

**Non-
Technical
Summary**

**Full
Report**

Orkney Gateway Programme

Environmental Report: Non-technical summary

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1. Introduction

This non-technical summary provides key information about the environmental effects of options for the Orkney Gateway Programme, and explains how they have been assessed. For more detail, you can read the full Environmental Report, which is available on the Orkney Gateway Programme consultation page.

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.

Led by a strategic partnership between OIC, HES and Highlands and Islands Enterprise, and designed in accordance with the HONO WHS Masterplan 2019-29, the Orkney Gateway Programme will create a new tourism offer for the Brodgar / Stenness part of the WHS.

The purpose of this report is to document the findings of our environmental assessment of several options for the Orkney WHS Gateway Programme and to inform the selection of a preferred Option.

In doing so, this Report highlights the types of environmental issues that we have considered, at a strategic level, as being relevant for the actions that are likely to be brought forward. Where possible we have sought to identify the most significant effects (both positive and negative) and where relevant, suggest mitigation measures or opportunities for enhancement.

What comments are being sought?

We would welcome views on any aspect of this report, but in particular, we invite you to consider the following questions:

- Do you agree that our environmental assessment has identified the likely environmental effects of the options?
- Do you think there are any additional mitigation, enhancement or monitoring measures that should be considered?

2. What is Strategic Environmental Assessment (SEA)?

When public bodies are preparing plans, programmes and strategies, an assessment of their effect on the environment is undertaken. The public bodies preparing plans, policies, programmes or strategies are the 'Responsible Authorities' for those documents.

The purpose of SEA is to ensure that information on the environmental effects of a plan, programme or policy are gathered and made available to plan-makers and decision takers as it 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.

In doing so, SEA aims to:

- integrate environmental factors into plan preparation and decision-making
- improve plans and enhance environmental protection
- increase public participation in decision making
- facilitate openness and transparency

The key stages of SEA for the Orkney WHS Gateway Programme involve:

Stage	Activity
Screening	Determining if the Programme is likely to have significant environmental effects and whether an SEA is required.
Scoping	Deciding on the scope and level of detail for the assessment and the consultation period. This is done in liaison with NatureScot (formerly Scottish Natural Heritage) and the Scottish Environment Protection Agency (SEPA).
Assessment, mitigation & enhancement	Testing the various elements and options for the programme as it is developed, identifying mitigation measures and looking at ways to enhance positive effects.
Environmental Report	Publishing an Environmental Report on the findings of the assessment and consulting on that report and the Programme.
Adoption & monitoring	Providing information on the final Programme, how consultation comments have been considered and methods for monitoring the significant environmental effects arising from its implementation.

The assessment process is structured around SEA topic areas. These topic areas are the range of environmental issues which should be explored through the assessment. They include biodiversity, flora and fauna; population and human health; water; soil; air; climate; material assets; cultural heritage; and landscape.

The Environmental Report:

- Describes the environmental and policy context of the Orkney Gateway Programme
- Describes the relevant aspects of the environmental baseline
- Explains how the environmental assessment was carried out and which reasonable alternatives were assessed

- Sets out the findings of the environmental assessment
- Discusses options for improving the positive effects and mitigating negative effects where appropriate

SEPA and NatureScot were consulted on the approach taken to the environmental assessment. Annex C of the full report sets out how their comments have been taken into account.

3. Environmental Context

One of the early stages of the SEA process is to consider the relationship of the policy to other relevant policies, plans, strategies and environmental objectives. This allows key environmental issues to be identified for consideration during the development of options. Section 3 of the full report sets out our review of the legislation, policies, plans and strategies that are considered to be of most direct relevance to the options.

In order to help consider the effects of the draft policy we gathered information about relevant aspects of the environmental baseline. Section 3 of the Environmental Report summarises the environmental baseline.

We also considered, in consultation with NatureScot and SEPA, the scope of our assessment. We scoped climatic factors (including air quality); biodiversity; water; soil; landscape; cultural heritage; population and human health; and material assets into the assessment. Table 2 of the full Environmental Report sets out in more detail the environmental topics which we scoped into the assessment, and why.

4. Approach to the assessment

A framework of environmental objectives and related questions has been used to help predict the environmental effects of the policy. This approach helps to make the assessment systematic and consistent. The environmental objectives come from our review of plans, programmes and strategies that we talked of above and the performance of our actions against these objectives is tested by a series of questions that help to focus the assessment. The full framework of environmental objectives can be seen in Section 4, Table 2 of the main Environmental Report.

5. Consideration of alternatives

The development of the Programme has occurred over a number of years and a range of options and approaches have been identified, assessed and discounted as non-reasonable options, based on their performance against the key objectives established by the Partners. Details of this process are set out in Section 4 of the main Environmental Report.

Four reasonable alternatives have been identified and are the subject of this consultation:

Option 1: Do Minimum - minor upgrade and refresh of existing facilities and network

Option 2: Digital and Infrastructure – Significant local infrastructure upgrades supported by full digital orientation and interpretation, but without a physical centre.

Option 3: Local Hub at Stenness Village – New / refreshed centre in local area, forming hub for new visitor experience with local connectivity improvements and shuttle connections to and from the WHS.

Option 4: Adjacent Centre – New centre close to WHS forming accessible heart to new visitor experience with local connectivity improvements and shuttle support

These options are described more fully in the detailed assessment matrices at Annex A and the Public Consultation Document.

All alternative options were assessed to the same level of detail. The assessments considered whether effects would be positive or negative and short, medium or long term. Once each option had been assessed, the findings were brought together to consider whether any the options will generate cumulative or cross-cutting effects on any of the environmental receptors scoped into the assessment.

Where assessment identified significant negative environmental effects, mitigative measures were identified where possible. The potential for enhancement of positive effects was also considered.

6. Assessment Findings

Assessment matrices setting out the detailed findings in relation to each option are provided at Annex A of the main Environmental Report. We have provided a narrative summary of those findings below.

Option 1: Do Minimum

As a result of the minimal interventions proposed under this option, **neutral effects** were identified for **climatic factors; biodiversity; water; soil; landscape; and population and human health.**

Some potential **positive** effects were identified for **soil** if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Negative effects were identified for **cultural heritage**, largely due to the physical and visual impact of new interpretation. Mitigation and enhancement measures could reduce risk of erosion to heritage assets, and help avoid disturbance of archaeological remains, resulting in a **residual positive** effect.

Positive effects were identified for **material assets**, due to minimal changes to infrastructure, and continued use of existing buildings and infrastructure.

No significant cumulative or cross-cutting effects were identified for this option.

Option 2: Digital and Infrastructure

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for **water** in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for **soil**. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Significant negative effects were identified for **landscape** and **cultural heritage**, due to the introduction of infrastructure and car park within and adjacent to the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, there is the potential for some **residual negative effects**.

Significant positive effects were identified for **population and human health** for the local population, through the provision of enhanced active travel opportunities and removal of tourist activity, with associated traffic and disruption issues.

Negative effects were identified for **material assets**, due to removal of a physical visitor centre which would take the current building in Stenness out of use. Whilst alternative uses could be explored, it is **uncertain** if this could be secured within the scope of the Programme.

No significant cumulative or cross-cutting effects were identified for this option.

Option 3: Local Hub

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for **water** in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm

to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for **soil**. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Negative effects were identified for **landscape**, due to the introduction of some new infrastructure. Effective mitigation (careful consideration of location, design and materials) could result in **residual neutral effects**.

Negative effects were identified for **cultural heritage**, due to the introduction of some new infrastructure within the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, the level to which this could be mitigated is **uncertain** at this point and there is the potential for some **residual negative effects** for **cultural heritage**.

Mixed effects were identified for **population and human health** for the local population. Positive effects are expected through the provision of enhanced active travel opportunities, but negative effects are predicted if the enhanced Hub causes traffic and disruption issues for local residents.

Negative effects are identified for **material assets**, due to added infrastructure maintenance requirements, and the potential for construction of a new Hub building, rather than continued use of the existing building. This option has also potential for **positive effects** through reuse of the existing Hub building. However, positive effects are **uncertain**, as they are dependent on the level of reuse of the existing building and infrastructure.

No significant cumulative or cross-cutting effects were identified for this option.

Option 4: Adjacent Centre

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for water in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for soil. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Significant negative effects were identified for **landscape** and **cultural heritage**, due to the introduction of infrastructure and car park within and adjacent to the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, there is the potential for some **residual negative effects**. The significance of these is **uncertain** and will depend on the degree of flexibility available in relation to location and design. Some **residual positive effects** are also identified for **cultural heritage** as a result of improved visitor management which should reduce erosion.

Significant positive effects were identified for **population and human health** for the local population, through the provision of enhanced active travel opportunities and removal of tourist activity, with associated traffic and disruption issues.

Negative effects were identified for **material assets**, due to closure of the existing visitor centre which would take the current building in Stenness out of use, and the use of resources required for a new centre and infrastructure. Whilst some mitigation measures have been identified, **residual negative** effects are likely.

No significant cumulative or cross-cutting effects were identified for this option.

7. Mitigation, enhancement and monitoring

Mitigation and enhancement measures are set out in detail in the detailed assessment matrices at Annex A of the main Environmental Report, and will be embedded into the decision-making processes for the next stages of the Programme.

We will monitor the environmental effects of the Programme as part of our overall monitoring of the Programme. We will use the environmental objectives and issues identified in this assessment to help us do this. This will help to identify any effects arising which were not predicted through the assessment and allow appropriate mitigation to be sought. Our approach to monitoring will be considered further and outlined in our Post Adoption Statement.

8. Next steps

It is a requirement of the SEA Act to demonstrate how the environmental assessment (and all the comments expressed on the relevant documents) have influenced the preparation of the guidance. This will be explained in the SEA Post Adoption Statement which will be published following identification of a preferred option for the Programme. Having taken into representations made on this report, this statement will also include a final version of any monitoring indicators.

The public consultation period on the options for the Programme and environmental report ends on 15 October 2021 at 5pm. Following this, a decision on a preferred option will be made, taking into account the comments made during the public consultation. Any changes will be screened to consider if they raise significant

environmental issues that have not already been considered in the environmental assessment.

9. Consultation

The public consultation period on the options for the Programme and Environmental Report ends on 15 October 2021 at 5pm. Any comments that you would like to make on either document are welcomed. You are encouraged to use the Consultation Survey to help structure your response to the options and this Environmental Report. For the Environmental Report, the main questions to think about are:

- Do you agree that our environmental assessment has identified the likely environmental effects of the options?
- Do you think there are any additional mitigation, enhancement or monitoring measures that should be considered?

Comments and consultation responses can be provided via the online consultation survey, emailed to worldheritage@orkney.gov.uk or submitted in writing to:

Christie Hartley,
Volume Tourism Development and Management Officer,
Development and Infrastructure,
Orkney Islands Council,
Council Offices,
Kirkwall,
Orkney
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Orkney Gateway Programme

Environmental Report

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Annex B: Baseline information & key issues

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1. Non-technical summary

This non-technical summary provides key information about the environmental effects of options for the Orkney Gateway Programme, and explains how they have been assessed. For more detail, you can read the full Environmental Report, which begins at page 11 of this document.

Introduction

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.

Led by a strategic partnership between OIC, HES and Highlands and Islands Enterprise, and designed in accordance with the HONO WHS Masterplan 2019-29, the Orkney Gateway Programme will create a new tourism offer for the Brodgar / Stenness part of the WHS.

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In doing so, this Report highlights the types of environmental issues that we have considered, at a strategic level, as being relevant for the actions that are likely to be brought forward. Where possible we have sought to identify the most significant effects (both positive and negative) and where relevant, suggest mitigation measures or opportunities for enhancement.

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The purpose of SEA is to ensure that information on the environmental effects of a plan, programme or policy are gathered and made available to plan-makers and decision takers as it 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.

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The key stages of SEA for the Orkney WHS Gateway Programme involve:

Stage	Activity
Screening	Determining if the Programme is likely to have significant environmental effects and whether a SEA is required.
Scoping	Deciding on the scope and level of detail for the assessment and the consultation period. This is done in liaison with NatureScot (formerly Scottish Natural Heritage) and the Scottish Environment Protection Agency (SEPA).
Assessment, mitigation & enhancement	Testing the various elements and options for the programme as it is developed, identifying mitigation measures and looking at ways to enhance positive effects.
Environmental Report	Publishing an Environmental Report on the findings of the assessment and consulting on that report and the Programme options.
Adoption & monitoring	Providing information on the final Programme, how consultation comments have been considered and methods for monitoring the significant environmental effects arising from its implementation.

The assessment process is structured around SEA topic areas. These topic areas are the range of environmental issues which should be explored through the assessment. They include biodiversity, flora and fauna; population and human health; water; soil; air; climate; material assets; cultural heritage; and landscape.

The Environmental Report:

- Describes the environmental and policy context of the Orkney Gateway Programme
- Describes the relevant aspects of the environmental baseline

- Explains how the environmental assessment was carried out and which reasonable alternatives were assessed
- Sets out the findings of the environmental assessment
- Discusses options for improving the positive effects and mitigating negative effects where appropriate

SEPA and NatureScot were consulted on the approach taken to the environmental assessment. Annex C of the full report sets out how their comments have been taken into account.

Environmental Context

One of the early stages of the SEA process is to consider the relationship of the policy to other relevant policies, plans, strategies and environmental objectives. This allows key environmental issues to be identified for consideration during the development of options. Section 3 of the full report sets out our review of the legislation, policies, plans and strategies that are considered to be of most direct relevance to the options.

In order to help consider the effects of the draft policy we gathered information about relevant aspects of the environmental baseline. Section 3 of the Environmental Report summarises the environmental baseline.

We also considered, in consultation with NatureScot and SEPA, the scope of our assessment. We scoped climatic factors (including air quality); biodiversity; water; soil; landscape; cultural heritage; population and human health; and material assets into the assessment. Table 2 of the full Environmental Report sets out in more detail the environmental topics which we scoped into the assessment, and why.

