The Flow Country World Heritage Site

Setting Guidance

Final report
October 2026
Prepared by LUC
Finalised by The Flow Country Partnership



View south from field east of Main Street, Tongue along the Rhian Burn towards the peaks of Ben Loyal.

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01

Setting Guidance



View northeast from the eastern bank of Strathmore River, over the river, towards a cluster of buildings and Leitir Mhuiseil with Ben Hope in the distance.

Introduction

Why is this guidance needed?

1.1 Following inscription of The Flow Country as a World Heritage Site (WHS) in 2024, a need was identified to help those proposing or managing change potentially affecting the Site to understand what that means, particularly in relation to change occurring outside its boundaries where this might affect the Outstanding Universal Value (OUV). There is no written guidance or tested approach applicable to The Flow Country because of its unique circumstance as Scotland's only WHS inscribed solely for natural heritage and the world's first and only peatland WHS, at the time of writing.

1.2 This piece of guidance therefore aims to help those proposing or managing change fulfil the obligations of the World Heritage Convention and apply the Operational Guidelines, interpreted for the specific circumstances of The Flow Country. The development of this setting guidance has been a Flow Country Partnership project.

1.3 The relevant obligations for this guidance are:

"the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage" (Article 4)

1.4 and that signatories,

"shall endeavor [sic] by all appropriate means, and in particular by educational and information programmes, to strengthen appreciation and respect by their peoples of the cultural and natural heritage" (Article 27).

1.5 WHS Impact Assessment conclusions are one consideration in wider planning and consenting processes that involve a balancing of considerations before making a determination. Within that balance, the global importance of World Heritage and the international obligations associated with it should be recognised and in general terms accorded significant weight.

Why guidance on setting?

1.6 UNESCO requires the tools and processes through which a site's Outstanding Universal Value will be protected to be set out in a Management Plan. UNESCO guidance notes that an effective management system depends on the type, characteristics and needs of the property and its cultural and natural context.

1.7 The Flow Country's Management Plan recognises that what makes The Flow Country special could be affected by change happening both within and outside its boundaries. Management proposals for The Flow Country therefore need to address the setting of the World Heritage Site – the area outside and surrounding it.

1.8 Although the term 'setting' is not commonly applied to the surroundings of natural heritage sites, it is used in this guidance because that is the term used by UNESCO:

"setting may relate to the property's topography, natural and built environment, and other elements such as infrastructure, land use patterns, spatial organization, and visual relationships. It may also include related social and cultural practices, economic processes and other intangible dimensions of heritage such as perceptions and associations."

1.9 Crucially, *"management of the wider setting is related to its role in supporting the Outstanding Universal Value."* These references to 'setting' in the Operational Guidelines relate to all World Heritage properties without differentiating between those inscribed for cultural or natural heritage values.



View northwest from path north of the A838 over Loch Ach'an Lochaidh.

Definition of Setting

1.10 A study into the concept of setting and how it applies to The Flow Country World Heritage Site was undertaken to support the production of the Management Plan prior to inscription. Finalised following inscription, *The setting of The Flow Country World Heritage Site: Definition study (2026)* has been published.

1.11 A key finding of that study was that understanding and applying setting is a process, and cannot be a fixed description or spatially-defined zone.

1.12 The need to consider change to the setting of a World Heritage Site is only relevant when it specifically affects OUV. Given that the World Heritage Convention requires the 'presentation' and 'appreciation' of cultural and natural heritage (Articles 4 and 27), the setting of a WHS therefore fulfils two purposes – protecting key aspects of a Site's OUV from change arising outside its boundary, and supporting the presentation or appreciation of the Site.

1.13 These two purposes lead to a two-fold definition of setting - functional and experiential.

1.14 There can be positive and/or negative effects for the WHS, including its setting, that arise from proposed projects. It is therefore appropriate that where the proposed project is subject of planning control, such effects are assessed and considered as part of the planning process. As previously noted, WHS Impact Assessment conclusions are one consideration in wider planning and consenting processes that involve weighing and balancing considerations prior to making a determination.

Functional setting

1.15 Functional aspects of setting are those which directly support the functioning of the Site and its protection. **Functional setting is the primary consideration because the Site is inscribed under natural criteria of OUV only, and the receptors of change are the attributes of OUV, directly.**

1.16 Functional setting means the environmental context in which change can affect the ecological health and resilience of the WHS. These effects could be positive or negative. It encompasses those areas outside the boundary that are needed to maintain the ecological functioning and integrity of the inscribed area, based on interactions between hydrological, biological and climatic processes.

1.17 Functional setting identifies the parts of the WHS's surroundings which carry or embody the attributes of OUV ('receptors'). These are grouped into broad categories of receptor type: local climate and environmental conditions; water sources and hydrological units; ecosystems and communities of species; land use and land management practices. Data on these receptor types is analysed, and considered against the types of change which could affect them, to determine how change in the setting may affect OUV.

Experiential setting

1.18 Experiential aspects of setting are those which relate to the way people experience, understand, or appreciate the Site. Experiential setting encompasses the parts of the WHS's surroundings where change may affect the presentation and appreciation of the WHS's qualities which derive from its OUV.

1.19 **Experiential setting is an important consideration, though secondary to functional, because the Site is not inscribed under cultural criteria.** It is only relevant in the specific instances when the ways in which people appreciate the WHS derive directly from its attributes of OUV, and the proposed change can affect that appreciation. It should be noted that change in experiential setting can be both positive or negative. For example, the installation of interpretive signage or accessible walking routes amongst new developments can improve people's appreciation of the WHS.

1.20 The human experience of the WHS is through a series of qualities, which include the sensory characteristics and associations by which humans respond to the attributes of OUV. These qualities include the Site's scale and continuousness; the interaction with and appreciation of its species; transient aspects such as light, weather and seasonal variations; the variety of its surface patterning across the blanket bog landscape; and its time-depth, cultural and historical associations. Although not specific attributes of OUV, the cultural and historical associations are reflected in the inscribed OUV, specifically attributes c), d) and e), in relation to the human influence over the past 9000 years that has shaped the Flow Country and blanket bog ecosystem. This was reflected within the nomination process and upon inscription.

Setting and integrity

1.21 Integrity is the measure of the wholeness and intactness of the natural heritage and its attributes: the extent to which the property includes all elements necessary to express its Outstanding Universal Value. Findings on effects should be considered in the light of whether they can affect the wholeness and intactness of the WHS.



World Heritage Impact Assessment

1.22 Impact assessments for proposed interventions are essential for all World Heritage properties.

1.23 The Operational Guidelines make clear this applies to all proposals with potential to affect OUV, whether they are located within or outside a WHS:

"States Parties shall ensure that Environmental Impact Assessments, Heritage Impact Assessments, and/or Strategic Environmental Assessments be carried out as a pre-requisite for development projects and activities that are planned for implementation within or around a World Heritage property."

1.24 UNESCO, ICCROM, ICOMOS and IUCN have issued a joint resource manual, *Guidance and Toolkit for Impact Assessments in a World Heritage Context* (2022). The Highland Council has issued a toolkit to assist in navigating and applying the Guidance and Toolkit to proposals affecting The Flow Country.

1.25 This setting guidance is intended to help apply the Highland Council toolkit where setting considerations may arise.

Impact Assessment Process

1.26 The following process, set out in Section 02, is intended to minimise additional burden required of those proposing change. It supports and enhances existing impact assessment processes, rather than introducing a new or additional process. It enables information being produced for impact assessment processes required under existing consenting regimes to be adapted and interpreted to satisfy World Heritage impact assessment requirements.

1.27 World Heritage impact assessment is required where there is potential for negative impacts (note - any impact, not just 'significant'), but the process can be used to identify and assess all impacts, positive and negative. All direct, indirect and cumulative impacts occurring in the entire area of influence of the proposed action (development) need to be identified and assessed for their potential to impact the WHS. [The potential for cumulative impacts should therefore be borne in mind throughout the assessment process. As far as possible, the other projects or activities to be considered for World Heritage cumulative assessment specifically should be identified at the outset; where the proposed development is subject of EIA, this could be done as part of EIA Scoping.]

1.28 In many cases (for whole projects, or for some components of a project), this may result in no elements of a proposal being found which could affect the attributes of OUV. In such cases it is important to briefly explain why that is the case.

1.29 Within EIA, it is appropriate to calibrate significance in a manner that is appropriate to the particular receptor(s). Therefore, in assessing the effects of a proposed development on a WHS, significance accorded to effects should have regard to the international importance of World Heritage. Care must be taken however; if World Heritage were to be combined with other considerations and significance calibrated and assessment undertaken for that wider group, the assessment could be skewed. The assessment of impacts on World Heritage needs to be able to be identified in isolation and the completed Toolkit can be appended to the EIA Report.

1.30 In general terms, the assignation of significance within EIA for effects on a particular receptor does not necessarily indicate that those effects are unacceptable. However, for the FCWHS the threshold above which a proposal would be unacceptable is anticipated to be lowest compared to other peatland designation types (middle) and to non-designated peatland (highest), particularly when taking account of the FCWHS's importance, including consideration of effects on integrity, and the approach to mitigation.

1.31 UNESCO Guidance and Toolkit for Impact Assessment in a World Heritage Context (p.27) states that: "It is always preferable to avoid, rather than minimize, impacts on a World Heritage property's attributes. Any loss of, or damage to OUV is unacceptable, which means that rectification, reduction (to less severe but still significant) or offsetting of impacts is inappropriate in a World Heritage context". The UNESCO Guidance and Toolkit (p.44) sets out the types of conclusions available in cases where the proposed action (development) would have negative impacts on OUV. This underscores that any negative impact to OUV beyond 'negligible' is significant and must be recorded and avoidance/ minimisation applied. The result needs to be at least reduced to insignificant negative impact in order to be acceptable in World Heritage terms.

1.32 In making use of the overall EIA to inform the broader assessment, consideration and determination of an application for consent, the importance of particular designations should be reflected and relevant policies and/or procedures applied.

Worked Example

1.33 The impact assessment process set out in Section 02 is illustrated with a worked example, set out in Section 03. Section 03 presents the relevant sections of the Highland Council toolkit, completed to demonstrate the consideration of setting effects. Section 02 cross-refers to the corresponding parts of the worked example to illustrate the process.

1.34 The worked example takes a real case study of a development proposal located at the edge of The Flow Country - Golticlay Wind Farm (Variation) (ECU00004946), consented in December 2024.

1.35 Information has been obtained from scheme Environmental Impact Assessment and other submission documents, all of which are available in the public domain (via https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004946)

1.36 Scheme impact information in the worked example illustrates the level of detail, signposting to existing documentation, and the types of considerations and conclusions which would be likely to be appropriate and proportionate to present within a WHS Impact Assessment. It is based entirely on pre-existing assessment information, introduces no new judgements, and is not intended as a commentary on the specific scheme used as an example.

1.37 The impact information is necessarily a snapshot taken at the end of the scheme's evolution, because it is taken from the consented scheme documentation. In practice, the WHS Impact Assessment process should be started at the beginning of a proposal's development journey, in order to anticipate and avoid potential harmful effects to OUV, and if possible incorporate beneficial effects to OUV, from the outset.

02

World Heritage Site Impact Assessment Process



View south from field east of A838 near Tongue cemetery towards the peaks of Ben Loyal.

