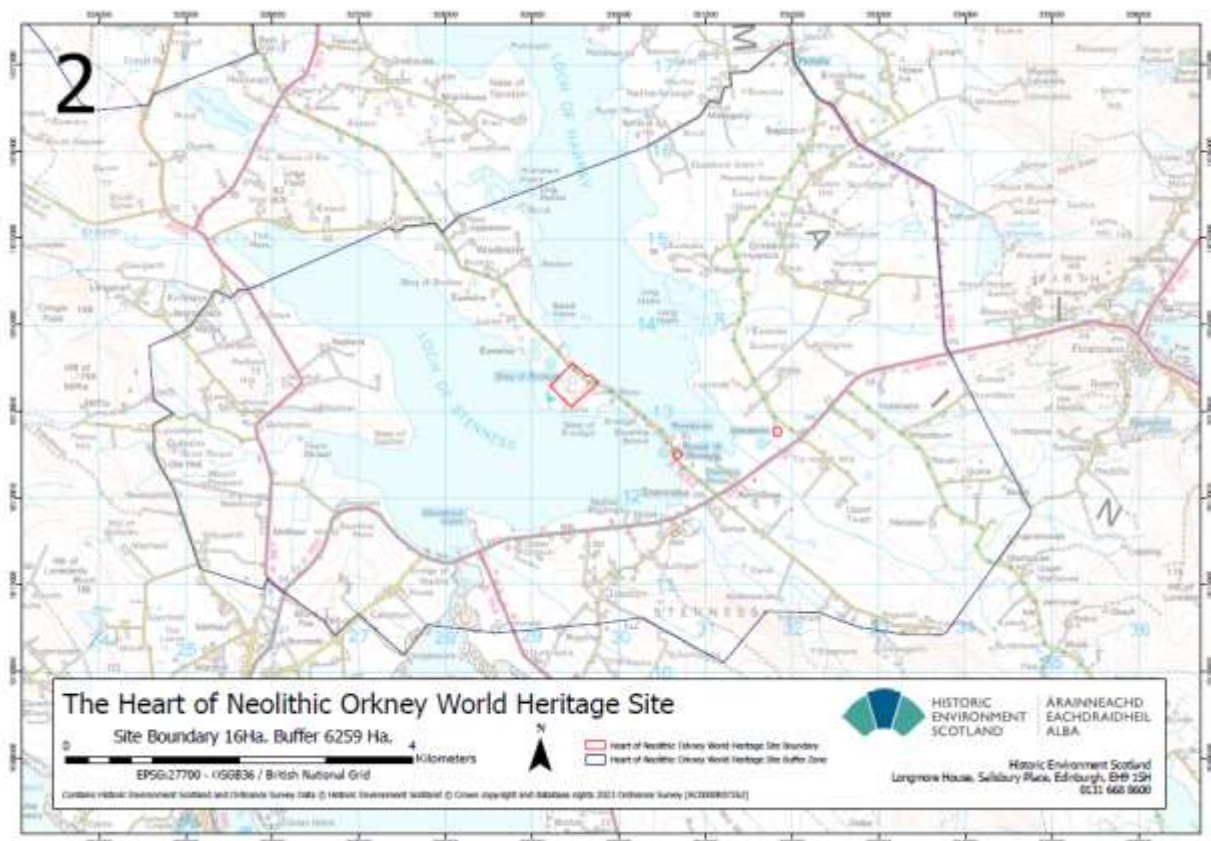


Figure C2: The central West Mainland monument locations and surrounding Buffer Zone boundary.

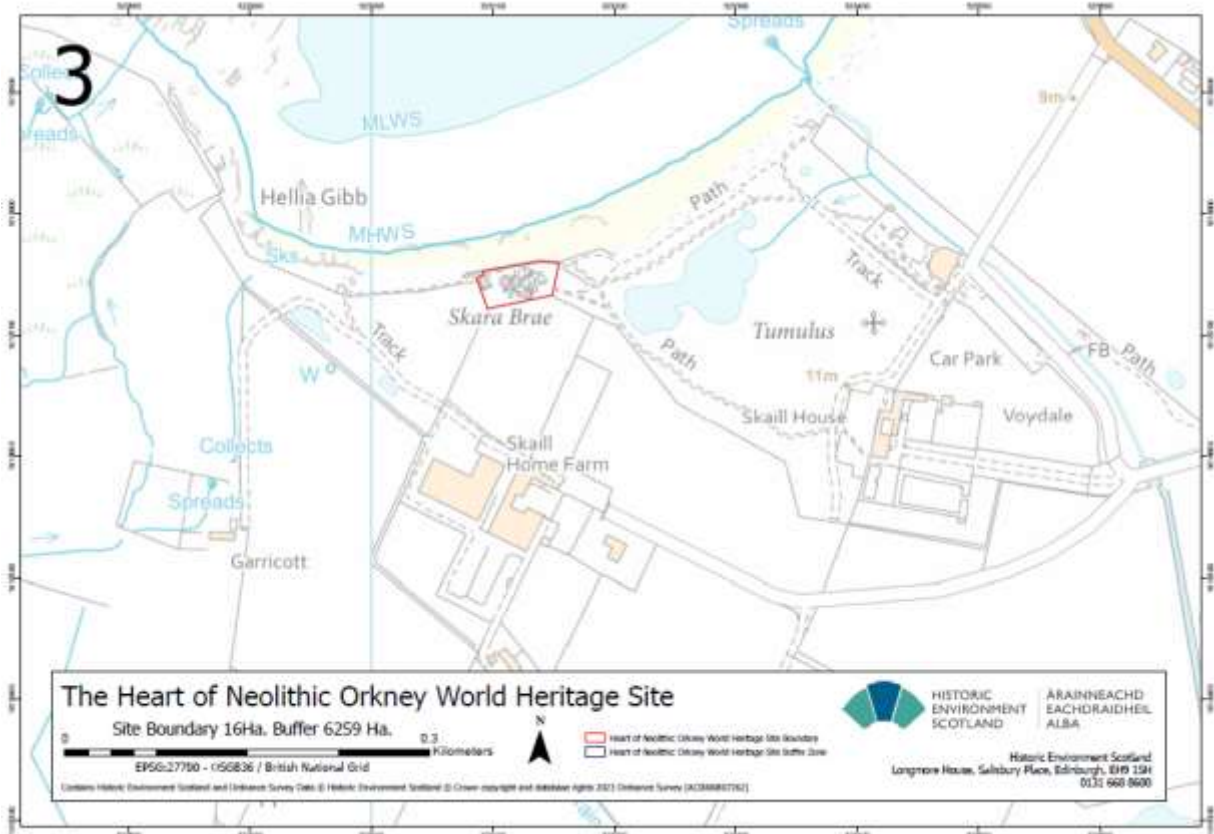


Figure C3: Skara Brae.

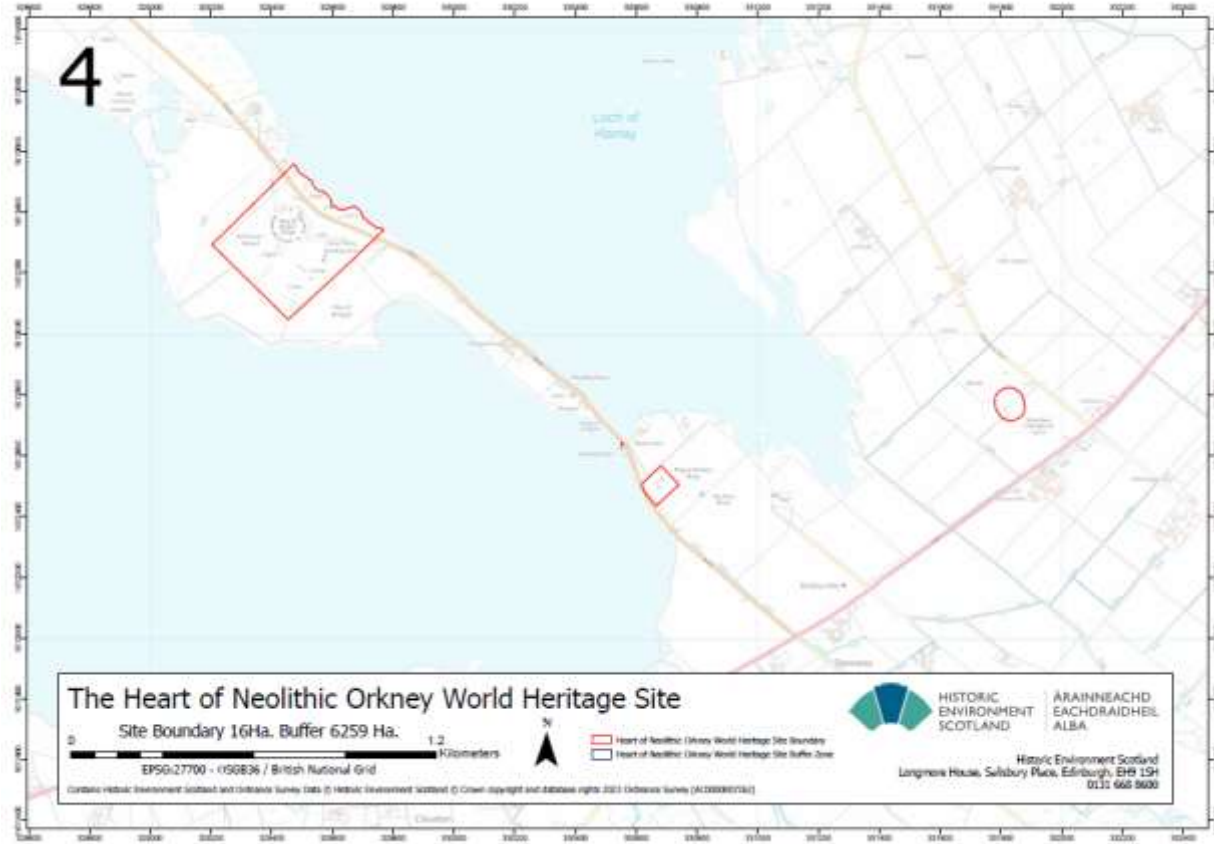


Figure C4: Ring of Brodgar, Stones of Stenness and the Watchstone, Maeshowe and the Barnhouse Stone.

A description of the environmental baseline is set out below. We have not provided detailed baseline information for the environmental parameters scoped out of the SEA – air, material assets, water, and soil. We have provided a list of data sources for each environmental factor.