Approach to the assessment

A framework of environmental objectives and related questions has been used to help predict the environmental effects of the policy. This approach helps to make the assessment systematic and consistent. The environmental objectives come from our review of plans, programmes and strategies that we talked of above and the performance of our actions against these objectives is tested by a series of questions that help to focus the assessment. The full framework of environmental objectives can be seen in Section 4, Table 2 of the main Environmental Report.

Consideration of alternatives

The development of the Programme has occurred over a number of years and a range of options and approaches have been identified, assessed and discounted as non-reasonable options, based on their performance against the key objectives

established by the Partners. Details of this process are set out in Section 4 of the main Environmental Report.

Four reasonable alternatives have been identified and are the subject of this consultation:

Option 1: Do Minimum - minor upgrade and refresh of existing facilities and network

Option 2: Digital and Infrastructure – Significant local infrastructure upgrades supported by full digital orientation and interpretation, but without a physical centre.

Option 3: Local Hub at Stenness Village – New / refreshed centre in local area, forming hub for new visitor experience with local connectivity improvements and shuttle connections to and from the WHS.

Option 4: Adjacent Centre – New centre close to WHS forming accessible heart to new visitor experience with local connectivity improvements and shuttle support

These options are described more fully in the detailed assessment matrices at Annex A and the Public Consultation Document.

All alternative options were assessed to the same level of detail. The assessments considered whether effects would be positive or negative and short, medium or long term. Once each option had been assessed, the findings were brought together to consider whether any the options will generate cumulative or cross-cutting effects on any of the environmental receptors scoped into the assessment.

Where assessment identified significant negative environmental effects, mitigative measures were identified where possible. The potential for enhancement of positive effects was also considered.

Assessment Findings

Assessment matrices setting out the detailed findings in relation to each option are provided at Annex A of the main Environmental Report. We have provided a narrative summary of those findings below.

Option 1: Do Minimum

As a result of the minimal interventions proposed under this option, **neutral effects** were identified for **climatic factors; biodiversity; water; soil; landscape; and population and human health.**

Some potential **positive** effects were identified for **soil** if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Negative effects were identified for **cultural heritage**, largely due to the physical and visual impact of new interpretation. Mitigation and enhancement measures could reduce risk of erosion to heritage assets, and help avoid disturbance of archaeological remains, resulting in a **residual positive** effect.

Positive effects were identified for **material assets**, due to minimal changes to infrastructure, and continued use of existing buildings and infrastructure.

No significant cumulative or cross-cutting effects were identified for this option.

Option 2: Digital and Infrastructure

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for **water** in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for **soil**. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Significant negative effects were identified for **landscape** and **cultural heritage**, due to the introduction of infrastructure and car park within and adjacent to the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, there is the potential for some **residual negative effects**.

Significant positive effects were identified for **population and human health** for the local population, through the provision of enhanced active travel opportunities and removal of tourist activity, with associated traffic and disruption issues.

Negative effects were identified for **material assets**, due to removal of a physical visitor centre which would take the current building in Stenness out of use. Whilst alternative uses could be explored, it is **uncertain** if this could be secured within the scope of the Programme.

No significant cumulative or cross-cutting effects were identified for this option.

Option 3: Local Hub

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for **water** in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for **soil**. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Negative effects were identified for **landscape**, due to the introduction of some new infrastructure. Effective mitigation (careful consideration of location, design and materials) could result in **residual neutral effects**.

Negative effects were identified for **cultural heritage**, due to the introduction of some new infrastructure within the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, the level to which this could be mitigated is **uncertain** at this point and there is the potential for some **residual negative effects** for **cultural heritage**.

Mixed effects were identified for **population and human health** for the local population. Positive effects are expected through the provision of enhanced active travel opportunities, but negative effects are predicted if the enhanced Hub causes traffic and disruption issues for local residents.

Negative effects are identified for **material assets**, due to added infrastructure maintenance requirements, and the potential for construction of a new Hub building, rather than continued use of the existing building. This option has also potential for **positive effects** through reuse of the existing Hub building. However, positive effects are **uncertain**, as they are dependent on the level of reuse of the existing building and infrastructure.

No significant cumulative or cross-cutting effects were identified for this option.

Option 4: Adjacent Centre

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for **water** in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs.

Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for soil. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

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Negative effects were identified for **material assets**, due to closure of the existing visitor centre which would take the current building in Stenness out of use, and the use of resources required for a new centre and infrastructure. Whilst some mitigation measures have been identified, **residual negative** effects are likely.

No significant cumulative or cross-cutting effects were identified for this option.

Mitigation, enhancement and monitoring

Mitigation and enhancement measures are set out in detail in the detailed assessment matrices at Annex A of the main Environmental Report, and will be embedded into the decision-making processes for the next stages of the Programme.

We will monitor the environmental effects of the Programme as part of our overall monitoring of the Programme. We will use the environmental objectives and issues identified in this assessment to help us do this. This will help to identify any effects arising which were not predicted through the assessment and allow appropriate mitigation to be sought. Our approach to monitoring will be considered further and outlined in our Post Adoption Statement.

Next steps

It is a requirement of the SEA Act to demonstrate how the environmental assessment (and all the comments expressed on the relevant documents) have influenced the preparation of the guidance. This will be explained in the SEA Post

Adoption Statement which will be published following identification of a preferred option for the Programme. Having taken into representations made on this report, this statement will also include a final version of any monitoring indicators.

The public consultation period on the options for the Programme and environmental report ends on 15 October 2021 at 5pm. Following this, a decision on a preferred option will be made, taking into account the comments made during the public consultation. Any changes will be screened to consider if they raise significant environmental issues that have not already been considered in the environmental assessment.

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The public consultation period on the options for the Programme and Environmental Report ends on 15 October 2021 at 5pm. Any comments that you would like to make on either document are welcomed. You are encouraged to use the Consultation Survey to help structure your response to the options and this Environmental Report. For the Environmental Report, the main questions to think about are:

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Volume Tourism Development and Management Officer,
Development and Infrastructure,
Orkney Islands Council,
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2. Introduction

What is Strategic Environmental Assessment (SEA)?

When public bodies are preparing plans, programmes and strategies, an assessment of their effect on the environment is undertaken. The public bodies preparing plans, programmes or strategies are the 'Responsible Authorities' for those documents.

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In doing so, this Report highlights the types of environmental issues that we have considered, at a strategic level, as being relevant for the actions that are likely to be brought forward. Where possible we have sought to identify the most significant effects (both positive and negative) and where relevant, suggest mitigation measures or opportunities for enhancement.

This report has been prepared in accordance with the Environmental Assessment (Scotland) Act 2005. This legislation sets out the process of undertaking SEA, from screening (where relevant) and scoping at the outset, to assessment, the preparation of an Environmental Report, and public consultation.

Background to the Heart of Neolithic Orkney (HONO) World Heritage Site (WHS) and the Orkney Gateway Programme

Heart of Neolithic Orkney (HONO) 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: Skara Brae, Maeshowe, the Stones of Stenness, the Watch Stone, the Barnhouse Stone, and the Ring of Brodgar and thirteen burial 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 WHS and on behalf of the State Party under the terms of the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Convention 1972.

UNESCO requires that appropriate management systems are in place at world heritage sites. Management plans specify how the Outstanding Universal Value (OUV) of the WHS will be protected and managed for future generations. The Management Plan provides a framework for achieving the protection of the cultural assets of the WHS including their interpretation, promotion and enhancement, and fostering of the local economy.

The process of developing and implementing a Management Plan involves bringing together all key partners and stakeholders to agree a common vision for the future of the WHS. There are four signatory Partners for the HONO WHS Management Plan 2014-19, which is currently being reviewed and updated: HES, Orkney Islands Council (OIC), NatureScot, and the Royal Society for the Protection of Birds, and they are accountable for ensuring the aims and objectives within the Plan are delivered appropriately.

A wide range of stakeholders also have an interest and a role to play in how the WHS is managed and promoted. Stakeholders include landowners, local community,

tourism and access organisations, education and research (local schools, universities, research and further education) and cultural and natural heritage bodies e.g. the Scottish Environment Protection Agency (SEPA), Orkney Archaeology Society and Orkney Heritage Society.

The Gateway Programme

Led by a strategic partnership between OIC, HES and Highlands and Islands Enterprise, and designed in accordance with the HONO WHS Masterplan 2019-29, the Gateway Programme will create a new tourism offer for the Brodgar / Stenness part of the WHS. It will define a new 'slow tourism' experience characterised by deeper engagement with and understanding of the natural and historic environment and the Islands' culture. Moreover, it will help establish Orkney as a tourism centre of excellence where a strategic and integrated approach is taken to the management and welcoming of visitors. As well as transforming the experience of the Brodgar / Stenness part of the WHS, it will support the dispersal of visitors across the Islands, encouraging sustainable and inclusive economic growth while moving Orkney toward a zero-carbon future.

The Gateway Programme comprises the projects outlined in Section 4 of this report, which will see investment in active travel networks, new facilities, enhanced infrastructure, traffic and visitor management measures, interpretation improvements and the application of the latest digital technologies to ensure a truly sustainable experience for local communities and visitors.

The final preferred option for the Programme remains to be determined and various alternatives are assessed below.

What was the process for developing the Orkney WHS Gateway Programme?

OIC, HES and HIE initially reviewed and analysed a range of strategic and detailed options for the Programme in 2018 and 2019. This process is documented in an Exploration Report (March 2018), a Recommendations and Initial Feasibility Report (August 2018), an Active Travel Plan (May 2019), and the adopted OIC WHS Masterplan (dated July 2019).

Through this process an initial preferred approach was identified in the July 2019 OIC WHS Masterplan.

In 2020 the Partners undertook a detailed review of the programme and a number of potential Options in light of changes to the tourism industry due to the impact of Covid pandemic and to support an application for funding through the Islands Deal. The outcome of that review was set out in the Strategic Outline Case (SOC) (October 2020). The SOC discounted a number of options and identified a preferred option for the development and delivery of the programme. In early 2021 the Orkney WHS Gateway Programme was awarded in principle funding through the Islands Deal.

Since then the Partners have continued to review the Programme in the context of a changing physical, social and economic environment, this includes ongoing work on

an Outline Business Case (OBC) for Islands Deal funding and the preparation of this SEA.

The Partners have now identified four options for the delivery of the Programme (see Section 4 below for further detail on these on other options that were discounted) and are consulting on these to inform the selection of a Preferred Option for inclusion in the OBC for Islands Deal funding.

The OBC, including the selected option, will be completed in Winter 2021 following the consultation.

What comments are being sought?

We would welcome views on any aspect of this report, but in particular, we invite you to consider the following questions:

- Do you agree that our environmental assessment has identified the likely environmental effects of the options?
- Do you think there are any additional mitigation, enhancement or monitoring measures that should be considered?

3. Environmental Context

What environmental information has been used to inform the assessment?

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

The various projects outlined in the Programme will align with other plans produced by OIC as well as the HONO WHS Management Plan. Where appropriate, projects outlined in the Programme will comply with the policies of the Orkney Local Development Plan.

What existing environmental objectives have been taken into account?

Annex D contains a detailed review of the list of key plans, programmes and strategies and current legislation considered to be most directly relevant to the Gateway Programme and includes details of how their environmental objectives have been considered as part of the scoping exercise.

The key environmental objectives identified from this review are:

- To support the vision and objectives for the responsible stewardship of our land, with particular focus on the twin threats of the climate emergency and biodiversity decline.
- To reduce our contribution to climate change (mitigation) and be positioned to respond to the predicted effects of climate change (adaptation).
- To halt the loss of biodiversity and continue to reverse previous losses through targeted action for species and habitats.
- To protect and, where appropriate, enhance species, habitats and ecosystems.
- To promote and encourage opportunities for people of all abilities to enjoy access to wildlife and the countryside.
- To protect and enhance the water environment (with a requirement to ensure that the status of all waters is protected from deterioration).
- To protect soil resources from erosion and pollution.
- To protect, enhance and, where appropriate, restore landscape character, local distinctiveness and scenic value.
- To protect and, where appropriate, enhance the historic environment. In particular, to ensure that development which will have a significant adverse impact on the OUV of the WHS or its setting does not occur.
- To increase awareness, understanding and enjoyment of the natural and historic environment.
- 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 promote sustainable development.
- To ensure that Scotland's built heritage remains one of the main motivators for visits to Scotland.
- To maximise use of existing assets to meet future need, with a focus on climate change adaptation.
- To support planning outcomes that focus on key themes emerging from the 4th National Planning Framework: net-zero emissions, a wellbeing economy, resilient economy and better, greener places.
- To revitalise our town centres, particularly in light of COVID-19 which has changed the way we all live, work and shop.

What environmental baseline information has been gathered?

The table below sets out the key baseline features and information relevant to the Programme. Annex C provides a detailed baseline, information about environmental issues relevant to the Programme, and baseline sources.