World Heritage Impact Assessment Process



The Highland Council Impact Assessment Toolkit

Screening tab	Sets out whether the project or development is capable of affecting OUV

Does the project / development lie wholly or partly within the boundary of the inscribed Site?	Does the project / development lie outwith the Site but would include actions that might impact aspects of the OUV?	Has the project / development been subject to an Environmental Impact Assessment or any other relevant assessment?
NO, or PARTLY WITHIN	YES	YES, in progress, or likely to be required

Understand OUV and its Attributes

1 **Nominate a World Heritage impact assessment lead within the project team**

This could be an EIA project manager, Ecology lead, etc - someone who has an overview of project impacts and can communicate with all relevant specialists.

2 **Discuss OUV with your team specialists**

Consult them throughout the process.

3 **Think about how OUV may be relevant to their topics**

How OUV might be affected by the project or development?

4 **Minimise duplication as far as possible**

Use information from relevant assessments, adapted to answer the WHS Impact Assessment questions.

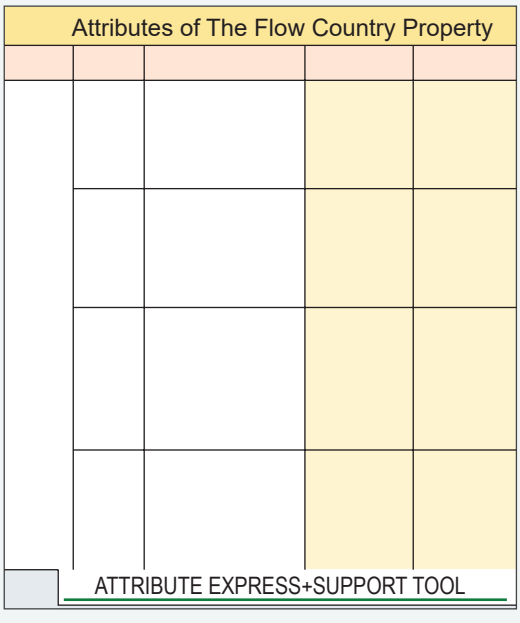
Sources of Information

See p.22

Flow Country WHS Management Plan



THC WHS Impact Assessment Toolkit:



Consider how they apply to your site/ proposal

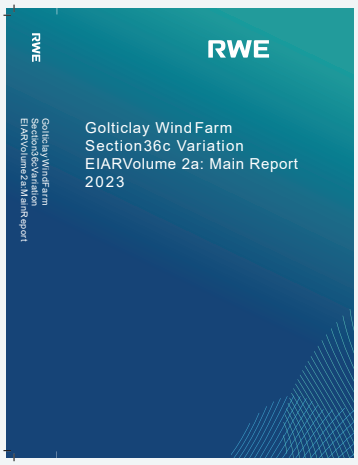
1. How are the Attributes of OUV expressed or supported by the development Site?

See Table 1.1 Functional change: Attributes of The Flow Country - What to consider?

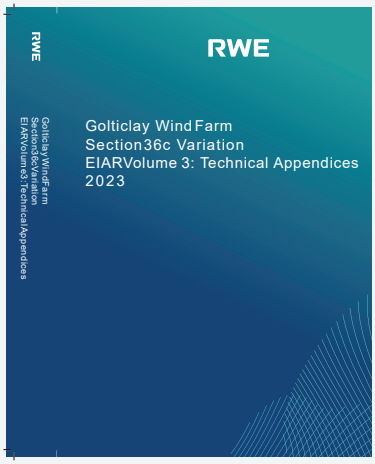
See p.35

Sources of Information

Environmental Impact Assessment Report



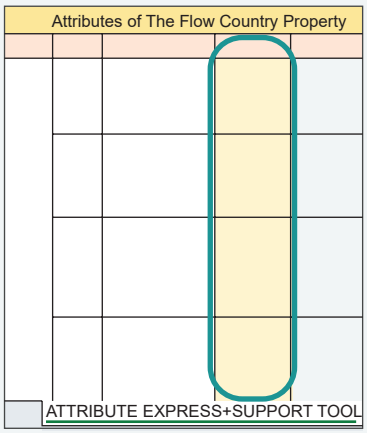
CH 09: Ecology | CH 11:Geology, Hydrology, Hydrogeology



Technical Appendix 9.5: UNESCO World Heritage Site Toolkit Assessment
Technical Appendix 9.6: Revised Habitat Management Plan

THC WHS Impact Assessment Toolkit

See p.22



Briefly record information using attributes and values in tool as prompts

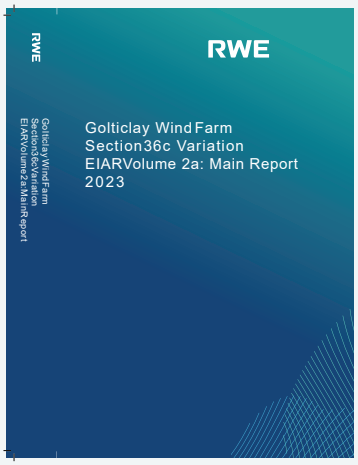
2. How does the development site support the presentation or appreciation of each Attribute?

See Table 1.2 Experiential change: Attributes of The Flow Country - What to consider?

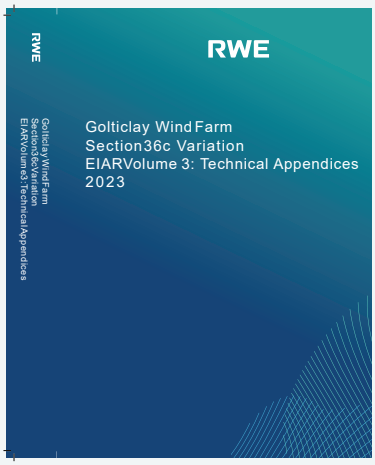
See p.38

Sources of Information

Environmental Impact Assessment Report



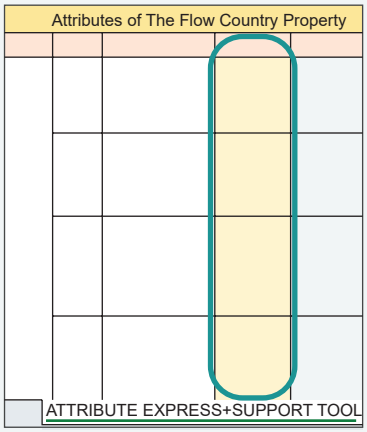
CH 09: Ecology | CH 11:Geology, Hydrology, Hydrogeology | CH 07: LVIA| CH 12:Archaeology and Cultural Heritage



Technical Appendix 9.5: UNESCO World Heritage Site Toolkit Assessment
Technical Appendix 9.6: Revised Habitat Management Plan

THC WHS Impact Assessment Toolkit

See p.22



Briefly record information using attributes and values in tool as prompts

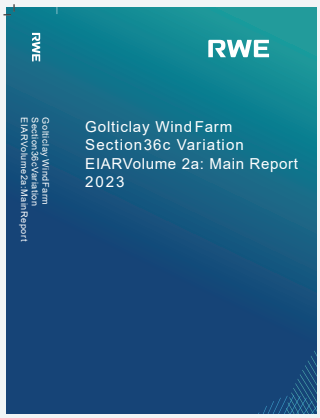
Consider Actions and Impacts

1 How might the change created by your proposal affect OUV, or its presentation or appreciation?

Identify ACTIONS

Sources of Information

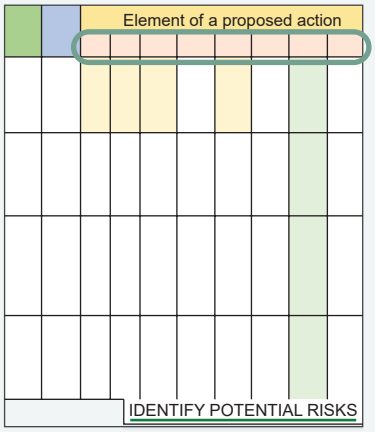
Environmental Impact Assessment Report





Main report and Figures:Scheme description,development scope and constraints

THC WHS Impact Assessment Toolkit See p.26



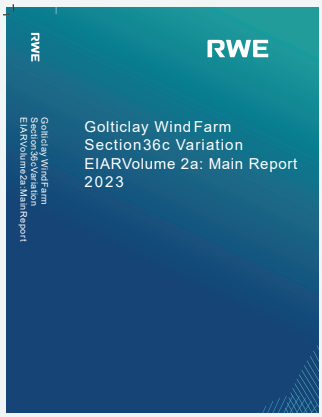
Complete Elements of a proposed action in Identify Potential Risks Tool

2 Think about where each Action could have an effect on OUV or its presentation or appreciation - do study areas include or overlap with the WHS?

Consider AREA OF INFLUENCE

Sources of Information

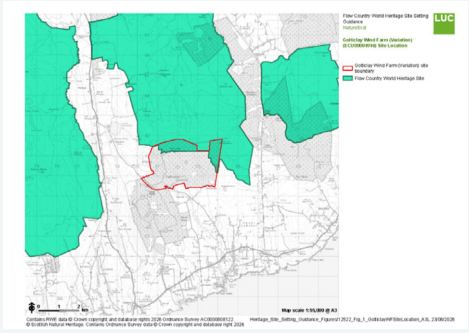
Environmental Impact Assessment Report



CH 09: Ecology | CH 11:Geology, Hydrology, Hydrogeology |



CH 07: LVIA | CH 12:Archaeology and Cultural Heritage

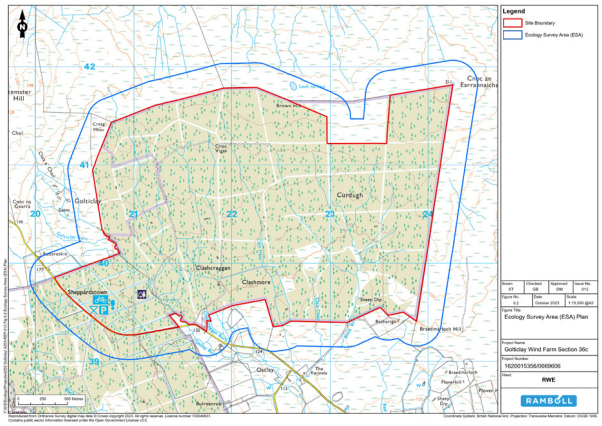


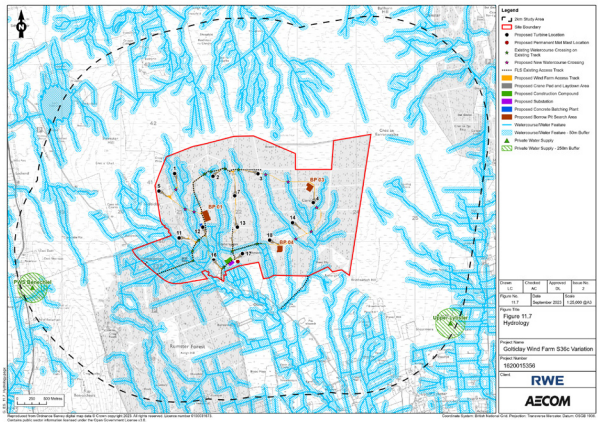
Golticlay Wind Farm (Variation)(ECU00004946) Site Location