1. Climatic factors

Baseline Data	Sources
CO2 Emissions	SNIFFER
Carbon Footprint	www.seaguidance.org.uk
SNIFFER 2014 Online Handbook of Climate Trends across Scotland	UKCIP
United Kingdom Climate Impacts Programme (UKCIP) Climate Modelling	Climate Risk Assessment for HONO WHS Scotland's Environment Web
Climate Risk Assessment for HONO WHS June 2019	

1.1 National Climatic Factors

Scotland's climate is already changing. The climate will continue to change in the future, and this will present a wide range of threats and opportunities to the environment, infrastructure, economy and people of Scotland.

Over the last 100 years our climate has become warmer, while altered precipitation patterns have led to drier summers, wetter winters, and more frequent heavy rainfall. Climate change is also causing changes in the growing, breeding and migration seasons, shifts in species abundance and diversity, higher river flows leading to flood risk, and sea level rise causing erosion.

Evidence from observed trends from [Scotland's State of the Environment Report 2014](#) notes that on the whole, Scotland's environment is of good quality and there have been many significant improvements in recent years. However, the Report shows that some habitats and species are under threat, and poor air quality continues to affect some people in our towns and cities, increased flooding and droughts can damage our economy and wildlife and affect our health and wellbeing, and more intense farming practices and how we manage our towns are altering habitats and wildlife.

[A State of the Environment Report: Climate](#) (2014) also describes the changes in weather patterns experienced in Scotland over the last century and notes that observed recent climate trends over the period 1961-2011 show the mean annual temperature across Scotland has increased by 1.3°C

[The State and Trend Assessment report](#) undertaken by independent experts contained within the State of the Environment report 2014, show the current condition of the environment covered by each topic as well as the future trend for that environment. The spectrum diagrams in the report indicate that the current state of the historic environment is moderate, and the future trend is stable.

1.2 Orkney – wide Climactic Factors

The Environmental Report that accompanies the [Orkney Islands Council \(OIC\) Local Development Plan \(LDP\) \(2017\)](#) baseline indicates that locally, there are a number of factors that contribute to climate change in Orkney:

- Orkney's domestic, industry, commerce and transport emissions represents a significant source of CO² emissions, accounting for over 80% of all emissions annually.
- Private car use is an important form of transport due to the islands' dispersed settlement pattern, which causes emissions. Ferry and air services also are vital forms of transport causing emissions
- As there is no access to a public gas supply, which would be a lower carbon option, oil and electricity are the main energy sources for central heating in the island areas.
- Renewable energy development has risen, and during 2013/2014 Orkney produced more electricity from renewable energy sources than it consumed.

1.3 Risks to HONO WHS from Climatic Factors

Climate change is affecting elements of the WHS through increases in storm intensity and frequency, and sea level rise leads to increases in coastal erosion, and risk of single extreme storm events; changes to precipitation increase risk of torrential rain and flooding and can lead to changes to wetting and drying cycles, changes to the water table and changes to flora and fauna.

In 2018 HES produced the [Screening for Natural Hazards to inform Climate Change Risk Assessment Report for Properties in the Care of Scottish Ministers 2018](#), which includes the four component sites of the HONO WH property. This report was part of ongoing work to develop best practice and integrate climate change actions into our operations, in line with the Public Bodies Duties under the Climate Change (Scotland) Act 2009 and Climate Ready Scotland: Scottish Climate Change Adaptation Programme.

Furthermore in June 2019 the findings from the [Climate Risk Assessment for HONO WHS](#), using the climate vulnerability index (CVI) show that the HONO WHS is at significant risk from three key climate drivers:

- Sea level change
- Precipitation change
- Storm intensity and frequency

The CVI is a new methodology developed to rapidly assess climate impacts – both to Outstanding Universal Value (OUV) and the associated 'community' (local, domestic and international) – for all types of World Heritage properties (natural, cultural or mixed).

Adaptation measures continue to be considered as part of the long-term management of the WHS, and the CVI will provide the opportunity to identify adaptation strategies in the face of potential impacts, with a consistent methodology that supports applications for funds and other resources to undertake identified activities.

The growth of renewable energy development on Orkney also has the potential to impact on the setting of the monuments.

2. Population and human health

Baseline Data	Sources
Access to historic environment sites, records and collections and access to natural heritage	Historic Environment Scotland
Tourism revenue and visitor numbers	SNH
Health and Place data	RSPB
Socio-economic data	Visit Scotland
	NHS Scotland
	Scottish Government Scotland's Environment Web

2.1 National factors

The 2011 National Census found that the population of the Orkney Islands is 21,349 with an average male age of 44 (Scottish average of 40) and female age of 45 (Scottish average of 42).

Around 86% of the population are recorded as having very good or good general health (Scottish figure is around 82%). Excluding full time students, 2.4% of the population was recorded as unemployed.

The Environmental Report that accompanies the Orkney Islands Council (OIC) Local Development Plan (LDP) (2015) includes baseline information on trends towards an increasingly ageing population on Orkney and in the 2011 Census 16.8% of people are recorded as retired (Scottish figure was 14.9%).

The 2011 Census records around 60% of the Orkney population travel to work using a car, (including as passengers and taxis). This is slightly less than the Scottish figure of around 63%. However, bus travel to work was around 2% which is less than the Scottish figure of 10%.

The Environmental Report prepared by OIC that accompanies the LDP (2015) includes baseline information on existing transport types and trends, finding that due to the rural nature and the dispersed settlement patterns the use of the car is a very important form of transport. 2011 Census information indicates that the average number of cars or vans per household on Orkney was 1.3 and the Scottish average was 1.

2.2 Public Transport

2.2.1 Bus Service

There is a combination of subsidised and commercial bus services operating on Orkney. OIC subsidises bus services on the mainland, and these are currently operated by Stagecoach.

Several services currently operate to provide cover 7 days a week to the different monuments within the WHS. These currently include X1 service with stops at Stenness for Maeshowe with an increased service in the busy summer months offered on a Sunday, and bus route 8S which currently runs daily to stops at Stenness for Maeshowe, the Ring of Brodgar and Skara Brae.

2.2.2 Ferries

Nine ferries operate between Orkney mainland and its islands. While no ferry is required to be used to visit the WHS, as it is on Orkney mainland, ferries are essential for locals who live and work on its islands, and visitors and tourists who wish to explore Orkney's islands. OIC has responsibility for the operating of the ferries through the Orkney Ferries Service.

2.3 Access

Access in its widest sense is a fundamental principle for World Heritage Sites, and includes physical, remote and intellectual access. Access for all abilities is important to ensure equality, however some of the WHS monuments are fragile, and measures to optimise remote access are always considered.

The geographical area of the WHS is relatively small, as is the local population. However, visitor numbers have continued to rise. For example, in the 2019-20 financial year 113,986 people visited Skara Brae, the Ring of Brodgar received approximately 157,000 visitors and Maeshowe 29,036. Whilst visitor numbers dipped during the COVID-19 pandemic, they have started to rise again and beyond to pre-pandemic levels.

The monuments are managed by HES on behalf of Scottish Ministers and are open all year. The monuments at Skara Brae and Maeshowe are online booking and ticketed which allows visitor numbers to be managed. The other monuments within the WHS can be accessed at any time by the public without charge. The draft Management Plan includes objectives related to resolving a number of issues associated with access to the WHS.

2.4 Core Paths

Low levels of activity and obesity are two factors which currently contribute to ill health throughout the United Kingdom. National initiatives aim to encourage people to enjoy the outdoors and take more exercise. Under the Land Reform (Scotland) Act 2003 OIC has a duty to prepare a Core Paths Plan. Through its Core Paths Plan, Orkney Islands Council highlights the many routes and pathways throughout the Orkney mainland and the Isles which are available to walkers of varied abilities, enabling them to experience and appreciate the County's excellent natural and historic resources. The Orkney Core Paths Plan was reviewed and renewed in 2018. Several core paths in the plan run alongside or in the vicinity of the WHS e.g., VM11 Maeshowe, VM11 and VM13 at Stones of Stenness, VM13 at Ring of Brodgar and VM26 at Skara Brae.

3. Landscape

Baseline Data	Sources
National Scenic Areas	NatureScot
Landscape character	SNH Orkney Landscape Character Assessment 1998
Historic land use	Scotland's Environment Web
Sites of Local Landscape Character (Special Landscape Areas and other areas of landscape value identified on Local Development Plan (LDP) proposals maps)	Historic Land use Assessment Orkney Local Development Plan The Heart of Neolithic Orkney World Heritage Site: Setting Report

The Heart of Neolithic Orkney World Heritage Site: Setting Report 2008 was produced by Atkins Ltd on behalf of Historic Scotland to provide an objective description of the setting of and to provide recommendations on approaches to defining any future Buffer Zone and the nature of policies that may apply to that Buffer Zone.

As part of this work, Atkins Ltd. provided a general description of the landscape character generated through field survey, which confirmed the findings of the NatureScot [Landscape Character Assessment](#) published in 1998.

The Orkney Local Development Plan 2017 also presents the findings of the 1998 SNH Landscape character assessment which identifies Regional Character Areas, Landscape Character Types and Island Character Areas. It also identifies a total of 23 landscape character types in the Orkney Islands.

The descriptions of the landscape character of the WHS in sections A and B below are taken directly from the Atkins Ltd. Report.

A. Landscape character around the Ring of Brodgar, Stones of Stenness and Maeshowe

The landscape around the Ring of Brodgar, Stones of Stenness and Maeshowe is a large scale exposed and open rural landscape. It is generally pastoral in nature with worked fields on the low slopes of the hills and unimproved moorland and pasture on the upper slopes and ridge tops. On the whole, it is a simple landscape in terms of features and elements that can be described e.g., hill, water, farmstead, permanent pasture, minor roads, post-and-wire fencing, and very few trees.

The land cover is defined by enclosed fields under permanent pasture for intensive livestock rearing. The predominant livestock is cattle, and these are overwintered in barns, although there are also significant numbers of sheep. Fields are of medium size with a mix of traditional stone walls and post-and-wire fencing. Most gated within field boundaries are metal. The area is definitely rural and agricultural in nature.

The form of the landscape is one of rolling hills and so curved lines predominate. Although, straight lines exist in the form of field boundaries and roads the overall pattern of the landscape structure is irregular.

Settlement is scattered across the area, with a mix of modern and traditional buildings a frequent element of views. The buildings are situated in an irregular pattern, predominantly small (although some overwintering cattle barns are large) and most have been modified over time. The majority of buildings are coated in pebbledash, are grey in colour and have grey slate roofs. One exception is the red roofing of Odin House, which is close to the Watch Stone and the Stones of Stenness.