Table 1 – Key Baseline features and information

Environmental topic	Key baseline features and information
Biodiversity, flora and fauna	<p>Loch of Stenness Special Area of Conservation – designated for its coastal lagoon habitat.</p> <p>Lochs of Harray and Stenness SSSI – designated on the basis of nationally significant wintering wildfowl populations, and for specific plant and invertebrate species.</p> <p>Stromness Heaths and Coast SSSI – designated for its coastal vegetation communities with associated breeding birds and is also of geological and geomorphological importance.</p> <p>Bay of Skail SSSI – designated as a geological SSSI with internationally important fossils.</p> <p>European Protected Species – otter may use the loch shores</p> <p>RSPB Reserve at Brodgar – supports a wide range of waders and waterbirds and provides habitat for the great yellow bumblebee, a nationally scarce species.</p> <p>Local Biodiversity Action Plan – identifies priority habitats and a number of these are within the environs of the WHS, including road verges, coastal sand dunes, saline lochs and eutrophic standing water.</p>
Landscape	<p>National Scenic Areas – Hoy and West Mainland NSA</p> <p>Landscape character – the dominant character around Skara Brae is the enclosed bay landscape type and the dominant character around the Brodgar – Stenness area is the loch basin type.</p>
Historic environment	<p>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: Skara Brae, Maeshowe, the Stones of Stenness, the Watch Stone, the Barnhouse Stone, and the Ring of Brodgar and thirteen burial mounds and a stone setting, all of which are Scheduled Monuments.</p> <p>Listed Buildings – there are a few listed buildings around Skara Brae, including the A-listed Skail House. There are 2 listed buildings in the Brodgar–Stenness area, including the B-listed Tormiston Mill (Figure A7).</p> <p>Scheduled Monuments – each monument within the WHS is scheduled. There are also many other scheduled monuments</p>

	<p>within the vicinity of the WHS. In particular, the concentration of monuments around the Brodgar–Stenness part of the WHS is exceptional.</p> <p>Inventory of Gardens and Designed Landscapes – Skail House designed landscape is adjacent to Skara Brae.</p> <p>Conservation Areas – Brodgar Rural Conservation Area.</p> <p>Regionally/locally important archaeological sites and unscheduled archaeology – there are many sites included on the monuments record of Scotland database in the environs of the WHS.</p>
Population and human health	<p>General – Orkney Islands has a population of 19,245, 73% are recorded as having ‘good’ general health.</p> <p>Access – in 2007 Skara Brae had 74,000 visitors and Maeshowe had 25,000 visitors. The monuments are managed by HS on behalf of Scottish Ministers. Skara Brae and Maeshowe are ticketed with set opening hours and the other monuments can be visited at any time free of charge. There is public access to the RSPB Reserve at Brodgar at all times.</p>
Soil	<p>Climate change projections for Orkney include changes to precipitation including an increased risk of torrential rain and flooding. This can lead to changes to wetting and drying cycles and changes to the water table. High rainfall events increase the risk of wear and tear on paths due to erosion.</p> <p>Much of the land of the Orkney Islands is fertile agricultural land with predominantly intensive farming methods.</p>
Water	<p>Inland and coastal waters – Stenness catchment is the biggest inland aquatic system in Orkney. There are a number of environmental issues associated with the uses of the Stenness catchment including nutrient enrichment, organic pollution, pesticide discharges and recreational activities.</p> <p>Flooding – Indicative River and Coastal Flood Maps (Scotland) show that sections of the B9055 to both the north and to the south of the Ring of Brodgar are at a medium to high risk of flooding, which would effectively isolate the monument. They show a medium to high risk of fluvial flooding from the Loch of Skail which may affect the Skara Brae visitors centre.</p> <p>Water supply and treatment – is provided by Scottish Water with water treatment plants at Boardhouse and Kirbister Lochs. Water from many rural homes continues to be treated by septic tank and soak away systems.</p>

Climatic factors	<p>Scenarios – climate models predict temperature rises of 4 °C in Scotland by the end of the century, wetter winters, drier summers, increased winter rainfall intensity and decreasing snow cover.</p> <p>WHS – 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.</p>
Material assets	<p>Core paths – 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.</p> <p>Waste – Littering is a problem in the Orkney countryside and impacts on landscape, public amenity and the natural environment. Plastics in particular are long-lasting and pose a significant hazard to wildlife, e.g. in terms of accidental ingestion or entanglement.</p>

4. Approach to the Assessment

What aspects of the environment could the Outline Business Case (OBC) affect?

A key part of the scoping process in SEA is to identify whether the environmental receptors set out in schedule 3 of the Act are likely to be affected by the Plan. This can lead to some environmental receptors being “scoped out” of the assessment. The scoping process helps to focus the SEA on the key significant issues.

Based on the environmental protection objectives identified above and in Annex B, an assessment was been undertaken to identify the environmental topics that are likely to be affected by the Plan. The Consultation Authorities were broadly supportive of this approach, with some specific recommendations which are detailed at Annex C. Table 2 below sets out the scoping of SEA environmental receptors:

Table 2: Scoping of SEA environmental receptors

SEA receptor	Scoped in / out	Potential issues arising from the Programme and justification for scoping in or out.
Climatic factors	In	<p>The Gateway Programme will seek to play an active role in addressing the causes of climate change. It will include projects that encourage and support a move away from the use of fossil fuels and enable more active forms of travel. It will ultimately endeavour to establish a carbon neutral WHS.</p> <p>Findings from the Climate Risk Assessment for HONO WHS June 2019 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 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.</p>
Air	Out	<p>Air quality is generally good throughout Orkney as there are few industrial processes and road traffic volumes are low. We have not identified any interactions between the Gateway Programme and local air quality. However, following advice from NatureScot, air quality has been scoped in as part of the climatic factors topic.</p>
Biodiversity	In	<p>There are biodiversity features of international, national and local importance around the HONO WHS and there is potential for these to be affected by some of the projects planned through the Gateway Programme.</p>
Water	In	<p>There may be potential for effects on water quality, in particular at the Lochs of Stenness (a saline lagoon) and Harray (a eutrophic loch) e.g. from works related to public toilet provision or infrastructure such as foot paths.</p>

SEA receptor	Scoped in / out	Potential issues arising from the Programme and justification for scoping in or out.
Geology	Out	We have not identified any interactions between the Gateway Programme and any sites that are designated on account of their geological importance.
Soil	In	Increasing visitor numbers, combined with the changing weather patterns associated with climate change – such as increased storm intensity and changes in precipitation patterns – could lead to increased vulnerability of soil to erosion which could have wide-ranging impacts from integrity of archaeological structures to biodiversity and water quality.
Landscape	In	The WHS is an integral component of the Orkney landscape and parts of the WHS are located within the Hoy and West mainland National Scenic Area. Projects proposed by the Gateway Programme will be assessed for their effects on the landscape.
Cultural heritage	In	This is the key issue to be considered by the Gateway Programme and we consider that significant effects on cultural heritage are possible.
Population and human health	In	The historic environment makes a key contribution to community, place making, housing, amenities and recreation. We consider that there are likely to be effects on population and human health as a result of some the Plan's objectives and we propose to scope population and human health into the assessment.
Material assets	In	<p>Projects proposed through the Gateway Programme have potential to impact on transport infrastructure. Some of these projects may also have effects for the on-going maintenance, re-use and adaptation of existing cultural assets and infrastructure as part of our sustainable and circular economy. Material assets has therefore been scoped into the assessment.</p> <p>If a food outlet is included within the Orientation Centre project, there is also potential for increased littering in the area, especially under a takeaway option.</p>

How has the Programme been assessed?

SEA objectives were developed for each of the environmental receptors scoped into the assessment. These are supported by more detailed assessment criteria. The SEA objectives and criteria are set out in Table 3.

Table 3: The SEA objectives

Environmental receptor	SEA objective	How will the projects support or affect...
Climatic factors	<p>Contribute to national targets to address the causes of climate change.</p> <p>Incorporate energy efficiency measures into new development.</p> <p>Provide safe and convenient opportunities for walking and cycling and facilitate travel by public transport.</p> <p>Incorporate effective adaptation measures to the predicted effects of climate change into new development.</p> <p>Maintain, and where possible improve, local air quality.</p>	<p>CO₂ and other greenhouse gas emissions.</p> <p>Effective adaptation to the effects of climate change.</p> <p>Local air quality.</p>
Biodiversity, flora & fauna	Maintain, protect and, where appropriate, enhance biodiversity (species, habitats and ecosystems).	<p>Loch of Stenness SAC.</p> <p>Lochs of Harray and Stenness SSSI.</p> <p>Protected species.</p> <p>Wider biodiversity, including the RSPB Brodgar Reserve.</p>
Water	Contribute to the protection and enhancement of	Saline and freshwater quality in the environs of the WHS, i.e. Lochs of

Environmental receptor	SEA objective	How will the projects support or affect...
	waterbodies to WFD 'good or high' status.	Harray and Stenness and associated watercourses. Coastal waters at Bay of Skail.
Soil	Protect soil quality and function.	No further assessment criteria are proposed for this receptor.
Landscape	Safeguard and enhance the distinct identity, the diverse character, and special qualities of Orkney's landscapes.	The safeguarding and enhancement of natural characteristics and qualities of Orkney's landscapes.
Cultural heritage	Safeguard and, where appropriate, enhance the historic environment.	<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>Sustainable use / reuse of historic buildings / structures, where appropriate.</p>
Population and human health.	Promote celebration, understanding, enjoyment and access to the natural and cultural heritage.	<p>Access to the historic environment.</p> <p>Understanding of the value of the historic environment.</p>

Environmental receptor	SEA objective	How will the projects support or affect...
	<p>Support healthy living and working environments.</p> <p>Reduce inequalities.</p> <p>Reduce the risk or likelihood of road safety incidents.</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> <p>The creation of a safe environment for public access (i.e. traffic management measures).</p>
Material assets	<p>Promote the efficient use of resources and the minimisation of wastes through their re-use or recovery through recycling, composting or energy recovery, in line with national targets.</p> <p>Promote sustainable and efficient use of natural resources. Optimise the use of existing infrastructure and buildings.</p>	No further assessment criteria are proposed for this receptor.

How were alternatives identified and assessed?

As set out in Section 2 above, the development of the Programme has occurred over a number of years and a range of options and approaches have been identified, assessed and discounted based on their performance against the following key objectives established by the Partners:

1. **Safeguard the WHS and local environment** – conserve and present the World Heritage Site to meet the UK's commitment under the 1972 Convention¹ and ensure that existing visitor management issues are addressed, these include overcrowding at peak times, poor quality

¹ 1972 UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage

interpretation, erosion of monuments and excessive cost associated with maintenance of monuments. Additionally, there is a need safeguard the sensitive environment and landscape around the WHS to meet obligations under local and national policy and legalisation.

2. **Enhance Islander quality of life** – provide an enriched environment to benefit Islander well-being and sense of belonging, to foster pride in the heritage of the Islands and to provide opportunities for active, healthy lifestyles.
3. **Optimise economic benefits of tourism in a sustainable manner** – ensure outcomes support the Island-wide drive towards higher value, lower volume tourism to support the long-term social, economic and environmental sustainability of the Islands.
4. **Disperse socio-economic tourism benefits across the Islands** – ensure the project supports the strategic need to disperse tourism activity across the islands by operating as an interconnected node within a wider network of tourism infrastructure and attractions; and actively linking to other attractions and venues.
5. **Improve visitor experience for all audiences** – deliver enhanced accessibility, high-quality facilities and outstanding interpretation to deepen engagement with the WHS for local communities, independent visitors, trade visitors (inc. cruise) and audiences who cannot visit; ensure current issues relating to overcrowding and poor facilities are addressed (also linked to Objective 1 above).
6. **Provide sustainable access to and around the WHS** – enable access for all (within environmental limitations) in a manner that safeguards the site, its sense of place, the local environment and the well-being of local communities.

Elements / options for the programme that have been assessed include:

- Access to the Site
- Active Travel Network connecting the WHS to the wider landscape and communities, including new footbridge
- Enhanced interpretation
- Visitor information and management app
- Coach management infrastructure
- Brodgar Destination Management Hub
- Orientation facilities e.g. a Centre

Access to the Site

Three options for sustainable connections to wider mainland were reviewed during the development of the project:

1. **Compulsory transport service:** a full-scale compulsory system linking to off-site car parking and the closure (seasonal or permanent) of existing car parks. This was rejected primarily on viability grounds and also the challenges of finding a suitable location for the off-site car and facilities.
2. **Optional service:** The option of running a low-carbon connection to existing centres of population at Kirkwall and Stromness was reviewed but was rejected primarily on viability grounds, however the approach will remain under consideration by the partners, most likely as an independent project as part of wider travel connectivity on the Mainland.
3. **Active Travel:** Providing large scale Active Travel connections to the wider islands is being addressed through other OIC initiatives including the 2019 Sustainable Transport Project Development Plan and North Isles Landscape Partnership Scheme, as such it was identified as lying outside of the scope of the Orkney WHS Gateway programme.

Active Travel Network

The potential for active travel connections to local communities and the landscape in and around the site was reviewed and based on the 2019 Active Travel Plan it was identified that the costs involved in delivering the infrastructure were proportionate and the gains to visitor experience and community benefits would be substantial.

On balance, it was considered that the provision of active travel infrastructure is a highly desirable outcome for the scheme to enable it to connect with the emerging wider active travel network on Orkney and contribute to the 2030 net zero target for Orkney. Consequently, all Options for significant investment (i.e. excluding a Do Minimum option) therefore include an active travel network to and around the Site of a broadly similar scale and form.

The exact location, design and route of the network, including the footbridge, remains to be determined as part of the later stages of the design process. This will be guided by environmental, land ownership and community considerations.

Enhanced interpretation

Improving visitor experience and understanding is a key objective for the partners and therefore all options for significant investment (i.e. excluding a Do Minimum option) include investment in enhanced interpretation in and around the WHS.

The options include for differing degrees of digital and physical interpretation, but the exact location and design of interpretative material remains to be determined as part of the later stages of the design process. This will be developed alongside the Active Travel Network. This design, location and nature of the interpretative material will be guided by environmental, land ownership and community considerations.

Visitor information and management app

Improving dispersal, experience and economic benefits are key objectives for the Partners. All options for significant investment (i.e. excluding Do Minimum) therefore include the development of a visitor management app to provide visitors with information on the relative busyness of different locations across the Islands and suggest alternatives based on their preferences. This will help reduce peak-time loading at the WHS and encourage dispersal across the islands particularly at peak periods.

Coach management infrastructure

Peak time loading at the WHS is a critical conservation and experience issue, the peak loading is generally driven by trade coach tours with large numbers of guests arriving in a short period of time. To manage this, a timed permit-based system would be introduced to manage the use of the coach bays at Brodgar and Stenness Layby (most probably using a number plate recognition system). Given the importance of this issue, all options for significant investment (i.e. excluding Do Minimum) therefore include the development of coach management infrastructure.