See Section 03

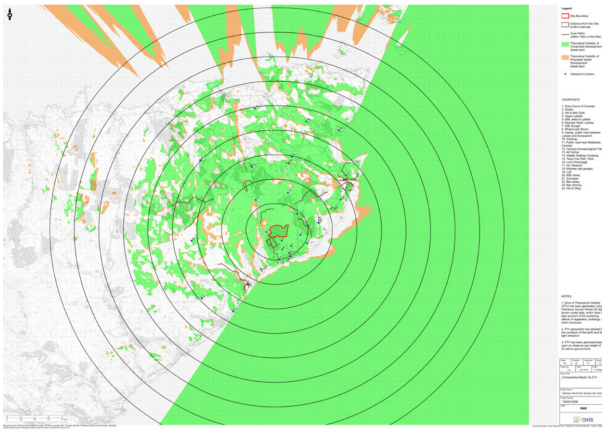
Worked Example: Actions and Areas of Influence

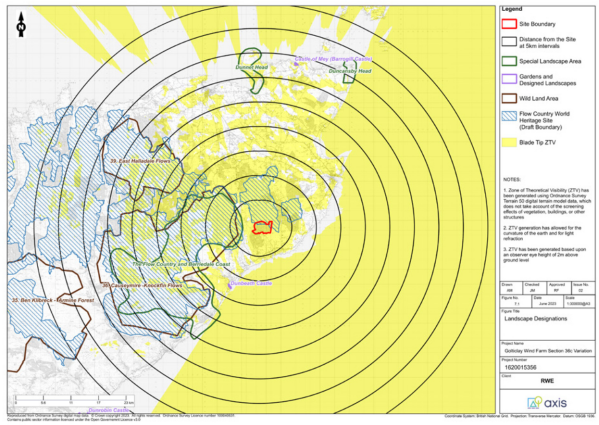
Functional considerations: Ecological, hydrological survey areas



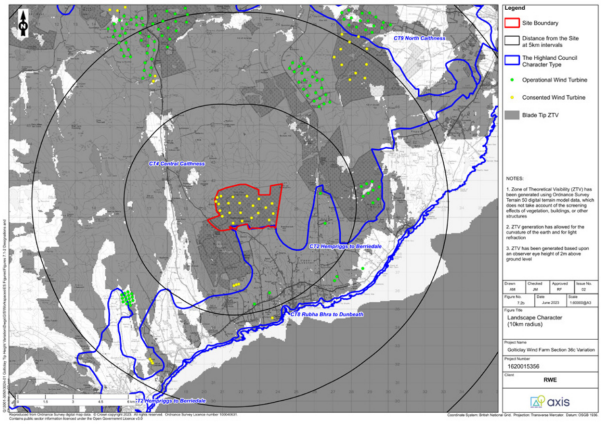


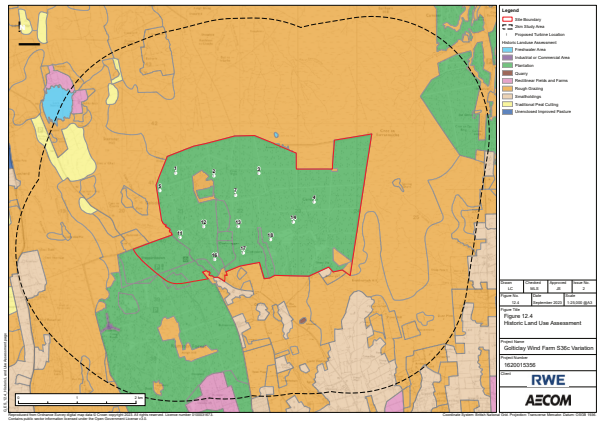
Experiential considerations: Project design ZTV, receptor study areas - landscape designations, visualisations





Experiential considerations: landscape character, historic land use





3 Identify the potential impacts of each element of a proposed action on each Attribute of OUV

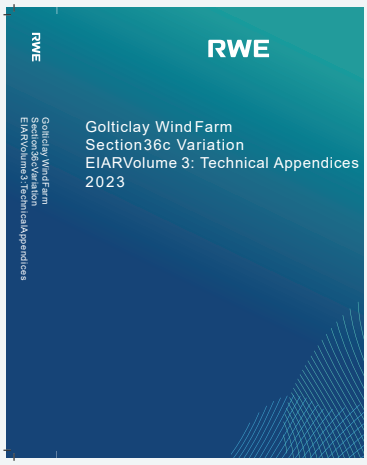
Use the findings of existing impact assessments to identify potential impacts

Functional impacts How could each Attribute be changed by each action?

See Table 1.1 - Functional change: Attributes of The Flow Country - What to consider? See p.35

Sources of Information

Environmental Impact Assessment Report

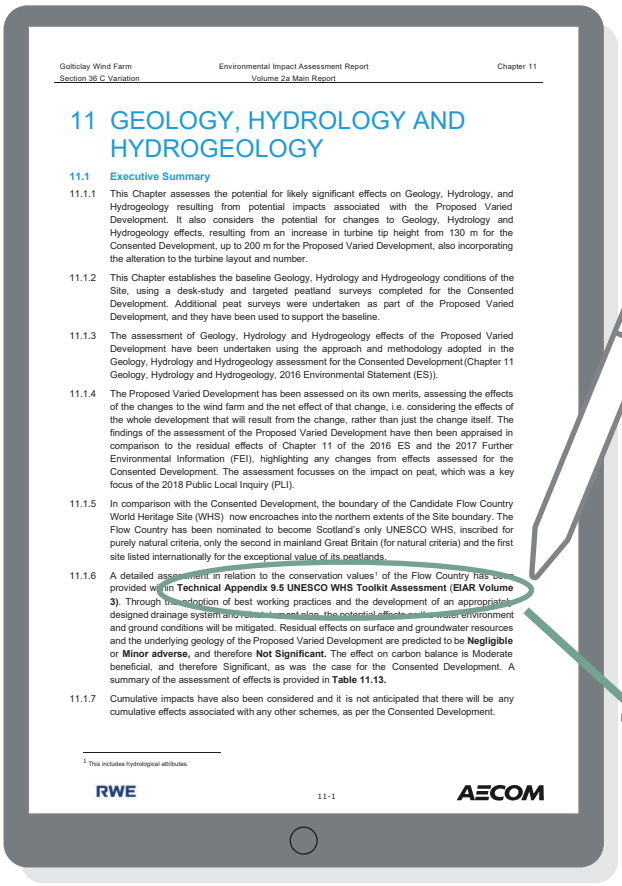




Ecology studies and relevant EIAtechnical appendices,e.g. :
Initial Desk Studies
Habitats and Vegetation Survey Reports
Protected Species Survey Reports
Shadow Habitat Regulations Assessment (sHRA)
Mitigation/ enhancement information e.g. Outline Biodiversity Enhancement Plan (OBEP),and supporting figures

Example illustration of using sources of information

See p.26



Golticlay Wind Farm Section 36 C Variation | Environmental Impact Assessment Report Volume 2a Main Report | Chapter 11

11 GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

11.1 Executive Summary

11.1.1 This Chapter assesses the potential for likely significant effects on Geology, Hydrology, and Hydrogeology resulting from potential impacts associated with the Proposed Varied Development. It also considers the potential for changes to Geology, Hydrology and Hydrogeology effects, resulting from an increase in turbine tip height from 130 m for the Consented Development, up to 200 m for the Proposed Varied Development, also incorporating the alteration to the turbine layout and number.

11.1.2 This Chapter establishes the baseline Geology, Hydrology and Hydrogeology conditions of the Site, using a desk-study and targeted peatland surveys completed for the Consented Development. Additional peat surveys were undertaken as part of the Proposed Varied Development, and they have been used to support the baseline.

11.1.3 The assessment of Geology, Hydrology and Hydrogeology effects of the Proposed Varied Development have been undertaken using the approach and methodology adopted in the Geology, Hydrology and Hydrogeology assessment for the Consented Development (Chapter 11 Geology, Hydrology and Hydrogeology, 2016 Environmental Statement (ES)).

11.1.4 The Proposed Varied Development has been assessed on its own merits, assessing the effects of the changes to the wind farm and the net effect of that change, i.e. considering the effects of the whole development that will result from the change, rather than just the change itself. The findings of the assessment of the Proposed Varied Development have then been appraised in comparison to the residual effects of Chapter 11 of the 2016 ES and the 2017 Further Environmental Information (FEI), highlighting any changes from effects assessed for the Consented Development. The assessment focusses on the impact on peat, which was a key focus of the 2018 Public Local Inquiry (PLI).

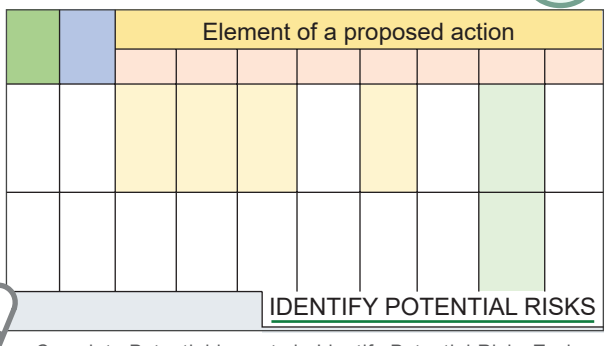
11.1.5 In comparison with the Consented Development, the boundary of the Candidate Flow Country World Heritage Site (WHS) now encroaches into the northern extents of the Site boundary. The Flow Country has been nominated to become Scotland's only UNESCO WHS, inscribed for purely natural criteria, only the second in mainland Great Britain (for natural criteria) and the first site listed internationally for the exceptional value of its peatlands.

11.1.6 A detailed assessment in relation to the conservation values[1] of the Flow Country has been provided within **Technical Appendix 9.5 UNESCO WHS Toolkit Assessment (EIAR Volume 3)**. Through the adoption of best working practices and the development of an appropriately designed drainage system and [illegible] plan, the potential effects on the water environment and ground conditions will be mitigated. Residual effects on surface and groundwater resources and the underlying geology of the Proposed Varied Development are predicted to be **Negligible** or **Minor adverse,** and therefore **Not Significant.** The effect on carbon balance is Moderate beneficial, and therefore Significant, as was the case for the Consented Development. A summary of the assessment of effects is provided in **Table 11.13.**

11.1.7 Cumulative impacts have also been considered and it is not anticipated that there will be any cumulative effects associated with any other schemes, as per the Consented Development.

[1] This includes hydrological attributes.

RWE 11-1 AECOM



Complete Potential impacts in Identify Potential Risks Tool

11.7.17 The peat will be restored as soon as possible after disturbance. During the construction of access tracks and crane pads, mitigation can be undertaken as access road construction progresses. However, for small temporary quarries reinstatement cannot be undertaken until extraction is complete. This is detailed in the Preliminary PMP **Technical Appendix 11.4 (EIAR Volume 3)**

11.7.18 Mitigation measures in relation to the soil environment include use of good practice during construction to prevent or minimise spillage risk and spillage effects. The Good Practice during Wind Farm Construction[17] guidance and Advising on carbon rich soils, deep peat, and priority peatland habitat in development management[18] will be used to inform a CMS to be approved by SEPA and THC and will be developed covering each construction activity before construction commences. This will include compliance with all of the guidance contained in relevant GPPs and PPGs.

11.6.18 Access tracks and cable trenches have the potential to become barriers to natural surface water pathways or groundwater 'pipes' in peat deposits. This could result in drying out areas of peat, which is considered to have a permanent adverse impact of Medium magnitude and **Moderate** significance on peat deposits without mitigation.