Although the area has a large number of minor roads, they are nearly all surfaced with tarmac. The dominant single point features in this landscape are the farmsteads dotted across the views. In general, the roads are fenced off from the fields by post-and-wire fencing. The two lochs dominate views from the monuments and form a key element of the wider area's landscape character.

The dominant landscape character type around this part of the WHS is the loch basin type.

B. Landscape character around Skara Brae

Skara Brae is situated on the edge of the Bay of Skaill and has virtually no visual prominence and plays no role in the landscape character of the area. There is a fine sandy beach below the site, and its immediate hinterland is pasture on top of the old sand links, at the eastern edge of which is Skaill House. The Bay is tightly enclosed by surrounding low hills, the ridgelines of which are

almost continuous around the bay. The landscape around the site and enclosed by the ridgelines, is typical of Orkney coasts where softer rocks have created sandy bays. Small in scale and closely confined, the Bay of Skail is defined at its outer limit by high cliffs and within the bay by ridges and hills. It is rounded and smooth in a regular horseshoe shape. The sheltered, enclosed, small-scale, low-lying landscape cradled by low green slopes and overlooked by steadings and cottages on the higher ground above, is dominated by Skail House and the farm buildings. However, closer to the shore, the character is more maritime and provides the unique and distinctive setting of Skara Brae.

The dominant landscape character of the area around Skara Brae is the enclosed bay landscape type.

3.1 National Scenic Areas

National Scenic Areas (NSA) are Scotland's only national landscape designation. They are those areas of land considered of national significance on the basis of their outstanding scenic interest which must be conserved as part of the country's natural heritage. They have been selected for their characteristic features of scenery comprising a mixture of richly diverse landscapes including prominent landforms, coastline, sea and freshwater lochs, rivers, woodlands and moorlands.

The Hoy and West Mainland NSA is the only NSA in Orkney. The NSA extends across West Mainland as far north as Hestwall, and extending SW, to include Hoy Sounds, Burra Sounds, Graemsay, the hills of North Hoy, extending SW as far as the Candles of Sneuk. The WHS lies within the NSA at Loch of Stenness and the southern part of the Loch of Harray. See [Hoy and West Mainland NSA on NatureScot's Sitelink](#) for the boundaries of the NSA.

The Special Qualities as stated in *The special qualities of the National Scenic Areas SNH Commissioned Report No.374 Scottish Natural Heritage (2010)* for the Hoy and West Mainland NSA are as follows:

- A palimpsest of geology, topography, archaeology and land use
- An archaeological landscape of World Heritage Status
- The spectacular coastal scenery
- Sandstone and flagstone as an essence of Orkney
- A long-settled and productive land and sea
- The contrast between the fertile farmland and the unimproved moorland
- A landscape of contrasting curves and lines
- Land and water in constantly changing combinations under the open sky
- The high hills of Hoy
- The townscape of Stromness, its setting and its link with the sea
- The traditional buildings and crofting patterns of Rackwick

The Orkney LPD 2017 Landscape Baseline section also notes the following environmental issues and pressures from development on Orkney's landscape:

- The growth of renewable energy development on Orkney in the form of wind turbines and accompanying infrastructure has the potential to erode the character and impact on its landscape
- Construction from new buildings not reflecting settlement pattern or scale design and materials that are appropriate to the landscape character of the area
- loss or deterioration of some distinctive features such as stone dykes, crofts and other buildings
- Changes in vegetation cover and field patterns due to more intensive methods of agriculture.

3.2 Geological Conservation Review (GCR)

3 areas of Geological Conservation are within the WHS Site and/or buffer zone. These sites contain geological and geomorphological features of national and international importance. They are selected through a process known as the [Geological Conservation Review](#). They have statutory protection through designation as geological features in [Sites of Special Scientific Interest \(SSSIs\)](#) and are considered under the SSSI designation in the Biodiversity, Flora. Fauna Section 5 below.

- Bay of Skail SSSI/GCR – Site of geological/geomorphic importance due to Middle Devonian Fish Beds with fossil plant community
- Cruaday Quarry SSSI/GCR - Site is of outstanding geological importance due to exposure and preservation of the Sandwick Fish Beds
- Stromness Heaths & Coasts SSSI/GCR – Site of Coastal geomorphology (West Coast of Orkney) Non-marine Devonian (Yesnaby & Gaulton Coast Section)

4. Cultural Heritage

Baseline Data	Sources
<p>World Heritage Sites</p> <p>Designated Sites, Buildings, Landscapes and Battlefields</p> <p>Conservation Areas</p> <p>Regionally/locally important archaeological sites and unscheduled archaeology</p>	<p>Heart of Neolithic Orkney World Heritage Plan (2014-2019)</p> <p>and associated research reports</p> <p>Historic Scotland GIS Downloader</p> <p>(includes equivalent data to the Sites and Monuments Records)</p> <p>Scotland's Historic Environment Audit 2016</p> <p>Scotland's Environment Web</p> <p>Scotland's Environment Web</p> <p>Orkney Local Development Plan</p> <p>National Monuments Record of Scotland</p>

Historic Environment Policy for Scotland (HEPS) aims to identify and protect historic buildings and sites from inappropriate development and damage. Policies extend beyond specific designated sites to reflect the value of undesignated/unknown sites, wider townscapes, the setting of monuments and historic buildings, and wider cultural landscapes.

Chapter 2 of the draft Management Plan provides a full description of the features of the historic environment baseline that are included in the WHS, and it does not seem necessary to repeat this here.

There are also a large number of nationally, regionally and locally important historic environment features that are adjacent to the WHS and for simplicity these are linked here on the Designations Map Search Portal rather than being individually listed.

Listed Buildings, Scheduled Monuments, Conservation Areas, Battlefields Inventory Boundary, Gardens and Designed Landscapes, Listed Buildings boundaries and Historic Marine Protected Areas in the vicinity of [Skara Brae](#) and the [Brodgar-Stenness-Maeshowe area](#) can be seen via the portal.

In particular, the concentration of prehistoric monuments around the Brodgar–Stenness part of the WHS is exceptional. The surrounding archaeology helps to inform our understanding of the development of the ritual and funerary landscape in this area, and how ritual and funerary sites related to settlement sites.

5. Biodiversity, flora, fauna

Baseline Data	Sources
Statutory Designated Sites (including SACs, SPAs, Ramsar Sites, SSSIs) European Protected Species Local Biodiversity Action Plan (LBAP) species and habitats Local designations – LNR, Sites of Local Nature Conservation Importance RSPB reserves	Joint Nature Conservation Committee (JNCC) Scotland's Environment Web 2020 Challenge for Scotland's Biodiversity. SSSI Management Statement for Lochs of Harray and Stenness, Nature Scot 2011 SSSI Management Statement for Stromness Heaths and Coast, Nature Scot 2010 SSSI Management Statement for Bay of Skail, Nature Scot, 2010 SSSI Management Statement for Cruaday Quarry Nature Scot 2009 Information on European Protected Species from Nature Scot website. Orkney LBAP (Supplementary Guidance: Natural Heritage) Orkney Local Development Plan OIC website for information on local nature designations Brodgar RSPB Reserve

5.1 National Factors

Biodiversity encompasses the whole variety of life on Earth. It is important for our health and wellbeing and for the ecosystem services that it provides. The original strategy – [Scotland's Biodiversity: It's in Your Hands](#) – was published in 2004. In 2013, it was supplemented by the [2020 Challenge for Scotland's Biodiversity](#) which sets out the major steps needed to improve the state of nature in Scotland.

The two documents together now constitute the Scottish Biodiversity Strategy and aim to protect and restore biodiversity on land and in our seas, to support healthy ecosystems, while connecting people to the natural world enjoyment and wellbeing, now and in the future, and to involve the in more decision making. It also seeks to maximise the benefits for Scotland of a diverse natural environment and the services it provides, contributing to sustainable economic growth.

There are a number of areas designated for their nature conservation interest both within and near to the WHS. Information on these areas is provided below. We have also included information on areas that may be of local importance for their biodiversity value that are within or near to the WHS.

5.2 Designated areas

5.2.1 Special Areas of Conservation

Special Areas of Conservation (SACs) are areas designated under the European Directive commonly known as the 'Habitats' Directive. They are internationally important areas that, together with Special Protection Areas (designated under the Wild Birds Directive for wild birds and their habitats) form the Natura 2000 network of sites.

There are six SACs in Orkney, one of which (Loch of Stenness SAC) is adjacent to the WHS. A description of the Loch of Stenness SAC is provided below. This information is largely taken directly from the descriptions on the Joint Nature Conservation Committee (JNCC) website [Loch of Stenness - Special Areas of Conservation \(jncc.gov.uk\)](http://jncc.gov.uk).

The qualifying habitat for the Loch of Stenness SAC is coastal lagoon, which is a priority habitat in Annex 1 of the Directive. The Loch of Stenness is one of the best and biggest UK examples of a coastal lagoon. It is of particular importance on account of its large size, stability, reduced salinity regime and northern location. The loch supports a mainly marine flora and fauna, although species richness is impoverished relative to the adjacent coast.

The Loch of Stenness and the similarly sized adjoining Loch of Harray are together designated as a SSSI (see SSSIs below for further information).

5.2.2 Special Protection Areas

Special Protection Areas (SPAs) are classified under the European Directive on the Conservation of Wild Birds ([Directive 2009/147/EC 2009](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0029)), commonly known as the Birds Directive.

SPAs are intended to safeguard the habitats of the species for which they are selected and to protect the birds from significant disturbance. Together with Special Areas of Conservation they form the Natura 2000 network of sites.

There are 13 SPAs in Orkney, however none of these areas are within or adjacent to the WHS. Orkney Mainland Moors are nearest, and were designated in 2008, while Marwick Head, Hoy, Rousay, Copinsay, West Westray and Calf of Eday SPAs were designated in 2009. There are three new proposed SPAs North Orkney, Scapa Flow and Pentland Firth.

5.2.3 Ramsar Sites

Ramsar sites are designated under the Convention of Wetlands of International Importance. There is one Ramsar site on the Orkney Islands at East Sanday Coast, however this is not within the environs of the WHS.

5.2.4 Site of Special Scientific Interest

Sites of Special Scientific Interest (SSSI) represent the best of Scotland's natural heritage. They are 'special' for their plants, animals or habitats, their rocks or landforms, or a combination of such natural features. Together they form a network of the best examples of natural features throughout Scotland and support a wider network across Great Britain and the European Union.

There are 36 SSSIs in the Orkney Islands and 4 of these are within the WHS buffer zone - the Lochs of Harray and Stenness SSSI, the Bay of Skaili SSSI and Stromness Heaths and Coast, and the Cruaday Quarry.