Brodgar Destination Management Hub

The Brodgar hub would include new facilities namely, toilets, a welcome point, electric bike charging points, cycle racks and improved disabled parking bays. Given the importance of the Hub to guests and the impact that it would have on key objectives, all options for significant investment (i.e. excluding Do Minimum) therefore include the development of the Hub.

It is currently proposed that the toilets would be installed within the existing bund, essentially a section of the bund would be removed, the toilets constructed, with the bund would be replaced over them, masking them in views from Brodgar and the wider landscape. These would be supported by an appropriate sewage treatment facility to safeguard the loch.

The exact design and final configuration of key elements will be determined during the design process and would be informed by environmental considerations.

Orientation facilities

A range of options for physical orientation / visitor facilities were considered. Key factors for the strategic options relate to the scale (size) of the facilities and their location as these affect all aspects of the project from cost, to viability, to environmental impact and performance against partner objectives.

Accommodating these facilities in the sensitive environment and landscape setting of the WHS is a key consideration; as is the distance from the site in terms of the viability of the centre to support sustainable active travel experiences and exploration of the WHS. The issue of location therefore features in the review below. An overview of the options for new facilities in terms of their scale, location, form etc is provided below, identifying which options were discounted as non-reasonable alternatives.

Scale

Major Visitor Centre: This option would have provided large-scale facilities at a very high standard. It would have delivered an outstanding visitor experience and would have aided dispersal of visitors across the Islands (both key objectives). Its scale would have meant that it could not be located within a reasonable distance of the WHS and would have needed to be located in a major urban centre. It would be unaffordable in the context of available funding and would not be operationally viable given the likely very high levels of subsidy required to maintain the centre. As such it did not perform strongly against the key objectives and was discounted as a non-unreasonable alternative.

Large-scale Centre: Option would provide a high-quality visitor experience and potentially aid dispersal (both key objectives). It would however need to be situated at some distance from the WHS given the absence of suitable local sites. It would also conflict with the existing facilities at Skara Brae. The cap-ex costs are high, and the centre would require operational subsidy. As such it did not perform strongly against the key objectives and was discounted as a non-reasonable alternative.

Mid-scale Centre: Development of this scale would meet many of the project objectives and critical success factors. Location was a key issue in terms of deliverability and viability – a site too far from the WHS could see reduced footfall which would affect viability, while its size scale precluded locations close to the WHS. Ultimately, no suitable sites were identified in the area around the WHS and this option was discounted as a non-reasonable alternative.

Small-scale centre: A smaller centre offering key orientation facilities and ticketing for Maeshowe was identified as performing well against key objectives and success factors particularly in terms of viability, affordability and deliverability in the context of the sensitivity of the local environment. It was also identified as being compatible with the facilities at Skara Brae and potentially a future Museum of the Islands. It was therefore identified as a potential option.

No physical centre: The potential that the approach offers in terms of responding to long-term trends to increasingly digitally led human interaction with place while offering lower cap-ex, potential deliverability in terms of the local environment and operational costs meant that the non-physical development option warranted further consideration as a potential option.

Location

In terms of locations for new facilities the following options were discounted as being non-reasonable alternatives:

- Out of area centre – rejected due to risk of visitor bypass, and limited impact on visitor behaviour and engagement
- Development on the Brodgar peninsula – rejected due to environmental and archaeological sensitivities
- Development at the Orphir and Stenness Church – rejected due to potential conflict between actively used community asset and tourism uses
- Development at Tormiston – rejected due to significant highways and road safety constraints; and potential viability issues.

Options identified for further assessment and development included an adjacent site in an existing greenfield or brownfield location and Stenness Village.

Short-listed Options (Reasonable alternatives)

It is acknowledged that a transformation for the WHS at Brodgar / Stenness is required given its critical role as a “must see” destination on Orkney and its intentional importance as a WHS.

This must however be delivered in a manner that responds to the highly sensitive environment / landscape of the WHS and is both affordable and viable in the current economic and funding climate. It must also be highly adaptable given the high degree of uncertainty regarding future tourism markets and scales of activity. Tourism development trends for Islands point towards an offer with strong themes around slow tourism, wellness, escapism, active travel and green and sustainable travel. These trends need to be reflected in the way forward.

In this context, a “small is beautiful” approach was preferred.

- An approach that focuses the attention of visitors and communities on the landscape and place, rather than a major building or facility.
- An approach that delivers smaller-scale facilities sensitively in the landscape around the WHS, while embracing the digital agenda.
- An approach that responds to emerging trends for slow tourism, with a flexibility to meet uncertain demand and need for long-term operational viability.
- An approach that reconnects communities to the WHS physically, emotionally and intellectually.
- An approach that drives the use of low carbon technologies and materials, and indigenous materials, while supporting local employment.

Four short-listed options have been identified to deliver this landscape-led experience:

Option 1: Do Minimum - minor upgrade and refresh of existing facilities and network

Option 2: Digital and Infrastructure – Significant local infrastructure upgrades supported by full digital orientation and interpretation, but without a physical centre

Option 3: Local Hub at Stenness Village – New / refreshed centre in local area, forming hub for new visitor experience with local connectivity improvements and shuttle connections to and from the WHS.

Option 4: Adjacent Centre – New centre close to WHS forming accessible heart to new visitor experience with local connectivity improvements and shuttle support

These options are described more fully in the detailed assessment matrices at Annex A and the Public Consultation Document.

SEA Assessment

All alternative options were assessed to the same level of detail. The assessments considered whether effects would be positive or negative and short, medium or long term. Once each option had been assessed, the findings were brought together to consider whether any the options will generate cumulative or cross-cutting effects on any of the environmental receptors scoped into the assessment.

Where assessment identified significant negative environmental effects, mitigative measures were identified where possible. The potential for enhancement of positive effects was also considered.

How has the SEA helped to avoid or minimise negative environmental impacts and enhance positive effects?

Environmental considerations have informed all stages of process from 2018 onwards. The findings of this SEA will be used to inform the selection by the Partners of the preferred option, alongside views from the community on the options and an assessment of wider factors relating to the performance of the options against the Partners' objectives.

The findings and recommendations of the SEA will then be used to inform the detailed design and development process for the preferred Option. The Partners will ensure that key mitigation measures are incorporated into the design, development and operation of the programme.

5. Assessment findings

Detailed Assessment Findings

Assessment matrices setting out the detailed findings in relation to each option are provided at Annex A. We have provided a narrative summary of those findings below.

Summary of Assessment Findings

Option 1: Do Minimum

As a result of the minimal interventions proposed under this option, **neutral effects** were identified for **climatic factors; biodiversity; water; soil; landscape; and population and human health.**

Some potential **positive** effects were identified for **soil** if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Negative effects were identified for **cultural heritage**, largely due to the physical and visual impact of new interpretation. Mitigation and enhancement measures could reduce risk of erosion to heritage assets, and help avoid disturbance of archaeological remains, resulting in a **residual positive** effect.

Positive effects were identified for **material assets**, due to minimal changes to infrastructure, and continued use of existing buildings and infrastructure.

No significant cumulative or cross-cutting effects were identified for this option.

Option 2: Digital and Infrastructure

Neutral effects were identified for **climate change.**

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for **water** in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect.**

Neutral effects were identified for **soil.** Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Significant negative effects were identified for **landscape** and **cultural heritage**, due to the introduction of infrastructure and car park within and adjacent to the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, there is the potential for some **residual negative effects**.

Significant positive effects were identified for **population and human health** for the local population, through the provision of enhanced active travel opportunities and removal of tourist activity, with associated traffic and disruption issues.

Negative effects were identified for **material assets**, due to removal of a physical visitor centre which would take the current building in Stenness out of use. Whilst alternative uses could be explored, it is **uncertain** if this could be secured within the scope of the Programme.

No significant cumulative or cross-cutting effects were identified for this option.

Option 3: Local Hub

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for **water** in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for **soil**. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Negative effects were identified for **landscape**, due to the introduction of some new infrastructure. Effective mitigation (careful consideration of location, design and materials) could result in **residual neutral effects**.

Negative effects were identified for **cultural heritage**, due to the introduction of some new infrastructure within the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, the level to which this could be mitigated is **uncertain** at this point and there is the potential for some **residual negative effects** for **cultural heritage**.

Mixed effects were identified for **population and human health** for the local population. Positive effects are expected through the provision of enhanced active

travel opportunities, but negative effects are predicted if the enhanced Hub causes traffic and disruption issues for local residents.

Negative effects are identified for **material assets**, due to added infrastructure maintenance requirements, and the potential for construction of a new Hub building, rather than continued use of the existing building. This option has also potential for **positive effects** through reuse of the existing Hub building. However, positive effects are **uncertain**, as they are dependent on the level of reuse of the existing building and infrastructure.

No significant cumulative or cross-cutting effects were identified for this option.

Option 4: Adjacent Centre

Neutral effects were identified for **climate change**.

Negative effects were identified for **biodiversity**, with the potential for **residual positive effects** with the introduction of mitigation measures ensuring that new footpaths and infrastructure were sited away from sensitive habitats.

Negative effects were identified for water in connection with the proposal to install toilet facilities at Brodgar, which could impact on the water quality of the Lochs. Mitigation measures ensuring that this aspect of the option only goes ahead if harm to water quality can be avoided through technological solutions should result in a **residual neutral effect**.

Neutral effects were identified for soil. Some potential **residual positive effects** were predicted if enhancement measures to design footpaths to limit erosion, in combination with effective management of visitors, were to be employed.

Significant negative effects were identified for **landscape** and **cultural heritage**, due to the introduction of infrastructure and car park within and adjacent to the World Heritage Site. Whilst effective mitigation (careful consideration of location, design and materials, plus archaeological investigation) could reduce the significance of effect, there is the potential for some **residual negative effects**. The significance of these is **uncertain** and will depend on the degree of flexibility available in relation to location and design. Some **residual positive effects** are also identified for **cultural heritage** as a result of improved visitor management which should reduce erosion.

Significant positive effects were identified for **population and human health** for the local population, through the provision of enhanced active travel opportunities and removal of tourist activity, with associated traffic and disruption issues.

Negative effects were identified for **material assets**, due to closure of the existing visitor centre which would take the current building in Stenness out of use, and the use of resources required for a new centre and infrastructure. Whilst some mitigation measures have been identified, **residual negative effects** are likely.

No significant cumulative or cross-cutting effects were identified for this option.

Mitigation, recommendations and monitoring

Mitigation and enhancement measures are set out in detail in the detailed assessment matrices, and will be embedded into the decision-making processes for the next stages of the Programme.

We will monitor the environmental effects of the Programme as part of our overall monitoring of the Programme. We will use the environmental objectives and issues identified in this assessment to help us do this. This will help to identify any effects arising which were not predicted through the assessment and allow appropriate mitigation to be sought. Our approach to monitoring will be considered further and outlined in our Post Adoption Statement.

6. Next Steps

It is a requirement of the SEA Act to demonstrate how the environmental assessment (and all the comments expressed on the relevant documents) have influenced the preparation of the guidance. This will be explained in the SEA Post Adoption Statement which will be published following identification of a preferred option for the Programme. Having taken into representations made on this report, this statement will also include a final version of any monitoring indicators.

The public consultation period on the options for the Programme and environmental report ends on 15 October 2021 at 5pm. Following this, a decision on a preferred option will be made, taking into account the comments made during the public consultation. Any changes will be screened to consider if they raise significant environmental issues that have not already been considered in the environmental assessment.

Comments and consultation responses can be provided via the online consultation survey, emailed to worldheritage@orkney.gov.uk or submitted in writing to:

Christie Hartley,
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Orkney Islands Council,
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Kirkwall,
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Annex A – detailed assessment findings

Key to scoring

++	Significantly positive effects.
+	Positive effects.
0	Minor or neutral effect.
?	Uncertain effects.
-	Adverse effects.
--	Significantly adverse effects.

Option 1: Do Minimum

This option includes a minor upgrade and refresh of existing facilities and network. There are limited active travel upgrades and some focused additional interpretation. The current centre continues to operate with no significant operational changes. No additional parking is proposed as current patterns of visitation and limited dwell times are assumed to continue. Limited decrease in conservation management costs due to improvements at Brodgar.