11.6.19 Access tracks could become conduits for flow, which could lead to erosion of the road surface and pollution of adjacent watercourses or groundwater receptors, if adequate drainage is not in place. This is expected to have a temporary adverse impact of Medium magnitude and **Moderate** significance to adjacent watercourses, water bodies (coastal strips), groundwater bodies and on GWDTEs without mitigation.

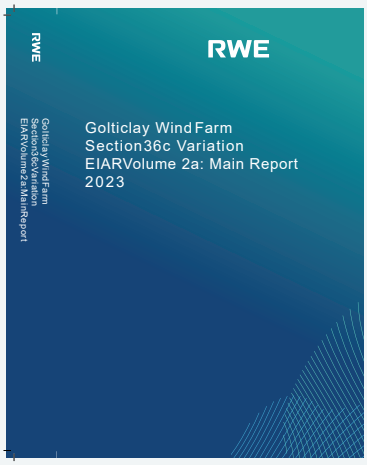
Experientialimpacts

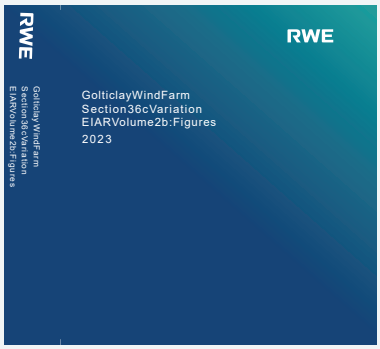
How could the presentation or appreciation of each Attribute be changed by each action?

See Table 1.2 - Experiential change: Attributes of The Flow Country - What to consider? See p.38

Sources of Information

Environmental Impact Assessment Report

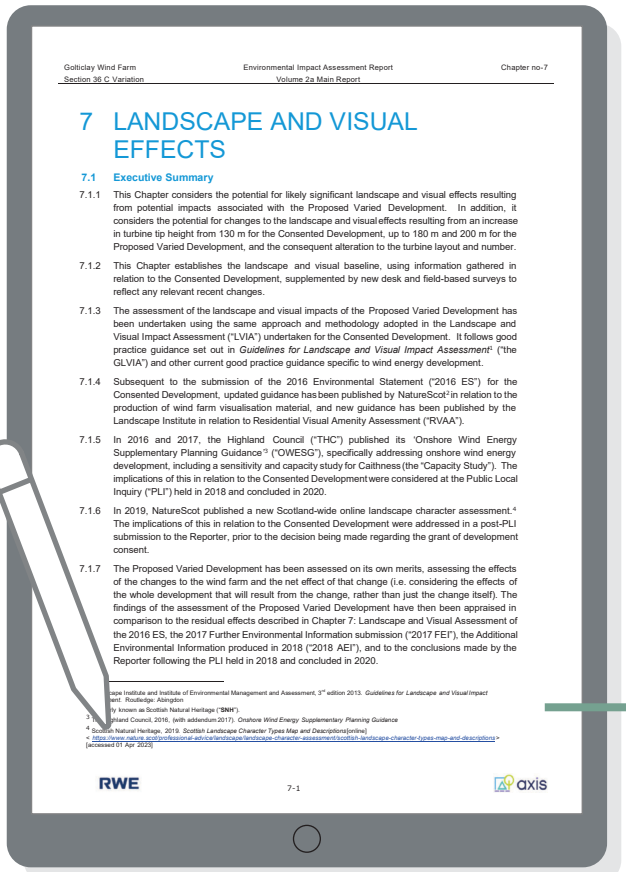




LVIAand relevant EIAtechnical appendices, e.g. EIARVolume 2a CH.07LVIA EIARVolume 2a CH.12Archaeology and Cultural Heritage and supporting figures, Mitigation/ enhancement information

Example illustration of using sources of information

See p.26



Golticlay Wind Farm — Environmental Impact Assessment Report — Chapter no-7
Section 36 C Variation — Volume 2a Main Report

7 LANDSCAPE AND VISUAL EFFECTS

7.1 Executive Summary

7.1.1 This Chapter considers the potential for likely significant landscape and visual effects resulting from potential impacts associated with the Proposed Varied Development. In addition, it considers the potential for changes to the landscape and visual effects resulting from an increase in turbine tip height from 130 m for the Consented Development, up to 180 m and 200 m for the Proposed Varied Development, and the consequent alteration to the turbine layout and number.

7.1.2 This Chapter establishes the landscape and visual baseline, using information gathered in relation to the Consented Development, supplemented by new desk and field-based surveys to reflect any relevant recent changes.

7.1.3 The assessment of the landscape and visual impacts of the Proposed Varied Development has been undertaken using the same approach and methodology adopted in the Landscape and Visual Impact Assessment ("LVIA") undertaken for the Consented Development. It follows good practice guidance set out in *Guidelines for Landscape and Visual Impact Assessment*[1] ("the GLVIA") and other current good practice guidance specific to wind energy development.

7.1.4 Subsequent to the submission of the 2016 Environmental Statement ("2016 ES") for the Consented Development, updated guidance has been published by NatureScot[2] in relation to the production of wind farm visualisation material, and new guidance has been published by the Landscape Institute in relation to Residential Visual Amenity Assessment ("RVAA").

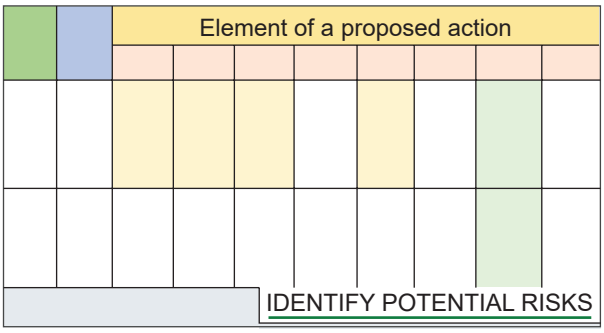
7.1.5 In 2016 and 2017, the Highland Council ("THC") published its 'Onshore Wind Energy Supplementary Planning Guidance'[3] ("OWESG"), specifically addressing onshore wind energy development, including a sensitivity and capacity study for Caithness (the "Capacity Study"). The implications of this in relation to the Consented Development were considered at the Public Local Inquiry ("PLI") held in 2018 and concluded in 2020.

7.1.6 In 2019, NatureScot published a new Scotland-wide online landscape character assessment.[4] The implications of this in relation to the Consented Development were addressed in a post-PLI submission to the Reporter, prior to the decision being made regarding the grant of development consent.

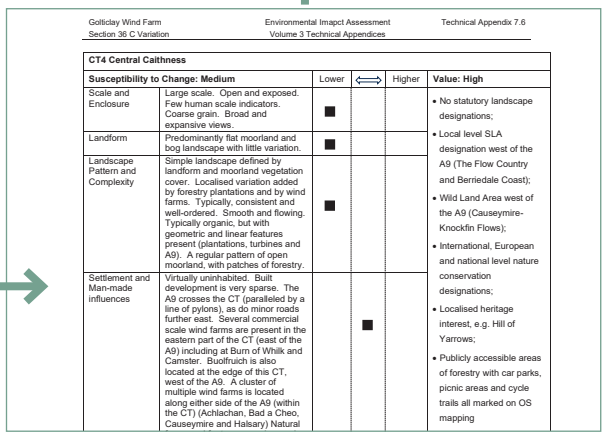
7.1.7 The Proposed Varied Development has been assessed on its own merits, assessing the effects of the changes to the wind farm and the net effect of that change (i.e. considering the effects of the whole development that will result from the change, rather than just the change itself). The findings of the assessment of the Proposed Varied Development have then been appraised in comparison to the residual effects described in Chapter 7: Landscape and Visual Assessment of the 2016 ES, the 2017 Further Environmental Information submission ("2017 FEI"), the Additional Environmental Information produced in 2018 ("2018 AEI"), and to the conclusions made by the Reporter following the PLI held in 2018 and concluded in 2020.

[1] ...cape Institute and Institute of Environmental Management and Assessment, 3rd edition 2013. *Guidelines for Landscape and Visual Impact ...ment*. Routledge: Abingdon
[2] ...ly known as Scottish Natural Heritage ("**SNH**").
[3] ...ighland Council, 2016, (with addendum 2017). *Onshore Wind Energy: Supplementary Planning Guidance*
[4] Scottish Natural Heritage, 2019. *Scottish Landscape Character Types Map and Descriptions*[online] < https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions > [accessed 01 Apr 2023]

RWE 7-1 axis



Complete Potential impacts in Identify Potential Risks Tool



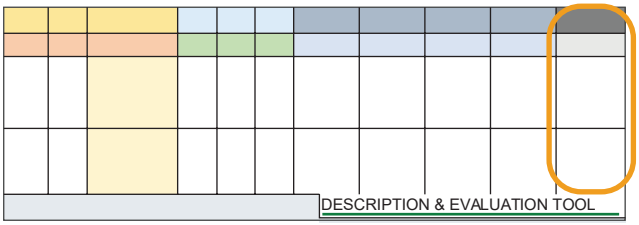
Golticlay Wind Farm — Environmental Impact Assessment — Technical Appendix 7.6
Section 36 C Variation — Volume 3 Technical Appendices

CT4 Central Caithness					
Susceptibility to Change: Medium		Lower	⟺	Higher	**Value: High**
Scale and Enclosure	Large scale. Open and exposed. Few human scale indicators. Coarse grain. Broad and expansive views.	■			• No statutory landscape designations; • Local level SLA designation west of the A9 (The Flow Country and Berriedale Coast); • Wild Land Area west of the A9 (Causeymire-Knockfin Flows); • International, European and national level nature conservation designations; • Localised heritage interest, e.g. Hill of Yarrows; • Publicly accessible areas of forestry with car parks, picnic areas and cycle trails all marked on OS mapping
Landform	Predominantly flat moorland and bog landscape with little variation.	■			
Landscape Pattern and Complexity	Simple landscape defined by landform and moorland vegetation cover. Localised variation added by forestry plantations and by wind farms. Typically, consistent and well-ordered. Smooth and flowing. Typically organic, but with geometric and linear features present (plantations, turbines and A9). A regular pattern of open moorland, with patches of forestry.	■			
Settlement and Man-made influences	Virtually uninhabited. Built development is very sparse. The A9 crosses the CT (paralleled by a line of pylons), as do minor roads further east. Several commercial scale wind farms are present in the eastern part of the CT (east of the A9) including at Burn of Whilk and Camster. Buolfruich is also located at the edge of this CT, west of the A9. A cluster of multiple wind farms is located along either side of the A9 (within the CT) (Achlachan, Bad a Cheo, Causeymire and Halsary) Natural		■		

Evaluate the effects of change

1 **Complete Description & Evaluation Tool tab to evaluate the effects of the impacts identified.**

See p.29



2 **Consider Integrity: do the impacts affect the wholeness and intactness of the WHS?**

