TfN Strategic Transport Plan Independent Integrated Sustainability Appraisal

Habitats Regulations Assessment – Stage 1 Screening and Stage 2 Appropriate Assessment

Transport for the North

February 2019

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1. Introduction

1.1. Background to this Assessment

Atkins Limited (Atkins) has been commissioned by Transport for the North (TfN) to undertake a Habitats Regulations Assessment (HRA) of the TfN Strategic Transport Plan (STP) 2019.

1.2. Background to Habitats Regulations Assessment

HRA is required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) for all plans and projects which may have likely significant effects on a European site and are not directly connected with or necessary to the management of the European site.

European sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). HRA is also required, as a matter of UK Government policy for potential SPAs (pSPA), candidate SACs (cSAC), Wetlands of European importance (Ramsar sites), and proposed Ramsar sites (pRamsar) for the purposes of considering plans and projects, which may affect them[1]. Hereafter all of the above designated nature conservation sites are referred to as 'European sites'.

There are four stages to the HRA process. These are summarised below:

- **Stage 1 – Screening:** To test whether a plan or project either alone or in combination with other plans and projects is likely to have a significant effect[2] on an European site;
- **Stage 2 – Appropriate Assessment:** To determine whether, in view of a European site's conservation objectives, the plan (either alone or in combination with other projects and plans) would have an adverse effect on the integrity of the site with respect to the site structure, function and conservation objectives. If adverse impacts are anticipated, potential mitigation measures to alleviate impacts should be proposed and assessed;
- **Stage 3 – Assessment of alternative solutions:** Where a plan is assessed as having an adverse impact (or risk of this) on the integrity of an European site, there should be an examination of alternatives (e.g. alternative locations and designs of development); and
- **Stage 4 – Assessment:** In exceptional circumstance where no alternative solutions remain and where adverse impacts remain (e.g. where there are imperative reasons of overriding public interest). Compensatory measures would usually be required to offset negative impacts.

1.2.1. Habitats Regulations Assessment Stage 1 Screening

Having determined that the project or plan is not directly connected, or necessary for the management of a Natura 2000 site, it is necessary to undertake screening to determine whether the proposals are likely to have a Likely Significant Effect (LSE) on any European sites.

It is important to note that the burden of evidence is to show, on the basis of objective information, that the project or plan will have no Likely Significant Effect (LSE) on a European site. If there may be an LSE, or there is uncertainty and an LSE cannot be ruled out, this would trigger the need for an appropriate assessment. As a result of European case law, irrespective of the normal English meaning of 'likely', in this statutory context a 'likely significant effect' is a 'possible significant effect', one whose occurrence cannot be ruled out on the basis of objective information (Tyldesley and Chapman, 2018).

Recent European case law ruled that it was not acceptable at screening to take account of measures intended to avoid or reduce effects upon European sites.

[1] *National Planning Policy Framework*. Department for Communities and Local Government. March 2012.

[2] Likely significant effect is any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated. If any plan or project causes the cited interest features of a site to fall into unfavourable condition they can be considered to have a likely significant effect on the site.

1.2.2. Stage 2 Appropriate Assessment

For European sites where LSE is predicted, or it cannot be concluded that there is no LSE, an appropriate assessment is required to determine whether the project or plan will have an adverse effect on the integrity of the European site in view of its conservation objectives.

According to the Waddenzee judgement (Judgement of 7th September 2004 – Case C127/02) (paragraph 45) an appropriate assessment will be required 'if a likely significant effect cannot be excluded on the basis of objective information'. That is to say, 'if the plan or project is likely to undermine the site's conservation objectives, the assessment of that risk being made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project' (paragraph 49).

For all sites and associated qualifying features where it cannot be concluded that there will be no LSE, further information required to inform an appropriate assessment includes:

- Conservation objectives of the site;
- Current condition status of the qualifying features;
- Site specific and regional population estimates for qualifying features;
- Assessment of potential impacts on qualifying features – this detailed assessment is usually based upon information provided during the Environmental Impact Assessment (EIA) process; and
- Importance of the Zone of Influence (ZoI) for the relevant qualifying features in the context of site and regional populations.

The strategic nature of the STP rmeans that the information available to undertake a detailed appropriate assessment is limited as there are no specific project details available.

This report comprises the Stage 1 Screening and Stage 2 Appropriate Assessment of the STP.

1.3. Outline of this Report

Following this introduction:

- Section 2 outlines the details of the STP;
- Section 3 of this report sets out the methodology used for the Stage 1 - Screening;
- Section 4 details the results of Stage 1 - Screening for the European sites;
- Section 5 provides the conclusions of the Stage 1 – Screening assessment;
- Section 6 provides the Stage 2 Appropriate Assessment.

2. Background to Strategic Transport Plan

The STP sets out the case for investment in pan-Northern transport network through to 2050 in support of long term, sustainable economic growth across the North. The STP applies to an area of the North of England comprising the combined overall geographical extents of the 20 local transport authorities.

A key component of the STP is the series of transport objectives, which set out the aims of the STP and which will be applied across the North of England. These transport objectives are all of equal standing and as such, a key focus is on ensuring that sustainability is embedded throughout the STP. These objectives are detailed in Table 2-1 below.

Table 2-1 – TfN Network Principles and Ambitions

Increasing efficiency, reliability, integration, and resilience in the transport system	This objective aims to improve the performance and integration of the North's strategic transport network by making the case for interventions that improve its efficiency, reliability and resilience. The North's strategic transport networks and its connections with more local networks, must meet the needs of its users, whether they are residents, businesses or visitors. The management of these networks will need to be able to adapt to changing demands over the period to 2050, such as shifting commuter patterns, changing leisure aspirations, more extreme weather conditions as a result of climate change, and the emergence of new disruptive technologies, such as connected and autonomous vehicles. TfN will also identify opportunities to improve travel choices for the movement of both people and freight and to boost the resilience and sustainability of pan-Northern networks across the whole journey. This will include a particular focus on making more sustainable travel options as attractive as possible, acknowledging that mode choice in often influenced by the ease of the initial part of any journey. TfN will also promote measures that help support modal shift and make the best of our existing networks, exploring new technologies and demand management tools that help to maximise network efficiency.
Transforming economic performance	This objective aims to secure investment in transport between the important urban and rural economic centres and assets to support sustainable transformation of the North's economic performance. The objective focuses on addressing the challenges identified in the Northern Powerhouse Independent Economic Review. This includes securing investment in transport interventions, which improve productivity, unlock investment and deliver agglomeration benefits between the North's important economic centres and assets, both rural and urban. It is also vital to connect the North to the world's most important economic markets to enhance trade, tourism and inward investment through international gateways.
Improving inclusivity, health, and access to opportunities for all	This objective will ensure that the Strategic Transport Plan works for everyone who lives and works in the North through improved access to opportunities. Ultimately, transport is a means to an end. Economic growth in the North should be as inclusive as possible, avoiding transport poverty where the transport network limits access opportunities in communities. Investment in the strategic transport network should enable better access to key opportunities, including employment, health, social activities and education, regardless of an individual's age, income level, location and mobility, and promoting active and sustainable travel will also improve people's health, reduce air pollution and improve the environment. A carefully co-ordinated approach is required to ensure strategic and local transport investment programmes and policies are aligned and complementary.
Promoting and enhancing the built,	This objective will ensure that through collaboration with TfN's Partners, stakeholders and communities, transport interventions across the strategic transport system protect and enhance the natural, historic and built

historic, and natural environment	environment, making sure that the North's strategic transport system is as sustainable as possible. It covers a range of issues, including the need to provide sustainable travel choices for the movement of people and goods across the North, reducing air pollutant and carbon emissions from transport, making best use of existing transport infrastructure before investing in new capacity and ensuring that new infrastructure is designed to minimise the negative impacts on the natural, historic and built environment, including on biodiversity and where possible result in net environmental gains. Promoting access to the natural and green environment will also promote physical and mental health.

The STP focuses on creating an integrated and well co-ordinated transport system that supports a range of different travel needs. Supporting these transport objectives within the STP, there are a series of strategic development corridors that are connectivity priorities to support economic growth of the north:

- Connecting the Energy Coasts –Improving connectivity for people and goods between the nationally significant non-carbon energy and research assets located in Cumbria, Lancashire, North Yorkshire, the North East, and Tees Valley.

- West and Wales – Improving connectivity, for people and goods, to, from and through the important economic centres and assets of Cheshire, Liverpool City Region and Greater Manchester, with strategic connectivity in to North Wales and the Midlands.

- Central Pennines – Improving strategic east-west connectivity for some of the North's important economic centres and assets in North Yorkshire, West Yorkshire, East Riding and Hull and Humber through to Greater Manchester, Lancashire and Liverpool City Region.

- Southern Pennines – Improving the strategic East-West, multi-modal connectivity between the important economic centres, assets and ports within Liverpool City Region, Greater Manchester, Cheshire, Sheffield City Region, East Riding and Hull and Humber, as well as cross-border movements to the Midlands.

- West Coast - Sheffield City Region – Strengthening rail connectivity between the advanced manufacturing clusters and assets in Cumbria, Lancashire, Greater Manchester and Sheffield City Region, with improved connectivity from the North in to Scotland.

- East Coast - Scotland – Strengthening rail connectivity and capacity along the East Coast Main Line and other key parallel rail lines, such as the Durham Coast Line, to provide enhanced strategic and local connectivity in the North East, Tees Valley, East Riding and North Yorkshire.

- Yorkshire - Scotland – Strengthening road connectivity between the Midlands, South Yorkshire, West Yorkshire, North Yorkshire, East Riding, Tees Valley, the North East, and Scotland, building on the existing road investment commitments.

3. Methodology

3.1. Gathering Information

All available information about the STP was gathered in order to analyse whether the STP is likely to have any likely significant effects on the European sites.

3.2. Determination of European Sites included in the HRA

An initial review of the STP in light of the Habitats Regulations has been undertaken as part of the HRA process. This initial review looked at the geographic extent or zone of influence of any impacts which could arise as a result of the STP and considered which European sites should be included within the assessment.

The lack of project-specific detail means that the HRA site selection and screening process is undertaken at a high level. Combined with recent European case law, which ruled that measures to avoid or reduce effects cannot be considered at the screening stage, very few European sites will be able to be screened out of further assessment without specific project details.

3.3. Obtaining Information on European Sites with the Potential to be Affected

The Conservation Objectives and site vulnerabilities for all European sites (where available) have been obtained from Natural England[3] for the purpose of this assessment. Further details of these European sites are provided in Appendix A.

3.4. Identification of Relevant European Sites

The STP will apply to an area of the north of England comprising the combined overall geographical extents of the 20 Local Transport Authorities, comprising Transport for the North.

In accordance with the Design Manual for Roads and Bridges (DMRB) Volume 1, Section 4, Part 1 Assessment of Implications (of Highways and/or Road Projects) on European Sites (Including Appropriate Assessment) (HD 44/09) all sites where potential direct, indirect and in-combination impacts to Natura 2000 and Ramsar sites could reasonably be considered possible, a buffer of 2 km from the TfN geographical boundary was established which was extended to 30 km where bats are a qualifying feature.

Table 3-1 below provides a summary of the constituent local transport authorities and the European site which fall within each area.

There are also sites within 2 km of the STP area boundary which are in Scotland and as such would require consideration of trans-boundary issues.

[3] http://publications.naturalengland.org.uk/category/6490068894089216

Table 3-1 – European Sites Designated for Nature Conservation

Local Transport Authority Area	SAC	SPA	Ramsar
Cheshire West and Chester Unitary Authority; Cheshire East Unitary Authority; Warrington Unitary Authority	Dee Estuary	Mersey Estuary	Rostherne Mere
	River Dee and Bala Lake	The Dee Estuary	Mersey Estuary
	Oak Mere	Peak District Moors (South Pennine Moors Phase 1)	The Dee Estuary
	South Pennine Moors		Midland Meres & Mosses Phase 2
	Rixton Clay Pits		Midland Meres & Mosses - Phase 1
	Manchester Mosses		
Cumbria County Council	Moor House-Upper Teesdale	Solway Firth pSPA	Esthwaite Water
	Helbeck & Swindale Woods	North Pennine Moors	Upper Solway Flats & Marshes
	Tarn Moss	Morecambe Bay & Duddon Estuary	Irthinghead Mires
	River Kent		Duddon Estuary
	Ullswater Oakwoods		Morecambe Bay
	South Solway Mosses		
	Solway Firth		
	Cumbrian Marsh Fritillary Site		
	Drigg Coast		
	Morecambe Bay Pavements		
	Roudsea Wood & Mosses		
	Witherslack Mosses		
	Yewbarrow Woods		
	Tyne & Nent		
	Clints Quarry		
	Bolton Fell Moss		
	Walton Moss		
	Border Mires, Kielder-Butterburn		
	River Eden		

	Borrowdale Woodland Complex		
	Lake District High Fells		
	River Derwent & Bassenthwaite Lake		
	North Pennine Dales Meadows		
	North Pennine Moors		
	Subberthwaite, Blawith & Torver Low Commons		
	Asby Complex		
	River Ehen		
	Naddle Forest		
	Wast Water		
	Duddon Mosses		
	Morecambe Bay		
Greater Manchester Combined Authority	Rochdale Canal	Peak District Moors (South Pennine Moors Phase 1)	*None identified*
	South Pennine Moors	South Pennine Moors Phase 2	
	Manchester Mosses		
East Riding of Yorkshire Unitary Authority; North Lincolnshire Unitary Autority and North East Lincolnshire Unitary Authority	Lower Derwent Valley	Hornsea Mere	Lower Derwent Valley
	Thorne Moor	Lower Derwent Valley	Humber Estuary
	River Derwent	Flamborough Head & Bempton Cliffs	
	Flamborough Head	Flamborough and Filey Coast	
	Humber Estuary	Humber Estuary	
	Hatfield Moor	Thorne & Hatfield Moors	
Lancashire County Council, Blackpool Unitary Authority; Blackburn with Darwen Unitary Authority	Morecambe Bay Pavements	Leighton Moss	Ribble & Alt Estuaries
	Calf Hill & Cragg Woods	Martin Mere	Leighton Moss
	South Pennine Moors	Ribble & Alt Estuaries	Martin Mere
	Morecambe Bay	Bowland Fells	Morecambe Bay
	North Pennine Dales Meadows	Morecambe Bay and Duddon Estuary	
		South Pennine Moors Phase 2	

		Liverpool Bay	
West Yorkshire Combined Authority	Lower Derwent Valley	Lower Derwent Valley	Lower Derwent Valley
	River Derwent	North Pennine Moors	Malham Tarn
	Kirk Deighton	Peak District Moors (South Pennine Moors Phase 1)	
	Denby Grange Colliery Ponds	South Pennine Moors Phase 2	
	Ingleborough Complex		
	South Pennine Moors		
	Strensall Common		
	North Pennine Dales Meadows		
	North Pennine Moors		
	Craven Limestone Complex		
	Skipwith Common		
Liverpool City Region Combined Authority	Dee Estuary	Mersey Estuary	Ribble & Alt Estuaries
	Sefton Coast	Ribble & Alt Estuaries	Mersey Estuary
		The Dee Estuary	Mersey Narrows & North Wirral Foreshore
		Mersey Narrows & North Wirral Foreshore	
		Liverpool Bay	
North East Combined Authority	Moor House-Upper Teesdale	Farne Islands	Holburn Lake & Moss
		Holburn Lake & Moss	Lindisfarne
	Tweed Estuary	Lindisfarne	Teesmouth & Cleveland Coast
	Newham Fen	Teesmouth and Cleveland Coast	Northumbria Coast
	Thrislington	Northumbria Coast	Irthinghead Mires
	Ford Moss	Coquet Island	
	Berwickshire & North Northumberland Coast	North Pennine Moors	
	North Northumberland Dunes		
	Castle Eden Dene		
	Durham Coast		

	Border Mires, Kielder-Butterburn		
	River Eden		
	Simonside Hills		
	Harbottle Moors		
	North Pennine Dales Meadows		
	North Pennine Moors		
	Tyne & Allen River Gravels		
	Roman Wall Loughs		
Sheffield City Region Combined Authority	Thorne Moor	Peak District Moors (South Pennine Moors Phase 1)	*None identified*
	Peak District Dales	Thorne & Hatfield Moors	
	Bees Nest & Green Clay Pits		
	Gang Mine		
	South Pennine Moors		
	Hatfield Moor		
Tees Valley Combined Authority	North York Moors	North York Moors	Teesmouth and Cleveland Coast
		Teesmouth and Cleveland Coast	
North Yorkshire County Council; City of York Unitary Authority	Lower Derwent Valley	Hornsea Mere	Lower Derwent Valley
	Fen Bog	Lower Derwent Valley	Humber Estuary
	Thorne Moor	North York Moors	Malham Tarn
	River Derwent	Flamborough Head & Bempton Cliffs	
	Kirk Deighton	North Pennine Moors	
	North York Moors	Humber Estuary	
	Ox Close	South Pennine Moors Phase 2	
	Ingleborough Complex	Thorne & Hatfield Moors	
	Beast Cliff-Whitby (Robin Hood's Bay)		
	Arnecliff & Park Hole Woods		
	Flamborough Head		

	South Pennine Moors		
	Strensall Common		
	North Pennine Dales Meadows		
	North Pennine Moors		
	Ellers Wood & Sand Dale		
	Humber Estuary		
	Craven Limestone Complex		
Natura 2000 sites within 30 km of the STP area boundary for which bats are a qualifying feature	*None identified*	*None identified*	*None identified*

This HRA is a record of the assessment of 'likely significant effects' from the STP on the 119 European sites listed above. Information regarding their location and reasons for designation has not been included at this stage. Further details regarding the conservation objectives and site vulnerabilities and threats are provided in Appendix A.

3.5. Obtaining Information on the European Sites with the Potential to be Affected

Information on the vulnerabilities of all European sites identified was obtained from the Joint Nature Conservation Committee (JNCC) website[4].

3.6. Assessing the Impacts of the Plan 'Alone' and 'In-Combination'

Following the gathering of information on the STP and the European sites, an assessment has been undertaken to predict the likely significant effects of the STP on the European sites 'alone'. In order to inform this process, all parts of the STP were assessed to see if they could result in likely significant effects on the European sites. This HRA assesses each of the Spatial Strategy, Development Policies and Sub Area Policies, as well as the objectives that support the policies.

Each of the principles, spatial themes and accompanying interventions (interventions which may lead to new infrastructure, improved access across the region or new development) have been examined to see if the STP could have a likely significant effect on the integrity of the European sites. However, as the STP is at a strategic level (i.e. the new infrastructure, extent of improvements to existing transport links, associated development that may arise as a result these interventions is unknown at this stage), the HRA has also been undertaken at a strategic level.