Key Components

- Local path upgrades, no new connection to Stenness. Brodgar path management scheme
- Visitor Centre Refresh (limited). Fixed Interpretation
- Cycle signage, car park refresh at Brodgar
- Parking charges introduced. Stenness Car Park upgraded (outside of scope of Project)
- No change to operational approach

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
Do Minimum	Climatic factors	0	Seek to improve energy efficiency and adaptation of visitor centre as part of refresh scheme	0	<p>The Do Minimum approach would continue the current vehicle-based approach to accessing and exploring the WHS. Private vehicles remain the dominant form of transport to the site and around the site.</p> <p>There would be limited active travel upgrades on the Site but no new connections to the wider landscape and local communities. This option will have no impact on this aspect of travel and hence no impact on climate outcomes.</p> <p>The introduction of parking charges may slightly lower the incentive for vehicle use but the iconic nature of the site and the affordable parking charge are likely to see levels of visitation remain as current.</p> <p>Visitor centre refresh offers opportunity to improve energy efficiency of the building, but no significant change anticipated.</p> <p>No significant change is proposed as part of the option and there would be no significant change in climate outcomes, positive or negative.</p>
	Biodiversity	0	<p>Keep path upgrades to areas that are away from nesting birds and other identified habitats.</p> <p>Continued active management of visitor routes around Brodgar.</p>	0	<p>Limited improvements to path networks within the site and around the Brodgar monument offer the opportunity to move visitors away from sensitive habitats and safeguard biodiversity. This will be embedded into the design process.</p> <p>However, the option would continue to potentially see peak load days where the biodiversity and key habitats may be adversely affected (as is the current situation).</p> <p>Overall, no change from the current situation (positive or negative).</p>
	Water	0	Explore opportunities with car park refresh to review and, if necessary, improve water run-off management from the car park.	0	Option results in limited changes compared to current situation, no significant negative or positive changes to the water environment are anticipated.
	Soil	0	<p>Footpaths should be designed to limit erosion.</p> <p>Ensure continued effective operational management is in place</p>	+	Localised footpath improvements within and around Brodgar coupled with effective active management should allow for a greater dispersion of visitors across the site and the reduction in pinch points, hence reducing

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
			to rotate path networks around the ring of Brodgar		the risk of soil erosion. The effects are limited in scale but have been identified as a positive outcome.
	Landscape	0	Paths to use sensitive materials and surfacing (where surfacing required). Signage and interpretation to be muted and restrained, set lower down to lessen visibility. Use recessive colour and materials for interventions.	0	New fixed interpretation would be placed in carefully considered locations where erosion can be managed, and view lines safeguarded. The intention will be to avoid visual clutter in the landscape. Local enhancements to the path network should slightly improve the quality of the landscape compared to the current situation.
	Cultural heritage	-	As per Landscape, plus: Ensure continued effective operational management is in place to rotate path networks around the ring of Brodgar All activities requiring ground disturbance will need to be preceded and their design informed by appropriate levels of archaeological investigation.	+	The risk of erosion to important archaeological sites and monuments would be lessened through improvements to the local path network and the implementation of a path management scheme at Brodgar. This is a positive outcome for Cultural Heritage. The upgrading of local paths with no new connection through to Stenness would have no impact on the OUV, Authenticity or integrity of the WHS or other assets. The upgrades will be in the existing footprints of the various paths. New fixed interpretation would be placed in carefully considered locations where erosion can be managed, and view lines safeguarded. The intention will be to avoid visual clutter in the landscape. Interpretation requiring ground disturbance could have negative effects on archaeological remains.
	Population and human health	0	None identified	0	Current situation would largely continue in terms of the presence of the Centre in Stenness and the nature of access to the site with attendant limited active travel opportunities. Overall, no change from the current situation (positive or negative).

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
	Material assets	+	None identified	+	<p>There would be no significant change in the extent of paths and upgrades and changes offer the opportunity to reduce maintenance demands through appropriate materials etc.</p> <p>Signage and interpretation would need to be maintained and managed, once again no notable increase in demands.</p> <p>Visitor centre refresh would not lead to increased demands for maintenance etc.</p> <p>Option optimises the use of existing buildings and infrastructure, thus reducing the need for consumption of new materials and minimises waste.</p> <p>Overall, no significant change to current situation.</p>

Option 2: Digital and Infrastructure

Significant local infrastructure upgrades supported by full digital orientation and interpretation, but without a physical centre. Transit hubs, drop-offs, cycleways, and paths would act as gateways and orientation points for guests. Some physical orientation, wayfinding and interpretation would be installed across the site to act as anchors for a wider digital experience using app-based content and/or content accessed through QR code

Key Components: Summary

- Active Travel Network connections to local area, including a new footbridge and the Brodgar Path Management System. Site-wide path network and upgrades
- Digital interpretation and orientation, inc. some fixed interpretation
- Car park refresh at Brodgar, Inc. toilets, disabled bays, and electric bike charging points
- Additional vehicle parking / modal change area to enable increased dwell times
- Digital ticketing (no physical centre)
- Coach management infrastructure and visitor management app system

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
Digital and infrastructure	Climatic factors	0	Ensure Carbon neutral shuttles are used (hydrogen, electric etc).	0	<p>Any change to visitor numbers to the WHS would be driven by offsite, non-project related matters e.g. Orkney Marketing, wider economy, resumption of cruise etc. Overall, it is expected that the annual level of human activity across the site would largely stay the same and climate change resulting from visitation would remain unchanged by the project.</p> <p>The timed permits system for coaches would reduce the number of coaches using the site on peak days, but these would be displaced to other locations on Orkney, resulting in no change to climate outcomes.</p> <p>Provision of electric bike charging infrastructure may encourage a small increase in use of sustainable transport to get to the site, but this is likely to be limited in scale with no significant climate outcomes.</p> <p>The introduction of parking charges may slightly lower the incentive for vehicle use but the iconic nature of the site and the affordable parking charge are likely to see levels of visitation remain as current.</p> <p>Use of electric or sustainable fuel-based shuttles would lessen impacts of new onsite transport modes.</p>

	Biodiversity	-	<p>New footpaths should be designed to avoid sensitive habitats.</p> <p>Active operational monitoring of the route network is required allow areas to be temporarily closed off if sensitive habitats shift in the future (bird nesting, seasonal growth etc).</p> <p>New additional car park will need to be sited away from key habitats.</p>	+	<p>It is expected that the annual level of human activity across the site would largely stay the same, but that peak loading would be reduced by restrictions on coach parking and that the active travel and path networks would disperse the concentrations of visitors – this should reduce impacts on biodiversity.</p> <p>Upgrades to path networks within the site and around the Brodgar monument offer the opportunity to move visitors away from sensitive habitats and safeguard biodiversity. This will be embedded into the design process.</p> <p>New foot paths and other infrastructure may impact on sensitive habitats. Careful location and design should avoid these issues.</p>
	Water	-	<p>New footpaths should be designed to avoid or not interrupt surface water flow. Surfaces and materials must be designed to avoid flooding and enable efficient maintenance.</p> <p>The construction of new toilets at the Brodgar carpark would need careful design and management to ensure waste sewage is dealt with carefully so as not to pollute ground water or the neighbouring water bodies.</p>	0	<p>New foot paths may interrupt surface water flow, but design should eliminate this risk.</p> <p>Development of toilet at the Brodgar Hub will be entirely dependent on a suitable technological solution being implemented to prevent harm to water quality of Lochs.</p>
	Soil	0	<p>Footpaths should be designed to limit erosion.</p>	+	<p>Localised footpath improvements within and around Brodgar coupled with effective active management should allow for a greater dispersion of visitors across the site and the reduction in pinch points, hence reducing the risk of soil erosion.</p>

					The effects are limited in scale but have been identified as a positive outcome.
	Landscape	--	<p>Paths to use sensitive materials and surfacing (where surfacing required). Signage and interpretation to be muted and restrained. Use recessive colour and materials for interventions. Careful consideration should be given to the design and placement of welcome points, interpretation, coach management sensors etc. Location, design and materials used for the construction of the car park would need to be sympathetic to the landscape.</p>	-	<p>New infrastructure including the stand-alone car park, footpaths, orientation and wayfinding interpretation will need to be sensitively designed to reduce impacts on the landscape. Locating the new carpark in open landscape would result in a significant local change to that landscape. Overall, the impacts of the proposed developments present a significant change to the character of the landscape within a localised context, but with careful mitigation integrated into the design process, much of this change can be lessened.</p>
	Cultural heritage	--	<p>As per Landscape, plus: Location, design and materials for the car park need detailed analysis to ensure no significant impact on the WHS, scheduled monuments and their settings. Location, design, and materials for the new pedestrian bridge and key active travel routes will need detailed analysis to ensure no significant impact on the WHS, scheduled monuments and their settings. All activities requiring ground distance will need to be preceded and their design informed by appropriate levels of archaeological investigation.</p>	+ /-?	<p>Improved visitor management and dispersal and reduction of peak time crowding will help safeguard the monuments and ensure their continued conservation – as will the development for the proposed path management system for Brodgar. The new carpark, pedestrian bridge and some elements of the path infrastructure could result in an impact on the setting of the WHS and key monuments depending on its location and design, this may result in a negative impact – choice of locations and appropriate design should reduce this risk, but the level to which this could be mitigated is uncertain at this point.</p>

					New infrastructure could result in disturbance of archaeological remains.
	Population and human health	++	None identified.	++	The active travel infrastructure would be a significant benefit for the local community. The removal of the visitor centre in Stenness would reduce the negative impacts of visitors on the local community.
	Material assets	-	Adequate provision should be made in budgets and operational expenses for the added maintenance. Explore options for securing sustainable alternative uses for the building.	- /?	Added transport infrastructure such as bus stop shelters, signage and interpretation shelters will need continual maintenance. Reduction in asset management requirements due to closure of current centre. However, removing a use from a material asset, requiring an alternative use to be sought, will have a negative effect on the use of material assets. It is uncertain if this could be mitigated within the scope of the programme.

Option 3: Local Hub at Stenness Village

New / refreshed centre in local area, forming hub for new visitor experience with local connectivity improvements and shuttle connections to and from the WHS

Key Components

- Active Travel Network connections to local area, new footbridge, and the Brodgar Path Management System. Site-wide path network and upgrades
- Digital interpretation and orientation, inc. some fixed interpretation
- Car Park refresh at Brodgar, Inc. toilets, disabled bays, and electric bike charging points
- Parking and access road for new hub, traffic restriction measures
- Centre refresh / conversion
- Coach management infrastructure and visitor management app system

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
Local Hub - Stenness	Climatic factors	0	<p>Ensure Carbon neutral shuttles are used (hydrogen, electric etc)</p> <p>Seek to improve energy efficiency and adaptation of visitor centre as part of refresh scheme</p>	0	<p>Any change to visitor numbers to the WHS would be driven by offsite, non-project related matters e.g. Orkney marketing, wider economy, resumption of cruise etc. Overall, it is expected that the annual level of human activity across the site would largely stay the same and climate change resulting from visitation would remain unchanged by the project.</p> <p>The timed permits system for coaches would reduce the number of coaches using the site on peak days, but these would be displaced to other locations on Orkney, resulting in no change to climate outcomes.</p>

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
					<p>Provision of electric bike charging infrastructure may encourage a small increase in use of sustainable transport to get to the site, but this is likely to be limited in scale with no significant climate outcomes.</p> <p>A local hub would form the welcome point of the WHS, with active travel connections through shuttles and private vehicles in the off season. Active exploration of the landscape would be encouraged by foot and cycle, reducing the need for motorised transport, however the distance between the hub and the site means that use of private vehicles as the primary form of access the WHS would continue.</p> <p>The introduction of parking charges may slightly lower the incentive for vehicle use but the iconic nature of the site and the affordable parking charge are likely to see levels of visitation remain as current.</p> <p>Use of electric or sustainable fuel-based shuttles would lessen impacts of new onsite transport modes.</p> <p>The local Hub would reuse an existing building, offering the opportunity to improve energy efficiency and climate change adaption of the building, but no significant change anticipated.</p> <p>Overall, no significant change expected as many visitors will continue to drive direct to WHS car parks.</p>
	Biodiversity	-	New footpaths should be designed to avoid sensitive habitats.	+	It is expected that the annual level of human activity across the site would largely stay the same, but that peak loading would be reduced by restrictions on coach parking and that the active travel and path networks would disperse the

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
			Active operational monitoring of the route network is required allow areas to be temporarily closed off if sensitive habitats shift in the future (bird nesting, seasonal growth etc).		<p>concentrations of visitors – this should reduce impacts on biodiversity.</p> <p>Upgrades to path networks within the site and around the Brodgar monument offer the opportunity to move visitors away from sensitive habitats and safeguard biodiversity. This will be embedded into the design process.</p> <p>New foot paths and other infrastructure may impact on sensitive habitats. Careful location and design should avoid these issues.</p>
	Water	-	<p>New footpaths should be designed to avoid or not interrupt surface water flow. Surfaces and materials must be designed to avoid flooding and enable efficient maintenance.</p> <p>The construction of new toilets at the Brodgar carpark would need careful design and management to ensure waste sewage is dealt with carefully so as not to pollute ground water or the neighbouring water bodies.</p>	0	<p>New foot paths may interrupt surface water flow, but design should eliminate this risk.</p> <p>Development of toilets at the Brodgar Hub will be entirely dependent on a suitable technological solution being implemented to prevent harm to water quality of Lochs.</p>
	Soil	0	Footpaths should be designed to limit erosion.	+	Localised footpath improvements within and around Brodgar coupled with effective active management should allow for a greater dispersion of visitors across the site and the reduction in pinch points, hence reduce the risk of soil

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
					erosion. The effects are limited in scale but have been identified as a positive outcome.
	Landscape	-	<p>Paths to use sensitive materials and surfacing (where surfacing required).</p> <p>Signage and interpretation to be muted and restrained.</p> <p>Use recessive colour and materials for interventions.</p> <p>Careful consideration must be given to the design and placement of welcome points, interpretation, coach management sensors etc.</p> <p>Location of the proposed new hub in Stenness and associated car parking will need to be designed to minimise impacts on landscape.</p>	0	<p>New infrastructure including, footpaths, footbridge, orientation and wayfinding interpretation will need to be sensitively designed to reduce impacts on the landscape.</p> <p>With an appropriate location and design, the local hub in Stenness should result in little or no change to the landscape.</p>
	Cultural heritage	-	<p>As per Landscape, plus:</p> <p>Location, design, and materials for the new pedestrian bridge and key active travel routes will need detailed analysis to ensure no significant impact on</p>	+ / -?	<p>Improved visitor management and dispersal and reduction of peak time crowding will help safeguard the monuments and support their continued conservation – as will the development for the proposed path management system for Brodgar.</p> <p>New infrastructure such as the pedestrian bridge and some elements of the path network could result in a negative</p>

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
			the WHS, scheduled monuments and their settings. All activities requiring ground disturbance will need to be preceded and their design informed by appropriate levels of archaeological investigation.		impact on the setting of the WHS and key monuments depending on its location and design.– Choice of locations and appropriate design should reduce this risk, but the level to which this could be mitigated is uncertain at this point. New infrastructure could result in disturbance of archaeological remains, with negative effects.
	Population and human health	+ / -	None.	+ / -	The active travel infrastructure would be a significant benefit for the local community. The shuttle system would be a positive gain for the local community. Enhancement of the Hub in Stenness will result in growth in traffic in and around the village with an increased risk of conflict and disturbance between guests and residents.
	Material assets	-	Adequate provision should be made in budgets and operational expenses for the added maintenance of new infrastructure and larger hub in Stenness Options to retain and reuse the existing building and infrastructure should be explored thoroughly. Design and management of new buildings, facilities, infrastructure and visitor	- / + ?	Added transport infrastructure such as bus stop shelters, signage and interpretation shelters will need continual maintenance. Increase in asset management requirements due to increase in scale of hub at Stenness. This option has also potential for positive effects through reuse of the existing Hub building. However, positive effects are uncertain, as they are dependent on the level of reuse of the existing building and infrastructure.