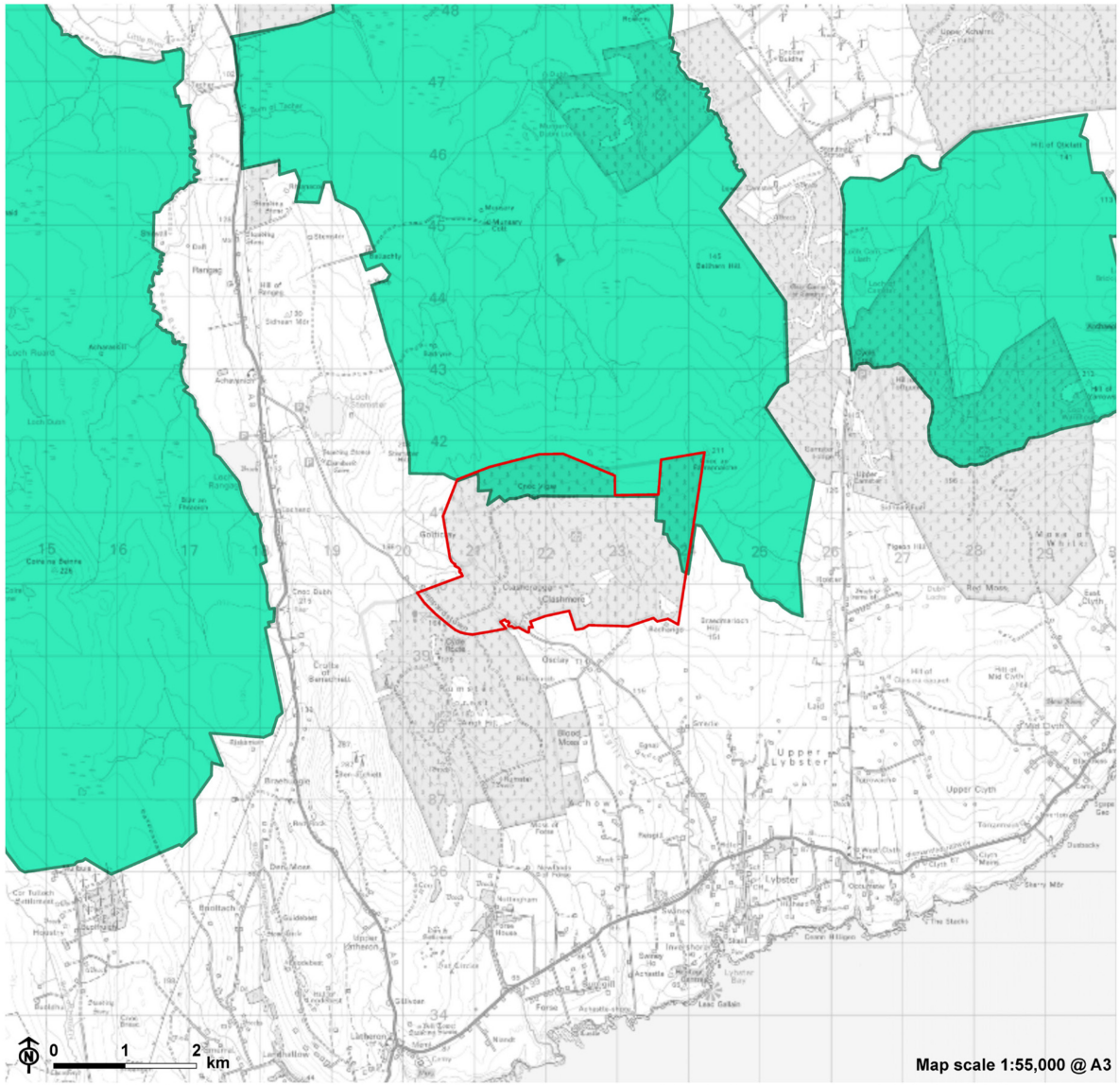
3 **Summarise findings in Screening & Summarising Form tab.**

Amend the proposal to reduce or remove potential harmful effects

Iterate - repeat/ refine WHS Impact Assessment as the proposal evolves

03

Worked Example



Contains RWE data © Crown copyright and database rights 2026 Ordnance Survey AC0000808122.
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Heritage_Site_Setting_Guidance_Figures/12522_Fig_1_GolticlayWFSiteLocation_A3L 23/06/2026

The Highland Council Impact Assessment Toolkit - Extract > SCREENING & SUMMARISING FORM TAB

Flow Country World Heritage Impact Assessment Screening (and Summarising of impact assessment where undertaken)	
Brief description and location of the project / development	Golticlay Wind Farm Variation (ECU00004946) The Consented Development is situated at land (the "Site") located approximately 15 km south-west of Wick and approximately 4.5 km north-west of Lybster. The Variation Site boundary remains the same as the Consented Development. RWE Renewables UK Onshore Wind Ltd. (the Applicant) is proposing to submit a variation to the Consented Development under Section 36C of the Electricity Act 1989 (1989 Act) to construct and operate a wind farm with a generating capacity in excess of 50 MW on the existing Site. In addition, the Applicant is seeking a direction under section 57(2) of the Town and Country Planning (Scotland) Act 1997 (the 1997 Act) that planning permission be deemed to be granted in respect of the varied description of the Consented Development (the Proposed Varied Development). A copy of the variation application will be submitted to The Highland Council (THC) in accordance with regulation 4(2)(b) of the Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013 (as amended), particularly Regulations 3 and 4 (the 2013 Regulations). The Applicant proposes to reduce the number of turbines to 13 (removal of T6, T8, T9, T10, T15 and T19); re-locate three turbines (T4, T14 and T18) by approximately 75 m ; increase the maximum tip height of the turbines from 130 metres (m) to a maximum of 200 m (except for T3 and T4, which will be up to 180 m); increase the operational period from 25 to 35 years and increase the micro-siting distance from 50 m to 100 m.
Does the project / development lie wholly or partly within the boundary of the inscribed Site?	Partly within
Does the project / development lie outwith the Site but would include actions that might impact aspects of the OUV?	Yes
Has the project / development been subject to an Environmental Impact Assessment or any other relevant assessment (please include details)?	Yes

A. Screening Criteria Question	B. Response to the Screening Criteria Question in Column A (yes / no / N/A)	C. Briefly explain reasons for response in Column B and, if applicable and/or known, include name of feature(s), connectivity and proximity
Flow Country World Heritage Site OUV*		
Might the project/development negatively impact the extent or continuity of natural, actively accumulating, blanket bog ecosystem?	No	Potential for negative impacts to OUV is Neutral (with embedded mitigation). Potential for Minor positive impacts to OUV through implementation of mitigation and enhancement.
Might the project/development reduce the range of climatic, topographic gradients and geological diversity that result in the recorded bog macroform diversity?	No	No potential for negative impacts to OUV. Potential for Minor positive impacts to OUV, and its presentation and appreciation, through implementation of mitigation and enhancement activities.
Might the project/development degrade the temporal and spatial record of peatland development and related factors?	No	No potential for negative impacts to OUV. Potential for Minor positive impacts to OUV, and its presentation and appreciation, through implementation of mitigation and enhancement activities.
Might the project/development impact on ongoing scientific work or the educational value of the peatlands and associated biodiversity?	No	No potential for negative impacts to OUV. Potential for Minor positive impacts to OUV through implementation of mitigation and enhancement.
Might the project/development reduce the carbon sequestration and/or storage potential of the peatlands?	No	No potential for negative impacts to OUV. Potential for Minor positive impacts to OUV through implementation of mitigation and enhancement.
Might the project/development impact the water filtration and resultant water quality of associated riverine habitats?	No	Potential for negative impacts is Neutral (with embedded mitigation). Potential for Minor positive impacts to OUV, and its presentation and appreciation, through implementation of mitigation and enhancement activities.
Flow Country World Heritage Site Integrity		
The Site boundary encapsulates all of the elements of OUV needed to demonstrate the ecological and biological processes and associated biodiversity of a blanket bog landscape as well as ensuring ecosystem integrity and coherence. Would the project/development impact on the integrity of the Site as a whole?	N/A	Development has no effect on the integrity of the WHS.

* for more detailed background information on each of the questions please review the Site attributes.

The Highland Council Impact Assessment Toolkit - Extract > ATTRIBUTE EXPRESS+SUPPORT TOOL

Criterion ix.: outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals			Additional supporting values that relate to the biodiversity of the Site but not considered globally significant so not included under the criteria of Outstanding Universal Value (OUV). These features combined with the attributes of OUV help to make the property especially distinctive. *
Attributes of The Flow Country Property (the Site)		**How are the Attributes expressed or supported by the proposed development site?**	**Additional Supporting Values**
Attributes	Description	**Consider the World Heritage Site and its Setting.** **Functional considerations:** How does the proposed development site express or support each Attribute? **Experiential considerations:** How does the proposed development site support the presentation or appreciation of each Attribute? **Also, select the relevant effect context(s) in the dropdown below, to indicate those for which the proposed development site does express or support the attribute.**	Description
a) most extensive near continuous example of natural, actively accumulating, blanket bog ecosystem found globally	Persistent rain fed wetness and low rates of evaporation across The Flow Country lead to widespread, year round waterlogged ground conditions which are ideal for the growth and preservation of peat forming plants. This ongoing process (paludification) began around 9,000 years ago and is key in the formation of blanket bog. Unlike other bog types, which are confined by topography, this allows blanket bog to mantle entire landscapes. The Flow Country is one of only a few locations globally where conditions exist that are conducive to blanket bog formation, and combines a quality, extent and connectivity of this habitat exceeding that of any other known blanket bog.	FUNCTIONAL: The development site contains areas of blanket bog habitat, outwith the FCWHS boundary. As habitats in this area are significantly degraded and drained through tree planting, hydrological connectivity is currently very limited. Mitigation may have potential to enhance the development site's support for this Attribute. EXPERIENTIAL: The development site is located within LCT134 Sweeping Moorland and Flows – Caithness & Sutherland. Key characteristics of LCT134 overall include long, low and largely uninterrupted skylines offering extensive views across this landscape and result in a feeling of huge space. The extensiveness and continuousness of the WHS are potentially appreciated through this aspect of the LCT. However, topography - the landform of the development site dropping away from the WHS boundary - and the presence of commercial forestry limit the expression of this character within the development site itself or its understanding from within the development site, or within the WHS in combination with the development site. The development site does not support the presentation or appreciation of this Attribute. S-F	**species associations** The diverse range of habitats that The Flow Country contains supports an exceptional and specialised blanket bog biodiversity and holds biological associations unlike any other blanket bog found globally. This is a consequence of the overlapping distributions of species typical of both arctic and temperate climatic zones and is further influenced by altitudinal and climatic gradients and the geological diversity found across the site. Furthermore, the scale and connectivity of the site provides genetic resilience to species it contains.