Although impacts from an individual project or plan may have no likely significant effect on a European site, cumulative impacts from other plans and projects may result in an 'in combination' effect on one or more interest features of the European site. Examples of how these in-combination effects may occur is summarised in Table 3-2 below.

Table 3-2 – Examples of Potential In-combination Effects

Example Plans and Projects	Potential In-combination Effects
Local Core Strategies and Allocation Plans	• Direct land take; • Hydrology changes; • Water quality; • Air qaulity; • Noise; • Lighting; and • Recreation.
Local Transport Plans	
Nationally Significant Infrastructure Projects and associated developments	

Likely significant effects by these means must also be considered at this stage as the STP covers the whole of the north of England in which 119 European sites have been identified. However, the STP is a very high level plan which provides no detail or outline of any development proposals nor details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed.

For European designated sites where an LSE alone was concluded, the potential exists for in-combination effects with other plans and projects for a number of effects. However, given the nature of the STP, there is inevitably going to be a delay between the adoption of the STP and any development. It is not possible to know when (or indeed if) any subsequent project proposal will come forward and it is not therefore possible to predict what other plans and projects will be relevant to such a future project assessment. There is a need

[4] http://jncc.defra.gov.uk

to consider the potential for in-combination effects at the plan stage, but that assessment is relevant to the any subsequent development in its own right and needs to be scoped accordingly.

Therefore, it is recommended that 'in combination' assessment is undertaken at a lower tier when further details are known.

The STP seeks to protect European sites (Page 77 of the Inclusive and Sustainable Growth section of the Strategic Transport Plan). It states that any potential direct or indirect impacts on these sites that may arise from new and/or upgraded transport interventions will be appropriately assessed, mitigated, or, as a last resort, compensated for, in-line with existing best practice and relevant legislation across the life span of the Plan. Therefore, should infrastructure development arise from the interventions, the need for HRA will be highlighted and undertaken at the development management stage.

Likely significant effects are assessed by reference to the conservation objectives of the qualifying feature (interest feature) of the European site. Any plan or project that causes the cited interest features of a site to fall into unfavourable condition can be considered to have a likely significant effect on the site. Stage 1 of the HRA process does not assess effects on the integrity of European sites (this forms Stage 2 of the HRA process). It may be worth noting that under the terms of the European Union (Withdrawal) Act 2018, it is understood that all relevant European environmental legislation, including the Habitats Directive, will remain in place for the foreseeable future.

Plans or projects can adversely affect a site by:

- Causing delays in progress towards achieving the conservation objectives of the site;
- Interrupting progress towards achieving the conservation objectives of the site;
- Disrupting those factors that help to maintain the favourable conditions of the site; and
- Interfering with the balance, distribution and density of key species that are the indicators of the favourable condition of the site.

HRA is an iterative process. Where necessary, suggestions can be made of how to amend the Strategy to avoid likely significant effects on a European site. This iterative approach has been adopted as part of this assessment and recommendations that were submitted to TfN have been included in the STP.

The precautionary principle (as enshrined in the Habitats Regulations) has been taken into account during this HRA. The precautionary principle is used when an HRA cannot objectively demonstrate that there will be no likely significant effects on the European sites. If this occurs, the subsequent stages of HRA must be completed for the project or plan.

3.7. Stage 2: Appropriate Assessment

The purpose of this assessment is to establish whether there are elements of the STP which could have an adverse effect on the integrity of these sites.

The integrity of a site is defined as "the coherence of the site's ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or population of species for which the site has been designated" (European Commission, 2000a).

European Commission guidance on the provisions of Article 6, emphasises that site integrity involves its ecological functions and that the assessment of adverse effect should focus on and be limited to the site's conservation objectives (European Commission, 2000b).

For the Appropriate Assessment, English Nature (now Natural England) guidance on 'site integrity' has been used[5] to identify suitable criteria for deciding whether impacts would be likely to be deemed 'adverse effects on integrity'.

As described in Natural England's guidance document The Habitats Regulations Assessment of Local Development Documents (Revised Draft)[6]:

> "…*it should be borne in mind that appropriate assessment for a plan is unlikely to be as detailed an assessment as one undertaken at project level*.
>
> *Occasionally, where a proposal in a plan is advancing rapidly at project development level, concurrently with the plan-making process, such detailed information could be available, but usually such detailed assessments are unlikely to be achievable or feasible. The object is to assess whether it can be ascertained that the elements of the plan, alone or in combination with each other, and/or other plans or projects, would not have an adverse effect on the integrity of a European site.*"

Where necessary, mitigation measures have been put forward to address any adverse effects on integrity of the European sites (see Section 8). Policy level HRA offers an opportunity to highlight where lower tier plans and projects will require HRA in order to avoid conflict with conservation objectives for European sites. The purpose of policy level HRAs is to assess whether particular policies will impact on designated sites. If it cannot be ruled out that there will be no adverse effects on the integrity of the European sites, then policies must be amended or deleted. Where appropriate, safeguarding conditions can be used and/or deliverable mitigation identified to avoid or remove the potential adverse impacts of a policy. This approach will ensure the plan is robust and deliverable. It is supported by the decision in the case of Feeney v Oxford City Council [2011] EWHC 2699, in which the Court ruled that the use of safeguard conditions is not excluded by the precautionary principle; on the contrary such a condition is based upon advance consideration of potential future risks.

Impacts of a plan depend to a large extent on how policies and proposals are implemented on the ground. Due to the uncertainties inherent in policy-making, the exact effect of a policy or proposal may not be certain until detailed implementation. This can make it difficult to conclude with any certainty that adverse effects on integrity will not take place. Due to the requirement within the Habitats Directive to apply the precautionary principle if it is not possible to be certain that adverse effects will not occur, this HRA proposes methods to mitigate for adverse effects that could occur. This is important, in order to demonstrate that any development brought forward as a result of policies in the STP, can be delivered without adverse effects on integrity. Changes to the detailed design of development schemes, when they arise, may be necessary as well as mitigation.

[5] *English Nature, May 2004. European Sites Guidance - Internal Guidance to Decisions on 'Site Integrity': A Framework for Provision of Advice to Competent Authorities*

[6] *The Habitats Regulations Assessment of Local Development Documents*, Natural England, 2009

4. Stage 1 Screening Assessment

The findings of the Stage 1 – Screening for the European sites under consideration are provided in Table 4-1 below. Justification for the conclusions drawn below is provided in **Appendix B**.

Table 4-1 - Results of the HRA Stage 1 – Screening

Site Designation	Sites List in Table 3-1
Describe the individual elements of the STP likely to give rise to impacts on the European sites	The four strategic objectives and seven strategic development corridors policies focus on the need for improvements to existing infrastructure, creation of new transport links by the development of new infrastructure and improved (i.e. faster and more efficient) connectivity across the North of England. The four strategic objectives will not themselves lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy. Therefore, the strategic objectives are considered to have no likely significant effects on the European sites. The seven strategic development corridors policies are policies for which there is a theoretical possibility that, if implemented in one or more particular ways, could possibly have a significant effect on a European site. Using the precautionary approach, this policy may lead to a likely significant effect on European protected sites via several routes such as direct land take, pollution events, noise, air quality and increased recreation. As such will require a Stage 2 Appropriate Assessment to be undertaken.
Provisions included within the STP to protect European sites	Text within the STP: Environmental Responsibility seeks solely to protect European sites, important habitats and species. The principle ensures that any potential infrastructure project is adequately assessed for likely significant effects on European sites. The STP states the following: *The North contains both statutory and non-statutory designated sites that are protected for their importance for nature conservation. Prime among these sites are Special Areas of Conservation and Special Protection Areas, which form the Natura 2000 European network of core breeding and resting sites for rare and threatened species, along with some rare natural habitat types. It is the aim of this network to ensure the long-term survival of Europe's most valuable and threatened species and habitats, listed under the European Commission's Habitats and Birds Directives. In addition to the Natura 2000 sites, there are also internationally important wetlands designated as Ramsar Sites.* Across the North, there are a large number of nationally important Sites of Special Scientific Interest, National Nature Reserves, Ancient Woodlands, and many important Local Nature Reserves and green spaces that support wildlife and enhance the wellbeing of the local population. Whilst it is not directly connected to European Sites, the STP on page 76 also states: *Working with Partners and other statutory bodies, such as the Environment Agency, Natural England and Historic England, TfN will aim to minimise the impact of transport on the historic and natural environment and will seek to deliver environmental*

	enhancements and biodiversity net gain where possible. TfN also expects Delivery Partners to deliver transport investments that protect sites designated for important nature conservation, ensure that due regard is given to the need to undertake archaeological investigations, and protect and enhance the quality and distinctiveness of historic assets.
Describe any likely direct, indirect or secondary impacts of the STP on the European sites by virtue of: • **Size and scale;** • **Land take;** • **Resource requirements (i.e. water extraction etc.);** • **Emissions (disposal to land, water or air);** • **Excavation requirements;** • **Duration of construction, operation, decommissioning etc.; and** • **Other.**	The seven strategic development corridors policies are policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways, the proposals could possibly have a significant effect on a European site. Using the precautionary approach, this policy may lead to a likely significant effect on European protected sites, however, owing to the high level nature of the policy the likely direct, indirect or secondary impacts cannot be quantified at this stage.
Describe any likely changes to the European sites arising as a result of: • **Reduction of habitat area;** • **Disturbance to key species;** • **Habitat or species fragmentation;** • **Reduction in species density;** • **Changes in key indicators of conservation value (e.g. water quality); and** • **Climate change**	The seven strategic development corridors policies are policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites, however, owing to the high level nature of the policy the likely changes to the European sites cannot be quantified at this stage.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known	Based on findings of the HRA Stage 1 Screening Assessment, it is considered that the seven strategic development corridors policies may have a likely significant effect on the European sites.

5. Stage 1 Screening Conclusions

This HRA has assessed whether the four strategic objectives and the seven Strategic Development Corridors set out within the STP are likely to lead to significant effects on these European sites and what these likely impacts are.

None of the strategic objectives will directly lead to development and therefore will not have a likely significant effect on any European sites.

Due to the strategic nature of the STP, the seven Strategic Development Corridors set out are high level only broadly defining the objectives and policy and providing limited detail of potential projects that may result at a later stage. However, using the precautionary principle it is considered that the Strategic Develolpment Corridors may have a likely significant effect on European sites. Therefore, a Stage 2 Appropriate Assessment will be required to assess the potential effects of the seven Strategic Development Corridors on the European sites.

6. Stage 2 Appropriate Assessment

6.1. Introduction

Following completion of the HRA Stage 1 Screening assessment, it was concluded that the following seven Strategic Development Corridors may result in likely significant effects on European site and that as such these policies would require a Stage 2 Appropriate Assessment:

- Connecting the Energy Coasts –Improving connectivity for people and goods between the nationally significant non-carbon energy and research assets located in Cumbria, Lancashire, North Yorkshire, the North East, and Tees Valley.
- West and Wales – Improving connectivity, for people and goods, to, from and through the important economic centres and assets of Cheshire, Liverpool City Region and Greater Manchester, with strategic connectivity in to North Wales and the Midlands.;
- Central Pennines – Improving strategic east-west connectivity for some of the North's important economic centres and assets in North Yorkshire, West Yorkshire, East Riding and Hull and Humber through to Greater Manchester, Lancashire and Liverpool City Region.
- Southern Pennines – Improving the strategic East-West, multi-modal connectivity between the important economic centres, assets and ports within Liverpool City Region, Greater Manchester, Cheshire, Sheffield City Region, East Riding and Hull and Humber, as well as cross-border movements to the Midlands.
- North west to Sheffield City Region – Strengthening rail connectivity between the advanced manufacturing clusters and assets in Cumbria, Lancashire, Greater Manchester and Sheffield City Region, with improved connectivity from the North in to Scotland.
- East Coast to Scotland – Strengthening rail connectivity and capacity along the East Coast Main Line and other key parallel rail lines, such as the Durham Coast Line, to provide enhanced strategic and local connectivity in the North East, Tees Valley, East Riding and North Yorkshire.
- Yorkshire to Scotland – Strengthening road connectivity between the Midlands, South Yorkshire, West Yorkshire, North Yorkshire, East Riding, Tees Valley, the North East, and Scotland, building on the existing road investment commitments.

Two pieces of case law have clarified that an appropriate assessment of a plan does not have to provide a conclusive answer to all the questions legitimately raised about the potential for significant adverse effect on the integrity of the site.

In the Opinion of Advocate General Kokott at paragraph 49 she noted that an assessment of plans cannot by definition take into account all effects because "Many details are regularly not settled until the time of the final permission" and "[i]t would also hardly be proper to require a greater level of detail in preceding plans or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure".

6.2. Stage 2 Appropriate Assessment of the Plan Alone

The potential impacts on the European sites were considered to include the potential for the following:

- direct land take;
- water pollution;
- noise;

- air pollution;
- changes in hydrology; and
- increased recreation.

These impacts may result from construction works within or in proximity to European sites, or as operational consequence.

6.2.1. Mitigation

The assessment has identified mitigation measures that could be applied at a project HRA level and may be sufficient to avoid or mitigate any adverse effect on European site integrity. However, mitigation is project-specific and without sufficient information about a project it can only be considered in generic terms at this strategic level. However, the use of policy-specific caveats provides additional assurance to the decision maker that implementation of the plan will not adversely affect site integrity.

These provisions act as an 'additional safeguard' in the event of an unforeseen adverse effect being subsequently identified at project stage which cannot be resolved by mitigation. It can be relied upon to ensure that, in order for any development proposals coming forward to be in accordance with the policy statement, they must first demonstrate compliance with the requirements of the Habitats Regulations.

As the detailed potential impacts of the Strategic Development Corridors alone and in-combination cannot be identified on a site by site basis at this stage, it is not possible to detail potential detailed mitigation measures. However, it is considered that any potential impacts could be mitigated through the following:

- where possible habitat loss within the European sites will be avoided or minimised through sensitive siting and design;
- construction will seek to avoid the most sensitive times of year for qualifying species for which the European sites are designated within the respective zone of influence of those species;
- measures will be taken to minimise noise and visual disturbance impacts on species, where these are a likely impact on the European site; and,
- standard working practices, pollution prevention and control measures will be implemented where there is the potential for changes in air or water quality.

6.2.2. Provisions within the TfN STP that Protect European Sites

When planning applications are determined, all of the relevant policies and supporting text in the STP are taken into account and used as the basis for decision-making.

The STP includes text within the 'TfN's principle for Pan-Northern Transport System' on page 77 of the STP, which seeks to protect European sites by setting out how the HRA process should be taken forward for new infrastructure projects within the STP region. The text clearly states that any proposed development that may have an adverse effect on European important sites will be subject to the HRA process by the competent authority (see relevant text below).

> *The North contains both statutory and non-statutory designated sites that are protected for their importance for nature conservation. Prime among these sites are Special Areas of Conservation and Special Protection Areas, which form the Natura 2000 European network of core breeding and resting sites for rare and threatened species, along with some rare natural habitat types. It is the aim of this network to ensure the long-term survival of Europe's most valuable and threatened species and habitats, listed under the European Commission's Habitats and Birds Directives. In addition to the Natura 2000 sites, there are also internationally important wetlands designated as Ramsar Sites.*
>
> *Across the North, there are a large number of nationally important Sites of Special Scientific Interest, National Nature Reserves, Ancient Woodlands, and many important*

Local Nature Reserves and green spaces that support wildlife and enhance the wellbeing of the local population.

Any potential direct or indirect impacts on these sites that may arise from new or upgraded transport interventions will be appropriately assessed, mitigated, and/or compensated for, in line with existing best practice and relevant legislation over the lifetime of the Plan. This would include the Natura 2000 sites and Ramsar sites for which Habitats Regulation Assessment will be carried out, as necessary, prior to final decisions being made on transport interventions.

The Strategic Transport Plan and the Long Term Investment Programme recognise the importance of all these sites in the North and beyond and TfN is committed to working with Partners to avoid or minimise any adverse impacts on such sites as far as possible.

Whilst it is not directly connected to European Site the STP on page 76 also states:

Working with Partners and other statutory bodies, such as the Environment Agency, Natural England and Historic England, TfN will aim to minimise the impact of transport on the historic and natural environment and will seek to deliver environmental enhancements and biodiversity net gain where possible. TfN also expects Delivery Partners to deliver transport investments that protect sites designated for important nature conservation, ensure that due regard is given to the need to undertake archaeological investigations, and protect and enhance the quality and distinctiveness of historic assets.

The STP therefore ensures that the competent authority (in consultation with Natural England) will give consideration to European sites in order to inform infrastructure planning decisions on new transport projects. The text states that any development which has an adverse impact on an important environmental site should be avoided as far as possible. If this cannot be achieved, the adverse impacts will be adequately mitigated, or, as a last result, compensated for. A Habitat Regulations Appropriate Assessment will be undertaken in the case of European designated sites for any proposal likely to have significant effects on the site itself.

Therefore, any specific infrastructure proposals will need to be in-line with the STP and will need to satisfy the relevant Local Authority and the relevant statutory conservation body (Natural England, Scottish Natural Heritage and Natural Resources Wales) that there will be no adverse effect on the integrity of the European designated sites. Any adverse effects on integrity must be effectively mitigated, or, as a last result, compensated. This will act to safeguard European sites and features during the future assessment of schemes that are supported by the policies and through down-the-line assessment of individual projects.

7. Stage 2 Appropriate Assessment Conclusions

Taking into account the proposed mitigation measures and the robust wording in the STP (as set out above) which commits to the protection of the European sites, it can therefore be concluded that it is unlikely that the STP will have an adverse effect on the integrity of the European sites either alone or in-combination with other plans and projects. The only exception will be in situations where no alternative solutions exist for a scheme and where adverse impacts remain. In these situations, if it is deemed that the scheme should be allowed to proceed, the identification of imperative reasons of overriding public interest (IROPI) will be necessary and compensatory measures will need to be identified. This can only be decided at the next stage of project development.