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
			management processes should seek to achieve the efficient use of resources, minimise waste and reduce littering.		

Option 4: Adjacent Centre

New centre close to WHS forming accessible heart to new visitor experience with local connectivity improvements and shuttle support. This orientation facility would be situated close to the WHS on a possible greenfield site along the B9055.

Key Components

- Active Travel Network connections to local area, new footbridge, and the Brodgar Path Management System. Site-wide path network and upgrades.
- Digital interpretation and orientation, inc. some fixed interpretation
- Car Park refresh at Brodgar, Inc. toilets
- Parking and access road at centre
- Orientation centre
- Coach management infrastructure and visitor management app system
- Traffic restriction measures

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
Adjacent Centre	Climatic factors	0	<p>Ensure Carbon neutral shuttles are used (hydrogen, electric etc)</p> <p>The new centre should be designed to optimise energy efficiency and resilience to effects of climate change</p>	0	<p>Any change to visitor numbers to the WHS would be driven by offsite, non-project related matters e.g. Orkney marketing, wider economy, resumption of cruise etc. Overall, it is expected that the annual level of human activity across the site would largely stay the same and climate change resulting from visitation would remain unchanged by the project.</p> <p>The timed permits system for coaches would reduce the number of coaches using the site on peak days, but these would be displaced to other locations on Orkney, resulting in no change to climate outcomes</p> <p>Provision of electric bike charging infrastructure may encourage a small increase in use of sustainable transport to get to the site, but this is likely to be limited in scale with no significant climate outcomes</p> <p>New centre would form the welcome point for the WHS. Active exploration of the landscape would be encouraged by foot and cycle, reducing the need for motorised transport.</p> <p>The introduction of parking charges may slightly lower the incentive for vehicle use but the iconic nature of the site and the affordable parking charge are likely to see levels of visitation remain as current.</p> <p>Use of electric or sustainable fuel-based shuttles would lessen impacts of new onsite transport modes.</p> <p>The new centre would be highly energy efficient but there would still be an initial carbon load arising from construction.</p> <p>Overall, no significant change is expected.</p>

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
	Biodiversity	-	<p>New footpaths should be designed to avoid sensitive habitats.</p> <p>Active operational monitoring of the route network is required to allow areas to be temporarily closed off if sensitive habitats shift in the future (bird nesting, seasonal growth etc).</p> <p>The location of the new orientation centre would need to be carefully sited to avoid sensitive habitats.</p>	+	<p>It is expected that the annual level of human activity across the site would largely stay the same, but that peak loading would be reduced by restrictions on coach parking and that the active travel and path networks would disperse the concentrations of visitors – this should reduce impacts on biodiversity.</p> <p>Upgrades to path networks within the site and around the Brodgar monument offer the opportunity to move visitors away from sensitive habitats and safeguard biodiversity. This will be embedded into the design process.</p> <p>The new centre, footpaths and other infrastructure may impact on sensitive habitats. Careful location and design should avoid these issues.</p>
	Water	-	<p>New footpaths should be designed to avoid or not interrupt surface water flow. Surfaces and materials must be designed to avoid flooding and enable efficient maintenance.</p> <p>The construction of new toilets at the Brodgar carpark would need careful design and management to ensure waste sewage is dealt with carefully so as not to pollute ground water or the neighbouring water bodies</p> <p>Surface water runoff and sewage at the new centre will</p>	0	<p>New foot paths may interrupt surface water flow, but design should eliminate this risk.</p> <p>Development of toilets at the Brodgar Hub will be entirely dependent on a suitable technological solution being implemented to prevent harm to water quality of Lochs.</p> <p>New centre can be designed to meet / exceed existing standards relating to water runoff and sewage.</p>

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
			need to be carefully managed e.g. SUDS and mains sewage connection.		
	Soil	0	Footpaths must be designed to limit erosion.	+	Localised footpath improvements within and around Brodgar coupled with effective active management should allow for a greater dispersion of visitors across the site and the reduction in pinch points, hence reducing the risk of soil erosion. The effects are limited in scale but have been identified as a positive outcome.
	Landscape	--	Paths are to use sensitive materials and surfacing (where surfacing required). Signage and interpretation to be muted and restrained. Use recessive colour and materials for interventions. Careful consideration should be given to the design and placement of welcome points, interpretation, coach management sensors etc. Location, design and materials used for the construction of the new orientation centre would need to make use of local materials and use local vernacular forms as reference for the design. The siting of the carpark will also be critical. The new Orientation Centre should	-	New infrastructure including the footpaths, orientation and wayfinding, interpretation etc, will need to be sensitively designed to reduce impacts on the landscape. The siting, scale and design of the new orientation centre is critical. A small-scale centre designed using vernacular language and forms should sit comfortably in the landscape. The associated car park will need to be carefully integrated into the landscape using appropriate mitigation to break up views. Overall, the impacts of the proposed developments present a significant change to the character of the landscape within a localised context, but with careful mitigation integrated into the design process, much of this change can be addressed.

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
			read as a “rural node” in the landscape.		
	Cultural heritage	--	As per Landscape, plus: Location, design and materials for the new centre and associated car park need detailed analysis to ensure no significant impact on the WHS, scheduled monuments and their settings. Location, design, and materials for the new pedestrian bridge and key active travel routes will need detailed analysis to ensure no significant impact on the WHS, scheduled monuments and their settings. All activities requiring ground disturbance will need to be preceded and their design informed by appropriate levels of archaeological investigation.	+ / - ?	Improved visitor management, dispersal and reduction of peak time crowding will help safeguard the monuments and support their continued conservation – as will the development for the proposed path management system for Brodgar. The new orientation centre with car park, pedestrian bridge and some elements of the path infrastructure could result in a significant negative impact on the setting of the WHS and key monuments depending on its location and design. Choice of locations and appropriate design should reduce this risk, but the level to which they could be mitigated is uncertain at this point and will depend on the degree of flexibility available in relation to location and design. Proximity to the WHS means that it is unlikely that all negative effects can be avoided. New infrastructure could result in disturbance of archaeological remains, with negative effects.
	Population and human health	++	none	++	The active travel infrastructure would be a significant benefit for the local community. The removal of the visitor centre in Stenness would reduce the negative impacts of visitors on the local community.

Option	SEA receptor	Assessment pre-mitigation / enhancement (score)	Suggested mitigation / enhancement (narrative)	Assessment post-mitigation / enhancement (score)	Comment (supporting narrative)
	Material assets	-	<p>Adequate provision must be made in budgets and operational expenses for the added maintenance of new infrastructure and a larger hub in Stenness.</p> <p>New centre and infrastructure should be designed in a way that optimises the sustainable and efficient use of resources, and to minimise long-term maintenance and management.</p> <p>Design and management of new buildings, facilities, infrastructure and visitor management processes should seek to achieve the efficient use of resources, minimise waste and reduce littering</p> <p>Explore options for securing sustainable alternative uses for the building</p>	-	<p>New building and infrastructure will require the consumption of resources.</p> <p>Added transport infrastructure such as bus stop shelters, signage and interpretation shelters will need continual maintenance.</p> <p>New centre can be designed to optimise use of resources and reduce asset management requirements.</p> <p>Closure of current centre removing a use from a material asset, requiring an alternative use to be sought, will have a negative effect on the use of material assets. It is uncertain if this could be mitigated within the scope of the programme.</p>

Annex B: Baseline information and key issues

Introduction

A description of the environmental baseline is set out below, followed by a table highlighting key issues for the environmental topics. 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. We have provided a list of data sources at the end of this report.

Climatic factors

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.

Orkney – wide Climatic 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.

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.

Air quality

Air quality in Orkney is considered very good. The Council has not identified any areas where there is a risk of exceeding the air quality objectives and where consequent action is required to improve air quality. No local or specific priorities or challenges have been identified.

Population and human health

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.

Public Transport

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.

A number of services currently operates to provide cover 6 days a week to the different monuments within the WHS, these currently include X1 service with stops at Stenness for Maeshowe with an increase service in the busy summer months offered on a Sunday, and bus route 8S which currently runs Monday and Thursday and Saturday to provide stops at Stenness for Maeshowe, the Ring of Brodgar and Skara Brae.

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.

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 are rising for example 111,790 people visited Skara Brae in 2018-2019, and the Ring of Brodgar received approximately 146,000 visitors in 2018 and Maeshowe 28,413.

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.

Landscape

[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 SNH Landscape Character Assessment published in 1998. [NatureScot Review 100 - Orkney landscape character assessment | NatureScot](#).

[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 Skail 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 Skail 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.

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.

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.

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:

- 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)

Cultural Heritage

National Factors

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.

Local context

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: Skara Brae, Maeshowe, the Stones of Stenness, the Watch Stone, the Barnhouse Stone, and the Ring of Brodgar and thirteen burial mounds and a stone setting, all of which are Scheduled Monuments.

There are a few listed buildings around Skara Brae, including the A-listed Skail House. There are 2 listed buildings in the Brodgar–Stenness area, including the B-listed Tormiston Mill.

Each monument within the WHS is scheduled. There are also many other scheduled monuments within the vicinity of the WHS. In particular, the concentration of 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.

There are many sites included on the Royal Commission on the Ancient and Historical Monuments of Scotland database in the environs of the WHS. There are also a large number of nationally, regionally and locally important historic environment features that are within and adjacent to the WHS. Skail House designed landscape is adjacent to Skara Brae, and an area at Brodgar is designated as the Brodgar Rural Conservation Area.

Biodiversity, flora, fauna

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.

Designated areas

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).

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)), 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.

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.

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 Skail SSSI and Stromness Heaths and Coast, and the Cruaday Quarry.

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

The Lochs of Harray and Stenness 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.

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.

The management statement for the Lochs of Harray and Stenness SSSI identifies the following issues as the principal factors affecting management:

- 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 duck 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

Bay of Skail SSSI and Geological Site 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.

The management statement for the Bay of Skail SSSI identifies the following issues as the principal factors affecting management:

- road development
- dumping of materials
- 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 SSSI 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.

The management statement for the Stromness Heaths and Coast SSSI identifies the following issues as the principal factors affecting management:

- farming/grazing
- tourism/vehicles access
- fly tipping

- fossil collecting

Cruaday Quarry SSSI designated in 1989 lies to the north of Skara Brae near the north east 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.

The management statement for the Cruaday Quarry SSSI identifies the following issues as the principal factors affecting management:

- Quarrying
- Spoil Removal
- Fossil Collecting
- Tourism and Education

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.

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

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 water birds, 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.

Local Nature Reserve

There are two Local Nature Reserves in the Orkney Islands.

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.

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.

Material Assets

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.

Waste

Littering is a problem in the Orkney countryside and impacts on landscape, public amenity and the natural environment. Plastics in particular are long-lasting and pose a significant hazard to wildlife, e.g. in terms of accidental ingestion or entanglement.

Water

Inland and coastal waters – Stenness catchment is the biggest inland aquatic system in Orkney. There are a number of environmental issues associated with the uses of the Stenness catchment including nutrient enrichment, organic pollution, pesticide discharges and recreational activities. The Lochs of Harray and Stenness are vulnerable to water pollution, in particular nutrient enrichment which can cause the development of harmful phytoplankton blooms. Loch of Harray is classed as eutrophic (nutrient-rich) and is very sensitive to further enrichment.

Flooding – Indicative River and Coastal Flood Maps (Scotland) show that sections of the B9055 to both the north and to the south of the Ring of Brodgar are at a medium to high risk of flooding, which would effectively isolate the monument. They show a medium to high risk of fluvial flooding from the Loch of Skail which may affect the Skara Brae visitors centre.

Water supply and treatment – is provided by Scottish Water with water treatment plants at Boardhouse and Kirbister Lochs. Water from many rural homes continues to be treated by septic tank and soak away systems.

Soil

Climate change projections for Orkney include changes to precipitation including an increased risk of torrential rain and flooding. This can lead to changes to wetting and drying cycles and changes to the water table. High rainfall events increase the risk of wear and tear on paths due to erosion.

Much of the land of the Orkney Islands is fertile agricultural land with predominantly intensive farming methods.