Attributes of The Flow Country Property (the Site)		How are the Attributes expressed or supported by the proposed development site?	Additional Supporting Values
Attributes	Description	**Consider the World Heritage Site and its Setting.** **Functional considerations:** How does the proposed development site express or support each Attribute? **Experiential considerations:** How does the proposed development site support the presentation or appreciation of each Attribute? **Also, select the relevant effect context(s) in the dropdown below, to indicate those for which the proposed development site does express or support the attribute.**	Description
b) climatic, topographic gradients and geological diversity: bog macroform diversity	The scale of the site, alongside the gradients in climate and topography, and the diversity of the underlying geology, provide the setting for subtle variations in processes which result in a huge diversity in the character of the blanket bog. These factors control the development of complex systems of hummocks, moss lawns, hollows and pools, and the associated plant species, which produce surface patterning that has been classified into 15 site-types. No other blanket bog in the world contains such a diverse collection of surface patterning within a single area.	FUNCTIONAL: Blanket bog habitat in the development site is significantly degraded. It does not express or support this Attribute. Mitigation may have potential to enhance the development site's support for this Attribute. EXPERIENTIAL: The development site is located within LCT134 Sweeping Moorland and Flows – Caithness & Sutherland. Key characteristics of LCT134 overall include very distinct flora, dominated by sphagnum mosses, produced by the wetness and infertility of the flows. The scale, geological diversity, bog macroform diversity or surface patterning of the WHS are potentially appreciated through this aspect of the LCT. However, the presence of commercial forestry and the degraded nature of the blanket bog within the development site limit the expression of this character within the development site itself or its understanding from within the development site, or within the WHS in combination with the development site. The development site does not support the presentation or appreciation of this Attribute. Mitigation may have potential to enhance the presentation or appreciation of this Attribute. S-F, S-E	**birds** The diversity of environments within the blanket bog of The Flow Country, and the patchwork of connected landscape elements within the wider setting (farmland, coastal, etc.), supports a distinctively special assemblage of birds. The precise combination of species, with arctic-alpine and temperate and continental elements is not found anywhere else in the world and includes red-throated diver, black-throated diver, common scoter, Eurasian wigeon, golden plover, Eurasian greenshank, dunlin, wood sandpiper, golden eagle, merlin, hen harrier and short-eared owl.
c) archive it stores (4th dimension)	Delving deeper, the peat, which has been forming for over 9,000 years, reaches thicknesses of over 8 m, providing an exceptional archive and a 4th dimension to The Flow Country blanket bog. The processes responsible for the development of the blanket bog system and the ecosystems it supports can be scrutinised back through time across the vast area it covers using pollen records; plant sub-fossils (e.g. hazelnuts, pine cones, pine stumps); lake sediment records (midge and diatom (alga) remains); tephra (ash) layers blown south from Icelandic volcanoes; charcoal (indicating in situ burning).	FUNCTIONAL: Historic archive/ evidence is potentially stored in the peat within the development site, but it is disconnected from the WHS. It does not support this Attribute. Mitigation may have potential to enhance the development site's support for this Attribute. EXPERIENTIAL: Evidence potentially within the development site of its role in the past evolution and exploitation of the Flow Country's landscape and resources cannot currently be appreciated owing to present land use (forestry). The development site does not support the presentation or appreciation of this Attribute. Mitigation may have potential to enhance the presentation or appreciation of this Attribute. S-F, S-E	**plants** The floristic composition of the Flow Country blanket bogs, and associated wet heath, is not found anywhere else globally, and represents a highly Atlantic influence on plant distribution and development. Key plants of importance are dwarf birch, alpine bearberry, bogbean, bog hairgrass, water

Attributes of The Flow Country Property (the Site)		How are the Attributes expressed or supported by the proposed development site?	Additional Supporting Values
Attributes	Description	**Consider the World Heritage Site and its Setting.** **Functional considerations:** How does the proposed development site express or support each Attribute? **Experiential considerations:** How does the proposed development site support the presentation or appreciation of each Attribute? **Also, select the relevant effect context(s) in the dropdown below, to indicate those for which the proposed development site does express or support the attribute.**	Description
d) natural laboratory – ongoing scientific and educational use	The exceptional nature of The Flow Country makes it the 'type site' for blanket bog study and it continues to be used as a 'test bed' for peatland research globally. The diversity of features related to altitudinal and climatic gradients across the region and the depth of archive provides a huge scope for research. Furthermore, the breadth of existing studies provides a fantastic foundation for future research.	FUNCTIONAL: The blanket bog within the development site is degraded and disconnected from the WHS. It does not support this Attribute. Mitigation may have potential to enhance the development site's support for this Attribute. EXPERIENTIAL: The development site's potential value for research cannot be readily appreciated through its experiential qualities. The development site does not support the presentation or appreciation of this Attribute. Mitigation may have potential to enhance the presentation or appreciation of this Attribute. S-F	lobelia, bog orchid, marsh saxifrage and at least 29 species of Sphagnum (over 10% of global Sphagnum flora). **genetic diversity** The Flow Country occupies a position at the western extreme of the Eurasian landmass. As such it is a haven of locally adapted genetic diversity. Many species here are isolated from their continental relatives, which means that local lineages have developed. Whilst small, isolated populations frequently suffer from inbreeding depression, the large size of the Flow Country means that this not a significant issue here. Furthermore, many species operate as metapopulations: groups of smaller populations between which individuals can move. Not only does this mean that genes can
e) carbon sequestration and storage	Globally peatlands are the largest natural terrestrial carbon store. Covering only 3% of the world's land area, they hold nearly 30% of all the carbon stored on land. In blanket bog, year-round waterlogged conditions slow the process of plant decomposition such that the dead plants accumulate to form peat, and thereby sequester carbon from the atmosphere. Over thousands of years this plant material builds up and becomes several metres thick producing a valuable carbon store. The Flow Country provides a superb example of ongoing sequestration, alongside carbon storage demonstrated by peat thicknesses which reach over 8 meters.	FUNCTIONAL: The blanket bog within the development site stores carbon which would be released if disturbed. However the blanket bog in the development site is degraded and disconnected from the WHS. It does not support this Attribute. Mitigation may have potential to enhance the development site's support for this Attribute. EXPERIENTIAL: The nature of carbon sequestration and storage cannot be readily appreciated through the experiential qualities of the development site. The development site does not support the presentation or appreciation of this Attribute. Mitigation may have potential to enhance the presentation or appreciation of this Attribute. S-F	

Attributes of The Flow Country Property (the Site)		How are the Attributes expressed or supported by the proposed development site?	Additional Supporting Values
Attributes	Description	**Consider the World Heritage Site and its Setting.** **Functional considerations:** How does the proposed development site express or support each Attribute? **Experiential considerations:** How does the proposed development site support the presentation or appreciation of each Attribute? **Also, select the relevant effect context(s) in the dropdown below, to indicate those for which the proposed development site does express or support the attribute.**	Description
f) water filtration and the impact on the water quality of associated riverine habitats	The catchments draining The Flow Country sustain exceptional water quality, resulting from the natural filtration of rainwater as it slowly seeps through these vast peatlands. The superb water quality is critically important in sustaining globally important populations of the freshwater pearl mussel in rivers which drain from The Flow Country. European eel (classed by the IUCN as Critically Endangered) are also recorded from these catchments. Furthermore, the rivers of The Flow Country are maintaining strong populations of Atlantic salmon which are in global decline.	FUNCTIONAL: As habitats in this area are significantly degraded and drained through tree planting, hydrological connectivity is currently very limited. The development site's importance to the water quality of the Flow Country WHS is extremely limited. EXPERIENTIAL: The development site is located within LCT134 Sweeping Moorland and Flows – Caithness & Sutherland. Key characteristics of LCT134 overall include lochs and mature, meandering rivers. However, water quality and water filtration cannot be readily appreciated through the experiential qualities of the LCT. In addition, the watercourses within the development site do not embody the character of the LCT, being largely artificial or straightened. The development site does not support the presentation or appreciation of this Attribute. Mitigation may have potential to enhance the presentation or appreciation of this Attribute. S-F, S-E	flow between populations, it also means that individuals can recolonise sites in the event of short-term localised extinction, as has been demonstrated with newts. Given models that suggest droughts will increase in both frequency and intensity in the north of Scotland, the large number of waterbodies in the Flow Country will greatly reduce the likelihood of population loss. This makes it a valuable refuge for wildlife of many species at both a population and a genetic level.
	SOURCES OF INFORMATION>>	FUNCTIONAL: EIAR Chapter 9 - Ecology EIAR Chapter 11: Geology, Hydrology, and Hydrogeology Technical Appendix 9.6, EIAR Volume 3 – Revised Habitat Management Plan Summarised in EIAR Volume 3 - Technical Appendices - Technical Appendix 9.5 - UNESCO World Heritage Site (WHS) Toolkit Assessment EXPERIENTIAL: Functional sources as per list above, + EIAR Volume 2a - Main Report - Chapter 07 - LVIA EIAR Volume 2a - Main Report - Chapter 12 - Archaeology and Cultural Heritage	* In its evaluation of the Flow Country nomination, the IUCN concluded that "the species assemblages cited frequently in the documentation, particularly the blanket bog vegetation and bird assemblages form an integral part of the ecosystem and ecological processes under criterion (ix)".

The Highland Council Impact Assessment Toolkit - Extract > IDENTIFY POTENTIAL RISKS TOOL TAB

Attribute	**Element of a proposed action (development) that has the potential to cause an impact** (e.g. formation of access track / installation of turbine foundations / installation of new drainage system) **then describe its potential impact(s) on each of the attributes (and, if can readily conclude 'no impact' at this stage without need for further evaluation*, state so and explain why). Also, select the relevant effect context(s) in the dropdown below, to indicate those for which potential impact (positive or negative) is identified.** *It may be expected that in most cases the potential impact will need to progress to the next stage: Description & Evaluation Tool						
	Construction of turbines, associated hard standing and infrastructure (Borrow pits, Battery Energy Storage System [BESS])	Construction of temporary access tracks	Construction of new permanent access tracks, including water crossings	Operation of new permanent access tracks	Operational maintenance and presence of personnel and vehicles	Operational presence of towers and BESS	Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses.
a) most extensive near continuous example of natural, actively accumulating, blanket bog ecosystem found globally	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: No pathway for impacts to occur - no potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: No pathway for impacts to occur - no potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Potential to enhance the development site's support for this Attribute. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.
	S-F	S-F	S-F	Effect Context (select)	S-F	Effect Context (select)	S-F
b) climatic, topographic gradients and geological diversity: bog macroform diversity	FUNCTIONAL: Blanket bog habitat in the development site is significantly degraded. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Blanket bog habitat in the development site is significantly degraded. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Blanket bog habitat in the development site is significantly degraded. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Blanket bog habitat in the development site is significantly degraded. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Blanket bog habitat in the development site is significantly degraded. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Blanket bog habitat in the development site is significantly degraded. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Potential to enhance the development site's support for this Attribute. EXPERIENTIAL: Potential to enhance the development site's support for the presentation or appreciation of this Attribute.
	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	S-F, S-E

Attribute	Construction of turbines, associated hard standing and infrastructure (Borrow pits, Battery Energy Storage System [BESS])	Construction of temporary access tracks	Construction of new permanent access tracks, including water crossings	Operation of new permanent access tracks	Operational maintenance and presence of personnel and vehicles	Operational presence of towers and BESS	Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses.
c) archive it stores (4th dimension)	FUNCTIONAL: Archival evidence potentially stored within the peat in the development site does not support this Attribute of the WHS owing to location, distance and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Archival evidence potentially stored within the peat in the development site does not support this Attribute of the WHS owing to location, distance and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Archival evidence potentially stored within the peat in the development site does not support this Attribute of the WHS owing to location, distance and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Archival evidence potentially stored within the peat in the development site does not support this Attribute of the WHS owing to location, distance and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Archival evidence potentially stored within the peat in the development site does not support this Attribute of the WHS owing to location, distance and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Archival evidence potentially stored within the peat in the development site does not support this Attribute of the WHS owing to location, distance and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Potential to enhance the development site's support for this Attribute. EXPERIENTIAL: Potential to enhance the development site's support for the presentation or appreciation of this Attribute.
	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	S-F, S-E
d) natural laboratory – ongoing scientific and educational use	FUNCTIONAL: Peat within the development site is of unknown/ limited research potential and does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Peat within the development site is of unknown/ limited research potential and does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Peat within the development site is of unknown/ limited research potential and does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Peat within the development site is of unknown/ limited research potential and does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Peat within the development site is of unknown/ limited research potential and does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Peat within the development site is of unknown/ limited research potential and does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Potential to enhance the development site's support for this Attribute. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.
	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	S-F