Appendix A. European Sites Conservation Objectives and Site Vulnerabilities

A.1. European Sites Conservation Objectives

Table A-1 – SAC and SPA Conservation Objectives

European Site Designation	Site Name	Conservation Objectives Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring
SAC	Arnecliff & Park Hole Woods	• The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.
	Asby Complex	
	Bees Nest & Green Clay Pits	
	Berwickshire & North Northumberland Coast	
	Craven Limestone Complex	
	Dee Estuary	
	Drigg Coast	
	Ellers Wood & Sand Dale	
	Humber Estuary	
	Moor House-Upper Teesdale	
	Morecambe Bay	
	Morecambe Bay Pavements	
	Peak District Dales	
	River Dee and Bala Lake	
	River Derwent	
	River Derwent & Bassenthwaite Lake	
	River Eden	
	River Kent	
	Roman Wall Loughs	
	Sefton Coast	
	Beast Cliff-Whitby (Robin Hood's Bay)	• The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which the qualifying natural habitats rely
	Bolton Fell Moss	
	Borrowdale Woodland Complex	
	Calf Hill & Cragg Woods	
	Castle Eden Dene	
	Harbottle Moors	
	Ford Moss	
	Gang Mine	
	Ox Close	
	Roudsea Wood & Mosses	
	Simonside Hills	
	Skipwith Common	
	South Pennine Moors	
	South Solway Mosses	
	Strensall Common	
	Subberthwaite, Blawith & Torver Low Commons	
	Tarn Moss	
	Thorne Moor	

	Thrislington	
	Tyne & Allen River Gravels	
	Tyne & Nent	
	Ullswater Oakwoods	
	Walton Moss	
	Wast Water	
	Witherslack Mosses	
	Yewbarrow Woods	
	Border Mires, Kielder-Butterburn	• The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
	Duddon Mosses	
	Durham Coast	
	Fen Bog	
	Flamborough Head	
	Hatfield Moor	
	Helbeck & Swindale Woods	
	Ingleborough Complex	
	Manchester Mosses	
	Naddle Forest	
	Newham Fen	
	North Pennine Dales Meadows	
	North York Moors	
	Oak Mere	
	Clints Quarry	• The extent and distribution of the habitats of qualifying species • The structure and function of the habitats of qualifying species • The supporting processes on which the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.
	Cumbrian Marsh Fritillary Site	
	Denby Grange Colliery Ponds	
	Kirk Deighton	
	River Ehen	
	Rixton Clay Pits	
	Rochdale Canal	
	Lake District High Fells	• The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.
	Lower Derwent Valley	
	North Northumberland Dunes	
	North Pennine Moors	
	Solway Firth	
SPA	Bowland Fells	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site
	Coquet Island	
	Farne Islands	
	Flamborough Head & Bempton Cliffs	
	Humber Estuary	
	Leighton Moss	
	Lindisfarne	
	Lower Derwent Valley	
	Martin Mere	

	Mersey Estuary	
	Mersey Narrows & North Wirral Foreshore	
	Morecambe Bay & Duddon Estuary	
	North Pennine Moors	
	North York Moors	
	Northumbria Coast	
	Peak District Moors (South Pennine Moors Phase 1)	
	Ribble & Alt Estuaries	
	South Pennine Moors Phase 2	
	Teesmouth & Cleveland Coast	
	The Dee Estuary	
	Thorne & Hatfield Moors	
	Upper Solway Flats & Marshes	
	Din Moss-Hoselaw Loch	To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species
	Greenlaw Moor	To avoid deterioration of the habitats of the qualifying species (Pink-footed goose) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and to ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species. • No significant disturbance of the species
	Holburn Lake & Moss	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features (Greylag goose) • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site
	Hornsea Mere	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features (Mute swan and Gadwall) • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site
	Liverpool Bay	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and,

		• The distribution of the qualifying features within the site. The interest feature red-throated diver will be considered to be in favourable condition only when both of the following two conditions are met: (i) The size of the red-throated diver population is at, or shows only non-significant fluctuation around the mean population at the time of designation of the SPA. To account for natural change; (ii) The extent of the supporting habitat within the site is maintained.
	Castleloch, Lochmaben Langholm- Newcastleton Hills	• To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and • To ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species

A.2. European Sites with Supplementary Advice on Conservation Objectives - Supplementary Advice

European Site Designation	Site Name	Conservation Objectives	Supplementary Advice	Target
SAC	Borrowdale Woodland Complex	The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats, and The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Restore the total extent of the H91A0 feature to 540 hectares.
			Vegetation community composition	Restore the distribution and configuration of the H91A0 feature, including where applicable its component vegetation types, across the site
			Vegetation structure - canopy cover	Ensure the component vegetation communities of the H91A0 feature are referable to and characterised by the following National Vegetation Classification types: NVC W11 Quercus petraea –Betula pubescens – Oxalis acetocella NVC W17 Quercus petraea – Betula pubescens – Dycranum majus NVC W9 Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis woodland NVC W7 Alnus glutinosa – Fraxinus excelsior Lysimachia nemorum woodland NVC W5 Alnus glutinosa – Carex paniculata woodland Maintain a natural transition between these NVC types and the more open h
			Vegetation structure - open spac	Maintain a tree canopy cover of between 70-90% within woodland stands.
			Vegetation structure – old growth	Maintain areas of permanent and temporary open space within the H91A0 woodland feature, typically to cover approximately 10%of the woodland stand areas.
			Vegetation structure - dead wood	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the H91A0 feature at any one time) and their assemblages of veteran and ancient trees (typically >10 trees per hectare).
			Vegetation structure – age class distribution	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically 6 fallen trees >30cm per hectare, and 5 standing dead trees per hectare
			Vegetation structure - shrub layer	Restore at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees.
			Vegetation structure - woodland edge	Maintain an understorey shrub layer covering 10% of the stand area within oak stands and 25% in alder and ash woodlands
			Adaptation and resilience	Restore a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.
			Browsing and grazing by herbivores	Maintain the resilience of the H91A0 feature by ensuring a diversity (at least 12 species) of site-native trees and shrubs (eg sessile oak, birch, holly, ash, wych elm, yew, juniper, alder, rowan, bird cherry, willow, hazel and hawthorn) across the site.
			Regeneration potential	Restore browsing to a (low) level that maintains a well-developed understorey with no obvious browse line, lush ground vegetation with ome grazing sensitive species evident (e.g.bramble, ivy), and tree seedlings and sapling common in gaps.
			Tree and shrub species composition	Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate.
			Key structural, influential and/or distinctive species	Maintain a canopy and understorey of which 95% is composed of site native trees and shrubs.
			Invasive, nonnative and/or introduced species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H91A0 habitat; • Tree and shrub species as listed in the adaptation and resilience section above. • Constant and preferential species of site's NVC community types listed above. • Assemblage of bryophyte and lichen communities associated with western acidic woodland • Assemblage of ferns characteristic of western acidic woodland. • Northern wood ant Formica lugubris • Red squirrel Sciurus vulgaris
			Soils, substrate and nutrient cycling	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H91A0 feature
			Functional connectivity with wider landscape	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to w ithin typical values for theH91A0 habitat.
			Air quality	Maintain the soil structure within and around the root zones of the mature and ancient tree cohort in an un-compacted condition
			Hydrology	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the H91A0 feature of the site on the Air Pollution Information System (www.apis.ac.uk).

			Illumination	Ensure artificial light is maintained at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H91A0 feature and its typical species at this site.
	Clints Quarry	The extent and distribution of the habitats of qualifying species The populations of qualifying species The structure and function of the habitats of qualifying species The supporting processes on which the habitats of qualifying species rely The distribution of qualifying species within the site	Overall Habitat Suitability Index score	Restore overall Great Crested Newt Habitat Suitability Index score to no less than 0.8
			Presence of ponds	Maintain the 3 main breeding ponds and maintain up to 13 smaller more temporary ponds. Maintain the presence of any ponds in adjacent farmland known to support great crested newts and would be part of the same metapopulation
			Permanence of ponds	Restore the permanence of the three breeding ponds. Two of the three breeding ponds should hold water at any one time with minimum summer water depth 20cm. Ensure that smaller, temporary ponds are maintained within the site.
			Cover of macrophytes	Maintain or restore a high cover of macrophytes, typically between 25-100% of margin covered by marginal and emergent species and 25 -75 of pond bottom/midwater/surface covered by submerged or floating species.
			Supporting terrestrial habitat	Maintain the quality of terrestrial habitat likely to be utilised by Great Crested Newts, with no fragmentation of habitat by significant barriers to newt dispersal.
			Shading of ponds	Ensure pond perimeters are generally free of shade (< 25% of breeding ponds having > 20% of southern margin solidly shaded).
			Presence of fish and wildfowl	Ensure that fish and wildfowl are absent from all ponds within the SAC.
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, within typical values for the supporting habitat
			Population abundance	Restore the abundance of the great crested newt population to a level which is at least 20% of the count for 4 consecutive years.
			Population viability	Restore the presence of great crested newt eggs/juvenile eggs to all three breeding ponds
			Supporting metapopulation	Maintain the connectivity of the SAC's great crested newt population with any associated metapopulations (either within or outside of the SAC boundary)
			Distribution of supporting habitat	Maintain the distribution and continuity of the feature's supporting habitat, including; Old quarry rubble which provides excellent summer hiding places and winter hibernation sites for newts. Rough grassland, scrub and voids in the substrate which provide refuges that are shaded and capable of retaining moisture.
			Extent of supporting habitat	Maintain the total extent of the habitats which support Great crested newt at 12.03ha as described above.
			Conservation measures	Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the feature and its supporting habitats.
			Adaptation and resilience	Restore the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Maintain or where necessary restore concentrations and deposition of air pollutants within the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System www.apis.ac.uk
			Water quality	Maintain a suitably high quality of water within the ponds on site as indicated by; The presence of an abundant and diverse invertebrate community. Phosphorus levels should be below 0.12mg/l PO4-P. Nitrogen levels less than 2.0mg/l TON Conductivity <850µS/cm pH neutral to slightly alkaline
	Duddon Mosses	Supplementary Advice for Qualifying Features: H7110 Active raised bogs		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which qualifying natural	Extent of the feature within the site	Restore the H7110 feature over the whole site
			Vegetation community composition	Ensure the component vegetation communities of the H7110 feature are referable to and characterised by the following National Vegetation Classification types:
				M18 Erica tetralixSphagnum papillosum raised and blanket mire M2 Sphagnum cuspidatum/ recurvum bog pool community
			Structural diversity	Restore the full range of typical structural features associated with the H7110 feature at this site, e.g. vegetation cover, surface patterning and hydrological zonations
			Key structural, influential and distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of H7110 Active Raised Bog habitat; 1. Mixed assemblage of typical bryophytes (predominantly Sphagnum spp), Cyperaceae and dwarf shrubs (mainly Ericaceae) 2.Nightjar Caprimulgus uropaeus (not expected to be present in every year as this site is at the edge of its range) 3.Adder Vipera berus

		habitats and the habitats of qualifying species rely		4. Large heath butterfly Coenonympha tullia 5. Veilwort Pallavicinia lyellii 6. Assemblage of wet mire invertebrates (including bog bush cricket Metrioptera brachyptera and raft spider Dolomedes fimbriatus
			Invasive, non-native and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7110 feature
			Supporting off-site habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which supports the H7110 feature
			Hydrology	At a site level, restore natural hydrological processes to provide the conditions necessary to sustain the H7110 feature within the site
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the H7110 feature at a low nutrient status
			Soils, substrate and nutrient cycling	Restore the properties of the underlying peat, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for H7110 Active Raised Bogs habitat
			Adaptation and resilience	Restore the H7110 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore as necessary the concentrations and deposition of air pollutants to at or below the site relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the H7110 feature
		Supplementary Advice for Qualifying Features: H7120 Degraded raised bogs still capable of natural regeneration		
		Extent and distribution of the feature. Structure and function (including its typical species) Supporting processes (on which the feature relies)	Extent of the feature withinthe site	Avoid further degradation in the extent of the H7120feature, whilst restoring the H7120 feature to H7110 Active Raised Bog by 2035
			Soils, substrate and nutrient cycling	Avoid any further degradation of the peat substrate of the H7120 feature and restore the properties of the underlying peat type, including its structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, to within typical values for H7110 Active Raised Bog habitat
			Vegetation community composition	Restore the component vegetation communities of the H7210 feature to those resembling and characterised by the following National Vegetation Classification types typical of H7110 Active Raised Bog; M18 Erica tetralixSphagnum papillosum raised and blanket mire M2 Sphagnum cuspidatum/Sphagnum recurvum bog pool community (mire expanse and rand) M4 Carex rostrataSphagnum recurvum mire M6 arex echinataSphagnum recurvum/ auriculatum mire M23 Juncus effusus/acutiflorus-Galium palustre rush-pasture M25 Molinia caeruleaPotentilla erecta mire M27 Filipendula ulmariaAngelica sylvestris mire S4 Phragmites australis swamp & reedbeds S27 Carex rostrataPotentilla palustris fen W5 Alnus glutinosa – Carex paniculate woodland W6 Alnus glutinosa – Urtica dioica woodland (lagg)
			Structural diversity	Restore the full range of structural features (e.g. vegetation cover, surface patterning and hydrological transitions) typically associated with H7110 Active Raised Bog to the H7120 feature at this site
			Key structural, influential and distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of H7110 Active Raised Bog habitat; [see species listed for the H7110 feature in table 1 above]
			Invasive, non-native and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, and if present are not undermining the restoration of the H7120 feature
			Supporting off-site habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the restoration of the H7120 degraded bog feature
			Hydrology	At a site level, restore natural hydrological processes to provide the water levels and conditions necessary to prevent further degradation of the H7120 feature within the site and to enable its restoration to H7110 active raised bog
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the H7120 feature at a low nutrient status
			Air quality	Restore the concentrations and deposition of air pollutants to at or below the siterelevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes for restoration to H7110 Active Raised Bog
	Naddle Forest	Supplementary Advice for Qualifying Features: H91A0. Old sessile oak woods with Ilex and Blechnum in the British Isles; Western acidic oak woodland		
		The extent and distribution of qualifying natural habitats	Extent of the feature within the site	Restore the total extent of the H91A0 feature to 197.2 hectares.
			Spatial distribution of the feature within the site	Restore the distribution and configuration of the H91A0 feature, including where applicable its component vegetation types, across the site

		The structure and function (including typical species) of qualifying natural habitats The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Vegetation community composition	Ensure the component vegetation communities of the H91A0 feature are referable to and characterised by the following National Vegetation Classification types: W9 Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis woodland, W11 Quercus petraea - Betula pubescens - Oxalis acetosella woodland, W17 Quercus petraea - Betula pubescens - Dicranum majus woodland, W4 Betula pubescensMolinia caerulea woodland and W7 Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum woodland Maintain transitions between these NVC types and open heathland and mire communities
			Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the H91A0 feature, which will typically be at least 80% canopy cover within the woodland stands
			Vegetation structure - open space	Maintain areas of permanent and temporary open space within the woodland typically to cover approximately 20%of area
			Vegetation structure – old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the H91A0 feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).
			Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically 6 fallen trees >30cm per hectare, and >6 standing dead trees per hectare
			Vegetation structure - age class distribution	Restore at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees.
			Vegetation structure -shrub layer	Maintain an understorey (shrub layer of 2- 5metres in height) which covers at least 10% of total stand area within the oak and wet woodlands and at least 30% within the ashhazel stands on deeper soils.
			Vegetation structure – woodland edge	Restore a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.
			Adaptation and resilience	Maintain the resilience of the H91A0 feature by ensuring a diversity (at least 10 species) of sitenative trees (eg oak, birch, holly, ash, sycamore, alder rowan, wych elm, cherry, willow) and a diversity (at least 5 species) of site-native shrubs (e.g. hazel, hawthorn, blackthorn, juniper, willow).
			Browsing and grazing by herbivores	Maintain grazing/browsing at a low level that allows a well-developed understorey of trees and shrubs
			Regeneration potential	Restore the potential for sufficient natural regeneration of desirable trees and shrubs as appropriate
			Tree and shrub species composition	Maintain a canopy and under-storey of which 95% is composed of site native trees and shrubs
			Key structural, influential and sitedistinctive species	Maintain the diversity and abundance of the species and species groups listed below to enable them to be a viable component of the H91A0 habitat; Site-native tree and shrub species (as listed in adaptation and resilience section above) Ground flora representative of relevant NVC community types (including transitional types) as listed in vegetation community composition section above. Assemblages of lichens, bryophytes, ferns and breeding birds strongly characteristic of western acidic oak woodland
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H91A0 feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H91A0 habita
			Root zones of ancient trees	Maintain the soil structure within and around the root zones of the mature and ancient tree cohort in an un-compacted conditio
			Air quality	Restore the concentrations and deposition of air pollutants to within the site-relevant Critical Load or Level values given for this H91A0 feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Hydrology	At a site, unit and/or catchment level, maintain natural hydrological processes to provide the conditions necessary to sustain the H91A0 feature within the site
			Illumination	Ensure artificial light is maintained at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H91A0 feature and its typical species at this site.
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain or restore the structure, functions and supporting processes associated with the H91A0 feature
		Supplementary Advice for Qualifying Features: H4030. European dry heaths; H4010. Northern Atlantic wet heaths with Erica tetralix; Wet heathland with cross-leaved heath		
			Extent of the feature within the site	Maintain the total extent of the H4030 feature at 55 hectares. Maintain the total extent of the H4010 feature at 12.64 hectares

		Extent and distribution of the feature. Structure and function (including its typicalspecies). Structure and function (including its Typical species) Supporting processes (on which the feature relies).	Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H4030 and H4010 features, including where applicable their component vegetation types, across the sit
			Vegetation community composition	Ensure the component vegetation communities of the H4030 feature are referable to and characterised by the following National Vegetation Classification types: H12 Calluna vulgaris-Vaccinium myrtillis heath and H10 Calluna vulgaris- Erica cinerea heathland Ensure the component vegetation communities of the H4010 feature are referable to and characterised by the following National Vegetation Classification type: 15 Tricophorum cespitosum – Erica terralix wet heath
			Vegetation community transitions	Restore areas of transition between the features and communities which form other heathland-associated habitats, such as wet heath, mires, fen, scrub and woodland.
			Vegetation structure: cover of dwarf shrubs	Restore an overall cover of dwarf shrub species of at least 50% of the H4030 and H4010 features
			Vegetation composition: bracken cover	Restore a low cover of dense bracken (typically <10%) to the H4030 and H4010 features
			Vegetation structure: tree cover	Maintain the broadly open character of the H4030 and H4010 features, with a scattered cover of native trees and scrub (<25% cover)
			Vegetation structure: heather age structure	Maintain a diverse and natural age structure amongst the ericaceous shrubs typically found on the site.
			Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread: Agricultural weeds, Rhododendron.
			Key structural, influential and/or site distinctive species	Maintain the abundance of the species or species groups listed below to enable each of them to be a viable component of the H4030 and H4010 habitats; Dwarf shrubs as listed above Petty whin Genista anglica, Juniper Juniperus communis Assemblage of lichen and bryophyte species strongly characteristic of the heathland features Assemblage of bird species strongly characteristic of heathland features Cotton-grass Eriophorum angustifolium, deer-grass Trichophorum cespitosum, bog asphodel Narthecium ossifragum, sundew Drosera rotundifolia butterwort Pinguicula spp
			Functional connectivity with wider landscape	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Adaptation and resilience	Restore the H4030 and H4010 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H4030 and H4010 habitats.
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the H4030 and H4010 features
			Air quality	Restore the concentrations and deposition of air pollutants to within the site-relevant Critical Load or Level values given for this H4030 and H4010 features of the site on the Air Pollution Information System (www.apis.ac.uk).
			Water quality	Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the H4010 feature
			Hydrology	At a site, unit and/or catchment level maintain natural hydrological processes to provide the conditions necessary to sustain the H4010 feature within the site
	Rixton Clay Pits	The structure and function of the habitats of qualifying species The supporting processes on which the habitats of qualifying species rely The populations of qualifying species The extent and distribution of the	Overall Habitat Suitability Index score	For this SAC, maintain an overall Great Crested Newt (GCN) Habitat Suitability Index score of no less than 0.8
			Presence of ponds	Maintain the number of ponds present within the site (7 breeding ponds within site)
			Permanence of ponds	Maintain the permanence of water within ponds present within the site
			Cover of macrophytes	Maintain a high cover of macrohytes, typically between 50-80%, within ponds
			Supporting terrestrial habitat	Maintain the quality of terrestrial habitat likely to be utilised by Great Crested Newts, with no fragmentation of habitat by significant barriers to newt dispersal
			Shading of ponds	Ensure breeding pond perimeters are generally free of shade (typically no more than 60% cover of the shoreline)
			Presence of fish and wildfowl	Ensure fish and wildfowl are absent or rare in all ponds
			Water quality	Maintain the quality of pond waters within the site as indicated by the presence of an abundant and diverse invertebrate community.
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the great crested newt feature and/or its supporting habitats.