A description of each of these areas is provided in the table below and the information is largely taken from NatureScot SSSI Management Statements and the SSSI citation sheets.

SSSI Name	Description
<p>Lochs of Harray and Stenness</p>	<p>The Lochs of Harray and Stenness (see Sitelink for boundary) were designated as a biological SSSI in 1962 on the basis of specific plant and invertebrate species in Harray and nationally significant wintering wildfowl populations on both lochs. The SSSI covers only the lochs and none of the adjacent land. The lochs are the two largest lochs in Orkney. The Loch of Harray drains a shallow basin in the centre of West Mainland. Its waters flow into the Loch of Stenness through a series of channels at Brodgar, which is open to the sea at Brig O' Waithe. The waters of the lochs range from marine at the seaward entrance of Stenness to freshwater in Harray with variability between marine and freshwater within Stenness itself.</p> <p>The associated flora and fauna is diverse comprising predominantly brackish and marine species in Stenness and freshwater species in Harray, with a transition zone in the vicinity of the Bridge of Brodgar. The SSSI designation lists the presence of a large number of pondweed species in Harray, some rare invertebrate species and, as noted above, both lochs are of importance for nationally significant populations of wintering wildfowl.</p> <p>The management statement for the Lochs of Harray and Stenness SSSI identifies the following issues as the principal factors affecting management:</p> <ul style="list-style-type: none"> • water quality • nutrient enrichment from the run-off of fertiliser and slurry into the lochs and by sewage and septic tank discharges • trout fishery • housing development – a loch protection zone is designed to control housing in the area • Disturbance of wintering populations of wild fowl by fast boats near sensitive places • Decline of tufted ducks population connected to changes in nutrient levels • Safeguarding habitats of caddis fly and freshwater snail against the introduction of non-native species • Exchange of water between Loch Harray and Loch Stenness • Introduction of marine alien species
<p>Bay of Skail</p>	<p>Bay of Skail SSSI (see Sitelink for boundary) was designated in 1991 and lies to the north of Skara Brae. The Bay of Skail SSSI is a geological SSSI and the rocks at the Bay of Skail represent sediment of the Old Red Sandstone, deposited in the Devonian geological time, about 380 million years ago. The Bay of Skail is composed of the 'Upper' and 'Lower Caithness Flagstone with the intervening 'Sandwick Fish Bed' characterised by containing a distinct fossil floral assemblage. The Bay of Skail site is the best development of this flora available and the fossils are of international importance.</p> <p>The management statement for the Bay of Skail SSSI identifies the following issues as the principal factors affecting management:</p> <ul style="list-style-type: none"> • road development • dumping of materials

SSSI Name	Description
	<ul style="list-style-type: none"> • fossil collecting • removal of beach deposits • Marine erosion is considered to maintain open exposures of the sections of the cliffs and it is not seen as negative.
Stromness Heaths and Coast	<p>Stromness Heaths and Coast SSSI (see Sitelink for boundary) designated in 1991 is a geological SSSI and is a prime example of coastal vegetation communities with associated breeding birds. The coast itself is of geological and geomorphological importance. A major feature of this site is the juxtaposition of different coastal habitats and the natural landward transition from typical maritime communities to a heathland community interspersed with species-rich flush and mire communities. There are several colonies of the nationally scarce Scottish primrose. The site also supports small numbers of breeding Arctic and great skua and a small Arctic tern colony. A pair of peregrines breed regularly on the sea cliffs and Row Head is noted for its colonies of guillemots and kittiwakes. Vegetation on the cliff top is strongly influenced by the sea, grading into mosaics of coastal heath and grassland as the sea's influence reduces. The coastal heath is often rich in species.</p> <p>The management statement for the Stromness Heaths and Coast SSSI identifies the following issues as the principal factors affecting management:</p> <ul style="list-style-type: none"> • farming/grazing • tourism/vehicles access • fly tipping • fossil collecting
Cruaday Quarry	<p>Cruaday Quarry SSSI (see Sitelink for boundary) designated in 1989 lies to the north of Skara Brae near the northeast edge of the WHS buffer zone. The SSSI is a geological SSSI; its qualifying interests lie in its fine fossil specimens exposed in the Sandwick Fish Bed and includes some of the earliest fish and vascular plants of the fossil record. The rocks at Cruaday Quarry, as elsewhere in Orkney, belong to the Old Red Sandstone group, and were laid down in a harsh arid climate between 350-390 million years ago (the Devonian Period) when what is now Scotland lay south of the equator in latitudes equivalent to the present Australian and Kalahari deserts. Deposition of sediment was mainly by large rivers into an enormous freshwater lake (the Orcadian Basin). During the Middle Devonian, the depth of the Orcadian Lake fluctuated and at times of greatest depth, the central portions of the lake became starved of oxygen (anoxic). It was here that fish carcasses were deposited, to become beautifully preserved fossil specimens.</p> <p>The management statement for the Cruaday Quarry SSSI identifies the following issues as the principal factors affecting management:</p> <ul style="list-style-type: none"> • Quarrying • Spoil Removal • Fossil Collecting • Tourism and Education

5.3 European protected species

Annex IV of the Habitats Directive lists certain species as species of European Community interest and in need of strict protection. The protective measures required are outlined in Articles 12 and 13 of the Directive. The species listed on Annex IV whose natural range includes any area in Great Britain are called 'European protected species'. They are also listed on Schedules 2 (animals) and

4 (plants) of the Habitats Regulations and are specifically protected under Regulations 38-46 and Regulations 10-13 of the Amendment Regulations.

A list of these 24 species can be found on NatureScot's website at [Search | NatureScot](#) Under the UK Biodiversity Action Plan, individual Species Action Plans have been drawn up for most of the European protected species occurring in Scotland.

Of the 24 European protected species occurring in Scotland the one most likely to be found in or near the WHS is the otter, which use the loch shores. In Orkney it is possible to find other protected species, including many bird species as well as harbour and grey seal.

5.4 Local biodiversity interests

The Orkney Local Biodiversity Action Plan 2018-2022 (LBAP) is the third in a series of focused revisions of the original Orkney LBAP (2002). It identifies a series of habitat, which link into ecosystems and species from the Scottish Biodiversity List, as a priority for action. A number of these priority habitats are found within the WHS including:

- road verges, the Brodgar Road (B9055) is identified as an example of a species rich verge
- coastal sand dunes, it is noted that sand extraction has aggravated coastal erosion problems in Bay of Skail and recreational pressure on the dune systems close to Skara Brae is identified as being a significant issue
- saline lagoons, Loch of Stenness
- eutrophic standing water, including the Loch of Harray

5.5 RSPB Reserves

The Brodgar RSPB reserve is located within the World Heritage Site on the narrow strip of land between Stenness and Harray. The reserve covers 34 hectares of grassland, meadows and loch shore, and surrounds the Ring of Brodgar on three sides. The site supports a wide range of waders and waterbirds, including curlew, skylark, lapwing, redshank and oystercatcher. The great yellow bumblebee, a nationally scarce species is also present and can be seen in large numbers. Rare wildflowers are also present.

The reserve is managed to balance to restoration of semi-natural habitats with maintaining a low-intensity arable rotation. Light grazing by cattle and mown in late summer help to create ideal conditions where waders can nest, and a range of wild fowl can nest on wetter areas.

5.6 Local Nature Reserve

There are two Local Nature Reserves in the Orkney Islands:

1. Mull Head, designated in 1992 for its wildlife, geology and history, is not within the vicinity of the WHS, and Happy Valley designated in 2017, which is within the buffer zone of the WHS.
2. Happy Valley is located in the parish of Stenness and includes the C listed Bankburn house a garden created along the Burn of Russadale and four enclosed fields. It comprises a mature woodland, supporting a wide range of species, including invertebrates, mosses and liverworts. The site also contains other habitats including the Burn of Russadale, stone walls, shaded earth banks, a freshwater pond and wildflower-rich grassland, as well as a small patch of heathland.

Appendix D: Assessment of the Vision and Aims

The tables below show the results of the assessments undertaken against the SEA objectives for the vision and six long-term aims.

Key to Scoring

+	Positive effects
0	Neutral effects
-	Negative effects
+/-	Positive and/or negative effects
?	Uncertain effects

Revised Vision:

The Heart of Neolithic Orkney and its exceptional testimony to the cultural achievements of the Neolithic peoples of northern Europe will be protected and conserved for present and future generations. The World Heritage Site will bring social, cultural, environmental and economic benefits to the wider community. It will offer an exceptional responsible visitor experience, and inspire and catalyse research and learning, widening engagement through participation and discovery. It will be managed sustainably in ways that contribute to reducing the causes of climate change and address its threat to the Site. It will contribute to a thriving, sustainable and equitable future for Orkney residents, visitors and communities of interest worldwide.

Environmental parameter	SEA objective	Score	Comments
Climatic factors	Reduce the Causes of Climate change Contribute to effective adaptation to the predicted effects of climate change	+	The vision notes that the WHS will be managed in sustainable ways which will contribute to the reduction in the causes of climate change and address its threats to the Site.
Population and Human Health	Promote celebration, understanding and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities	+	Access alongside social and community benefits are a fundamental part of the WHS and is included within the vision. The vision states that the WHS will contribute to a thriving and equitable future for people living on or visiting Orkney which will have a positive effect.
Landscape	To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole	0	The vision is specifically related to the social, cultural, environmental and economic aspects of the WHS and will have no effect on this parameter.

Cultural Heritage	Safeguard and where appropriate enhance the historic environment	+	The vision incorporates the protection, conservation and enhancement of the WHS which will contribute to the safeguarding of the historic environment.
Biodiversity, Flora, Fauna	Maintain, protect and enhance biodiversity (species, habitats, ecosystems)	0	The vision is specifically related to the cultural aspects of the WHS and will have no effect on this parameter.
Recommendations No recommendations.			
Summary General positive effect on the cultural heritage, population, human health, and climatic factors. No effect on the other environmental topics as this is not the function of the overarching vision.			