Attribute	Construction of turbines, associated hard standing and infrastructure (Borrow pits, Battery Energy Storage System [BESS])	Construction of temporary access tracks	Construction of new permanent access tracks, including water crossings	Operation of new permanent access tracks	Operational maintenance and presence of personnel and vehicles	Operational presence of towers and BESS	Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses.
e) carbon sequestration and storage	FUNCTIONAL: Carbon storage role of peat within the development site does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Carbon storage role of peat within the development site does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Carbon storage role of peat within the development site does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Carbon storage role of peat within the development site does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Carbon storage role of peat within the development site does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Carbon storage role of peat within the development site does not support this Attribute of the WHS owing to location, distance, degradation and very limited hydrological and functional connectivity. No potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Potential to enhance the development site's support for this Attribute. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.
	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	Effect Context (select)	S-F
f) water filtration and the impact on the water quality of associated riverine habitats	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: No pathway for impacts to occur - no potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: No pathway for impacts to occur - no potential for impacts to OUV. EXPERIENTIAL: The development site does not support the presentation or appreciation of this Attribute - no potential for impacts to OUV.	FUNCTIONAL: Potential to enhance the development site's support for this Attribute. EXPERIENTIAL: Potential to enhance the development site's support for the presentation or appreciation of this Attribute.
	S-F	S-F	S-F	Effect Context (select)	S-F	Effect Context (select)	S-F, S-E

The Highland Council Impact Assessment Toolkit - Extract > DESCRIPTION & EVALUATION TOOL TAB

Element of proposed action (development)	Attribute	Description of potential impact	Frequency of action	Duration of action	Reversibility of action	Reversibility of change to the attribute	Longevity of change to the attribute
			Once / intermittent / continuous	Short-term / long-term	Reversible / irreversible	Reversible / irreversible	Temporary / permanent change
Construction of turbines, associated hard standing and infrastructure	a) most extensive near continuous example of natural, actively accumulating, blanket bog ecosystem found globally	Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Once	Short term	Irreversible	Reversible	Temporary
Construction of temporary access tracks		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Once	Short term	Irreversible	Reversible	Temporary
Construction of new permanent access tracks, including water crossings		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Once	Short term	Irreversible	Reversible	Temporary
Operational maintenance and presence of personnel and vehicles		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Intermittent	Short term	Irreversible	Reversible	Temporary
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses		Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary.	Once	Long term	Reversible	Reversible	Permanent
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	b) climatic, topographic gradients and geological diversity: bog macroform diversity	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary. Potential to enhance the Site's support for the presentation or appreciation of this Attribute.	Once	Long term	Reversible	Reversible	Permanent
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	c) archive it stores (4^{th} dimension)	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary. Potential to enhance the Site's support for the presentation or appreciation of this Attribute.	Once	Long term	Reversible	Reversible	Permanent

Element of proposed action (development)	Attribute	Description of potential impact	Degree of change to the attribute	Quality of change to the attribute	Evaluation of Impact	Explanatory Notes
			None / negligible / some / large change	Positive / negative change	Neutral / minor / moderate / major impact (negative or positive) [If no impact, leave blank]	Briefly note here anything that the evaluation of impact is based upon (e.g. with embedded mitigation) and the confidence or evidence level being applied. If it is established that there will be no impact, then indicate so here and explain why (e.g. no pathway).
Construction of turbines, associated hard standing and infrastructure	a) most extensive near continuous example of natural, actively accumulating, blanket bog ecosystem found globally	Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Construction of temporary access tracks		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Construction of new permanent access tracks, including water crossings		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Operational maintenance and presence of personnel and vehicles		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses		Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary.	Some (small)	Positive	Minor positive impact	
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	b) climatic, topographic gradients and geological diversity: bog macroform diversity	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary. Potential to enhance the Site's support for the presentation or appreciation of this Attribute.	Some (small)	Positive	Minor positive impact	
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	c) archive it stores (4^{th} dimension)	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary. Potential to enhance the Site's support for the presentation or appreciation of this Attribute.	Some (small)	Positive	Minor positive impact	

Element of proposed action (development)	Attribute	Description of potential impact	Frequency of action	Duration of action	Reversibility of action	Reversibility of change to the attribute	Longevity of change to the attribute
			Once / intermittent / continuous	Short-term / long-term	Reversible / irreversible	Reversible / irreversible	Temporary / permanent change
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	d) natural laboratory – ongoing scientific and educational use	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary.	Once	Long term	Reversible	Reversible	Permanent
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	e) carbon sequestration and storage	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary.	Once	Long term	Reversible	Reversible	Permanent
Construction of turbines, associated hard standing and infrastructure	f) water filtration and the impact on the water quality of associated riverine habitats	Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Once	Short term	Irreversible	Reversible	Temporary
Construction of temporary access tracks		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Once	Short term	Irreversible	Reversible	Temporary
Construction of new permanent access tracks, including water crossings		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Once	Short term	Irreversible	Reversible	Temporary
Operational maintenance and presence of personnel and vehicles		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Intermittent	Short term	Reversible	Reversible	Temporary
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses		Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary. Potential to enhance the Site's support for the presentation or appreciation of this Attribute.	Once	Long term	Reversible	Reversible	Permanent

Element of proposed action (development)	Attribute	Description of potential impact	Degree of change to the attribute	Quality of change to the attribute	Evaluation of Impact	Explanatory Notes
			None / negligible / some / large change	Positive / negative change	Neutral / minor / moderate / major impact (negative or positive) [If no impact, leave blank]	Briefly note here anything that the evaluation of impact is based upon (e.g. with embedded mitigation) and the confidence or evidence level being applied. If it is established that there will be no impact, then indicate so here and explain why (e.g. no pathway).
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	d) natural laboratory – ongoing scientific and educational use	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary.	Some (small)	Positive	Minor positive impact	
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses	e) carbon sequestration and storage	Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary.	Some (small)	Positive	Minor positive impact	
Construction of turbines, associated hard standing and infrastructure	f) water filtration and the impact on the water quality of associated riverine habitats	Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Construction of temporary access tracks		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Construction of new permanent access tracks, including water crossings		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Operational maintenance and presence of personnel and vehicles		Indirect damage/loss to habitat, e.g. as a result of a pollution event. However, hydrological connectivity with the WHS is very limited, and this is considered highly unlikely to occur with the implementation of embedded mitigation.	Negligible	Negative	Neutral	(with embedded mitigation)
Mitigation and enhancement activities - net increase in blanket bog area and connectivity through restoration of previous coniferous plantation and watercourses		Potential to enhance the development site's support for this Attribute through enhanced extent, condition and connectivity of blanket bog outwith WHS boundary. Potential to enhance the Site's support for the presentation or appreciation of this Attribute.	Some (small)	Positive	Minor positive impact	

Appendices



View southeast from the A838 looking towards Moine Ho and Cnoc Lòn nan Eildean.

Appendix A

Glossary

Definitions of terms used in this guidance are the same as those in The Highland Council The Flow Country Candidate World Heritage Site Planning Position Statement 2, with the addition of Action and Area of Influence, taken from UNESCO Guidance and Toolkit for Impact Assessments in a World Heritage Context.

ACTION - A policy, plan, programme or project. Any proposed action that may affect the property's OUV should require an impact assessment, regardless of its size or location – within the property, its buffer zone or wider setting.

AREA OF INFLUENCE - The geographical area in which direct, indirect and cumulative impacts may occur. It is the area which a proposed action will actually occupy, as well as the wider area which a project will influence (e.g. through air emissions, traffic or economic activity).

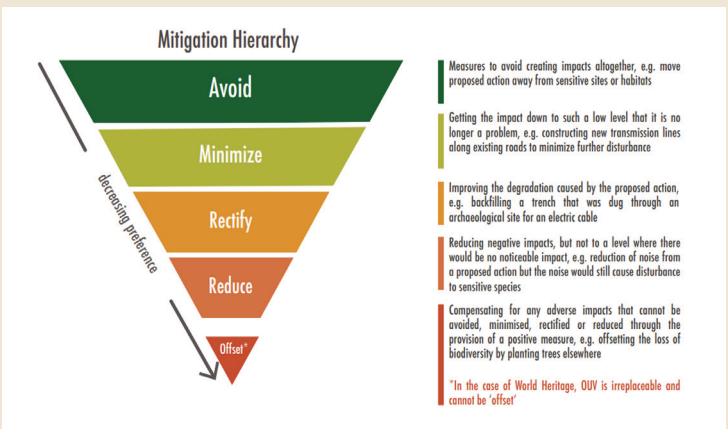
BUFFER - The Flow Country World Heritage Site does not have a buffer but rather, much as with Special Area of Conservation (SAC) and Special Protection Area (SPA) designations, any activity outwith the Site that impacts the OUV within the boundary would be considered to impact the OUV and should be included within assessment at proposal stage.

DEVELOPMENT - as set out in The Town and Country Planning (Scotland) Act 1997 as amended, means: construction, engineering, mining or other operations, or the making of any material change in the use of any buildings or other land.

INTEGRITY - As set out in the Operational Guidelines, the integrity of a World Heritage Site is a measure of the wholeness and intactness of its natural and/or cultural heritage and its attributes. In line with the Operational Guidelines, for a property to maintain its integrity as inscribed it must therefore: a) retain all elements necessary to express its Outstanding Universal Value b) remain of adequate size to ensure the complete representation of the features and processes which convey the property's significance (as laid out in the attributes) c) remain protected from adverse effects of development and/or neglect.

MANAGEMENT PLAN - means the Management Plan prepared for the Site.

MITIGATION and MITIGATION HIERARCHY - The mitigation hierarchy indicates the preferences for the consideration and addressing of the impacts of development through types of mitigation. For a World Heritage context, the mitigation hierarchy is explained by the following diagram:



(Source: UNESCO's Guidance and Toolkit for Impact Assessments in a World Heritage Context, 2022)

Not all levels of the hierarchy may necessarily be suitable for and capable of delivering full and appropriate protection of the Site from any particular case and effect of proposed development, in the context of complying with the World Heritage Convention. Specifically, UNESCO says in the diagram above that "in the case of World Heritage, OUV is irreplaceable and cannot be offset".

OUV - Outstanding Universal Value – as defined by UNESCO's Operational Guidelines for the Implementation of the World Heritage Convention (the Operational Guidelines), means "cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity". The specifics of what is required for a natural World Heritage Site to have OUV is set out in the Operational Guidelines. However, in summary such a Site must meet: a) one or more specific criteria of natural value; b) a threshold of wholeness and intactness, called integrity; c) a threshold of effective protection and management to ensure its safeguarding. A significant negative impact, or incremental damage, to any of these could lead to a Site being placed on the World Heritage in Danger list if that Site is threatened by serious and specific dangers – which could potentially in turn lead to that Site losing its inscription.