Table 4: Environmental issues relevant to the Gateway Programme

Issue, including supporting data (where available).	Implications for the Gateway Programme.
<p>Climatic factors – mitigation</p> <p>Orkney’s cool and moist climate means space heating in buildings is required for much of the year. This is a contributory factor to the county’s relatively high rate of carbon emissions per head of population.</p> <p>www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics</p>	<p>The design of the proposed Orientation Centre should seek to incorporate low carbon technology for space heating and lighting. Opportunities to benefit from solar gain and shelter from prevailing winds should also be explored.</p>
<p>Climatic factors – mitigation</p> <p>Use of the private car is a necessity for people living in many parts of Orkney, due to the dispersed nature of its communities and their relatively low population densities. In line with national emissions targets, efforts are ongoing to enable a modal shift away from transport powered by fossil fuels.</p> <p>The uptake of electric vehicles within the county is increasing; however, this is dependent upon the availability of charging points.</p>	<p>Opportunities such to support the use of electric vehicles should be incorporated into the programme of projects.</p> <p>Where appropriate, cycle racks should be provided, to encourage active travel.</p>
<p>Climatic factors – adaptation</p> <p>Climate change projections for Orkney include changes to precipitation including an increased risk of torrential rain and flooding. This can lead to changes to wetting and drying cycles and changes to the water table.</p>	<p>Climate change projections for Orkney should be fully considered and addressed in the design of both the Orientation Centre and new path infrastructure.</p>
<p>Climatic factors – local air quality</p> <p>Increased visitor numbers and associated traffic emissions can have negative effects on air quality. Increased active travel options could have positive effects on air quality</p>	<p>Potential localised effects on air quality should be considered and opportunities sought to ensure that the</p>
<p>Biodiversity, flora & fauna</p>	<p>Any new toilet facility should be appropriately designed and sited</p>

Issue, including supporting data (where available).	Implications for the Gateway Programme.
<p>The Lochs of Harray and Stenness SSSI is located within the area covered by the Gateway Programme. Loch of Stenness is also designated as a SAC. Both waterbodies are vulnerable to water pollution, in particular nutrient enrichment which can cause the development of harmful phytoplankton blooms, in turn impacting upon the existing biodiversity of the lochs.</p>	<p>within a location which offers adequate capacity to accommodate nutrient-rich discharges from septic tank or bio-disc sewage treatment systems.</p>
<p>Biodiversity, flora & fauna</p> <p>The Lochs of Harray and Stenness support a wide range of biodiversity, including many bird species, otter and harbour seals. These are vulnerable to human disturbance, especially during the breeding season and when they are looking after their young.</p>	<p>Any new path infrastructure should be sited at an appropriate distance from the loch margins, to minimise the risk of disturbance.</p>
<p>Water environment</p> <p>The Lochs of Harray and Stenness are vulnerable to water pollution, in particular nutrient enrichment which can cause the development of harmful phytoplankton blooms.</p> <p>Loch of Harray is classed as eutrophic (nutrient-rich) and is very sensitive to further enrichment.</p>	<p>Any new toilet facility developed through the Gateway Programme should be appropriately designed and sited within a location which offers adequate capacity to accommodate nutrient-rich discharges from septic tank or bio-disc sewage treatment systems.</p>
<p>Soil</p> <p>Climate change projections for Orkney include changes to precipitation including an increased risk of torrential rain and flooding. This can lead to changes to wetting and drying cycles and changes to the water table. High rainfall events increase the risk of wear and tear on paths due to erosion.</p>	<p>Climate change projections for Orkney should be fully considered in the siting and design of any new path infrastructure.</p>
<p>Soil</p> <p>One of the options for the orientation centre is to build it on a green field site.</p>	<p>The effects of this option on agricultural land capacity should be assessed.</p>
<p>Landscape</p>	<p>The siting, scale and design of the proposed orientation centre should</p>

Issue, including supporting data (where available).	Implications for the Gateway Programme.
The southern part of the WHS is located within the Hoy and West Mainland National Scenic Area (NSA).	be compatible with the Special Qualities of the NSA.
<p>Cultural heritage</p> <p>The landscape of this area is an important element in the Outstanding Universal Value of the WHS. There is potential for new built development to impact negatively upon the OUV.</p>	The siting, scale and design of the proposed orientation centre should be sympathetic to the OUV of the WHS.
<p>Cultural heritage</p> <p>Projects which include soil excavation risk uncovering and damaging undiscovered archaeology.</p>	During any construction work a watching brief should be established.
<p>Population and human health – road safety</p> <p>Whilst road traffic on the Brodgar road is lighter than on A-class roads, it is a relatively narrow route with passing places. It is highly popular with visitors to the WHS, including especially during the months of May through September, when numbers of coaches, mini-buses and cars are higher.</p>	Projects to develop new paths within this area will offer new opportunities to improve road safety for pedestrians and provide new walking routes between the various monuments and Stenness Village.
<p>Population & human health – road safety</p> <p>Concerns have been raised over traffic management throughout the Brodgar road area, including the Brodgar and Stones of Stenness car parks.</p>	The Gateway Programme offers opportunities to improve visitor management within this part of the WHS.
<p>Population & human health – public amenity</p> <p>One of the options for the Orientation Centre is to site it within the Stenness Church. Although no longer used as a church, it is located adjacent to an active cemetery. There is potential for disturbance to people using the cemetery, both during funerals and when paying respects at the grave of a loved one.</p>	The effects of this option on public amenity will need to be fully assessed.

Issue, including supporting data (where available).	Implications for the Gateway Programme.
<p>Population & human health – wastewater disposal</p> <p>The Gateway Programme seeks to address the current lack of adequate toilet provision within easy reach of the southern part of the WHS.</p> <p>Options under consideration include a toilet block alongside the Orientation Centre or a stand-alone facility within the Ring of Brodgar car park.</p>	<p>Any new toilet facility should be appropriately designed and sited within a location which offers adequate capacity to accommodate nutrient-rich discharges from septic tank or bio-disc sewage treatment systems.</p>
<p>Material assets – waste</p> <p>Littering is already a problem in the Orkney countryside and impacts on the natural environment. Plastics, in particular, are long-lasting and pose a significant hazard to wildlife, e.g. in terms of accidental ingestion or entanglement. If any option to provide food or drink is incorporated into the orientation centre project this would increase the risk of littering.</p>	<p>Any proposal to provide food and drink within the orientation centre should be supported by a waste management plan.</p>
<p>Material assets – re-use/circular economy</p> <p>One of the options for the Orientation Centre is to site it within the Stenness Church and aspects of the programme will potentially lead to the re-use or creation of new infrastructure.</p>	<p>Opportunities for the refurbishment, enhancement, decarbonisation, and re-use of existing infrastructure should be explored and supported where possible.</p>

Table 5 - Key baseline information and sources

SEA Issue	Data Required	Source of Data
Climatic factors	CO2 emissions data	www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics
	SNIFFER Online Handbook of Climate Trends across Scotland	www.sniffer.org.uk/climate-trends-handbook-for-web-pdf

SEA Issue	Data Required	Source of Data
	United Kingdom Climate Change Impacts Programme (UKCIP Climate Modelling)	www.ukcip.org.uk
	2019 Air Quality Annual Progress Report (APR) for Orkney Islands Council	Orkney LAQM Progress report 2019 FINAL.pdf (scottishairquality.scot)
	SEPA flood maps	www.sepa.org.uk/environment/water/flooding/flood-maps
	Climate Risk Assessment for HONO WHS June 2019	Climate Risk Assessment for HONO WHS Scotland's Environment Web
Biodiversity, flora and fauna	Statutorily designated sites European Protected Species	https://sitelink.nature.scot
	Locally designated sites	Supplementary Guidance Natural Environment www.orkney.gov.uk/Service-Directory/D/natural-environment.htm
	RSPB reserves	https://www.rspb.org.uk/
	Local Biodiversity Action Plan habitats and species	www.orkney.gov.uk/Service-Directory/L/Local-Biodiversity-Plan.htm
	Happy Valley LNR	www.orkney.gov.uk/Service-Directory/N/happy-valley-nature-reserve.htm
Water	Water quality data	www.sepa.org.uk/data-visualisation/water-classification-hub
Soil	Soil types	The James Hutton Institute – soil maps

SEA Issue	Data Required	Source of Data
	Soil and Land Capability for Agriculture Maps	The James Hutton Institute – Land Capability for Agriculture Maps
Landscape	Hoy and West Mainland National Scenic Area	https://sitelink.nature.scot
	Landscape Character types	Orkney Landscape Character Assessment, Land Use Consultants (1998)
	Historic land use	Historic Land use Assessment
Cultural heritage	World Heritage Sites	Heart of Neolithic Orkney World Heritage Site Management Plan (2014-2019) and associated research reports
	Designated Sites, Buildings, Landscapes and Battlefields. Regionally / locally important archaeological sites and unscheduled archaeology.	Historic Environment Scotland GIS Downloader (includes equivalent data to the Sites and Monuments Records) Scotland's Historic Environment Audit 2016 Scotland's Environment Web
	Conservation Areas	Orkney Local Development Plan www.orkney.gov.uk/Service-Directory/O/Orkney-Local-Development-Plan.htm
Population and human health	Access to historic environment sites, records and collections and access to natural heritage	Historic Environment Scotland NatureScot
	Tourism revenue and visitor numbers	RSPB OIC Visit Scotland

SEA Issue	Data Required	Source of Data
	Health and Place data	NHS Scotland Scottish Government
	Socio-economic data	Scotland's Environment Web Orkney Islands Economic Review 2020 https://fraserofallanderinstitute.wpcomstaging.com/wp-content/uploads/2020/09/Orkney-Islands-Economic-Review_.pdf
Material assets	Core Paths	Orkney Core Paths Plan www.orkney.gov.uk/Service-Directory/C/Core-Paths.htm Infrastructure Investment Plan for Scotland & Phase 1 report

Annex C: Scoping responses from Consultation Authorities

Table 6 below summarises the comments made by SNH and SEPA in response to the scoping report and shows how these comments have been taken into account in the environmental assessment.

Table 6:

SNH	Comments	Responsible Authority Action /Comments
Consultation period for the Environmental Report	We note that a period six weeks is proposed for consultation on the Environmental Report and are content with this proposed period.	Noted and welcomed.
Table 2: Scoping in/out of environmental topics	<p>Local air quality has been scoped out of the assessment as no interactions between the Programme and local air quality have been identified. One of the key projects within the Programme is construction of an Orientation Centre within the World Heritage Site (WHS) as well as car park upgrades at the Ring of Brodgar and Stones of Stenness. There are two identified locations for the Orientation Centre both would provide car parking and one would enable coach parking. Therefore, there is the potential for increased visitor numbers and associated traffic emissions within the WHS as a result of the Programme. Therefore, we recommend that this is considered within the SEA. It may be that this is intended to be covered under the Climatic factors receptor but it isn't clear from the Scoping report.</p> <p>We agree that 'biodiversity' should be scoped in for further assessment. There are a number of projects planned within the Programme that could impact sites of national and international importance and these will need</p>	<p>Noted. Local air quality will be considered as part of the Climatic Factors topic, and a relevant SEA</p> <p>Noted. Habitats Regulation Appraisal work is in hand.</p>

	<p>to be assessed in the SEA. In particular, the Orientation Centre; provision of public toilets; active travel network and car park upgrades all have connectivity to the Lochs of Harry and Stenness Special Site of Scientific Interest (SSSI) and Loch of Stenness Special Area of Conservation (SAC). Therefore, a Habitat's Regulation Appraisal will also be required, further information regarding this is detailed below.</p> <p>We note that it is intended to scope 'Geology' out of the assessment and we agree with this unless there are plans to undertake works at Skara Brae that may impact the geology features of the Stromness Heaths and Coast SSSI or Bay of Skaili SSSI.</p> <p>We note that 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 if required.</p>	<p>Noted.</p> <p>Noted. Hoy and West Mainland NSA has been included in the baseline and assessment of effects.</p>
<p>Table 3: Baseline data and sources</p>	<p>As noted information in relation to SSSI's and European Sites can be found on our website at https://sitelink.nature.scot/home. Further information relating to other protected areas including Geological Conservation Review sites can be downloaded from our Natural Spaces website http://gateway.snh.gov.uk/natural-spaces/. Information regarding European Protected Species (EPS) can be found on our website at https://www.nature.scot/professional-</p>	<p>Noted and welcomed</p>

	<p>advice/safeguarding-protected-areas-and-species/protected-species/legal-framework/habitats-directive-and-habitats-regulations/european and as you may already be aware the Orkney Wildlife Information and Records Centre https://orkneylibrary.org.uk/orkney-wildlife-information-and-records-centre/ contains information on local species records that may also be useful for the assessment.</p>	
Section 4: Proposed Assessment Framework	<p>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.</p>	Noted and welcomed
Table 5: SEA Objectives and assessment criteria	<p>We welcome and support the use of the assessment to identify opportunities, where appropriate, to enhance biodiversity (species, habitats and ecosystems) and can provide further advice if required.</p> <p>Within Landscape we recommend including the Hoy and West Mainland NSA designation to ensure that it is considered within the assessment.</p> <p>It isn't clear from the projects list exactly what work is planned at Skara Brae but if there is any coastal defence works these have the potential to impact the Bay of Skail SSSI and the Stromness Heaths and Coast SSSI and should be included.</p> <p>We note that you intend to assess how the programme will affect protected species. Due to the proximity of a number of the projects within the Programme to the Lochs of Harray and Stenness, and the Bay of Skail, consideration of otter in particular is welcomed.</p>	<p>Noted and welcomed.</p> <p>Noted. The assessment will take into consideration potential impacts to Bay of Skail SSSI and the Stromness Heaths and Coast SSSI.</p> <p>Noted. The assessment will take into consideration how the plan may affect otter.</p>

Habitats Regulation Appraisal (HRA)	<p>As the programme has the potential to impact a European site, an HRA 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. We would be happy to provide additional advice on the HRA if required.</p>	<p>HRA will be undertaken separately</p>
SEPA		
General	<p>We will not be providing detailed comments on your scoping report; instead we refer you to our SEA topic guidance notes www.sepa.org.uk/environment/land/planning/strategic-environmental-assessment/ which provide advice in regard to the scope and level of detail to be included in environmental reports in respect of our main areas of interest (air, water, soil, human health, material assets and climatic factors).</p> <p>If, after referring to this guidance you require specific advice or would like to discuss this consultation response please do not hesitate to contact me by email or via our SEA Gateway at sea.gateway@sepa.org.uk.</p>	<p>Noted.</p>

Annex D: Relevant Plans, Programmes and Strategies (PPS), including their environmental objectives

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
Climatic factors	UK Climate Change Act 2008. Climate Change (Scotland) Act 2009.	<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 were lodged to set a legally binding target of net-zero (100% reduction) greenhouse gas emissions by 2045 at the latest, with Scotland becoming carbon neutral by 2040.</p>
	The future of energy in Scotland: Scottish Energy Strategy (2017). Climate Change Plan: third report on proposals and policies 2018-2032 (RPP3).	<p>The energy strategy sets two targets for the Scottish energy system by 2030:</p> <p>The equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied by renewable sources.</p> <p>An increase by 30% in the productivity of energy use across the Scottish economy.</p> <p>The 2018 Climate Change Plan presented proposals and policies to meet Scotland's annual emissions reduction targets to 2032 through a sectoral approach. The seven sectors are: electricity; buildings; transport; industry; waste; land use, land use change and forestry (LULUCF); and agriculture.</p>
	Energy Efficient Scotland Programme.	<p>The Energy Efficient Scotland programme builds on existing legislation and programmes that are already supporting the improvement of the energy efficiency of homes, businesses and public buildings, as well as</p>