Aim 1: To protect and conserve the authenticity and integrity of the World Heritage Site for present and future generations.			
Environmental parameter	SEA objective	Score	Comments
Climatic factors	Reduce the Causes of Climate change Contribute to effective adaptation to the predicted effects of climate change	+	A key element of this aim is to take action to adapt and mitigate effects of the climate emergency on the WHS and contribute to a low carbon society through sustainable approaches. This will have a positive effect on this parameter as CO ₂ and greenhouse gas emissions alongside effective adaptation of the effect of climate change will be addressed.
Population and Human Health	Promote celebration, understanding and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities	0	This aim relates to the protection and management of the WHS. Population and human health interests are addressed in different aims.
Landscape	To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole	+	Protecting and conserving the authenticity and integrity of the WHS includes considering the landscape setting of the WHS and ensuring this is safeguarded.
Cultural Heritage	Safeguard and where appropriate enhance the historic environment	+	Safeguarding and enhancing the WHS is the key function of this aim.
Biodiversity, Flora, Fauna	Maintain, protect and enhance biodiversity (species, habitats, ecosystems)	+	This aim relates to the protection and management of the WHS, an element of which is around increasing awareness and understanding of the natural heritage and biodiversity.
Recommendations			

No recommendations.

Summary

The aim has largely positive effects with one neutral.

Aim 2: To inspire and engage people with the World Heritage Site and deepen their understanding of the Site's values.

Environmental parameter	SEA objective	Score	Comments
Climatic factors	Reduce the Causes of Climate change Contribute to effective adaptation to the predicted effects of climate change	0	This aim is related to people having a deeper level of engagement with, and understanding of, the WHS and is focussed on the archaeological, historical and natural heritage.
Population and Human Health	Promote celebration, understanding and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities	+	Improving access to the historic environment - both physically, digitally and intellectually - and increasing understanding of the value of the historic environment is key to this aim.
Landscape	To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole	+	This aim is related to people having a deeper level of engagement with, and understanding of, the WHS and is focussed on the archaeological, historical and natural heritage. Having a clearer understanding of the setting of the WHS will however have positive effects on the archaeological landscape.
Cultural Heritage	Safeguard and where appropriate enhance the historic environment	+	A clear understanding of the tangible and intangible aspects of the WHS will have a positive effect on the cultural heritage by allowing more people to be engaged and inspired by the WHS.
Biodiversity, Flora, Fauna	Maintain, protect and enhance biodiversity (species, habitats, ecosystems)	+	An increase in awareness and understanding of the natural heritage and biodiversity of the WHS will have a positive effect on the natural heritage of the WHS.

Recommendations

Consider how people can have an increased awareness and understanding of the effects of climate change on the WHS to allow them to have a deeper understanding of the Site's values.

Summary

Generally positive or neutral effects.

Aim 3: To use our World Heritage status to benefit people and communities in Orkney and elsewhere.			
Environmental parameter	SEA objective	Score	Comments
Climatic factors	Reduce the Causes of Climate change Contribute to effective adaptation to the predicted effects of climate change	+	Using World Heritage status to ensure there is sustainable and responsible tourism will help address CO ₂ and greenhouse gas emission and contribute to effective adaptation to the effects. It will benefit people and communities in Orkney and beyond by mitigating the effects of the climate emergency and contribute to a low carbon society.
Population and Human Health	Promote celebration, understanding and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities	+	Key to this aim is that the WHS, buffer zone and associated materials and records are actively used in education and training which will be beneficial. People will have access and understanding of the value of the WHS and its associated sites through a range of physical and digital assets which can be used by a range of groups. People and communities will also be involved, informed and engaged with decisions affecting their places and spaces.
Landscape	To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole	?	There may be positive effects in term of visitors better understanding the landscape setting of the WHS through this aim but the effect this will have on safeguarding and enhancing the natural characteristics and qualities of the landscapes is uncertain.
Cultural Heritage	Safeguard and where appropriate enhance the historic environment	0	It is not anticipated that this aim is not expected to have any additional significant effects to those identified for aims 2 and 4.
Biodiversity, Flora, Fauna	Maintain, protect and enhance biodiversity (species, habitats, ecosystems)	0	It is not anticipated that using World Heritage Status to benefit people and communities will affect this parameter as the Site is not inscribed for its natural significance.
Recommendations Consider the way that the World Heritage status could benefit the landscape which the WHS sits in, especially the Hoy and West Mainland National Scenic Area.			
Summary Generally positive with neutral and uncertain effect.			

Aim 4: To interpret and present the Heart of Neolithic Orkney to the highest standard.

Environmental parameter	SEA objective	Score	Comments
Climatic factors	Reduce the Causes of Climate change Contribute to effective adaptation to the predicted effects of climate change	0	It is not anticipated that interpreting and presenting the Heart of Neolithic Orkney will affect this parameter.
Population and Human Health	Promote celebration, understanding and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities	+	Interpreting and presenting the Heart of Neolithic Orkney to the highest standard through a range of mediums should ensure that it is understood and accessible, now and in the future.
Landscape	To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole	?	Through interpreting and present the WHS there will be an increase in awareness and understanding of the Site and its buffer zone. This should have positive effects on the archaeological landscape, but it is unsure if this will in turn have positive effects on the wider landscape. There may be negative effects with interpretive offers having a negative impact on the landscape.
Cultural Heritage	Safeguard and where appropriate enhance the historic environment	+	There will be positive effects in safeguarding and enhancing the cultural heritage (both tangible and intangible) by interpreting and presenting the WHS to a high standard.
Biodiversity, Flora, Fauna	Maintain, protect and enhance biodiversity (species, habitats, ecosystems)	+	Natural heritage and biodiversity, both past and present, will be included in the interpretation and presentation of the WHS.
Recommendations			
Consider clearer recognition of landscape interests and their role in interpreting and presenting the WHS should also be included within this aim. Consider whether the presentation and interpretation of the WHS could be affected by or used to better understand climate change.			
Summary			
Generally positive, with one neutral and one uncertain effect.			

Aim 5: To enhance access to and experience of the World Heritage Site responsibly, sustainably and equitably.

Environmental parameter	SEA objective	Score	Comments
Climatic factors	Reduce the Causes of Climate change Contribute to effective adaptation to the predicted effects of climate change	+	Ensuring that access to and experiencing the WHS will be sustainable and responsible will have a positive effect on CO ₂ and greenhouse gas emissions and contribute to the effective adaptation to the effects of climate change.
Population and Human Health	Promote celebration, understanding and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities	+	This aim will allow people to have more equal access to and understanding of the historic environment through a range of mediums. Ensuring this is done responsibly and sustainably will ensure the WHS and its surroundings is a positive place to work and live.
Landscape	To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole	+	The landscape will be safeguarded and enhanced by ensuring the WH is accessed and experience more responsibly, sustainably and equitably.
Cultural Heritage	Safeguard and where appropriate enhance the historic environment	+	The historic environment will be safeguarded and enhanced by ensuring the WH is accessed and experience more responsibly, sustainably and equitably.
Biodiversity, Flora, Fauna	Maintain, protect and enhance biodiversity (species, habitats, ecosystems)	+	Biodiversity, flora and fauna will be safeguarded and enhanced by ensuring the WH is accessed and experience more responsibly, sustainably and equitably.
Recommendations No recommendations			
Summary The effects will all be positive across the SEA objectives.			

Aim 6: Facilitate a diversity of research connected to the World Heritage Site and draw on the results to pursue the Long Term Aims.			
Environmental parameter	SEA objective	Score	Comments
Climatic factors	Reduce the Causes of Climate change Contribute to effective adaptation to the predicted effects of climate change	+	Research which examines the effects of climate change on the WHS will contribute to effective adaptation and reduction of the causes of climate change.
Population and Human Health	Promote celebration, understanding and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities	+	Research will give an increased understanding to the value of, and access to, the historic environment.
Landscape	To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole	0	It is not anticipated that facilitating research will affect this parameter.
Cultural Heritage	Safeguard and where appropriate enhance the historic environment	+	Using research to gain a greater understanding of intangible cultural heritage within the WHS and buffer zone will have a positive effect on the historic environment to ensure it is safeguarded and enhanced.
Biodiversity, Flora, Fauna	Maintain, protect and enhance biodiversity (species, habitats, ecosystems)	+	Research targeted at the natural heritage connected to the World Heritage Site, such as understanding the effects of increased visitor numbers, would be beneficial to protect, maintain and enhance important species, habitats and ecosystems.
Recommendations Look into possibility of including a research objective specifically around sustainable tourism and climate change.			
Summary Research will predominately have a positive effect across the SEA objectives.			

Appendix E: Screening the draft Objectives

The table below documents the screening exercise that was undertaken to sift the original 20 draft strategic objectives into those that are unlikely to have significant environmental effects and those that are likely to have significant environmental effects and require further consideration in the detailed assessment. This table also highlights where Objectives were updated or deleted during the process of revising of the draft Management Plan.

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
1	The WHS is protected conserved and maintained in accordance with national guidance and legislation and international conservation charters; including both historic environment and natural environment considerations.	Changes to wording to add reference to historic and natural environment. No impact on assessment findings.	This objective is related to ensuring the authenticity and integrity of the WHS is protected and preserved through agreement of partnership approaches, identifying and addressing gaps in capacity and resource, and ensuring SEA mitigation commitments are delivered. This will have no effect on biodiversity, flora, fauna, population, human health and climatic factors. However, this will have a positive effect on cultural heritage, and perhaps landscape, by ensuring the WHS and its setting is adequately safeguarded. It is not considered possible to assess this any further than simply identifying a positive relationship.	None	No
2	The boundaries of the Buffer Zone are suitable for purpose and included in future iterations of the Local Development Plan.	Changes made to wording to remove reference to WHS boundary; reference to Local Development Plan added.	It is assumed that a review of the WHS boundary and buffer zone would result in a proposed increase in the boundary rather than a decrease. This may have varying implications on different environmental parameters and will be considered further in the detailed assessment.	Some impact on findings: see detailed assessment at Appendix F.	Yes

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
3	Policy and guidance produced by the Partners that affects the protection and management of the WHS, Buffer Zone and wider setting is up to date and fit for purpose.	Minor changes to wording.	<p>This objective is around reviewing and amending policies and guidance related to the WHS and buffer zone to ensure that the OUV is taken into consideration, such as during the development of the Orkney Local Development Plan and associated Supplementary Guidance.</p> <p>Doing this is unlikely to affect biodiversity, flora, fauna, population, human health and climatic factors.</p> <p>However, it will have a positive effect on cultural heritage, and perhaps landscape, to ensure that the WHS and Buffer Zone is adequately and clearly protected within the planning system and promotes appreciation and understanding. It is not considered possible to assess this any further than simply identifying a positive relationship.</p>	None	No
4	Governance of the WHS is robust and transparent and is periodically reviewed.	None	<p>This objective is around reviewing the remit and membership of the steering, working and action groups alongside formalising the relationships between the Orkney Gateway Programme Board and Scottish Government. It will also involve developing and reviewing a risk strategy for the Management Plan.</p> <p>Clearly defining the Partners and management structure will have no effect on climatic factors, population, human health, landscape, biodiversity, flora and fauna. It is assumed the this will have a positive effect on cultural heritage, but it is not considered possible to assess this any further than simply identifying a positive relationship.</p>	N/A	No