		habitats of qualifying species The distribution of qualifying species within the site	Adaptation and resilience	Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Maintain or restore, where necessary, concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Population abundance	Maintain the abundance of the Great Crested Newt population at a level which is consistently above 500 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.
			Population viability	Maintain the presence of great crested newt eggs in breeding ponds at a level which is likely to maintain the abundance of the population at or above its target level.
			Supporting metapopulation	Maintain the connectivity of the SAC's great crested newt population with any associated meta-populations (either within or outside of the site boundary)
			Distribution of supporting habitat	Maintain the distribution and continuity of the great crested newt's supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site
	Roudsea Wood & Mosses	Supplementary Advice for Qualifying Features: H7110 Active raised bogs (Priority feature)		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which qualifying natural habitats rely	Extent of the feature within the site	Restore the total extent of the H7110 feature to about 385 hectares
			Vegetation community composition	Ensure the component vegetation communities of the H7110 feature are referable to and characterised by the following National Vegetation Classification types: M18 Erica tetralix-Sphagnum papillosum raised and blanket mire M2 Sphagnum cuspidatum/Sphagnum recurvum bog pool community
			Structural diversity	Restore the full range of typical structural features associated with the H7110 feature at this site, e.g. vegetation cover, surface patterning and hydrological zonations
			Key structural, influential or distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of the H7110 Annex 1 habitat; Mixed assemblage of typical bryophytes (predominantly Sphagnum spp), Cyperaceae and dwarf shrubs (mainly Ericaceae); Nightjar Caprimulgus europaeus (at the edge of its range), adder Vipera berus, large heath butterfly Coenonympha tullia; Assemblage of bog invertebrates including bog bush cricket Metrioptera brachyptera, raft spider Dolomedes fimbriatus and rosy marsh moth Coenophila subrosea; The lagg on the western side of Deer Dike Moss supports large yellow-sedge Carex flava at one of its few sites in Britain
			Invasive, non-native and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7110 feature
			Supporting off-site habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the H7110 feature
			Hydrology	At a site level, restore natural hydrological processes to provide the conditions necessary to sustain the H7110 feature within the site
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the rain-fed bog at a low nutrient status
			Soils, substrate and nutrient cycling	Restore the properties of the underlying peat type, including its structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, to within typical values for H7110 Active Raised Bog habitat
			Adaptation and resilience	Restore the H7110 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the H7110 feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Conservation measures	Maintain the management measures within and outside the site boundary which are necessary to restore the structure, functions and supporting processes associated with the H7110 feature
		Supplementary Advice for Qualifying Features: H7120 Degraded raised bogs still capable of natural regeneration		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of	Extent of the feature within the site	Avoid the further degradation of the extent of the H7120 feature, whilst restoring the H7120 feature to H7110 Active Raised Bog by 2035
			Vegetation community composition	Restore the component vegetation communities of the H7210 feature to those resembling and characterised by the following National Vegetation Classification type(s) typical of H7110 Active Raised Bog; M2 Sphagnum cuspidatum/ recurvum bog pool community M18 Erica tetralix – Sphagnum papillosum raised and blanket mire
			Soils, substrate and nutrient cycling	Avoid the further degradation of the peat substrate of the H7120 feature and restore its properties, including its structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, to within typical values for H7110 Active Raised Bog habitat

		qualifying natural habitats The supporting processes on which qualifying natural habitats rely	Structural diversity	Restore the full range of structural features (vegetation cover, surface patterning and hydrological zonations) typically associated with H7110 Active Raised Bog to the H7120 feature at this site.
			Key structural, influential or distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of H7110 Active Raised Bogs; Mixed assemblage of typical bryophytes (predominantly Sphagnum spp), Cyperaceae and dwarf shrubs (mainly Ericaceae); Nightjar Caprimulgus europaeus (present at the edge of its UK range), adder Vipera berus, large heath butterfly Coenonympha tullia; Assemblage of invertebrates including bog bush cricket Metrioptera brachyptera, raft spider Dolomedes fimbriatus and rosy marsh moth Coenophila subrosea; The lagg on the western side of Deer Dike Moss supports Large yellow-sedge Carex flava at one of its few sites in Britain
			Invasive, non-native and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, and if present are causing minimal damage to the feature
			Hydrology	At a site level, restore natural hydrological processes to provide the conditions necessary to restore H7120 degraded bog to H7110 active bog.
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the rain-fed bog at a low nutrient status.
			Air quality	Restore the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes for restoration to H7110 Active Raised Bog
		Supplementary Advice for Qualifying Features: H9180 Tilio-Acerion forests of slopes, screes and ravines (priority feature)		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H9180 feature at around 18 hectares, and, Maintain the total extent of woodland types present in transition with the H9180 feature,including; • Wet woodland on acid peats • Dry acid woodland on Silurian Shales
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H9180 feature, including where applicable its component and transitional vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H9180 feature are referable to and characterised by the following National Vegetation Classification types; W8/9 (including yew groves that may be mapped as W13)
			Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the feature, which will typically be between 40- 90% of the H9180 feature
			Vegetation structure - open space	Maintain areas of permanent/temporary open space within the H9180 woodland feature, typically to cover approximately 10% of area
			Vegetation structure - old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the H9180 feature at any one time) and the cohort of veteran and ancient trees (typically >10 trees per hectare).
			Vegetation structure - dead wood	Restore the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m^3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare
			Vegetation structure - age class distribution	Restore at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees
			Vegetation structure - shrub layer	Maintain an understorey of shrubs covering 20 - 60% of the woodland stand area
			Vegetation structure - woodland edge	Maintain a graduated woodland edge from the H9180 feature into adjacent semi-natural open habitats, such as bog, river margin and acidic and wet woodland
			Adaptation and resilience	Maintain the resilience of the H9180 feature by ensuring a diversity of site-native trees (at least 4 site-native tree species e.g. ash/ small-leaved lime/ sycamore/ rowan/ bird cherry/ birch) is present across the site
			Browsing and grazing by herbivores	Restore browsing to a (low) level that allows well developed understorey with no obvious browse line, & lush ground vegetation with some grazing sensitive species evident (bramble, ivy etc), and tree seedlings and sapling common in gaps
			Regeneration potential	Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate.
			Key structural, influential or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H9180 habitat; Species defining the component NVC types of W8 and W9 types which include; ash Fraxinus excelsior; oak Quercus robur; hazel Corylus avellana; yew Taxus baccata falsebrome Brachpodium sylvaticum; pignut Conopodium majus; meadowsweet Filipendula ulmaria; Herb Robert

				Geranium robertianum; wood avens Geum urbanum; ivy Hedera helix dog's mercury Mercurialis perennis; barren strawberry Potentilla sterilis; bramble Rubus fruticosus; common dogviolet Viola riviniana Distinctive flora of this feature; small-leaved lime Tilia cordata wych elm Ulmus glabra wild cherry Prunus avium spindle Euonymus europaeus fingered sedge Carex digitata wild service-tree Sorbus torminalis Distinctive fauna of this feature; hazel dormouse Muscardinus avellanarius Rare and threatened fungi; Cortinarius praestans Strobilomyces floccopus Hygrocybe calyptriformis Limacella glioderma Russula lundellii Russula aurata Nationally scarce bryophytes Rossetti's Pouncewort Cololejeunea rossettiana Lesser Striated Feathermoss Eurhynchium (Plasteurhynchium) striatulum
			Invasive, non-native and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H9180 feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal :bacterial ratio, to within typical values for the H9180 habitat.
			Functional connectivity	Maintain the overall with wider landscape extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk
			Hydrology	At a site, unit and/or catchment level, maintain natural hydrological processes to provide the conditions necessary to sustain the H9180 feature within the site
			Illumination	Ensure artificial light is maintained to a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H9180 feature and its typical species at this site
		Supplementary Advice for Qualifying Features: H9110 Taxus baccata woods of the British Isles (Priority feature)		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H9110 feature at 2.43 hectares
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H9110 feature, including where applicable its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H9110 feature are referable to and characterised by the following National Vegetation Classification types; W8/9 or W13 (yew groves may be mapped as W13
			Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the H9110 feature, which will typically be between 40-100%
			Vegetation structure – old growth	Restore the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 50% of the feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).
			Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare
			Vegetation structure – age class distribution	Restore at least 2 age classes (eg pole stage, mature, veteran) spread across the average life expectancy of the trees
			Vegetation structure – shrub layer	Maintain an understorey of shrubs that is sparse under the yew canopy
			Vegetation structure – Woodland edge (graduated edge; buffered; mosaics with other habitats)	Maintain a graduated woodland edge into adjacent semi-natural open habitats, such as bog, upper estuarine habitats and river margin.
			Adaptation and resilience	Restore the resilience of the H9110 feature by ensuring a diversity of site-native tree species; although yew dominates, this can be provided by a scattering of one or more of whitebeam, ash, birch, sycamore and oak.
			Regeneration potential	Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate
			Tree and shrub species composition	Maintain a canopy and understorey of which 95% is composed of site native trees and shrubs
			Key structural, influential or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H9110 Annex 1 habitat;

				Yew Taxus baccata All species listed in Table 3 as key species can also occur with yew
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H9110 feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H9110 habitat
			Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site the site
			Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this H9110 feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Hydrology	Maintain natural hydrological processes to provide the conditions necessary to sustain the H9110 feature within the site
			Illumination	Ensure artificial light is maintained at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H9110 feature and its typical species at this site
	South Solway Mosses	Supplementary Advice for Qualifying Features: H7110. Active raised bogs		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H7110 feature at approximately 1504 hectares
			Vegetation community composition	Ensure the component vegetation communities of the H7110 feature are referable to and characterised by the following National Vegetation Classification types: M18 Erica tetralixSphagnum papillosum raised and blanket mire M2 Sphagnum cuspidatum/Sphag num recurvum bog pool community Bog Woodland as described by nvc communities: W18 Pinus sylvestris – Hylocomium splendens woodland and W4c Betula pubescens – Molinia caerulea woodland, Sphagnum subcommunity
			Structural diversity	Maintain the full range of typical structural features associated with the H7110 feature at this site, e.g. vegetation cover, surface patterning, pools and hydrological zonations
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7110 feature
			Supporting off-site habitat	Maintain the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the H7110 feature
			Hydrology	At a site level, restore natural hydrological processes to provide the Conditions necessary to sustain the H7110 feature within the site
			Key structural, influential or distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of the H7110 Annex 1 habitat; Peat-forming species including hyophytes (predominantly Sphagnum spp), Cyperaceae (cotton grasses) and dwarf shrubs (mainly Ericaceae), Bog rosemary Andromeda polifolia, common and intermediate sundew Drosera rotundifolia and Intermedia Empetrum nigrum, Bog Asphodel Narthecium ossifragum and Cranberry Vaccinium oxycoccos Underlying SSSI Breeding bird Assemblage large heath butterfly Coenonympha tullia
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the rain-fed bog at a low nutrient status
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H7110 habitat.
			Adaptation and resilience	Restore the H7110 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Maintain the concentrations and deposition of air pollutants at or below the siterelevant Critical Load or Level values given for the H7110 feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the H7110 feature
		Supplementary Advice for Qualifying Features: H7120. Degraded raised bogs still capable of natural regeneration		
		The extent and distribution of qualifying natural habitats	Extent of the feature within the site	Restrict the further degradation of the extent of the H7120 feature, whilst restoring 452 hectares of the H7120 feature to H7110 Active Raised Bog
			Soils, substrate and nutrient cycling	Restrict further degradation of the peat substrate of the H7120 feature and restore the properties of the underlying peat type, including its structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, to within typical values for H7110 Active Raised Bog habitat.

		The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Vegetation community composition	Restore the component vegetation communities of the H7210 feature to those resembling and characterised by the following National Vegetation Classification type(s) typical of H7110 Active Raised Bog as listed above
			Structural diversity	Restore the full range of structural features (e.g. vegetation cover, surface patterning and hydrological transitions) typically associated with H7110 Active Raised Bog to the H7120 feature at this site.
			Key structural, influential or distinctive species	Restore the abundance of the species listed below to enable each of them to become a viable component of the H7110 active rather than degraded Annex 1 habitat; Peat-forming species including typical bryophytes (predominantly Sphagnum spp), Cyperaceae (cotton grasses) and dwarf shrubs (mainly Ericaceae), Willow tit Poecile montanus, White faced darter dragonfly Leucorrhinia dubia Marsh fritillary butterfly Euphydryas aurinia Underlying SSSI Breeding bird Assemblage
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, and if present are not undermining the restoration of the H7120 feature
			Supporting off-site habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the restoration of the H7120 raised bog feature
			Hydrology	At a site level, restore natural hydrological processes to provide the water levels and conditions necessary to prevent further degradation of the H7120 feature within the site and to enable its restoration to H7110 active raised bog
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the rain-fed bog at a low nutrient status.
			Adaptation and resilience	Restrict the further degradation of the H7120 feature's ability, and that of its supporting processes, to ensure that the feature can adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Maintain as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes for restoration to H7110 Active Raised Bog
	Subberthwaite, Blawith & Torver Low Commons Tyne & Nent	Supplementary Advice for Qualifying Features: H7140. Transition mires and quaking bogs and H7150. Depressions on peat substrates of the Rhynchosporion		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Restore the combined total extent of the H7140 and H7150 features to 308 ha
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H7140 and H7150 features, including here applicable their component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H7140 and H7150 features include and are characterised by the following National Vegetation Classification types; M1 Sphagnum auriculatum bog pools M2 Sphagnum cuspidatum/ recurvum bog pools M4 Carex rostrata – Sphagnum recurvum mire M5 Carex rostrata – Sphagnum squarrosum mire M6 Carex echinata – Sphagnum recurvum/auriculatum mire M8 Carex rostrata – Sphagnum warnstorfii mire M9 Carex rostrata – Calliergon cuspidatum/giganteum mire M10 Carex dioica – Pinguicula vulgaris mire M17 Scirpus cespitosus – Eriophorum vaginatum blanket Mire M21 Narthecium ossifragum – Sphagnum papillosum valley mire M29 Hypericum elodes – Potamogeton polygonifolius soakway M30 Related vegetation of seasonally inundated habitats S27 Carex rostrata – Potentilla palustris tall herb fen
			Key structural, influential and site distinctive species: flora and fauna	Restore the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitats; Andromeda polifolia, Angelica sylvestris, Calluna vulgaris, Caltha palustris, Cardamine pratensis, Carex diandra, Carex nigra, Carex rostrata, Carex spp: small to medium sized spp, Drosera spp, Epilobium palustre, Equisetum fluviatile, Equisetum fluviatile, Erica spp, Eriophorum angustifolium, Eriophorum vaginatum, Galium palustre, Hydrocotyle vulgaris, Hypericum elodes, Lysimachia vulgaris, Lythrum salicaria, Mentha aquatica, Menyanthes trifoliata, Myrica gale, Narthecium ossifragum, Non-crustose lichens, Phragmites australis, Pleurocarpous mosses, Potamogeton

				polygonifolius, Potentilla palustris, Racomitrium lanuginosum, Rhynchospora alba, Selaginella selaginoides, Sphagnum spp, Succisa pratensis, Trichophorum cespitosum, Vaccinium spp, Valeriana dioica, Viola palustris
			invasive, nonnative and/or introduced species	Ensure invasive and introduced on-native species are either rare or absent, but if present are causing minimal damage to the features
			Presence/cover of woody species	Maintain a low cover (<10% of the area) of scrub or trees within stands of H7140 and H7150
			Exposed substrate	Maintain a low cover of exposed substrate of between 5-10% across the H7140 and H7150 features
			Hydrology	At a site, unit and/or catchment level, restore natural hydrological processes to provide the conditions necessary to sustain the features within the site
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the two features at a low nutrient status.
			Hydrology	Maintain a high piezometric head and permanently high water table (allowing for natural seasonal fluctuations) on groundwater dependent mires.
			Adaptation and resilience	Maintain the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore the concentrations and deposition of air pollutants to within the site-relevant Critical Load or Level values given for these features of the site on the Air Pollution Information System (www.apis.ac.uk).
			Conservation measures	Restore those management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the two features
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H6130 feature at approximately 15 hectares and as part of a matrix with other vegetation types occurring within the site
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H6130 feature, including where applicable its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H6130 feature are referable to and characterised by the following National Vegetation Classification type; OV37 sheep's-fescue Festuca ovina – spring sandwort Minuartia verna grassland
			Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H6130 habitat; Thrift Armeria maritima, Pyrenean scurvy-grass Cochleria pyrenaica, spring sandwort Minuartia verna, sea campion Silene uniflora (= Silene vulgaris ssp maritima), alpine pennycress Thlaspi caerulescens, mountain pansy Viola lutea, moonwort Botrychium lunaria Assemblage of lichens associated with river hingle and metal-rich spoil
			Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread. Cow parsley Anthriscus sylvestris, thistles Cirsium arvense, Cirsium vulgare, Hogweed Heracleum sphondylium, Common nettle Urtica dioica, coarse grasses eg Arrhenatherum elatius, Holcus lanatus; woody species
			Vegetation community transitions	Maintain the pattern of naturally occurring zonations and transitions between the H6130 feature and other vegetation
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status, heavy metal concentration and fungal:bacterial ratio, to within typical values for the H6130 habitat.
			Hydrology: Flooding regime	Maintain the timing, frequency, extent and duration of surface flooding as appropriate to the maintenance/restoration of the H6130 feature
			Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the H6130 habitat
			Adaptation and resilience	Maintain the H6130 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the ite
			Air quality	Maintain the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain or restore the structure, functions and supporting processes associated with the H6130 feature
	Ullswater Oakwoods	The extent and distribution of qualifying natural habitats	Extent of the feature within the site	Restore the total extent of the H91A0 feature to 122.31 hectares.
			Spatial distribution of the feature within the site	Restore the distribution and configuration of the H91A0 feature, including where applicable its component vegetation types, across the site