SETTING - means the area around the Site and, as explained by UNESCO in the Operational Guidelines, the setting of a World Heritage Site: "…may relate to the property's topography, natural and built environment, and other elements such as infrastructure, land use patterns, spatial organization, and visual relationships. It may also include related social and cultural practices, economic processes and other intangible dimensions of heritage such as perceptions and associations. Management of the wider setting is related to its role in supporting the Outstanding Universal Value. Its effective management may also contribute to sustainable development, through harnessing the reciprocal benefits for heritage and society".

SITE - means The Flow Country World Heritage Site, inscribed by UNESCO on 26 July 2024, as shown on the maps of the inscribed property.

Appendix B

Table 1.1 Functional change: Attributes of The Flow Country – What to consider?

Criterion ix	Attribute	Description	Functional considerations	Where to find relevant information
Outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals.	a) most extensive near continuous example of natural, actively accumulating, blanket bog ecosystem found globally	Persistent rain fed wetness and low rates of evaporation across The Flow Country lead to widespread, year round waterlogged ground conditions which are ideal for the growth and preservation of peat forming plants. This ongoing process (paludification) began around 9,000 years ago and is key in the formation of blanket bog. Unlike other bog types, which are confined by topography, this allows blanket bog to mantle entire landscapes. The Flow Country is one of only a few locations globally where conditions exist that are conducive to blanket bog formation, and combines a quality, extent and connectivity of this habitat exceeding that of any other known blanket bog.	The extent to which the **development site** expresses or supports **Attribute (a)** **Area of Influence** – where and how **Attribute (a) could be changed** by the project/ development.	Existing baseline studies and impact assessment relating to: • Local climate and environmental conditions • Water sources and hydrological units • Ecosystems and communities of species • Land use and land management practices
	b) climatic, topographic gradients and geological diversity: bog macroform diversity	The scale of the nominated property, alongside the gradients in climate and topography, and the diversity of the underlying geology, provide the setting for subtle variations in processes which result in a huge diversity in the character of the blanket bog. These factors control the development of complex systems of hummocks, moss lawns, hollows and pools, and the associated plant species, which produce surface patterning that has been classified into 15 site-types. No other blanket bog in the world contains such a diverse collection of surface patterning within a single area.	The extent to which the **development site** expresses or supports **Attribute (b)** **Area of Influence** – where and how **Attribute (b) could be changed** by the project/ development.	Existing baseline studies and impact assessment relating to: • Local climate and environmental conditions • Water sources and hydrological units • Ecosystems and communities of species

Criterion ix	Attribute	Description	Functional considerations	Where to find relevant information
	c) archive it stores (4th dimension)	Delving deeper, the peat, which has been forming for over 9,000 years, reaches thicknesses of over 8 m, providing an exceptional archive and providing a 4th dimension to The Flow Country blanket bog. The processes responsible for the development of the blanket bog system and the ecosystems it supports [RH3.1] can be scrutinised back through time across the vast area it covers using pollen records; plant sub-fossils (e.g. hazelnuts, pine cones, pine stumps); lake sediment records (midge and diatom (alga) remains); tephra (ash) layers blown south from Icelandic volcanoes; charcoal (indicating in situ burning).	The extent to which the **development site** expresses or supports **Attribute (c)** **Area of Influence** – where and how **Attribute (c) could be changed** by the project/ development.	Existing baseline studies and impact assessment relating to: ▯ Local climate and environmental conditions ▯ Water sources and hydrological units ▯ Ecosystems and communities of species ▯ Land use and land management practices
	d) natural laboratory – ongoing scientific and educational use	The exceptional nature of The Flow Country makes it the 'type site' for blanket bog study and it continues to be used as a 'test bed' for peatland research globally. The diversity of features related to altitudinal and climatic gradients across the region and the depth of archive provides a huge scope for research. Furthermore, the breadth of existing studies provides a fantastic foundation for future research	The extent to which the **development site** expresses or supports **Attribute (d)** **Area of Influence** – where and how **Attribute (d) could be changed** by the project/ development.	Existing baseline studies and impact assessment relating to: ▯ Local climate and environmental conditions ▯ Water sources and hydrological units ▯ Ecosystems and communities of species

Criterion ix	Attribute	Description	Functional considerations	Where to find relevant information
	e) carbon sequestration and storage	Globally peatlands are the largest natural terrestrial carbon store. Covering only 3% of the world's land area, they hold nearly 30% of all the carbon stored on land. In blanket bog, year-round waterlogged conditions slow the process of plant decomposition such that the dead plants accumulate to form peat, and thereby sequester carbon from the atmosphere. Over thousands of years this plant material builds up and becomes several metres thick producing a valuable carbon store. The Flow Country provides a superb example of ongoing sequestration, alongside carbon storage demonstrated by peat thicknesses which reach over 8 meters.	The extent to which the **development site** expresses or supports **Attribute (e)** Area of Influence – where and how **Attribute (e) could be changed** by the project/ development.	Existing baseline studies and impact assessment relating to: ▯ Local climate and environmental conditions ▯ Water sources and hydrological units ▯ Land use and land management practices
	f) water filtration and the impact on the water quality of associated riverine habitats	The catchments draining The Flow Country sustain exceptional water quality, resulting from the natural filtration of rainwater as it slowly seeps through these vast peatlands. The superb water quality is critically important in sustaining globally important populations of the freshwater pearl mussel in rivers which drain from The Flow Country. European eel (classed by the IUCN as Critically Endangered) are also recorded from these catchments. Furthermore, the rivers of The Flow Country are maintaining strong populations of Atlantic salmon which are in global decline.	The extent to which the **development site** expresses or supports **Attribute (f)** **Area of Influence** – where and how **Attribute (f) could be changed** by the project/ development.	Existing baseline studies and impact assessment relating to: ▯ Local climate and environmental conditions ▯ Water sources and hydrological units ▯ Ecosystems and communities of species

Appendix C

Table 1.2 Experiential change: Attributes of The Flow Country – What to consider?

Criterion ix	Attribute	Description	Experiential considerations	Where to find relevant information
Outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals.	a) most extensive near continuous example of natural, actively accumulating, blanket bog ecosystem found globally	Persistent rain fed wetness and low rates of evaporation across The Flow Country lead to widespread, year round waterlogged ground conditions which are ideal for the growth and preservation of peat forming plants. This ongoing process (paludification) began around 9,000 years ago and is key in the formation of blanket bog. Unlike other bog types, which are confined by topography, this allows blanket bog to mantle entire landscapes. The Flow Country is one of only a few locations globally where conditions exist that are conducive to blanket bog formation, and combines a quality, extent and connectivity of this habitat exceeding that of any other known blanket bog.	The extent to which the **development site** supports the presentation or appreciation of Attribute (a) - through the **extensiveness** and **continuousness** of the WHS. How the presentation or appreciation of those aspects of Attribute (a) could be changed by the project/ development.	Baseline studies and impact assessment relating to: ▯ Sensitivity of landscape designations or categories forming the area of influence, which express the **extensiveness** and **continuousness** of the WHS, such as: • National Scenic Area • Special Landscape Areas • Wild Land Areas • Landscape Character Type. typically – 134 Sweeping Moorland and Flows – 136 Rocky Hills and Moorland – 142 Strath – Caithness and Sutherland

Criterion ix	Attribute	Description	Experiential considerations	Where to find relevant information
	b) climatic, topographic gradients and geological diversity: bog macroform diversity	The scale of the nominated property, alongside the gradients in climate and topography, and the diversity of the underlying geology, provide the setting for subtle variations in processes which result in a huge diversity in the character of the blanket bog. These factors control the development of complex systems of hummocks, moss lawns, hollows and pools, and the associated plant species, which produce surface patterning that has been classified into 15 site-types. No other blanket bog in the world contains such a diverse collection of surface patterning within a single area.	The extent to which the d**evelopment site** supports the presentation or appreciation of **Attribute (b)** - through the **scale** **geological diversity** **bog macroform diversity or** **surface patterning** of the WHS. How the presentation or appreciation of those aspects of Attribute (b) could be changed by the project/ development.	Baseline studies and impact assessment relating to: ▯ Sensitivity of landscape designations or categories forming the area of influence, which express the **scale, geological diversity, bog macroform diversity** or **surface patterning** of the WHS (examples as per Attribute (a) above) ▯ Cross-reference with hydrology, peat and ecology considerations can help understand where and how these aspects of the WHS are expressed, such as through data on: • Land use/ land cover, e.g. Scottish Habitat and Land Cover, typically: – D1 Raised and blanket bogs – D2 Valley mires, poor fens and transition mires – E3 Seasonally wet and wet grasslands – F4 Temperate shrub heathland

Criterion ix	Attribute	Description	Experiential considerations	Where to find relevant information
	c) archive it stores (4th dimension)	Delving deeper, the peat, which has been forming for over 9,000 years, reaches thicknesses of over 8 m, providing an exceptional archive and providing a 4th dimension to The Flow Country blanket bog. The processes responsible for the development of the blanket bog system and the ecosystems it supported can be scrutinised back through time across the vast area it covers using pollen records; plant sub-fossils (e.g. hazelnuts, pine cones, pine stumps); lake sediment records (midge and diatom (alga) remains); tephra (ash) layers blown south from Icelandic volcanoes; charcoal (indicating in situ burning).	The extent to which the **development site** supports the presentation or appreciation of Attribute (c) - through the **time-depth** or **archival role** of the WHS How the presentation or appreciation of those aspects of Attribute (b) could be changed by the project/ development.	Baseline studies and impact assessment relating to: - Preservation of scientific features and environmental records - Cultural heritage sites and landscapes with peatland connections
	d) natural laboratory – ongoing scientific and educational use	The exceptional nature of The Flow Country makes it the 'type site' for blanket bog study and it continues to be used as a 'test bed' for peatland research globally. The diversity of features related to altitudinal and climatic gradients across the region and the depth of archive provides a huge scope for research. Furthermore, the breadth of existing studies provides a fantastic foundation for future research	The extent to which the **development site** supports the presentation or appreciation of Attribute (d) – through the WHS's role as **type-site** for blanket bog study How the presentation or appreciation of those aspects of Attribute (d) could be changed by the project/ development.	Baseline studies and impact assessment relating to: - Preservation of scientific features and environmental records

Criterion ix	Attribute	Description	Experiential considerations	Where to find relevant information
	e) carbon sequestration and storage	Globally peatlands are the largest natural terrestrial carbon store. Covering only 3% of the world's land area, they hold nearly 30% of all the carbon stored on land. In blanket bog, year-round waterlogged conditions slow the process of plant decomposition such that the dead plants accumulate to form peat, and thereby sequester carbon from the atmosphere. Over thousands of years this plant material builds up and becomes several metres thick producing a valuable carbon store. The Flow Country provides a superb example of ongoing sequestration, alongside carbon storage demonstrated by peat thicknesses which reach over 8 meters.	This Attribute is unlikely to be readily appreciated through experiential qualities – perceptible time-depth covered under Attribute (c)	
	f) water filtration and the impact on the water quality of associated riverine habitats	The catchments draining The Flow Country sustain exceptional water quality, resulting from the natural filtration of rainwater as it slowly seeps through these vast peatlands. The superb water quality is critically important in sustaining globally important populations of the freshwater pearl mussel in rivers which drain from The Flow Country. European eel (classed by the IUCN as Critically Endangered) are also recorded from these catchments. Furthermore, the rivers of The Flow Country are maintaining strong populations of Atlantic salmon which are in global decline.	This Attribute is unlikely to be readily appreciated through experiential qualities – perceptible water flow and research roles covered under Attributes (b) and (d)	


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