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
5	The Management Plan remains relevant, is fit for purpose, and allows the partners to respond to new understandings and challenges.	None	This objective relates to the review, reflection and updating of the Management Plan throughout its period of use. Ensuring that the plan is kept relevant, progress is shared and amended as required will likely have positive effects on all environmental parameters. It is not considered possible to assess this any further than simply identifying a positive relationship.	N/A	No
6	Decision makers and communities can access what they need to know about the WHS and Buffer Zone, understand the opportunities and obligations that come with WH status, and are engaged with the management of the WHS.	Minor changes to wording to include communities and add reference to engagement with management of WHS.	<p>This objective is concerned with providing events and training sessions to key stakeholders, such as Elected Members and senior management of partner organisations, to allow them to better understand the WHS</p> <p>This will not affect biodiversity, flora, fauna, population, human health, landscape and climatic factors. It is assumed that a greater understanding of the opportunities and obligations of world heritage status will generally have positive effects on cultural heritage, however it is not considered necessary to assess this further.</p>	None	No
7	Management of the WHS prioritises adaption to the effects of the Climate Emergency on the WHS and Buffer Zone, and mitigation of climate impacts by reducing emissions and contributing to a sustainable low-carbon society.	None	The key purpose of this objective is to contribute to the effective adaptation to the predicted effects of the Climate Emergency alongside reduce the causes of climate change, including encouraging sustainable approaches. This may have varying implications on different environmental parameters and will be considered further in the detailed assessment.	N/A	Yes

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
8	A programme of monitoring is in place for both the state of conservation and the implementation of actions for the WHS and Buffer Zone and the results are used by the Partners to inform decision making and future management.	Minor changes to wording.	It is assumed that a programme of monitoring used to inform decision making and future management will have effects on all environmental parameters. It is not possible to assess what the outcomes of monitoring will be however they may have environmental implications. This objective will be included in the detailed assessment to identify possible mitigation measures.	None	Yes
9	The Partners are collaborating to identify and access new sources of funding to support new projects and programmes to deliver shared Objectives.	None	This objective aims to find additional sources of funding to support the delivery of new projects and programmes. As there are currently no details on what these may be, and any projects and programmes that come from it would be subject to their own SEA's, it is not considered possible to assess the effects any further.	N/A	No
10	Management and interpretation (onsite and offsite, including digitally) enhance awareness and understanding of the archaeological and historical heritage, the natural environment, the Buffer Zone, and the WHS in its wider context, geographically and through time. All based on robust research and understanding.	Minor changes to wording.	The intention of this objective is to provide a greater understanding and awareness of the WHS and Buffer Zone to a range of people through a variety of mediums. This is likely to have positive effects on a range of environmental factors, in particular cultural heritage, population and human health, but may have negative environmental issues on others. This objective will be considered further in the detailed assessment.	None	Yes

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
N/A	Management of the WHS protects and enhances the natural heritage values of the WHS and interpretation contributes to awareness and understanding of the natural heritage of the WHS and the Buffer Zone.	Deleted – was Draft Objective 11	This objective will ensure that the natural heritage within the WHS and Buffer zone is protected and enhanced, and people will have a better understanding and awareness it. It is not likely that there will be effects on cultural heritage. This may have varying implications on different environmental parameters and will be considered further in the detailed assessment.	N/A	Was “Yes”: Now removed from detailed assessment – see Appendix F
N/A	HONO has an inspiring, engaging and accessible digital presence that reflects the values of the Site and enables access – physical and intellectual – to, and understanding of, the WHS and Buffer Zone.	Deleted – was Draft Objective 12	The intention of this objective is to ensure that there is a coherent digital presence for the WHS that complements existing digital assets and provides a range of opportunities to experience and understand the WHS and the Buffer Zone. This will likely have a positive effect on cultural heritage, population, human health but may have negative effects on other environmental parameters such as biodiversity, flora, and fauna. This objective will be considered further in the detailed assessment.	N/A	Was “Yes”: Now removed from detailed assessment – see Appendix F
11	The WHS and its associated sites and assets, materials and records (physical and digital) are easily accessible for use in research, education and training and are used by a range of community and special interest groups and projects.	Previously Objective 13	<p>This objective is concerned with improving links between artefacts and other materials and records from the WHS and its associated sites, such as working with institutions, developing and supporting events and activities and identifying and reducing barriers of use and access.</p> <p>This will not affect biodiversity, flora, fauna, climatic factors and landscape. It is assumed that providing more tangible links between people today and in the Neolithic will have a positive effect on the historic environment through improving awareness and understanding and promoting safeguarding of the site. There may also be positive effects on the population and human health parameter in terms of providing</p>	N/A	No

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
			better access and greater understanding of the value of the historic environment. It is not considered necessary to assess this further, beyond identifying these positive relationships.		
12	Key stakeholders are involved in, informed about, and engaged with the decision-making process for managing the WHS and its associated infrastructure.	Previously Objective 14	<p>The focus of this objective is to ensure that key stakeholders such as landowners/managers and communities are engaged with, involved in and informed about management decisions for the WHS. This will have no effect on climatic factors and landscape.</p> <p>There will be positive effects on population and human health factor as communities will be involved in decisions affecting their places and spaces. There may also be positive effects on cultural heritage, biodiversity, flora and fauna as engaging all stakeholders can positively help safeguard the WHS including its undesignated tangible and intangible features and natural heritage. It is not considered necessary to assess this further, beyond identifying these positive relationships.</p>	N/A	No
13	Tourism at and around HONO offers a world class responsible visitor experience while benefitting the Orkney communities.	<p>Previously Objective 15</p> <p>Changes to Objective: climate mitigation reference removed as covered in Objective 7</p>	This objective has multiple elements including improving infrastructure, delivering active travel network, and delivering multi-disciplinary interpretation. There are broad sustainability matters associated with this objective with potential for a range of environmental impacts which will be explored further in the detailed assessment.	None	Yes

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
14	Strong connections between HONO and other WHSs and UNESCO designations are maintained enabling development of shared solutions to common issues.	Previously Objective 16	The intention of this objective is to maintain and develop links with various organisations to ensure the WHS is managed effectively through developing shared solutions. As there is no detail on what these solutions may be, it is not possible to assess further any effects on environmental factors.	N/A	No
15	Research needs for the understanding, interpretation, protection and management of HONO WHS are identified and integrated with relevant research frameworks at a regional, nation and international level.	Previously Objective 17	This objective will focus on ensuring that research needs for the WHS are identified and integrated into relevant frameworks. Although some research needs may relate to different environmental topics and have positive effects, these are currently unknown, and it is not considered possible to assess this further.	N/A	No
N/A	Management and interpretation of the WHS draws on robust and high-quality research and can adapt to reflect changes in understanding and perspective.	Deleted – was Draft Objective 18	<p>The intention of this objective is to identify needs for, and develop ways to ensure that, ongoing research is incorporated into the management and interpretation of the WHS. This will have no effect on landscape, population, human health, biodiversity, flora and fauna.</p> <p>This will have positive effects on cultural heritage by contributing to the safeguarding and enhancing of the historic environment. There may also be positive effects on climatic factors by research potentially providing new ways to allow effective adaptation to the effects of climate change.</p> <p>It is not considered necessary to assess this further, beyond identifying these positive relationships.</p>	N/A	No

	Objective	Updates to Objective	Description of possible significant environmental effects	Impact on assessment findings from any updates	Include in the detailed assessment?
N/A	The range of values with the WHS and Buffer Zone are identified, understood, and informing the management and interpretation of the Site	Deleted – was Draft Objective 19	<p>The aim of this objective is to ensure that it is not just the Outstanding Universal Value of the WHS that is considered in informing management and interpretation of the Site, but instead a multi-layered approach is taken. This will have no effect on climatic factors, population and human health.</p> <p>It will likely have positive effects on biodiversity, flora, and fauna by highlighting the species, habitats and ecosystems which contribute to the WHS and Buffer Zone. Similarly, this will take into consideration the special qualities, diverse character and distinct identify which makes up the landscape setting of the WHS. Identifying and highlighting the intangible cultural heritage associated with the WHS and its Buffer Zone will ensure they are safeguarded. It is not considered necessary to assess this any further than simply identifying a positive relationship.</p>	N/A	No
16	The WHS delivers a wide range of benefits – social, economic, cultural, environmental, wellbeing – to Orkney’s communities.	<p>Previously Objective 20</p> <p>Minor changes to wording.</p>	<p>This objective will focus on ensuring there is community benefits from being within and near a WHS and Buffer Zone. This will have no effect on climatic factors, landscape, cultural heritage, biodiversity, flora and fauna.</p> <p>There will likely be positive effects on population and human health by supporting healthy living and working environments and promoting access and understanding of the historic environment. It is not considered necessary to assess this further, beyond identifying these positive relationships.</p>	N/A	No

Appendix F: Detailed assessment of the draft Objectives

Key to Scoring

+	Positive effects
0	Neutral effects
-	Negative effects
+/-	Positive and/or negative effects
?	Uncertain effects

Objective 2: The boundaries of the Buffer Zone are suitable for purpose and included in future iterations of the Local Development Plan.			
Environmental parameter	SEA Objective	Score	Comments
Climatic Factors	<ul style="list-style-type: none"> Reduce the causes of climate change Contribute to effective adaptation to the predicted effects of climate change 	0	<p>Reviewing and potentially amending the WHS and Buffer Zone boundaries will have no effect on this environmental parameter.</p> <p>Update: Changes made to Objective to remove reference to WHS boundary; reference to Local Development Plan added. No impact on score.</p>
Population and Human Health	<ul style="list-style-type: none"> Promote celebration, understanding, enjoyment and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities 	+	<p>A review of the current boundaries will have a positive effect in terms of access to the WHS. Any proposed extensions should involve the local community so they can have a say in decisions affecting their places and spaces and have an understanding of the value of the historic environment.</p> <p>Update: Changes made to wording to remove reference to WHS boundary; reference to Local Development Plan added. No impact on score as review of Buffer Zone boundaries still likely to have positive impact on access.</p>
Landscape	<ul style="list-style-type: none"> To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole. 	+	<p>Any changes to the boundary are will likely have positive effects on the wider archaeological landscape. Any extensions to the Buffer Zone are unlikely to affect the wider qualities of the landscape as this is already protected through landscapes designations, such as the Hoy and West Mainland National Scenic Area.</p> <p>Update: Changes made to wording to remove reference to WHS boundary; reference to Local Development Plan added.</p>