		The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Vegetation community composition	Ensure the component vegetation communities of the H91A0 feature are referable to and characterised by the following National Vegetation Classification types: W11 Quercus petraea - Betula pubescens - Oxalis acetosella woodland, W17 Quercus petraea - Betula pubescens - Dicranum majus woodland Maintain transitions between these NVC types and other woodland types reflecting different soil types, especially transitions to; W9 Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis woodland, and W7 Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum woodland
			Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the H91A0 feature, which will typically be at least 80% canopy cover within the woodland stands
			Vegetation structure - open space	Maintain areas of permanent and temporary open space within the woodland typically to cover approximately 20% of area
			Vegetation structure – old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the H91A0 feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).
			Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically 6 fallen trees >30cm per hectare, and >6 standing dead trees per hectare
			Vegetation structure -age class distribution	Restore at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees
			Vegetation structure - shrub layer	Maintain an understorey (shrub layer of 2- 5metres) covering at least 10% of total stand area within the oak woodlands and at least 30% within the mixed stands with ash-hazel on deeper soils.
			Vegetation structure – woodland edge	Restore a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.
			Adaptation and resilience	Maintain the resilience of the H91A0 feature by ensuring a diversity (at least 10 species) of site native trees (eg oak, birch, holly, ash, sycamore, alder rowan, wych elm, cherry, willow) and a diversity (at least 5 species) of site-native shrubs (eg hazel, hawthorn, blackthorn, juniper, willow) across the site.
			Browsing and grazing by herbivores	Maintain browsing at a low level that allows well developed understorey
			Regeneration potential	Restore the potential for sufficient natural regeneration of desirable trees and shrubs
			Tree and shrub species composition	Maintain a canopy and under-storey of which 95% is composed of site-native trees and shrubs
			Key structural, influential and site distinctive species	Maintain the diversity and abundance of the species and species groups listed below to enable them to be a viable component of the H91A0 habitat; Tree and shrub species (as listed in adaptation and resilience section above) Ground flora representative of relevant NVC community types (including transitional types) as listed in vegetation community composition section above. Assemblages of lichens, bryophytes, ferns and breeding birds associated with western oak woods
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H91A0 feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H91A0 habitat.
			Root zones of ancient trees	Maintain the soil structure within and round the root zones of the mature and ancient tree cohort in an un-compacted condition
			Air quality	Restore the concentrations and deposition of air pollutants to within the site-relevant Critical Load or Level values given for this H91A0 feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Hydrology	At a site, unit and/or catchment level, maintain natural hydrological processes to provide the conditions necessary to sustain the H91A0 feature within the site
			Illumination	Ensure artificial light is maintained at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H91A0 feature and its typical species at this site.
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain or restore the structure, functions and supporting processes associated with the H91A0 feature
	Witherslack Mosses	Supplementary Advice for Qualifying Features: H7110. Active raised bogs		
		The extent and distribution of	Extent of the feature within the site	Restore the H7110 feature over the whole site

		qualifying natural habitats The structure and function (including typical species) of qualifying natural habitat The supporting processes on which the qualifying natural habitats rely	Vegetation community composition	Ensure the component vegetation communities of the H7110 feature are preferable to and characterised by the following National Vegetation Classification types; M18 Erica tetralixSphagnum papillosum raised and blanket mire M2 Sphagnum cuspidatum/ recurvum bog pool community
			Structural diversity	Restore the full range of typical structural features associated with the H7110 feature at this site, e.g. vegetation cover, surface patterning and hydrological zonations
			Key structural, influential and/or distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of H7110 Active Raised Bog habitat; 1. Mixed assemblage of typical bryophytes (predominantly Sphagnum spp), Cyperaceae and dwarf shrubs (mainly Ericaceae) 2.Assemblage of Herptiles -common toad Bufo bufo, adder Vipera berus, and common lizard Zootoca(Lacerta) vipera 3. Large heath butterfly Coenonympha tullia 4. Plants Labrador tea Rhododendron groenlandicum, Bogsedge Carex limosa Oblong-leaved Sundew Drosera intermedia and Veilwort Pallavicinia lyellii 5. Assemblage of wet mire invertebrates (including bog bush cricket Metrioptera brachyptera)
			Invasive, non-native and/or introduced species	Ensure invasive and introduced nonnative species are either rare or absent, but if present are causing minimal damage to the H7110 feature
			Supporting off-site habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the H7110 feature
			Hydrology	At a site, unit and/or catchment level (as necessary, restore natural hydrological processes to provide the conditions necessary to sustain the H7110 feature within the site
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the H7110 feature at a low nutrient status.
			Soils, substrate and nutrient cycling	Restore the properties of the underlying peat, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for H7110 Active Raised Bogs.
			Adaptation and resilience	Restore the H7110 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore the concentrations and deposition of air pollutants to at or below the site relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Functional connectivity with wider landscape	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the H7110 feature
		Supplementary Advice for Qualifying Features: H7120. Degraded raised bogs still capable of natural regeneration		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitat The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Avoid further degradation of the extent of the H7120 feature, whilst restoring the H7120 feature to H7110 Active Raised Bogs by 2035
			Soils, substrate and nutrient cycling	Avoid further degradation of the peat substrate of the H7120 feature and restore the properties of the underlying peat type, including its structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, to within typical values for H7110 Active Raised Bog habitat.
			Vegetation community composition	Restore the component vegetation communities of the H7210 feature to those resembling and characterised by the following National Vegetation Classification type(s) typical of H7110 Active Raised Bog; M18 Erica tetralix-Sphagnum papillosum raised and blanket mire M2 Sphagnum cuspidatum/ Sphagnum recurvum bog pool community (mire expanse and rand) M4 Carex rostrata-Sphagnum recurvum mire M6 Carex echinata-Sphagnum recurvum/auriculatum mire M23 Juncus effusus/acutiflorusGalium palustre rush-pasture M25 Molinia caerulea-Potentilla erecta mire M27 Filipendula ulmariaAngelica sylvestris mire S4 Phragmites australis swamp & reedbeds S27 Carex rostrata-Potentilla palustris fen W5 Alnus glutinosa – Carex paniculata woodland W6 Alnus glutinosa – Urtica dioica woodland (lagg)]
			Structural diversity	Restore the full range of structural features (e.g. vegetation cover, surface patterning and hydrological transitions) typically associated with H7110 Active Raised Bog to the H7120 feature at this site.

			Key structural, influential and/or distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of H7110 Active Raised Bog habitat; [see species listed for the H7110 feature in Table 1 above.]
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are not undermining the restoration of the H7120 feature
			Supporting offsite habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the restoration of the H7120 raised bog feature.
			Hydrology	At a site level, restore natural hydrological processes to provide the water levels and conditions necessary to prevent further degradation of the H7120 feature within the site and to enable its restoration to H7110 active raised bog
			Water chemistry	Maintain the surface water and groundwater supporting the hydrology of the H7120 feature at a low nutrient status.
			Adaptation and resilience	Avoid the further degradation of the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes for restoration to H7110 Active Raised Bog
	Castle Eden Dene	The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitat The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H91J0 feature (including its transitions to other habitats) at 194.40 hectares.
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H91J0 feature, including where applicable its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H91J0 feature are referable to and characterised by the following National Vegetation Classification type, Yew woodland W13b Taxus baccata; Mercurialis perennis sub-community
			Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the H91J0 feature, which will typically be >75% of the canopy on site
			Vegetation structure - open space	Maintain areas of permanent/temporary open space within the H91J0 woodland feature, typically to cover approximately 10% of area
			Vegetation structure – old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 50% of the H91J0 feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).
			Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare
			Vegetation structure – age class distribution	Maintain at least 2 age classes (e.g. pole stage, mature, veteran) spread across the average life expectancy of the trees – which can be hundreds of years.
			Vegetation structure - shrub layer	Maintain a typically sparse understorey under the yew canopy, with occasionally present shrubs (e.g. holly, hawthorn, elder)
			Vegetation structure – Woodland edge (graduated edge; buffered; mosaics with other habitats)	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.
			Adaptation and resilience	Maintain the resilience of the H91J0 feature by ensuring a diversity of site-native tree species; although yew dominates, this can be provided by a scattering of one or more of whitebeam, ash, beech, sycamore and oak.
			Regeneration potential	Maintain the H91J0 feature's potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate
			Tree and shrub species composition	Maintain a canopy and understorey of which 95% is composed of site native trees and shrubs. These include yew Taxus baccata, hazel Corylus, oak Quercus, ash Fraxinus, alder Alnus glutinosa hawthorn Crataegus spp., wild cherry Prunus avium and rowan Sorbus aucuparia.
			Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H91J0 habitat; Taxus baccata Euonymus europaea Ulmus glabra Mercurialis perennis Assemblage of woodland invertebrates
			Invasive, nonnative and/or introduced Species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H91J0 feature

			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H91J0 habitat
			Functional connectivity with wider landscape	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the SAC
			Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (APIS).
			Hydrology	At a site level maintain natural hydrological processes to provide the conditions necessary to sustain the H91J0 feature within the site
			Illumination	Ensure artificial light is maintained to a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H91J0 feature and its typical species at this site.
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the H91J0 feature
	Newham Fen	The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitat The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Extent of the feature within the site	Maintain the total extent of the H7230 alkaline fen feature at not less than 1.4 hectares, comprising at least 0.7 ha of M13/M9 vegetation and 0.7 ha of transitional habitat to S25/W2 vegetation
			Distribution of the feature	Maintain the current distribution and configuration of the H7230 alkaline fen feature, including its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H7230 alkaline fen feature are preferable to and characterised by the following National Vegetation Classification type(s); M13 Schoenus nigricans – Juncus subnodulosus mire (black bogrush and blunt-flowered rush) M9 Carex rostrata – Calliergon cuspidatum/giganteum mire (bottle sedge, pointed spearmoss, giant spear-moss) S25 Phragmites australis – Eupatorium cannabinum tall-herb fen (common reed – hemp agrimony)
			Invasive, nonnative and/or introduced species	Ensure invasive non-native species are either rare or absent components of the H7230 alkaline fen feature.
			Presence/ cover of woody species	Maintain a low cover of woody species in the open alkaline fen area of not more than 10% scrub/tree cover. No woody species in flushes or springs; low Salix sp acceptable more than 5m from edge of spring/flush feature.
			Browsing and grazing by herbivores	Maintain an appropriate level of grazing within the site
			Typical species: flora and fauna	Maintain the abundance of the typical species listed below to enable each of them to be a viable component of the H7230 Annex 1 habitat; Carex diandra (Newham Fen is the only Northumberland location for this species), Carex lasiocarpa, Eriophorum angustifolium, Lycopus europaeus, Sium latifolium (reintroduction), Stellaria palustris, Potamogeton polygonifolius, P. Coloratus, Dactylorhiza traunsteineri, Corallorhiza trifida, Salix myrsinifolia and Pyrola rotundifolia Assemblage of fenland invertebrates
			Water chemistry	Maintain irrigating water supplying the H7230 alkaline fen feature with low fertility and is very rich in base ions (alkalinity > 130 mg l–1 CaCO3)
			Hydrology	At a site, unit and/or catchment level (as necessary), maintain natural hydrological processes to provide the conditions necessary to sustain the H7230 alkaline fen feature within the site, including a high piezometric head and permanently high water table (allowing for natural seasonal fluctuations).
			Adaptation and resilience	Maintain the alkaline fen's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Functional connectivity with the wider landscape	Maintain the Winlaw Burn (in terms of its present extent, quality and function as a watercourse) as a supporting feature within the local landscape which has a critical functional connection with the SAC
			Air quality	Maintain or restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the H7230 feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Conservation measures	Maintain management or other measures (within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the H7230 alkaline fen feature.
	North York Moors	Supplementary Advice for Qualifying Features: H4010. Northern Atlantic wet heaths with Erica tetralix; Wet heathland with crossleaved heath and H4030. European dry heaths		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitat	Extent of the feature within the site	Maintain the total extent of the H4010 feature at 7,751ha Maintain the total extent of the H4030 feature at 24,769ha
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H4010 and H4030 features, including where applicable its component vegetation types, across the site
			Vegetation community transitions	Maintain any areas of transition between the H4010 and H4030 features and communities which form other heathland associated habitats, such as dry and humid heaths, mires, acid grasslands, scrub and woodland
			Vegetation community composition	Ensure the component vegetation communities of the features are generally referable to and characterised by the following National Vegetation Classification types;

		The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely		H4010 wet heath M16 - Erica tetralix – Sphagnum compactum wet heath, and/or as mosaics with H9 - Calluna vulgaris – Deschampsia flexuosa heath, H10 - Calluna vulgaris – Erica cinerea heath, M6 - Carex echinate – Sphagnum recurvum/ auriculatum mire or M25 – Molinia caerulea – Potentilla erecta mire. H4030 dry heath H9 - Calluna vulgaris – Deschampsia flexuosa heath, H10 - Calluna vulgaris – Erica cinerea heath or 12 – Calluna vulgaris – Vaccinium myrtillus heath;
			Vegetation structure: cover of dwarf shrubs	Maintain or restore an overall cover of dwarf shrubs to the H4010 and H4030 features which is typically between 25- 90%
			Vegetation structure: heather age structure	Maintain or restore a diverse age structure amongst the ericaceous shrubs typically found on the site
			Vegetation structure: cover of gorse	Maintain a low cover of common gorse typically at <10%
			Vegetation structure: tree cover	Maintain the open character of the H4010 and H4030 features, with a typically scattered and low cover of trees and scrub (<20% cover)
			Vegetation composition: bracken cover	Maintain a low cover of dense bracken (typically at <5%)
			Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of both Annex 1 habitats; Calluna vulgaris, Empetrum nigrum, E. cinerea, E.tetralix, Myrica gale, Salix repens, Vaccinium spp. Carex panicea, Eleocharis spp., Eriophorum angustifolium, Juncus acutiflorus, Juncus articulatus, Molinia caerulea, Trichophorum cespitosum, Narthecium ossifragum, Potentilla erecta.
			Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread; Rhododendron ponticum, Gaultheria shallon, Fallopia japonica, Apium nodiflorum, Cirsium arvense, Digitalis purpurea, Epilobium spp. (excl. E. palustre), Glyceria fluitans, Juncus effusus, J. squarrosus, Oenanthe crocata, Phragmites spp., Ranunculus repens, Fallopia japonica, Senecio jacobaea, Rumex obtusifolius, Typha spp., Urtica spp. Alnus glutinosa, Betula spp., Prunus spinosa, Pinus spp., Rubus spp., Quercus spp. Acrocarpous mosses; Phytophthora disease
			Functional connectivity with wider landscape	Maintain or restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Adaptation and resilience	Maintain or restore the H4010 and H4030 features ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain or restore the structure, functions and supporting processes associated with the 4010 and H4030 features
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, within typical values for the H4010 and H4030 habitats.
			Air quality	Restore the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for these features of the site on the Air Pollution Information System (www.apis.ac.uk).
			Water quality	Maintain or restore water quality and quantity to a standard which provides the necessary conditions to support the H4010 feature.
			Hydrology	At a site, unit and/or catchment level (as necessary), maintain the natural hydrological regime to provide the conditions necessary to sustain the H4010 feature within the site
		Supplementary Advice for Qualifying Features: H7130. Blanket bogs		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitat The supporting processes on which qualifying natural habitats and the	Extent of the feature within the site	Maintain the total extent of the H7130 feature of 4,207 ha
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H7130 feature, including where applicable its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H7130 feature are referable to and characterised by the following National Vegetation Classification types; M18 Erica tetralix – Sphagnum papillosum raised and blanket mire M19 Calluna vulgaris – Eriophorum vaginatum blanket mire.
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7130 feature
			Presence /cover of woody species	Maintain a low cover of scrub or trees within stands of H7130 (<10% of the area).

		habitats of qualifying species rely	Vegetation composition: undesirable species	The following undesirable competitive species should be absent or rare (individually and collectively less than 1% of vegetation cover); common bent-grass Agrostis capillaris, Yorkshire fog Holcus lanatus, common reed Phragmites australis, bracken Pteridium aquilinum, creeping buttercup Ranunculus repens
			Structural diversity	Maintain or Restore the full range of typical structural features associated with the H7130 feature at this site, e.g. vegetation cover, surface patterning and hydrological zonation.
			Physical structure: ground disturbance (and peat erosion)	Ensure significant areas of disturbed and eroding bare ground are either absent or where present, are temporary and typically do not exceed 1% of the total extent of the H7130 feature
			Soils, substrate and nutrient cycling	Maintain or restore the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungi/bacteria ratio, to within typical values for the H7130 habitat. For this feature the peat substrate should consist of both acrotelm and catotelm layers.
			Adaptation and resilience	Restore the H7130 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Key structural, influential and/or site distinctive species	Maintain or Restore the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat; Sphagnum spp., Calluna vulgaris, Vaccinium spp., Eriophorum spp.,Trichophorum cespitosum, Andromeda polifolia, Drosera rotundifolia, Empetrum nigrum.
			Air quality	Restore the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Hydrology	At a site, unit and/or catchment level (as necessary), maintain the natural hydrological processes to provide consistently near-surface water levels necessary to sustain the H7130 fature within the site
			Conservation measures	Maintain or restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain or restore the structure, functions and supporting processes associated with the H7130 feature
	Simonside Hills	Supplementary Advice for Qualifying Features: H4030. European dry heaths		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H4030 feature at 1500 hectares.
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H4030 feature, including where applicable its component vegetation types, across the site.
			Vegetation community composition	Ensure the component vegetation communities of the H4030 feature are referable to and characterised by the following National Vegetation Classification type: H12 Calluna vulgaris – Vaccinium myrtillus heath
			Vegetation community transitions	Maintain any areas of transition between the H4030 feature and other heathland-associated habitats, such as blanket bog, acid grasslands, scrub and woodland
			Vegetation structure: cover of dwarf shrubs	Maintain an overall cover of dwarf shrub species across the H4030 feature which is typically between 25-75%
			Vegetation composition: bracken cover	Restore a low cover of dense bracken (typically at <5%) across the H4030 feature
			Vegetation structure: cover of gorse	Maintain the cover of common gorse Ulex europaeus at <50%
			Vegetation structure: tree cover	Maintain the open character of the H4030 feature, with a typically scattered and low cover of trees and scrub (<20% cover)
			Vegetation structure: heather age structure	Maintain a diverse age structure amongst the ericaceous species typically found on the site
			Vegetation: undesirable species	Maintain the frequency/cover of undesirable species at within acceptable levels of <1% and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread. Undesirable species include: Cirsium arvense; Cirsium vulgare; Rumex acetosa; Ranunculus repens; or Urtica dioica All invasive non-native species are included as undesirable species
			Key structural, influential and distinctive species E.cinerea, Vaccinium myrtillus, Empetrum nigrum and V.vitisidaea	Maintain the abundance of the species listed below to enable each of them to be a viable component of this H4030 Annex 1 habitat; Calluna vulgaris, Erica tetralix,
			Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Adaptation and resilience	Maintain the H4030 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site