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
		the work we are doing with local authorities to develop Local Heat and Energy Efficiency Strategies (LHEES).
	Orkney Islands Council Carbon Management Programme 2016-2026.	<p>The Council has commitments to reduce the Islands' total carbon dioxide emissions by 42% from the 2004-2015 baseline by 2026; with 18% already achieved, a further 24% reduction has been committed to by the Council.</p> <p>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 in the financial year 2025 by 42% of the baseline year 2004-05</p>
	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
	Climate ready Scotland: climate change adaptation programme 2019-2024.	The second Scottish Climate Change Adaptation Programme sets out policies and proposals to prepare Scotland for the challenges that we will face as our climate continues to change in the decades ahead. The Programme is a requirement of the Climate Change (Scotland) Act 2009 and addresses the risks set out in the UK Climate Change Risk Assessment (UK CCRA) 2017, published under section 56 of the UK Climate Change Act 2008.
Biodiversity, flora & fauna	The Conservation of Wild Birds Directive (79/409/EEC).	The Birds Directive was adopted as a response to increasing concerns about the declines in Europe's wild bird populations resulting from pollution and loss of habitats, as well as unsustainable use. It protects all

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
	<p>The Conservation of Natural Habitats and of Wild Fauna and Flora Directive (92/43/EEC).</p>	<p>wild birds (together with their nests and eggs) and their associated habitats.</p> <p>The Habitats Directive was adopted to protect natural habitats and certain species of wild plants and animals.</p> <p>Together these Directives established a commitment to designating a network of protected sites known as Natura 2000 sites. Special Protected Areas (SPA) are designated under the Birds Directive and Special Areas of Conservation (SAC) are designated under the Habitats Directive.</p>
	<p>The Convention on the conservation of European wildlife and natural habitats 1981 (the Bern Convention).</p> <p>The Wildlife and Countryside Act 1981.</p> <p>The Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations).</p> <p>Nature Conservation (Scotland) Act 2004.</p> <p>The Wildlife and Natural Environment (Scotland) Act 2011. (The WANE Act).</p>	<p>The Bern Convention was established to ensure the conservation of European wildlife and natural habitats by means of cooperation between States.</p> <p>When enacted to implement the Birds Directive and Bern Convention, the Wildlife and Countryside Act 1981 provided a relatively straightforward source of wildlife law in Great Britain. However, the legal picture is now more complicated.</p> <p>Firstly, the introduction of the Habitats Regulations, created a separate set of rules for those species and habitats protected under the Habitats Directive.</p> <p>Secondly, devolution has meant that changes to the 1981 Act through the Nature Conservation (Scotland) Act 2004 and the Habitats Regulations have been made differently in Scotland than in England and Wales. The WANE Act introduced further amendments to the Wildlife and Countryside Act.</p> <p>The Nature Conservation Act also places a duty on public bodies to “further the conservation of biodiversity” when carrying out their functions.</p>

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
	Orkney Local Development Plan 2017. Supplementary Guidance Natural Environment.	
	Scotland's Biodiversity – It's in Your Hands (2004) supplemented by the 2020 Challenge for Scotland's Biodiversity (2013).	Together these documents make up the Scottish Biodiversity Strategy. They set out the major steps needed to improve the state of nature within Scotland.
	The Orkney Local Biodiversity Action Plan.	The Orkney Local Biodiversity Action Plan (2002), and updated revisions of the Plan published in 2008, 2013 and 2018, identify 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. It is presented as a series of habitat and species action plans and associated guiding principles.
Water	Water Framework Directive 2000/60/EC. The Groundwater Directive 2006/118/EC. Water Environment and Water Services (Scotland) Act 2003 (WEWS) Act. Scotland River Basin Management Plan (2009).	Water-related policies aim to protect water resources and, where appropriate, achieve an improvement in their ecological condition. River Basin Management Plans were prepared under the Water Framework Directive and the WEWS Act set specific objectives for the protection and improvement of water resources within each river basin. Orkney lies within the area covered by the Scotland River Basin Management Plan.
Soil	Scottish Soil Framework (2009).	National policies on soil seek to protect resources from a range of impacts, including soil sealing by development, increased susceptibility to erosion and soil pollution.

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
Landscape	<p>Council of Europe, European Landscape Convention (2000).</p> <p>SNH Natural Heritage Futures.</p> <p>SNH National Scenic Areas Programme (2009).</p> <p>Scotland's Landscape Charter.</p> <p>Landscape and the Historic Environment – A Common Statement (Strategic Historic Environment Forum).</p> <p>Scottish Natural Heritage's Landscape Policy Framework: Policy Statement No. 05/01.</p>	<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.</p>
	<p>Orkney Landscape Character Assessment, Land Use Consultants (1998).</p> <p>The Heart of Neolithic Orkney World Heritage Site Setting Project Atkins. Ltd 2008.</p>	<p>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.</p> <p>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 any 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</p>

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
Cultural heritage	<p>Historic Environment Scotland Act 2014.</p> <p>Historic Environment Policy for Scotland (2019).</p> <p>Our Place in Time: The Historic Environment Strategy for Scotland (2014).</p> <p>Scottish Planning Policy (SPP) (2020).</p> <p>The Ancient Monuments and Archaeological Areas Act 1979.</p> <p>The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997.</p> <p>PAN 2/2011 Planning and Archaeology.</p> <p>Historic Environment Scotland Corporate Plan 2019 onwards.</p> <p>Managing Change in the Historic Environment Guidance Notes.</p> <p>Managing visitor safety in the historic and built environment.</p> <p>Other Historic Environment Scotland guidance documents.</p>	<p>National 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>Managing visitor safety in the historic and built environment provides practical guidance for managers of historic properties on how best to balance visitor experience, visitor safety and the heritage asset value of their sites. It offers a range of principles which can be used to assess visitor safety, and outlines a suite of decision making tools which can be used to mitigate risks, in an appropriate manner that minimises the impact on the cultural significance of the historic built environment.</p>

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
	<p>Orkney Local Development Plan 2017.</p> <p>Supplementary Guidance: Historic Environment and Cultural Heritage.</p> <p>Heart of Neolithic Orkney World Heritage Site Management Plan 2014 – 2019</p>	<p>The Orkney LDP establishes the main principles of the policy to protect the WHS and its setting from inappropriate development</p> <p>SG Historic Environment and Cultural Heritage 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.</p> <p>The management plan for the Heart of Neolithic Orkney World Heritage Site has been developed by various partners and provides a framework document for how the Site will be managed over the next five years by identifying a series of key issues and devising specific objectives or actions to address these issues. This plan is currently under review and emerging changes to its vision, objectives and actions will be taken into account where possible.</p>
	<p>Community Empowerment Act (Scotland) 2015.</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</p>

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
Population and Human health	<p>Orkney Community Plan 2019 -2022 incorporating Orkney’s Local Outcomes Improvement Plan.</p> <p>The Council Plan 2018-2023.</p>	<p>priorities stress the important role played by communities in shaping and making local decisions.</p> <p>The Orkney Community Plan allows for providers of public services to work together with the community to plan and deliver services that will improve long term outcomes for individuals, families, and communities where inequality persists. Its strategic priorities are:</p> <p>Strong Communities. Living Well. Vibrant Economy.</p> <p>The Council is a leading member of The Orkney Partnership, and the Council Plan supports the strategic priorities of the Community Plan. The shared mission of both Plans is “Working together for a better Orkney.” The Council’s strategic priorities are:</p> <p>Connected Communities Caring Communities Thriving Communities Enterprising Communities Quality of Life.</p>
	<p>Improving Health in Scotland – the Challenge (2003).</p> <p>Creating Places – A policy statement on architecture and place for Scotland.</p> <p>Good Places Better Health (2008).</p>	<p>National policy outlines the need to seek to improve health and quality of life.</p> <p>There is a growing recognition of an additional need to shape places which are nurturing of positive health, wellbeing and resilience.</p>

Environmental receptor	Plan, Programme or Strategy	Summary of environmental objectives
	Equally Well: Implementation Plan (2008) and 2010 Review Recommendations.	
	<p>The Land Reform (Scotland) Act 2003.</p> <p>Orkney Outdoor Access Strategy (2017).</p> <p>The Orkney Core Paths Plan (2018).</p>	<p>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.</p> <p>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.</p> <p>The Plan identifies a series of paths to promote outdoor access across Orkney and sets out the right of responsible access in Scotland. It aims to promoting more widespread and functional walking, cycling and riding and thereby support improved levels of physical activity</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.
Material assets	National Infrastructure Investment Plan	The Scottish Government have taken forward the recommendations from the Infrastructure Commission on the key challenges and opportunities for infrastructure in Scotland. The emerging National Infrastructure Investment Plan sets out a new approach to investment decision making and identifies various priorities around promoting a whole-life approach

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	<p>National Transport Strategy 2 (2020).</p> <p>Orkney Local Transport Strategy, OIC, (2007-2010).</p>	<p>to asset management, with a particular focus on supporting net-zero objectives driven by Climate Change legislation.</p> <p>The National Transport Strategy sets out an ambitious vision for Scotland’s transport system for the next 20 years. The vision is underpinned by four priorities: Reduces Inequalities; Takes Climate Action; Helps Deliver Inclusive Economic Growth; and Improves our Health and Wellbeing.</p> <p>The Local Transport Strategy seeks to “promote, encourage and deliver an effective and efficient transportation network that supports the economic vitality, community well-being and environmental integrity of all of Orkney”, through focusing on six objectives:</p> <ul style="list-style-type: none"> • Ensuring that travel opportunities meet the needs of the whole community. • Integrating various means of travel around Orkney. • Promoting accessibility for all. • Increasing levels of active travel. • Making travel safer. • Reducing traffic in sensitive areas.
	<p>Scotland’s Zero Waste Plan (2010).</p> <p>Scotland: Making Things Last – a Circular Economy Strategy (2016).</p>	<p>The Zero Waste Plan seeks to achieve a zero waste Scotland, where we make the most efficient use of resources by minimising Scotland’s demand on primary resources, and maximising the reuse, recycling and recovery of resources instead of treating them as waste.</p>

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	Orkney & Shetland Area Waste Plan (2003).	<p>The 2016 Strategy was developed to move the country towards a more circular economy, aligning its economic and environmental objectives. It aims to bring together business sectors and individuals to jointly work towards that goal.</p> <p>The Area Waste Plan (AWP) was developed through the joint efforts of Orkney and Shetland Waste Strategy Area Groups (WSAG) to provide a strategic framework for improved waste management across the two local authority areas. The key aim of the plan is to:</p> <p>“Contribute to the sustainable development of the Orkney and Shetland Area by developing waste management systems that will control waste generation, reduce the environmental impacts of waste production, improve resource efficiency, stimulate investment and maximise the economic opportunities arising from waste.”</p>
	<p>Scotland Outlook 2030: Responsible Tourism for a Sustainable Future</p> <p>A Visitor Management Strategy for Scotland (2021)</p> <p>Orkney Tourism Strategy 2020-2025: A strategy for sustainable tourism</p> <p>People Make Heritage 2020.</p>	<p>Tourism is a key economic driver and the historic environment is one of the main motivators for tourism activity in Scotland. The national Tourism Strategy aims to make Scotland “the world leader in 21st century tourism which will see “communities embrace visitors and the stories of our destinations and world-famous assets are brought to life by Scotland’s people; where strong partnerships are in play to protect and enhance our environment whilst growing social, cultural and economic wealth.” This will be achieved by focusing on four key priorities: our passionate people, our thriving places, our diverse businesses, our memorable experiences.</p> <p>Working in concert with the national tourism strategy, the national Visitor Management Strategy seeks “to create a dynamic, forward looking and inclusive approach to Visitor Management for Scotland.” Its mission is: “through strategic leadership and by harnessing the collective skills of our partners in the private, public and third sectors we will deliver a world</p>

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		<p>class approach to Visitor Management that protects our environment, respects our communities, enhances the experience of our visitors and supports a thriving tourism sector.”</p> <p>Orkney’s Tourism Strategy seeks to establish Orkney as “a world-class sustainable destination enriching the lives of its people and visitors,” pursuing the following objectives: (1) increasing economic prosperity of the islands; (2) extending the visitor season and increasing visitor spend; (3) sustainably managing visitor numbers to protect the quality of experience, the key sites and routes to the sites, for visitors and local residents; (4) dispersing the benefits of tourism throughout the whole of Orkney; (5) conserving and enhancing the islands’ natural and cultural heritage.</p> <p>These strategies reflect the changing world we live in, our new mindset and approach to how we live and work and represents a new approach, putting our communities, our people, our visitors, our businesses and our environment at the heart of tourism objectives and their delivery.</p>
	<p>National Planning Framework 3.</p> <p>National Planning framework 4 – Position Statement</p> <p>Scottish Planning Policy (2020).</p> <p>Town Centre First Principle.</p> <p>Creating Places – A policy statement on architecture and place for Scotland.</p>	<p>The planning system highlights the need to allow the development of high quality, well designed, energy efficient buildings. Efficient design will contribute to climate change abatement targets, as will transport emission reductions. Redevelopment of urban and rural brownfield sites is encouraged.</p> <p>Place is an agent of change. Good buildings and places can enrich our lives as individuals and as a society in many ways. The Place Principle promotes a shared understanding of place, and the need to take a more collaborative approach to a place’s services and assets to achieve better outcomes for people and communities. The principle encourages and</p>

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	Orkney Local Development Plan (2017).	<p>enables local flexibility to respond to issues and circumstances in different places.</p> <p>The Town Centre First Principle asks that government, local authorities, the wider public sector, businesses, and communities put the health of town centres at the heart of proportionate and best-value decision making.</p>