Cultural Heritage	<ul style="list-style-type: none"> Safeguard and where appropriate enhance the historic environment 	0	<p>This could have a positive effect on cultural heritage by ensuring all sites which contribute to the OUV are incorporated within the boundaries. This will ensure that the site is adequately protected and safeguarded.</p> <p>Update: Changes made to wording to remove reference to WHS boundary; reference to Local Development Plan added. Score changed from positive to neutral as WH boundary no longer included.</p>
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> Maintain, protect and enhance biodiversity (species, habitats, ecosystems) 	0	<p>Reviewing and potentially extending the boundary focuses on the cultural value of the WHS and will have no effect on biodiversity, flora and fauna.</p> <p>Update: Changes made to wording to remove reference to WHS boundary; reference to Local Development Plan added. No impact on score.</p>
<p>Suggested mitigation/enhancement</p> <ul style="list-style-type: none"> Any proposals to alter the WHS Buffer Zone boundary will be developed in consultation with Partners and a public consultation exercise is undertaken. The sustainability checklist should be applied to actions which contribute to this objective, to ensure that a holistic environmental approach is taken in their delivery. 			
<p>Summary Positive and neutral effects with no negative effects predicted.</p>			

Objective 7: Management of the WHS prioritises adaption to the effects of the Climate Emergency on the WHS and Buffer Zone, and mitigation of climate impacts by reducing emissions and contributing to a sustainable low-carbon society.			
Environmental parameter	SEA Objective	Score	Comments
Climatic Factors	<ul style="list-style-type: none"> Reduce the causes of climate change Contribute to effective adaptation to the predicted effects of climate change 	+	This objective focuses on developing and implementing a strategy to address threats to the WHS and Buffer Zone from climate change, for example addressing coastal erosion at Skara Brae. This will have a positive effect by contributing to the effective adaptation and mitigation of climate change effects on the WHS.
Population and Human Health	<ul style="list-style-type: none"> Promote celebration, understanding, enjoyment and access to the natural and cultural heritage 	+/-	There will likely be a positive effect on population and human health as adaptation to the effects of the Climate Emergency will ensure long term access to natural and cultural heritage and make healthier living and working environments.

	<ul style="list-style-type: none"> • Support healthy living and working environments • To reduce inequalities 		<p>However, there could be instances where management and mitigation also have negative effects on access to specific areas of the WHS or Buffer Zone. For example, closure of areas to combat erosion caused by the combined impact of increased footfall with climate change impacts. This is expected to be short term and it is not considered that these implications will be significant.</p>
Landscape	<ul style="list-style-type: none"> • To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole. 	-	<p>Physical measures from a long-term strategy to address the threats to Skara Brae from climate change effects could have a negative effect on landscape depending upon the scale, design and material used. It is uncertain at this stage if any measures will take place and if so impacts should be considered as options are developed.</p>
Cultural Heritage	<ul style="list-style-type: none"> • Safeguard and where appropriate enhance the historic environment 	+	<p>Adaptation and mitigation of climate impacts will have a positive effect on the historic environment by contributing to the safeguarding of tangible features at risk from the consequences of climate change.</p>
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> • Maintain, protect and enhance biodiversity (species, habitats, ecosystems) 	-	<p>Any physical measures required to address climate effects on the WHS, such as coastal defence work, could have a range of adverse effects on biodiversity, flora and fauna. This includes impacts on geology and geomorphology, natural coastal processes, and coastal and landward habitats and species. It is uncertain at this stage if any measures will take place and if so impacts should be considered as options are developed.</p>
<p>Suggested mitigation/enhancement</p> <ul style="list-style-type: none"> • Environmental assessment will be integrated into the development of options for both short- and long-term large scale physical measures to identify in detail the potential environmental effects on biodiversity, flora, fauna, and landscape. • The sustainability checklist should be applied to actions which contribute to this objective, to ensure that a holistic environmental approach is taken in their delivery. 			
<p>Summary</p> <p>There is an even balance in likely positive and negative effects for this objective. Negative effects are expected to be minor or if potentially significant, suggested mitigation and enhancement should ensure that they do not have significant effects.</p>			

Objective 8: A programme of monitoring is in place for both the state of conservation and the implementation of actions for the WHS and Buffer Zone and the results are used by Partners to inform decision making and future management.

Environmental parameter	SEA Objective	Score	Comments
Climatic Factors	<ul style="list-style-type: none"> • Reduce the causes of climate change • Contribute to effective adaptation to the predicted effects of climate change 	+	<p>This objective will see the ongoing monitoring of the effects of climate change on the WHS and Buffer Zone, such as sea level change and precipitation change. Monitoring the impacts of the rapid growth of tourism and its associated rise in emissions of CO₂ and greenhouse gases from methods of travel may also be included.</p> <p>Although it is not possible to assess exact details of monitoring or what the outcomes of the monitoring will be, it will provide an important baseline which can inform decision making and future management of the site. This will likely allow steps to be taken to reduce emissions and contribute to effective adaptation to the predicted effects of climate change.</p>
Population and Human Health	<ul style="list-style-type: none"> • Promote celebration, understanding, enjoyment and access to the natural and cultural heritage • Support healthy living and working environments • To reduce inequalities 	+/-	<p>The monitoring of erosion impacts from visitors may have negative implications for access to the WHS, such as the closure of areas for turf repair or to allow areas of ground to rest. These will likely be small scale, short/medium term actions and it is not considered that these implications will be significant.</p> <p>In contrast, monitoring can result in the WHS and Buffer Zone being better management decisions, allowing the WHS and its archaeological landscape to be understood and enjoyed with greater access for people, especially local communities, in the longer term.</p>
Landscape	<ul style="list-style-type: none"> • To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole. 	+	<p>The archaeological landscape of World Heritage Status is a special quality of the Hoy and West Mainland National Scenic Area (NSA). Monitoring of the WHS and Buffer Zone and undertaking positive decision making and management will ensure that the special qualities of the landscape are safeguarded and enhanced.</p>
Cultural Heritage	<ul style="list-style-type: none"> • Safeguard and where appropriate enhance the historic environment 	+/-	<p>A programme of monitoring for the WHS and Buffer Zone will contribute the safeguarding of both designated and undesignated/unknown tangible features alongside intangible features of the historic environment. It will help identify which elements are at risk, including in the context of climate change. This will assist with the safeguarding and, where appropriate, enhancement of cultural heritage.</p>

			<p>The sites which comprise the WHS are Properties in Care and can be monitored appropriately. However, the WHS sits within a wider archaeological landscape, some of which is within the Buffer Zone. Here, the responsibility of designated and undesignated tangible heritage features is primarily the responsibility of the landowner or manager, and they have no obligation to monitor and manage monuments. HES's field officers monitor the condition of scheduled monuments through site visits approximately every 5 years, however there is no current system for monitoring undesignated monuments within the Buffer Zone.</p> <p>There can be instances where monitoring can lead to management recommendations for natural heritage which can conflict with cultural heritage, reducing the level of positive effect. Any negative effects as a result of this are expected to be minor and not significantly impact the WHS and Buffer Zone.</p>
<p>Biodiversity, Flora and Fauna</p>	<ul style="list-style-type: none"> • Maintain, protect and enhance biodiversity (species, habitats, ecosystems) 	<p>+/-</p>	<p>Monitoring the increased pressures associated with growing visitor numbers to the site can allow positive management solutions to be identified that maintain local biodiversity interests. Natural heritage interests should be taken into consideration when taking steps to address carrying capacity issues.</p> <p>There can be instances where monitoring can lead to management recommendations for cultural heritage which can conflict with biodiversity, flora and fauna interests, for example vegetation clearing.</p> <p>Monitoring of climate change effects could result in management recommendations, such as coastal defences at Skara Brae or changes to car parking/traffic management to reduce greenhouse gas emissions, that could have adverse effects on biodiversity, in particular affecting natural processes and affecting coastal and landwards habitats and the species that they support.</p>
<p>Suggested mitigation/enhancement</p> <ul style="list-style-type: none"> • Steps taken to address carrying capacity issues should be sustainable in the long term and include natural heritage interests. • The sustainability checklist should be applied to actions which contribute to this objective, to ensure that a holistic environmental approach is taken in their delivery. • Ensure careful consideration in proposal for any potential development or improvements to facilities at sites which may impact the sensitive heritage, landscape and natural environment. • Suggest actions to encourage landowners or managers to contribute to the monitoring and management of the WHS buffer zone 			<p>Summary</p> <p>The overall effects of this objective are positive however some negative effects have been identified. These are likely to be minor and suggested mitigation and enhancement should ensure that they do not have significant effects.</p>

Objective 10: Management and interpretation (onsite and offsite, including digitally) enhance awareness and understanding of the archaeological and historical heritage, the natural environment, the Buffer Zone and WHS in its wider context, geographically and through time. All based on robust research and understanding.