			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values this H4030 habitat.
			Conservation measures	Maintain the management measures (within the site boundary which are necessary to maintain the structure, functions and supporting processes associated with the H4030 feature.
			Air quality	Maintain as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (APIS).
		Supplementary Advice for Qualifying Features: H7130. Blanket bogs		
		The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of H7130 blanket bog habitat feature at 279.4 ha
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H7130 feature, including where applicable its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H7130 feature are referable to and characterised by the following National Vegetation Classification type(s): M18 Erica tetralix – Sphagnum papillosum raised and blanket mire M19 Calluna vulgaris – Eriophorum vaginatum blanket mire
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7130 feature
			Presence/ cover of woody species	Maintain a low cover (<10 % of the area) of scrub or trees within stands of H7130.
			Vegetation composition: undesirable species	Ensure the following undesirable competitive species are either absent or rare (individually and collectively less than 1% of vegetation cover); common bent-grass Agrostis capillaris, Yorkshire fog Holcus lanatus, common reed Phragmites australis, bracken Pteridium aquilinum, creeping buttercup Ranunculus repens.
			Structural diversity	Maintain the full range of typical structural features associated with the H7130 feature at this site, e.g. vegetation cover, surface patterning and hydrological zonations
			Physical structure: ground disturbance (and peat erosion)	Restrict and restore significant areas of disturbed and eroding bare ground. Where present, any affected areas should typically not exceed 1% of the total feature, and be considered only as a temporary stage.
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungi:bacteria ratio, to within typical values for the H7130 habitat. For this feature the peat substrate should consist of both acrotelm and catotelm layers.
			Adaptation and resilience	Maintain the H7130 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitat; Calluna vulgaris, Erica tetralix, E.cinerea, Vaccinium myrtillus, Empetrum nigrum, V.vitis-idaea, Drosera spp., Eriophorum angustifolium, E. vaginatum Assemblage of Sphagnum mosses.
			Air quality	Restore as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (APIS)
			Hydrology	At a site, unit and/or catchment level (as necessary), maintain and where site specific restore the natural hydrological processes to provide consistently near-surface water levels necessary to sustain the H7130 feature within the site
			Conservation measure	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the H7130 feature
	Tyne & Allen River Gravels	The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H6130 feature at 8.3 hectares.
			Distribution of the feature within the site	Maintain the current distribution and configuration of the H6130 feature, including where applicable, its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H6130 habitat include and are characterised by the following National Vegetation Classification types; OV37 Festuca ovina – Minuartia verna.
			Key structural, influential and site distinctive species: flora and fauna	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H6130 habitat; Assemblage of lichens and bryophytes Thrift Armeria maritima, Pyrenean scurvey-grass Cochleria pyrenaica, Spring sandwort Minuartia verna,Silene uniflora (= Silene vulgaris ssp maritima), Alpine pennycress Thlaspi caerulescens, Mountain pansy Viola lutea, Dune helleborine Epipactis helleborine var. youngiana,
			Undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread; Anthriscus sylvestris, Cirsium arvense, Cirsium vulgare, Heracleum

				sphondylium, Urtica dioica, Coarse grasses eg Arrhenatherum elatius, Holcus lanatus, and Himalayan balsam (Impatiens glandulifera) or other non-native species.
			Vegetation community transitions	Maintain the pattern of natural vegetation zonations associated with the H6130 feature.
			Hydrology: Flooding regime	Maintain the timing, frequency, extent and duration of surface flooding commensurate with the maintenance of the H6130 feature
			Supporting off-site supply of heavy metals (river shingle sites)	Maintain a supply of heavy metal enriched river-borne sediment to the SAC from within its surrounding catchment
			Functional Connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Air quality	Maintain the concentrations and deposition of air pollutants at below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain and/or restore the structure functions and supporting processes associated with the H6130 feature
	Bees Nest & Green Clay Pits	Supplementary Advice for Qualifying Features: 1166 Great crested newt Triturus cristatus		
		The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The populations of qualifying species, and, The distribution of qualifying species within the site.	Conservation measures	Management or other measures, (within and outside the site boundary) which are necessary to maintain the structure, functions and supporting processes associated with the great crested newt feature are underway and are not being undermined or compromised.
			Extent of supporting terrestrial habitat	The extent of habitats which support the great crested newt feature are either being maintained at or recovering to a dynamic mosaic of bare ground and rock, scrub, tall and short acid and calcareous grassland, heathland, wet and flushed areas
			Distribution of supporting habitat	Maintain the distribution and continuity of habitat supporting the feature, including where applicable its component vegetation types and associated transitional vegetation types, across the site. The component elements of the habitat mosaic should be dynamic and may change over time, although a full range of successional states should always be present
			Adaptation and resilience of the feature and the supporting processes on which it relies	The feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site, is not prejudiced
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial PLFA ratio within typical values for the habitat
			Air quality	Maintain or restore as necessary the concentrations and deposition of air pollutants to at or below the siterelevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Overall Habitat Suitability Index score	For this SAC, maintain an overall Great Crested Newt Habitat Suitability Index score of no less than 0.8 for ponds 1A, 1C, IG, 1H and 1I (main breeding ponds) and no less than 0.6 for other breeding ponds.
			Presence of ponds	Maintain the number and surface area of at least 12 ponds present within the site
			Permanence of ponds	Maintain the permanence of water within ponds present within the site, with at least 50% of all ponds maintaining a summer water depth (mid-August to mid-September) of at least 10cm
			Cover of macrophytes	Maintain a high cover of macrophytes, typically between 50- 80%, within ponds 1A, 1C, IG, 1H and 1I (main breeding ponds).
			Quality of supporting terrestrial habitat	Maintain the quality of terrestrial habitat likely to be utilised by Great Crested Newts, with no fragmentation of habitat by significant barriers to newt dispersal.
			Shading of ponds	Pond perimeters should generally be free of shade (typically affecting less than 60% of the shoreline).
			Presence of fish and wildfowl	Fish and wildfowl are absent or rare in all ponds.
			Water quality	Maintain the quality of pondwaters within the site as indicated by the presence of an abundant and diverse invertebrate community.
			Population size	The size of the great crested newt population is being maintained at or above a peak mean of 381 individuals
			Population viability	The presence of great crested newt eggs in breeding ponds is consistently at a level which is likely to maintain the abundance of the population at or above its target level
			Supporting metapopulation	Maintain the connectivity of the SAC great crested newt population with other closely-associated populations (either within or outside of the site boundary)
		Supplementary Advice for Qualifying Features: H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone		
		The supporting processes on which	Extent of the feature within the site	Maintain the full extent of the H6210 grassland feature currently estimated to be approximately 9ha

		qualifying natural habitats and the habitats of qualifying species rely The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The populations of qualifying species, and, The distribution of qualifying species within the site.	Distribution of the feature, including associated transitional habitats, within the site	The distribution and continuity of the H6210 grassland feature, including where applicable its component vegetation types and associated transitional vegetation types, across the site is maintained
			Vegetation community composition	Ensure the component vegetation communities of the H6210 grassland feature are referable to and characterised by the following National Vegetation Classification types; CG2 Festuca ovina – Avenula pratensis lowland calcareous grassland; CG7 Festuca ovina - Hieracium pilosella – Thymus praecox grassland.
			Vegetation composition: proportion of herbs (including Carex spp)	The proportion of herbaceous species within the sward is being consistently maintained within the range 40%-90%
			Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H6210 grassland feature at this site; CG2: Anthyllis vulneraria, Campanula glomerata, Cirsium acaule, Filipendula vulgaris, Genista tinctoria, Gentianella spp., Helianthemum nummularium, Hippocrepis comosa, Leontodon hispidus/L. saxatilis, Leucanthemum vulgare, Linum catharticum, Lotus corniculatus, Pilosella officinarum (Hieracium pilosella), Plantago media, Polygala spp., Primula veris, Sanguisorba minor, Scabiosa columbaria, Serratula tinctoria, Succisa pratensis, Thymus spp CG7: Aira spp, Athanes spp, Astragalus danicus, Centaurium erythraea, Cladonia spp, Dianthus deltoids, Erigeron acer, Erodium cicutarium, Fragria vesca, Galium verum, Helianthemum nummularium, Leontodon hispidus/saxatilis, Lotus corniculatus, Pilosella officinarum, Rumex acetosella, Sedum acre, Thymus spp.
			Vegetation composition: undesirable species	The frequency/cover of the following undesirable species are maintained at acceptable levels as expressed below and are not encouraged by changes in surface condition, soils, nutrient levels or changes to hydrology; 1. No species/taxa more than occasional throughout the sward, or singly or together more than 5% cover: thistles Cirsium arvense, Cirsium vulgare, docks Rumex crispus, Rumex obtusifolius, ragwort Senecio jacobaea,common nettle Urtica dioica. 2. Cover of wavy hair-grass Deschampsia flexuosa should be not more than 20% 3. Cover of coarse grasses such as Yorkshire fog Holcus lanatus and cock'sfoot Dactylis glomerate should be not more than 10% 4. Cover of bracken Pteridium aquilinum should not be more than 10% 5. Cover of the grasses Brachypodium pinnatum and Bromopsis erecta should not be more than 10%
			Vegetation community transitions	Maintain the pattern of any natural vegetation zonations/transitions which form part of the H6210 grassland habitat, such as the scrub/grassland matrix.
			Soils, substrate and nutrient cycling	The properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial PLFA ratio, are maintained within typical values for the H6210 grassland habitat
			Air quality	Maintain as necessary concentrations and deposition of air pollutants to at or below the site relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Adaptation and resilience of the feature and the supporting processes on which it relies	The feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site, is not prejudiced
			Conservation measures	Management or other measures (within and/or outside the site boundary as appropriate) necessary to maintain the structure, functions and supporting processes associated with the H6210 grassland feature are underway and are not being undermined or compromised
	Morecambe Bay Pavements	Supplementary Advice for Qualifying Features: H3140. Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.; Calcium-rich nutrient-poor lakes, lochs and pools and H7210. Calcareous fens with Cladium mariscus and species of the Caricion davallianae; Calcium-rich fen dominated by great fen sedge (saw sedge)		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the	Extent of the features within the site	Restore the total extent of the H3140 feature to 8.2 ha Restore the total extent of the H7210 feature.
			Spatial distribution of the feature within the site	Restore the distribution and configuration of the H7210 feature, including where applicable its component vegetation types, across the site
			Invasive, nonnative and/or introduced species	Ensure non-native species categorised as 'high-impact' in the UK under the Water Framework Directive are either rare or absent but if present are causing minimal damage to the feature
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7210 feature
			Macrophyte community structure	Restore a characteristic zonation of macrophyte vegetation; Chara beds should normally cover a minimum of 50% of the photic zone, although extent will be variable according to site and seasonal changes.
			Macrophyte community structure	Maintain maximum depth of plant colonisation. This is likely to be the maximum depth colonised by Chara spp

		habitats of qualifying species The populations of qualifying species, and, The distribution of qualifying species within the site. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Macrophyte community structure	Maintain a characteristic and well defined hydrosere associated with the water body (where this is present)
			Physical structure - lake shoreline	Restore the natural shoreline of the lake at Hawes Water.
			Physical structure – lake substrate	Maintain the natural and characteristic substrate for the lake.
			Vegetation community composition	Ensure the component vegetation communities of the H7210 feature are referable to and characterised by the following National Vegetation Classification type: S2 Cladium mariscus swamp and sedge-beds
			Key structural, influential and/or distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of the H3140 feature; Cunswick Tarn (species believed to have been present) Chara aspera, C. curta, C. hispida, C. rudis, Potamogeton praelongus Schoenoplectus lacustris Hawes Water Chara aspera, Potamogeton lucens, P. coloratus, Fontinalis antipyretica, Schoenoplectus lacustris, Hippuris vulgaris, Utricularia spp. Maintain the abundance of saw sedge Cladium mariscus as the main component of the H7210 feature.
			Presence/ cover of woody species	Maintain a low cover of not more than 5%of scrub or trees within stands of H7210.
			Fisheries	Maintain a total projected estimate for biomass of total fish production at less than 200kg/ha (this should take into account the growth potential of the resident and stocked fish).
			Water chemistry	Maintain the low nutrient status of water irrigating the H7210 feature, ensuring it is rich in base ions, particularly calcium.
			Water quality - phosphate	Restore stable nutrient levels appropriate for lake type. The maximum annual mean concentration of TP is 10 µg P l-1 for deep (>3m) (Hawes Water) and 15 µg P l-1 for shallow (<3m) oligo-mesotrophic hard standing waters (Cunswick Tarn <3m).
			Water quality - nitrogen	Restore a stable nitrogen concentration, which will typically be between 1- 2mg/l. (1.5mgL-1 for Cunswick Tarn)
			Water quality – acidity	Maintain acidity levels to reflect unimpacted conditions - values of Acid Neutralising Capacity (ANC) should be typically pH 7.5-9.5 for oligomesotrophic hard lakes.
			Water quality – other pollutants	Restore water quality to'good'chemical status (i.e. compliance with relevant Environmental Quality Standards).
			Water quality – dissolved oxygen	Maintain dissolved oxygen levels at >6mg/l (for cyprinid waters) throughout the year.
			Water transparency	Restore the clarity of water to a depth of at least 3.5 metres
			Water quality - algae	Maintain chlorophyll at concentrations which comply with WFD high ecological status; blooms of blue-green or green algae should not occur.
			Hydrology	At a catchment level restore natural hydrological processes to provide the conditions necessary to sustain the features within the site
			Hydrology	Maintain a high piezometric head and permanently high water table (allowing for natural seasonal fluctuations) on groundwater dependent sites.
			Sediment load	Maintain the natural sediment load
			Supporting off-site habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the features
			Adaptation and resilience	Restore the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore the concentrations and deposition of air pollutants to within the siterelevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Functional onnectivity/isolation	Maintain the natural isolation of the water body and its lack of connectivity to other water bodies
			Conservation measures	Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to Restore the structure, functions and supporting processes associated with the H7210 feature
		Supplementary Advice for Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone, H4030. European dry heaths, H5130. Juniperus communis formations on heaths or calcareous grasslands		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of	Extent of the features within the site	Maintain and Restore as appropriate the total extent of the H6210 grassland feature to 513.7 ha grassland, including mosaics and transitions to heath, juniper scrub and other habitats. Restore the total extent of the H5130 juniper feature to 2.2 ha of dense juniper within 391 ha of juniper/grassland/heath/rock mosaic and presence in some component SSSIs (see Table A) Maintain the total extent of the H4030 heath feature occurring as a mosaic within 391 ha of grassland.
			Spatial distribution of the features within the site	Maintain the distribution and configuration of the H6210 grassland and H4030 heath features, including where applicable their component vegetation types, across the site Restore the distribution and configuration of the H5130 juniper feature, including where applicable its component vegetation types, across the site
			Vegetation structure - age class	Restore a population of Juniper comprising plants at different life stages; this should comprise phases of old growth (>100 years old), building to mature and pioneer/seedling (<5cm girth)

		qualifying natural habitats The structure and function of the habitats of qualifying species The populations of qualifying species, and, The distribution of qualifying species within the site. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Vegetation structure: heather age structure	Restore a diverse heather age structure to the H4030 feature
			Vegetation structure: cover of dwarf shrubs	Maintain and restore as appropriate an overall cover of dwarf shrub species which is typically between 25-90%
			Vegetation structure: cover of gorse	Maintain cover of common gorse Ulex europaeus at <5%
			Vegetation composition: bracken cover	Restore a cover of dense bracken which is low, typically at <10%
			Vegetation community composition	Ensure the component vegetation communities of the H6210 grassland and H4030 heath feature are referable to and characterised by the following National Vegetation Classification type (s); Calcareous grassland CG9a, CG9b Heath H9 and mosaics with calcareous grassland types
			Vegetation: proportion of herbs (including Carex spp)	Restore the proportion of herbaceous species within the H6210 feature to within the range 40%-90%
			Key structural, influential and/or distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitat; Asperula cynanchica, Carlina vulgaris, Campanula rotundifolia, Euphrasia spp., Filipendula vulgaris, Galium sterneri, Gentianella spp., Helianthemum oelandicum, Helianthemum nummularium, Hippocrepis comosa, Leontodon hispidus, Lotus corniculatus ,Pilosella officinarum, Sanguisorba minor, Scabiosa columbaria, Sesleria caerulea, Succisa pratensis, Thymus polytrichus.
			Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitat; Calluna vulgaris, E. cinerea, Vaccinium myrtillus, Agrostis spp., Carex spp., Danthonia decumbens, Deschampsia flexuosa, Festuca spp., Nardus stricta, Galium saxatile, Hypochaeris radicata, Lotus corniculatus, Plantago lanceolata, Polygala serpyllifolia, Potentilla erecta, Rumex acetosella, Thymus praecox, Viola riviniana, Filipendula vulgaris, Galium verum, Helianthemum nummularium, Sanguisorba minor.
			Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread; H6210 grassland Cirsium arvense, Cirsium vulgare, Senecio jacobaea, Urtica dioica, Cotoneaster spp, particularly C. horizontalis, Larix spp. H5130 juniper Cotoneaster spp Shading tree species (but note that tree cover can include important species such as yew Taxus baccata or Lancaster whitebeam Sorbus lancastriensis)
			Vegetation community transitions	Maintain the pattern of natural vegetation zonations/transitions between shallow and deeper soils, to rocky habitats such as scree and between calcareous grassland and acidic grassland, scrub, woodland, heath and juniper.
			Physical structure: ground disturbance	Maintain a provision of disturbed and eroding bare ground at a level which is compatible with maintaining or restoring the regeneration potential of the H5130 feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, to within typical values for the habitat.
			Functional connectivity with wider landscape	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Adaptation and resilience	Maintain the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Maintain the concentrations and deposition of air pollutants within the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Air quality	Restore the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Conservation measures	Maintain and restore, as appropriate, the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with the features
			Conservation measures	Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to Restore the structure, functions and supporting processes associated with the feature
		Supplementary Advice for Qualifying Features: H8240. Limestone pavements		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species	Extent of the feature within the site	Maintain the total extent of the H8240 feature at 517 ha. (This is a minimum area as some pavement may have been mapped as woodland)
			Vegetation community composition	Ensure the component vegetation communities of the H8240 feature are referable to and characterised by the following National Vegetation Classification types:- CG9 Sesleria albicans – Galium terneri grassland CG10 Festuca ovina – Agrostis capillaris - Thymus praecox grassland OV38 Gymnocarpium robertianum – Arrhenatherum elatius community OV39 Asplenium trichomanes - A. ruta-muraria community OV40 Asplenium viride - Cystopteris fragilis community W8 Fraxinus excelsior – Acer campestre - Mercurialis perennis woodland W9 Fraxinus excelsior – Sorbus aucuparia - Mercurialis perennis woodland W13 Taxus baccata woodland