Environmental parameter	SEA Objective	Score	Comments
Climatic Factors	<ul style="list-style-type: none"> Reduce the causes of climate change Contribute to effective adaptation to the predicted effects of climate change 	0	Climatic factors are unlikely to be affected by this objective.
Population and Human Health	<ul style="list-style-type: none"> Promote celebration, understanding, enjoyment and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities 	+	<p>This objective should have a positive effect on population and human health by increasing understanding of the value of the historic environment. Improving opportunities and better access.</p> <p>Management will improve the condition of the historic environment as a place to live and work, improving opportunities and understanding of the WHS and the archaeological landscape it sits in.</p>
Landscape	<ul style="list-style-type: none"> To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole. 	-	Depending on their location, scale and materials used, any new physical measures may affect special landscape qualities, such as land use character. Although there are potential negative effects, these are not expected to be significant unless large scale development is proposed.
Cultural Heritage	<ul style="list-style-type: none"> Safeguard and where appropriate enhance the historic environment 	+/-	<p>The WHS and Buffer Zone will be safeguarded and enhanced through an increase in awareness and understanding of its archaeological and historical heritage.</p> <p>This objective could lead to the creation of new interpretive and management services or infrastructure. Depending on their natures, this could cause disturbance to archaeological remains and have effects on the setting of the WHS</p>
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> Maintain, protect and enhance biodiversity (species, habitats, ecosystems) 	+/-	<p>Management and interpretation should enhance awareness and understanding of natural heritage which will have positive effects for maintaining, protecting and enhancing biodiversity.</p> <p>However, any new physical measures used to enhance awareness and understanding could adversely affect natural heritage interests such as areas</p>

			designated for nature conservation and wider biodiversity and should be designed sensitively.
Suggested mitigation/enhancement			
<ul style="list-style-type: none"> • Environmental assessment of any new interpretive or management services or infrastructure • Any new physical management or interpretive measures should be sensitively located and designed to avoid effecting the natural and historic elements alongside the landscape character of the WHS • The sustainability checklist should be applied to actions which contribute to this objective, to ensure that a holistic environmental approach is taken in their delivery. 			
Summary			
Overall, effects are likely to be positive, with some neutral and negative impacts but these are likely to be minor and suggested mitigation and enhancement should ensure that they do not have significant effects			

Objective 13: Tourism at and around HONO offers a world class responsible visitor experience, while benefitting the Orkney communities.			
Environmental parameter	SEA Objective	Score	Comments
Climatic Factors	<ul style="list-style-type: none"> • Reduce the causes of climate change • Contribute to effective adaptation to the predicted effects of climate change 	+	<p>This objective will play a positive role in contributing to the effective adaptation to the effects of climate change and combat the rises in CO2 and greenhouse gas emissions caused by the rapid growth of tourism.</p> <p>The creation of active travel networks will potentially see an increase on the use of more sustainable transport options through walking and cycling to get between the central west mainland sites, contributing to a reduction in the causes of climate change. This however will likely not have an effect on certain methods of travel, such as cruise ships and buses, resulting in no change to climate outcomes.</p>
Population and Human Health	<ul style="list-style-type: none"> • Promote celebration, understanding, enjoyment and access to the natural and cultural heritage • Support healthy living and working environments • To reduce inequalities 	+	<p>This objective will have a positive effect on the local community, being a significant benefit by supporting healthy living and working environments. The delivery of multi-disciplinary interpretation to a wide range of recreational, learning and community groups within the WHS and beyond will support placemaking.</p> <p>A holistic Interpretation and Access Plan will ensure there is both natural and cultural heritage interests, which will allow people to have a better understanding of the value of and access, physical and intellectual, to the WHS and Buffer Zone.</p>

Landscape	<ul style="list-style-type: none"> To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole. 	-	<p>There is potential for this objective to have negative effects on the safeguarding of landscape, particularly around the central West mainland sites. Extending the core path network, developing a new active travel network and improvements to infrastructure could affect the archaeological landscape. Depending on their location, scale and materials used, any new physical measures there may also be effects on the special landscape qualities, such as land use character. Although there are potential negative effects, these are not expected to be significant unless large scale development is proposed.</p>
Cultural Heritage	<ul style="list-style-type: none"> Safeguard and where appropriate enhance the historic environment 	+/-	<p>Improvements to infrastructure defined by a responsible tourism approach can have a positive effect on cultural heritage. It can contribute to the dispersal and reduction in the concentration of visitors which will help safeguard the historic environment.</p> <p>Any new interpretive/access services or infrastructure proposed within an Interpretation and Access Plan or delivered through an active travel or path network could result in adverse effects to the setting of the WHS and key monuments, alongside disturbance of archaeological remains. The level of effect could be mitigated by the sensitive choice of locations and appropriate design, but this is unknown at this stage.</p>
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> Maintain, protect and enhance biodiversity (species, habitats, ecosystems) 	+/-	<p>An interpretation and Access Plan will include all aspects of access, ranging from physical access to the sites to different interpretive services and intellectual access. A holistic approach is positive by including natural heritage interests however any new physical measures (such as paths or signage) could affect biodiversity and should be designed sensitively.</p> <p>Extending or creating new core path networks and active travel could have adverse effects on biodiversity depending on where they are situated, and the materials used. However, if they are designed to avoid sensitive habitats and are monitored, they offer the opportunity to disperse the concentrations of visitors and potentially away from sensitive habitats and safeguard biodiversity.</p>
<p>Suggested mitigation/enhancement</p> <ul style="list-style-type: none"> Any new developments or physical measures for visitors should be located and designed sensitively (including materials and colours used) to avoid adversely affecting biodiversity, landscape and cultural heritage Wider environmental issues will be included in the Interpretation Plan Environmental assessment and archaeological investigation prior to any new physical measures Active operational monitoring of the active travel and path networks is required to allow areas to be temporarily closed off if sensitive habitats shift in the future (bird nesting, seasonal growth etc). 			

- The sustainability checklist should be applied to actions which contribute to this objective, to ensure that a holistic environmental approach is taken in their delivery.

Summary

Though largely positive, there is potential for adverse negative effects to cultural heritage, landscape, biodiversity, flora and fauna if suggested mitigation is not followed. There are contrasts in the scoring effects between different environmental parameters for this objective. For example, creating an active travel network could have both positive and negative environmental effects depending upon the location and design of the new path.

Deleted draft Objectives

These Objectives were deleted during the process of developing the consultation draft of the Management Plan. Their assessment has been retained here for information.

Deleted – previously Objective 11 (“Management of the WHS protects and enhances the natural heritage values of the WHS and interpretation contributes to awareness and understanding of the natural heritage of the WHS and the Buffer Zone.”)			
Environmental parameter	SEA Objective	Score	Comments
Climatic Factors	<ul style="list-style-type: none"> • Reduce the causes of climate change • Contribute to effective adaptation to the predicted effects of climate change 	0	Climatic factors are unlikely to be affected by this objective.
Population and Human Health	<ul style="list-style-type: none"> • Promote celebration, understanding, enjoyment and access to the natural and cultural heritage • Support healthy living and working environments • To reduce inequalities 	+	This objective should have a positive effect on population and human health by increasing understanding of the value of the natural environment, improving opportunities and better access to it
Landscape	<ul style="list-style-type: none"> • To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland’s landscapes as a whole. 	-	Depending on their location, scale and materials used, any new physical measures may affect special landscape qualities, such as land use character. Although there are potential negative effects, these are not expected to be significant unless large scale development is proposed.

Cultural Heritage	<ul style="list-style-type: none"> Safeguard and where appropriate enhance the historic environment 	+/-	<p>The WHS and Buffer Zone will be safeguarded and enhanced through an increase in awareness and understanding of its natural heritage.</p> <p>This objective could lead to the creation of new interpretive and management services or infrastructure. Depending on their natures, this could cause disturbance to archaeological remains and have effects on the setting of the WHS</p>
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> Maintain, protect and enhance biodiversity (species, habitats, ecosystems) 	+/-	<p>Management and interpretation should enhance awareness and understanding of natural heritage which will have positive effects for maintaining, protecting and enhancing biodiversity.</p> <p>However, any new physical measures used to enhance awareness and understanding could adversely affect natural heritage interests such as areas designated for nature conservation and wider biodiversity and should be designed sensitively.</p>
<p>Suggested mitigation/enhancement</p> <ul style="list-style-type: none"> Environmental assessment of any new interpretive or management physical services or infrastructure Any new physical management or interpretive measures should be sensitively located and designed to avoid effecting the natural and historic elements alongside the landscape character of the WHS The sustainability checklist should be applied to actions which contribute to this objective, to ensure that a holistic environmental approach is taken in their delivery. 			
<p>Summary</p> <p>Overall, effects are likely to be positive, with some neutral and negative impacts but these are likely to be minor and suggested mitigation and enhancement should ensure that they do not have significant effects</p>			

Deleted – previously Objective 12 (“HONO has an inspiring, engaging and accessible digital presence that reflects the values of the Site and enables access – physical and intellectual – to, and understanding of, the WHS and Buffer Zone.”)			
Environmental parameter	SEA Objective	Score	Comments
Climatic Factors	<ul style="list-style-type: none"> Reduce the causes of climate change Contribute to effective adaptation to the predicted effects of climate change 	?	Increasing the digital presence, especially providing alternative sustainable opportunities to change the way people experience the WHS via online interpretation and outreach, may have a positive effect on this parameter. It could reduce CO ₂ and greenhouse gas emissions by potentially reducing the number of people visiting the WHS and Buffer Zone. However, it is uncertain how this would realistically affect the rapid growth of visitor numbers to

			Orkney, and if visitors would still come the WHS regardless to experience it in person.
Population and Human Health	<ul style="list-style-type: none"> Promote celebration, understanding, enjoyment and access to the natural and cultural heritage Support healthy living and working environments To reduce inequalities 	+	The objective will have a positive effect by disseminating information through a range of mediums to allow people to better understand the value of and access, physically and intellectually, the WHS and Buffer Zone.
Landscape	<ul style="list-style-type: none"> To safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole. 	0	Depending on the nature of the digital presence there may be positive effects on landscape if mediums contribute to the enhancement of the WHS in its wider landscape setting. However, this will likely be minor and localised with an overall effect expected to be neutral.
Cultural Heritage	<ul style="list-style-type: none"> Safeguard and where appropriate enhance the historic environment 	+	Having an accessible, engaging and inspiring digital presence will positively enhance the cultural heritage of the WHS and Buffer Zone. There may also be localised positive impacts through being able to use digital interpretation to reduce or replace access to fragile areas of the WHS, helping to conserve it.
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> Maintain, protect and enhance biodiversity (species, habitats, ecosystems) 	+/-	<p>Providing more opportunities to experience and understand the WHS digitally could have a positive affect for the physical pressures caused by increased visitor numbers by offering alternative online ways to experience the site. This could be beneficial to natural heritage, helping to maintain and protect biodiversity by reducing the numbers and intensity of visitors or replace access to parts of the WHS. As noted above, the effects this will realistically have on visitor numbers is uncertain.</p> <p>If digital services require infrastructure and/or encouraged greater spatial disruption around the WHS and Buffer Zone, this may have negative impacts on biodiversity by moving visitors into potentially sensitive habitats.</p>
Suggested mitigation/enhancement <ul style="list-style-type: none"> Any new physical measures for digital infrastructure should be sensitively located and designed to avoid effecting the natural and historic elements of the WHS Natural heritage interests should be taken into consideration when designing and providing different digital opportunities to experience and understand the WHS and Buffer Zone. 			

- The sustainability checklist should be applied to actions which contribute to this objective, to ensure that a holistic environmental approach is taken in their delivery.

Summary

Overall, largely positive effects have been identified for this objective with one neutral and one uncertain. There may be negative effects on biodiversity, flora and fauna but these are likely to be minor and suggested mitigation and enhancement should ensure that they do not have significant effects. It could contribute to measures to address carrying capacity issues at the sites, especially effects on cultural heritage, but any new physical access measures or infrastructure to support digital resources could contrast with biodiversity interests.