		The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The populations of qualifying species, and, The distribution of qualifying species within the site. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Vegetation community transitions	Maintain the pattern and combination of natural vegetation zonations/transitions between grassland, heath, scrub and woodland
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H8240 feature
			Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread; Arrhenatherum elatius, Cirsium arvense, Cirsium vulgare, large docks, , Senecio jacobaea, Rubus fruticosus, Urtica dioica.
			Wooded pavement: vegetation structure and distribution.	On wooded pavements, Restore the presence of seedlings, saplings, mature trees and shrubs comprising site-native species in wooded areas, with open space typically present over 10%-30% of the pavement vegetation by area.
			Open pavement	On open pavements, maintain scrub and woody cover at between 5-25% of the pavement feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H8240 habitat.
			Adaptation and resilience	Maintain the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Key structural, influential and site distinctive species: flora and fauna	Maintain the abundance of the l species listed below to enable each of them to be a viable component of the Annex 1 habitat; Arabis hirsuta, Asplenium viride, Carex digitata, Carex ornithopoda, Ceterach officinarum, Clematis vitalba, Convallaria majalis, Cystopteris fragilis, Dryopteris submontana, Epipactis atrorubens, Eupatorium cannabinum, Geranium sanguineum, Gymnocarpium robertianum, Hypericum montanum, Juniperus communis, Melica nutans, Melica uniflora, Polygonatum odoratum, Rubus saxatilis, Polystichum aculeatum, Thalictrum minus
			Air quality	Restore the concentrations and deposition of air pollutants to within the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Conservation measures	Restore the management measures necessary to restore the structure, functions and supporting processes associated with the H8240 feature
		Supplementary Advice for Qualifying Features: H91A0. Old sessile oak woods with Ilex and Blechnum in the British Isles; Western acidic oak woodland, H91J0. Taxus baccata woods of the British Isles; Yew-dominated woodland * and H9180. Tilio-Acerion forests of slopes, screes and ravines; Mixed woodland on base-rich soils associated with rocky slopes		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The populations of qualifying species, and, The distribution of qualifying species within the site. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Extent of the features within the site	Maintain the total extent of the woodland features H91A0 – no area measurement currently available H91J0 - This feature occurs within Tilio-acerion and has not always been measured separately. Areas available are; Hawes Water – 1 ha Marble Quarry and Hale Fell – 11.2 ha Middlebarrow 2.3 ha Thrang Wood 3.1 ha H9180 902 ha, which includes some areas of yew and sessile oak woodland.
			Spatial distribution of the features within the site	Maintain the distribution and configuration of the woodland features including where applicable their component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H91A0 feature are referable to and characterised by the following National Vegetation Classification types; W10e Quercus roburPteridium aquilinum-Rubus fruticosus woodland, Acer pseudoplatanus-Oxalis acetosella sub-community, W11 Quercus petraea Betula pubescens-Oxalis acetosella woodland, W16b Quercus spp.-Betula spp.-Deschampsia lexuosa woodland, Vaccinium myrtillusDryopteris dilatata subcommunity, W17 Quercus petraea-Betula pubescens Dicranum majus woodland Ensure the component University Press vegetation communities of the H91J0 feature are referable to and characterised by the following National Vegetation Classification types; W8/9 (yew groves) or W13
			Vegetation community composition	Ensure the component vegetation communities of the H9180 feature are referable to and characterised by the following National Vegetation Classification types; W8/9 (including yew groves that may be mapped as W13)
			Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the woodland features, which will typically be between 40-90% of the site
			Vegetation structure - open space	Maintain areas of permanent/temporary open space within the woodland feature, typically to cover approximately 10% of area
			Vegetation structure – old growth	Restore the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 20% of the feature at any one time) and the assemblages of veteran and ancient trees (typically >10 trees per hectare).
			Vegetation structure - dead wood	Restore the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m^3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare
			Vegetation structure - dead wood	Restore the continuity and abundance of standing or fallen dead and decaying wood, typically between 30 - 50 m3 per hectare of standing or fallen timber or 3-5 fallen trees >30cm per hectare, and >10 standing dead trees per hectare
			Vegetation structure - age class distribution	H91A0 and H9180 features - Restore at least 3 age classes spread across the average life expectancy of the commonest trees. H91J0 feature – Restore at least 2 age classes spread across the average life expectancy of the trees - which can be hundreds of years.
			Vegetation structure - shrub layer	H91A0 feature – Restore an Understorey of shrubs covering 20 - 60% of the stand area (this will vary with light levels and site objectives) H91J0 feature – Maintain an understorey of shrubs that is sparse under the yew canopy. H9180 feature – Maintain and restore as appropriate an understorey of shrubs cover 20 - 60% of the stand area.

			Vegetation structure – woodland edge	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.
			Adaptation and resilience	H91A0 feature – Restore the resilience of the feature by ensuring a diversity (at least 3 species of site native trees e.g sessile or pedunculate oak, birches, holly, rowan) across the site. H91J0 feature – Maintain the resilience of the feature by ensuring a diversity of site-native tree species; although yew dominates, this can be provided by a scattering of one or more of whitebeam, ash, birch, sycamore and oak. H9180 feature – Maintain the resilience of the feature by ensuring a diversity of site-native tree species (at least 4 species e.g. ash/small-leaved lime/ aspen/alder/ sycamore/ rowan/ bird cherry/ birch) is present across the site.
			Browsing and grazing by herbivores	Restore browsing to a level that allows a well developed woodland understorey (as indicated by no obvious browse line, lush ground vegetation with some grazing-sensitive species evident (e.g. bramble, ivy), and tree seedlings and sapling common in gaps.
			Regeneration potential	Restore the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate.
			Tree and shrub species composition	H91A0 feature – Maintain a canopy and under-storey of which 95% is composed of site native trees and shrubs e.g. oak, birch, rowan, holly, yew, hazel, blackthorn, hawthorn, honeysuckle, bramble. H91J0 feature - Maintain a canopy and under-storey of which 95% is composed of site native trees and shrubs e.g. yew, ash, hazel
			Key structural, influential and site distinctive species: flora and fauna H9180 feature	Restore the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitat; H91A0 feature Canopy: Oak spp, birch spp, yew Understorey: Rowan, holly, hazel, hawthorn, occasional juniper, bramble Ground flora: heather Calluna vulgaris, bilberry Vaccinium myrtillus; rich assemblage of woodland bryophytes; assemblage of bracken or ferns such as with Blechnum, Dryopteris species; Oxalis acetosella and Galium saxatile Assemblage of holenesting woodland birds H91J0 feature Canopy – yew Ground flora - Dog's mercury Mercurialis perennis or hart's-tongue Phyllitis scolopendrium. Other species (shared with Tilio- cerion) can include false-brome Brachypodium sylvaticum; pignut Conopodium majus; meadowsweet Filipendula ulmaria; Herb Robert Geranium robertianum; wood avens Geum urbanum; ivy Hedera helix; barren strawberry Potentilla sterilis; bramble Rubus fruticosus; common dog-violet Viola rivini1. Species defining the component NVC types of W8 and W9 types which include; ash Fraxinus excelsior; oak Quercus robur; hazel Corylus avellana; yew Taxus baccata false-brome Brachypodium sylvaticum; Herb Robert Geranium robertianum; wood avens Geum urbanum; ivy Hedera helix; dog's ercury Mercurialis perennis; barren strawberry Potentilla sterilis; bramble Rubus fruticosus; common dogviolet Viola riviniana 2. Distinctive flora of this feature; small-leaved lime Tilia cordata; wych elm Ulmus glabra; wild cherry Prunus avium; spindle Euonymus europaeus; fingered sedge Carex digitata; Lancastrian whitebeam Sorbus lancastriensis 3. Distinctive fauna of this feature; Red wood ant Formica rufa (on some component SSSIs)
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the woodland feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the woodland habitat.
			Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Air quality	Maintain the concentrations and deposition of air pollutants within the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Hydrology	At a site and catchment level, maintain natural hydrological processes to provide the conditions necessary to sustain the woodland feature within the site
			Illumination	Ensure artificial light is maintained at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the woodland feature and its typical species at this site.
		Supplementary Advice for Qualifying Features: S1014. Vertigo angustior; Narrow-mouthed whorl snail		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the	Conservation measures	Maintain the management measures which are necessary to maintain the structure, functions and supporting processes associated with the Narrow-mouthed whorl snail and/or its supporting habitats.
			Extent of supporting habitat	Maintain the total extent of the habitat which supports the Narrow-mouthed whorl snail feature. The habitat is moss-covered clints (the limestone blocks in pavement) shaded by hazel and yew.
			Distribution of supporting habitat	Maintain the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site
			Adaptation and resilience	Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore concentrations and deposition of air pollutants to within the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Population abundance	Maintain the abundance of the narrow-mouthed whorl snail population as widespread and locally abundant within its supporting habitat.

		habitats of qualifying species The populations of qualifying species, and, The distribution of qualifying species within the site. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely		
	River Derwent	Supplementary Advice for Qualifying Features: H3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation ('rivers with floating vegetation dominated by water-crowfoot')		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely The populations of qualifying species, and, The distribution of qualifying species within the site.	Extent of the feature within the site	Restore the full extent of the H3260 habitat to that characteristic of the natural fluvial processes associated with the river type.
			River (habitat) mosaic	Restore the extent and pattern of inchannel and riparian habitats to that characteristic of natural fluvial processes.
			Riparian zone	Maintain a mosaic of natural woody and herbaceous (tall and short swards) riparian vegetation to the riparian zone, which should be sufficiently wide to act as a healthy and functional habitat zone within the river corridor.
			Woody debris	Maintain the presence of coarse woody debris within the structure of the channel. In smaller watercourses, temporary debris dams should be a feature of channel dynamics.
			Water course flow	Restore the natural flow regime of the river, with daily flows as close to what would be expected in the absence of abstractions and discharges (the naturalised flow).
			Sediment regime	Restore the natural supply of coarse and fine sediment to the river
			Thermal regime	Maintain a natural thermal regime to the river (subject to a changing climate), ensuring that water temperatures should) not be significantly artificially elevated
			Biological connectivity	Ensure the movement of river wildlife characteristic of the H3260 feature at this site is not significantly artificially constrained
			Water chemistry – alkalinity	Maintain natural levels of alkalinity
			Water quality - nutrients	Restore the natural nutrient regime of the river, with any anthropogenic enrichment above natural/background concentrations limited to levels at which adverse effects on the H3260 feature's characteristic biodiversity are unlikely
			Water quality – organic pollution	Restore organic pollution levels to the following levels that have minimal impact on the characteristic biota;
			Water quality - other pollutants	Achieve at least 'Good' chemical status (i.e. compliance with Relevant Environmental Quality Standards).
			Invasive, nonnative and/or introduced species	Ensure non-native species categorised as 'high-impact' in the UK under the Water Framework Directive are either rare or absent but if present are causing minimal damage to the H3260 feature. The species on the high-impact list known to be present include: Japanese knotweed, giant hogweed, Himalayan balsam, signal crayfish (some tributaries), Chinese mitten crab (lower reaches)
			Key structural, influential and distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H3260 Annex 1 habitat; Flora; Water crowfoots – all Ranunculus spp. Starworts – all Callitriche spp. Pondweeds – all Potamogeton spp., plus Groenlandia & Zannichellia spp. Milfoils – Myriophyllum spp; lesser water parsnip Berula erecta, flowering rush Botumus umbellatus Fauna A rich invertebrate assemblage including mayflies (Baetis buceratus, Heptagenia fusogrisea and Brachtcerus harisella) and stoneflies (Taeniopteryx nebulosi) and 11 species of dragonfly. Diverse assemblage of native fish species (including gudgeon, pike, roach, dace, barbell, grayling, chub, brown trout, perch, ruffe, bleak, bullhead, minnow, stone loach, river lamprey, sea lamprey, flounder, eel) Otter Lutra lutra
			Fisheries	Maintain fish densities at or below the natural environmental carrying capacity of the river, and no higher than historical levels (this means no stocking to previously un-stocked rivers or river sections). Trout stocking should not elevate densities of adult trout (stocked plus natural) to more than 1-3 fish 100m², this being the estimated range of natural trout densities in SAC rivers.
			Vegetation structure: riparian zone	Maintain a structurally diverse riparian zone by livestock grazing at suitably low levels.
			Air quality	Maintain the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this H3260 feature of the site on the Air Pollution Information System (www.apis.ac.uk).

			Cover of submerged macrophytes	Maintain a sufficient proportion of all aquatic macrophytes to enable them to reproduce in suitable habitat,
			Screening of intakes and discharges	Ensure adequate screening of any intakes and discharges likely to trap a significant number of individuals of species characteristic of the H3260 feature
			Supporting offsite habitat	Maintain any habitats beyond the SAC boundary upon which characteristic biological communities associated with the H3260 feature of the site depend
			Adaptation and resilience	Maintain (or restore where resilience is degraded) the H3260 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
		Supplementary Advice for Qualifying Features: S1095 Sea lamprey Petromyzon marinus; S1099 River lamprey Lampetra fluviatilis; S1163 Bullhead Cottus gobio		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely The populations of qualifying species, and, The distribution of qualifying species within the site.	Conservation measures	Restore management or other measures (within and/or outside the site boundary as appropriate) necessary to restore the structure, functions and supporting processes associated with these features and their supporting habitats
			Extent of supporting Habitat	Maintain the extent of river and stream habitatwhich supports the features at the baseline value of 368.8 hectares
			Distribution of supporting habitat	Restore the distribution and continuity of the features and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site
			Adaptation and resilience	Maintain the features ability, and that of their supporting habitats, to adapt or evolve to wider environmental change, either within or external to the site
			Biotope mosaic	See the target above for the H3260 habitat feature
			Riparian zone	See the target above for the H3260 habitat feature
			Woody debris	See the target above for the H3260 habitat feature
			Flow regime	See the target above for the H3260 habitat feature
			Sediment regime	See the target above for the H3260 habitat feature
			Biological connectivity	See the target above for the H3260 habitat feature
			Water quality – nutrients	Restore the natural nutrient regime of the river, with any anthropogenic enrichment above natural/background concentrations to levels at which adverse effects on the feature are unlikely
			Water quality – organic pollution	See the target above for the H3260 habitat feature
			Water quality – acidification	See the target above for the H3260 habitat feature
			Water quality – other pollutants	See the target above for the H3260 habitat feature
			Invasive non-native species	See the target above for the H3260 habitat feature
			Fisheries – introduction of fish species	Ensure fish stocking/introductions do not interfere with the ability of the river to support self-sustaining populations of each of the Features
			Fisheries – exploitation	Ensure all exploitation (e.g. netting or angling) of lamprey species is undertaken sustainably without compromising any components of their populations
			Vegetation structure: riparian zone	See the target above for the H3260 habitat feature
			Screening of intakes and discharges	See the target above for the H3260 habitat feature
			Integrity of off-site habitats	See the target above for the H3260 habitat feature
			Population abundance	Restore the abundance of the bullhead and lamprey populations to levels which are close to that expected under unimpacted conditions throughout the site (subject to natural habitat conditions and allowing for natural fluctuations), whilst avoiding deterioration from current levels as indicated by the latest count or equivalent; Sea and River lamprey: ammocoete populations should have at least two age classes Bullhead: average adult density>0.5 individuals/m² with healthy age-class structure (>40% of individuals in the 0+ age class)
			Juvenile densities	Restore juvenile densities to those expected under un-impacted conditions throughout the site (taking into account natural habitat conditions and allowing for natural luctuations)
		Supplementary Advice for Qualifying features: S1355 Otter Lutra lutra		
		The extent and distribution of qualifying natural habitats and	Conservation measures	Maintain management or other measures (within and/or outside the site boundary as appropriate) necessary to maintain the structure, functions and supporting processes associated with the feature are underway and are not being undermined or compromised.
			Extent of supporting habitat	Maintain the extent of habitat(s) which supports the Otter feature at or above 411.23 hectares, to include:368.8ha rivers and streams 20.9ha neutral grassland

		habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely The populations of qualifying species, and, The distribution of qualifying species within the site.		8.7ha standing open water 6.9ha Wet woodland 2.8ha fen, marsh, swamp
			Distribution of supporting habitat	Maintain the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site
			Adaptation and resilience	Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site
			Habitat quality: river	Maintain the quality of supporting river habitat features, based on the advice above for the H3260 feature, to provide a characteristic biotope mosaic required by otters
			Habitat quality - waterways	Maintain the quality of supporting waterway habitat such as associated tributaries of the Derwent
			Food availability	Maintain fish biomass at expected natural levels of biomass (subject to natural fluctuations).
			Abundance of breeding and resting places	Maintain an abundance of natural breeding and resting sites within the site
			Availability of refugia	Maintain an abundance of dense bankside vegetation to limit significant disturbance to animals
			Water quantity	See target for the H3260 feature above
			Water quality/quantity	Ensure water quality and quantity is restored to a standard which provides the necessary conditions to support the feature. Flow targets for the H3260 feature should be met.
			Water quality: Toxic chemicals	Avoid any increase in the level of pollutants which are potentially toxic to otters.
			Connectivity within and to the site	Ensure there are no significant artificial barriers to the safe passage and movement of otters into, within and away from the site
			Population abundance	Maintain the continued presence of an actively-breeding otter population within the SAC, whilst avoiding deterioration from its current level as indicated by the latest mean peak count, estimate or equivalent
			Anthropogenic mortality	Reduce otter mortality as a result of anthropogenic (man-made) factors to a level which is not adversely affecting the overall abundance and viability of the population.
	Gang Mine	The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats, and The supporting processes on which the qualifying natural habitats rely	Extent of the feature within the site	Maintain the total extent of the H6130 grassland feature at between 2 – 3.5 hectares (to allow for expected natural fluctuation)
			Spatial distribution of the feature within the site	The current distribution and configuration of the H6130 feature, including where applicable, its component vegetation types, across the site is maintained.
			Vegetation community composition	Ensure the component vegetation communities of the H6130 feature are referable to and characterised by the following National Vegetation Classification type: OV37 Festuca ovina – Minuartia verna community
			Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the qualifying H6130 feature at this site; Spring sandwort Minuartia verna, Alpine penny-cress Thlaspi caerulescens, Mountain pansyViola lutea
			Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species at acceptable levels and are not encouraged or introduced by changes in surface condition, soils, nutrient levels or changes to hydrology; cow parsley Anthriscus sylvestris, thistles Cirsium arvense, Cirsium vulgare, hogweed Heracleum sphondylium, nettle Urtica dioica, coarse grasses including false oat-grass Arrhenatherum elatius and Yorkshire fog Holcus lanatus and all tree and shrub species
			Vegetation community transitions	Maintain any natural vegetation zonations/transitions between the feature (OV37 Festuca ovina-Minuartia verna community) and other grassland types present on the sites
			Soils, substrate and nutrient cycling	The properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial PLFA ratio, are maintained within typical values for the habitat
			Air quality	Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the H6130 feature of the site on the Air Pollution Information System
			Supporting offsite habitat	Restore and maintain the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the SAC which is known to support the feature In particular, the adjacent area of this lead rake and worked area where spoil heaps were levelled prior to notification.
			Functional connectivity with wider landscape	Any supporting features within the local landscape which provide a critical functional connection with the site are maintained in terms of their overall extent, quality and function.
			Adaptation and resilience of the feature and the supporting processes on which it relies	The feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site, is not prejudiced

			Conservation measures	Management or other measures (within and/or outside the site boundary as appropriate) necessary to maintain the structure, functions and supporting processes associated with the H6130 feature are underway and are not being undermined or compromised.
	Denby Grange Colliery Ponds	The extent and distribution of the habitats of qualifying species The structure and function of the habitats of qualifying species The supporting processes on which the habitats of qualifying species rely The populations of qualifying species, and, The distribution of qualifying species within the site.	Overall Habitat Suitability Index score	For this SAC, restore and then maintain an overall Great Crested Newt Habitat Suitability Index score to no less than 0.8.
			Presence of ponds	Maintain the 3 ponds present within the SAC, which include 2 great crested newt breeding ponds (Old Pond and Fire Pond).
			Permanence of ponds	Maintain the permanence of water within Fire Pond, indicated by a minimum summer depth of 10cms Restore the permanence of water within Old Pond indicated by a minimum summer depth of 10cms
			Cover of macrophytes	Restore and then maintain a good cover of macrophytes to the breeding ponds of Fire and Old Pond within the site.
			Invasive, nonnative and/or introduced species	Invasive non-native species should be rare or absent components of open water habitat supporting the great crested newt.
			Supporting terrestrial habitat	Maintain the quality of terrestrial habitat likely to be utilised by Great Crested Newts, with no fragmentation of habitat by significant barriers to newt dispersal.
			Shading of ponds	Pond perimeters should generally be free of shade affecting less than 60% of the shoreline, with less than 25% of southern margin in Old Pond shaded and less than 50% of southern margin in Fire Pond shaded
			Presence of fish and wildfowl	Fish and wildfowl are absent from all ponds.
			Water quality	Maintain and restore the quality of pond waters within the site as indicated by the presence of an abundant and diverse invertebrate community. Maintain water quality in Fire Pond, and restore water quality in both Old Pond and Northern Pond
			Population size	The size of the great crested newt population is being maintained at or above a peak mean of at least 625 adults in April/May
			Population viability	Maintain the presence of great crested newt eggs in breeding ponds at a level which is likely to maintain the abundance of the population to its target level
			Supporting metapopulation	Maintain the connectivity of the SAC great crested newt population to other closely associated populations (either within or outside of the site boundary), including those present at Stockmoor Common Maintain the woodland, hedgerow and grassland habitats present between the SAC and the nearby Stockmoor Common Nature Reserve.
			Extent of supporting terrestrial habitat	The overall extent of habitat which supports the Great Crested Newt feature is either being maintained at or recovering to 18.01 ha of woodland
			Distribution of supporting terrestrial habitat	Maintain the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site is maintained.
			Conservation measures	Management or other measures (within and/or outside the site boundary as appropriate) necessary to maintain or restore the Great Crested Newt feature and/or its supporting habitat are underway and are not being undermined or compromised.
			Adaptation and resilience of the feature and the supporting processes on which it relies	The feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site, is not prejudiced
			Soils, substrate and nutrient cycling	The properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial PLFA ratio, are maintained within typical values for the supporting habitat
			Air quality	Maintain or restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
	Kirk Deighton	The extent and distribution of the habitats of qualifying species The structure and function of the habitats of qualifying species The supporting processes on which the habitats of qualifying species rely The populations of qualifying species, and,	Overall Habitat Suitability Index score	Restore an overall great crested newt Habitat Suitability Index score of not less than 0.8.
			Presence of ponds	Maintain the number of ponds present within the site at not less than two
			Permanence of Ponds	Maintain the permanence of water within ponds present within the site, with a minimum summer water depth of 10cm for both ponds at least three years out of four.
			Cover of macrophytes	Restore a high cover of macrophytes, typically between 25-80%, within ponds. Additional target: 15% - 100% of margin supporting marginal and emergent species, and 25% - 75% of pond bottom/ mid-water/ surface covered by submerged or floating species.
			Supporting terrestrial habitat	Maintain the extent and quality of terrestrial habitat likely to be utilised by great crested newts, with no fragmentation of habitat by significant barriers to newt dispersal, by maintaining 3.91ha of grassland and the network of mature hawthorn hedgerows and scattered trees within the SAC
			Shading of ponds	Pond perimeters should generally be free of shade (typically affecting less than 60% of the shoreline), with <20% of the southern margin of the main breeding pond solidly shaded
			Presence of fish and wildfowl	Maintain the absence of fish and wildfowl from all ponds
			Water quality	Restore the quality of pond waters within the site as indicated by the presence of an abundant and diverse invertebrate community.

		The distribution of qualifying species within the site.	Population abundance	Restore and then maintain the abundance of the population to a level which is above an average of 247 great crested newts, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.
			Population viability	Maintain the presence of great crested newt eggs in breeding ponds
			Supporting metapopulation	Maintain the connectivity of the SAC's great crested newt population to other closely associated populations (either within or outside of the site boundary)
			Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the feature and/or its supporting habitats.
			Distribution of supporting habitat	Maintain the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site
			Adaptation and resilience	Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, within typical values for the supporting habitat
			Air quality	Maintain or, where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
	Lower Derwent Valley	Supplementary Advice for Qualifying Features: H6510. Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely The populations of qualifying species, and, The distribution of qualifying species within the site.	Extent of the feature within the site	Maintain the total extent of the H6510 feature at 172.65 Ha
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the feature, including where applicable its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the H6510 feature are referable to and characterised by the following National Vegetation classification type (s); MG4 Alopecurus pratensis - Sanguisorba officinalis grassland
			Key structural, influential and distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of the H6510 habitat; Alopecurus pratensis (meadow foxtail), Filipendula ulmaria (meadowsweet), Leontodon autumnalis (autumn hawkbit), Oenanthe silaifolia narrow-leaved water dropwort), Sanguisorba officinalis (great burnet), Silaum silaus (pepper saxifrage), Succisa pratensis (Devil's-bit scabious), Thalictrum flavum (common meadow-rue) Centaurea nigra (black knapweed), , Galium verum (lady's bedstraw), Lathyrus pratensis (meadow vetchling), Leucanthemum vulgare (oxeye daisy), Lotus corniculatus (common bird's-foot-trefoil) , Primula veris (cowslip), Rhinanthus minor (yellow rattle), Serratula tinctoria s(aw-wort), Stachys officinalis (betony), Tragopogon pratensis (goat's beard). Assemblage of birds including breeding waders (snipe, lapwing, redshank and curlew) and nationally important numbers of whimbrel on spring passage.
			Vegetation: undesirable species	Maintain the frequency/cover of the following undesirable species to within acceptable levels (no more than occasional throughout the sward or singly or together more than 5% cover) and prevent changes in surface condition, soils, nutrient levels or hydrology which may enc ourage their spread; Anthriscus sylvestris (cow parsley), Cirsium arvense (creeping thistle), Cirsium vulgare (spear thistle), Rumex crispus (curled dock), Rumex obtusifolius (broad-leaved dock), Senecio jacobaea (common ragwort), Urtica dioica (common nettle). Juncus spp (rushes), Deschampsia cespitosa (tufted hair-grass), large Carex spp. (sedges) large grasses i.e. Glyceria maxima (reed sweetgrass, Phalaris arundinacea (reed canary-grass), Phragmites australis (common reed). Tree and scrub species should be no more than occasional throughout the sward or more than 1% cover
			Vegetation community transitions	Maintain the pattern of naturallyoccurring vegetation zonations and transitions within the H6510 feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the H6150 habitat. For this feature soil P index should typically be between index 0 and 1 (<15 mg/l)
			Water quality	Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the H6510 feature
			Hydrology: Water table	Maintain a hydrological regime which provides a consistently near-surface water table which typically averages depths of 35 cm (winter), 45cm (spring), 70cm summer) and 60cm (autumn) below ground level
			Hydrology: Flooding regime	Maintain a hydrological regime which provides a cumulative duration of annual surface flooding (typically less than 10 days between DecemberFebruary and less than 3 days between September-November, with no inundations during March – August), subject to natural changes.
			Hydrology	At a site and catchment level mintain natural hydrological processes to provide the conditions necessary to sustain the feature within the site
			Adaptation and resilience	Maintain the H6150 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).

			Conservation measures	Maintain the management measures within and/or outside the site boundary) which are necessary to maintain the structure, functions and supporting processes associated with the H6510 feature
		Supplementary Advice for Qualifying Features: H91E0. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae); Alder woodland on floodplains		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely The populations of qualifying species, and, The distribution of qualifying species within the site.	Extent of the feature within the site	Maintain the total extent of the H91E0 feature at 6.59 hectares.
			Spatial distribution of the feature within the site	Maintain the distribution and configuration of the H91E0 feature, including where applicable its component vegetation types, across the site
			Vegetation community composition	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification type(s); W6a Alnus glutinosa (alder) - Urtica dioica (nettle) W7 Alnus glutinosa (alder) – Fraxinis excelsior (ash) - Lysimachia nemorum (yellow pimpernel) and W2a Salix cinerea (grey willow)- Betula pubescen (downy birch) – Phragmites australis (common reed); alder-meadowsweet sub community.
			Vegetation structure - canopy cover	Maintain an appropriate tree canopy cover across the H91E0 feature, which will typically be between 30-90% of the site
			Vegetation structure - open space	Maintain areas of permanent/temporary open space within the woodland feature, typically to cover approximately 10%of area
			Vegetation structure – old growth	Maintain the extent and continuity of undisturbed, mature/old growth stands (typically comprising at least 10% of the H91E0 feature at any one time) and the assemblages of veteran and ancient trees (typically c.5 trees per hectare).
			Vegetation structure - dead wood	Maintain the continuity and abundance of standing or fallen dead and decaying wood, (typically between 30 - 50 m³ per hectare of standing or fallen timber or 3 fallen trees >30cm per hectare, and 4 standing dead trees per hectare)
			Vegetation structure – age class distribution	Maintain at least 3 age classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees
			Vegetation structure - shrub layer	Maintain an understorey of shrubs covering 10 - 60% of the stand area (this will vary with light levels and site objectives)
			Vegetation structure - woodland edge	Maintain a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.
			Adaptation and resilience	Maintain the resilience of the feature by ensuring a diversity (at least 3 species) of site-native trees (e.g. alder, willow Salix spp, ash, elm Ulmus spp, black poplar) across the site.
			Browsing and grazing by herbivores	Maintain browsing at a (low) level that maintains a well-developed understorey with no obvious browse line and lush ground vegetation with some grazing sensitive species evident (bramble, ivy etc.), and tree seedlings and sapling common in gaps.
			Regeneration potential	Maintain the potential for sufficient natural regeneration of desirable trees and shrubs; typically tree seedlings of desirable species (measured by seedlings and <1.3m saplings - above grazing and browsing height) should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth form coppice stumps as appropriate;
			Tree and shrub species composition	Maintain a canopy and understorey of which 95% is composed of site-native trees and shrubs e.g. Alnus glutinosa (alder) Fraxinus excelsior (ash) and to a lesser extent Quercus robur (Oak)]
			Key structural, influential and distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of the H91E0 habitat; Higher plants; alder Alnus glutinosa, ash Fraxinus excelsior downy birch Betula pubescens willows Salix spp., sedges Carex spp.hawthorn (Crataegus monogyna), blackthorn (Prunus spinosa), holly (Ilex aquifolium). Nettle (Urtica dioica) wood sorrel (Oxalis acetosella), greater stitchwort (Stellaria holostea) and localised common reed (Phragmites australis).
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H91E0 feature
			Soils, substrate and nutrient cycling	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the H91E0 habitat.
			Water quality/quantity	Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the H91E0 feature.
			Hydrology	At a site, unit and/or catchment level (as necessary, maintain natural hydrological processes to provide the conditions necessary to sustain the H91E0 feature within the site
			Functional connectivity with wider landscape	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Conservation measures	Maintain the management measures within and/or outside the site boundary) which are necessary to maintain the structure, functions and supporting processes associated with the H91E0 feature

			Illumination	Ensure artificial light is maintained at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H91E0 feature and its typical species at this site.
		Supplementary Advice for Qualifying Features: S1355. Lutra lutra; Otter		
		The extent and distribution of qualifying natural habitats and habitats of qualifying species The structure and function (including typical species) of qualifying natural habitats The structure and function of the habitats of qualifying species The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely The populations of qualifying species, and, The distribution of qualifying species within the site.	Conservation measures	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to Maintain the structure, functions and supporting processes associated with the otter feature and/or its supporting habitats.
			Extent of supporting habitat	Maintain the total extent of the habitat(s) which support otter at approximately: 586.18ha wet grassland 274.77ha fens marsh and swamp 27.47ha standing open water 18ha deciduous woodland 9ha dry neutral grassland.
			Distribution of supporting habitat	Maintain the distribution and continuity of the feature's supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site
			Adaptation and resilience	Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site
			Water quantity/quality	Where the feature or its supporting habitat is dependent on surface water, maintain water quality and quantity to a standard which provides the necessary conditions to support the feature
			Air quality	Maintain or, where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)
			Habitat quality - river habitat	Maintain the quality of supporting river habitat features based on natural river function, which provides a characteristic river habitat mosaic that caters for otters.
			Habitat quality – waterway habitat	Maintain the quality of supporting waterways habitat features used by the otter population
			Food availability	Maintain fish biomass within expected natural levels for the supporting habitat (subject to natural fluctuations).
			Abundance of breeding and resting places	Maintain an abundance of natural breeding and resting sites for otter within the site
			Availability of refugia	Maintain an abundance of dense bankside vegetation to limit significant disturbance to animals
			Water flow [rivers]	Maintain the natural flow regime of the river to that close to what would be expected in the absence of abstractions and discharges (the 'naturalised' flow)
			Water quality/quantity	Maintain water quality and quantity to a standard which provides the necessary conditions to support the feature.
			Water quality : Toxic chemicals	Avoid any increase in the level of pollutants affecting the site which are potentially toxic to otters.
			Connectivity within and to the site	Ensure there are no significant artificial barriers to the safe passage and movement of otters into, within and away from the site
			Population abundance	Maintain the continued presence of an actively-breeding otter population within the SAC, whilst avoiding deterioration from current levels as indicated by the latest mean peak count, estimate or equivalent.
			Anthropogenic mortality	Reduce levels of mortality as a result of anthropogenic (manmade) factors so that they are not adversely affecting the overall abundance and viability of the population.
SPA	Manchester Mosses	The extent and distribution of qualifying natural habitats The structure and function (including typical species) of qualifying natural habitats, and The supporting processes on which qualifying natural habitats and the	Extent of the feature within the site	Avoid the further degradation of the extent of the H7120 feature, whilst restoring 172.81 of the H7120 feature to H7110 Active Raised Bog by 2035
			Vegetation community composition	Restore the component vegetation communities of the H7210 feature to those resembling and characterised by the following National Vegetation Classification type(s) typical of H7110 Active Raised Bog. M2 Sphagnum cuspidatum/fallax bog pool community, M3 Eriophorum angustifolium bog pool community, M20 Eriophorum vaginatum raised and blanket mire and M25 Molinia caerulea – Potentilla erecta mire M18 Erica tetralix – Sphagnum papillosum raised & blanket mire (note that this is the target community for this site and is not yet present, though some of the developing habitat is starting to show affinities to this community)
			Structural diversity	Restore the full range of typical structural features associated with active bogs at this site, e.g. vegetation cover, surface patterning and hydrological zonations. There should be reduction in extent of micro-topographic features (e.g. bog pools) and no obvious modification to structural features (e.g. vegetation cover, surface patterning and natural drainage), in relation to the established baseline

		habitats of qualifying species rely	Key structural, influential and distinctive species	Restore the abundance of the species listed below to enable each of them to be a viable component of the Annex 1 habitat; Assemblage of bog-mosses including Sphagnum capillifolium, S. magellanicum, S. papillosum, S. tenellum, S. cuspidatum , S. pulchrum. Heather Calluna vulgaris, crossleaved heath Erica tetralix, common cotton-grass Eriophorum angustifolium, Hare's-tail cotton-grass E. vaginatum, deer-grass Trichophorum cespitosum Bog rosemary Andromeda polifolia, sundew Drosera rotundifolia, crowberry Empetrum nigrum, bog asphodel Narthecium ossifragum and cranberry Vaccinium oxycoccos
			Invasive, nonnative and/or introduced species	Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H7210 feature
			Supporting offsite habitat	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support either the current H7210 feature or a H7110 active bog feature.
			Hydrology	At a site, unit and/or catchment level restore natural hydrological processes to provide the conditions necessary to sustain the current H7210 feature and a H7110 active bog within the site.
			Water chemistry	Restore the surface water and groundwater supporting the hydrology of the rain-fed bog at a low nutrient status.
			Soils, substrate and nutrient cycling	Avoid further degradation of the peat substrate of the H7120 feature and restore its properties, including its structure, bulk density, total carbon, pH, soil nutrient status and fungal/bacterial ratio, to within typical values for H7110 Active Raised Bog habitat.
			Adaptation and resilience	Restore the H7210 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site
			Air quality	Restore as necessary the concentrations and deposition of air pollutants to below the siterelevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).
			Functional connectivity with wider landscape	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
			Conservation measures	Maintain the management measures within and outside the site boundary which are necessary to restore the structure, functions and supporting processes associated with the H7120 feature to H7110 Active Raised Bog
	North York Moors	Supplementary Advice for Qualifying Features: A6.61a Golden Plover Pluvialis apricaria (breeding)		
		The supporting processes on which the habitats of the qualifying features rely The population of each of the qualifying features The structure and function of the habitats of the qualifying features The extent and distribution of the habitats of the qualifying features The distribution of the qualifying features within the site	Water quality/ quantity	Where the supporting habitats of the SPA feature are dependent on surface water, maintain water quality and quantity at a standard which provides the necessary conditions to support breeding Golden Plover, i.e. sufficient to maintain/restore wetland habitats (blanket bog, flushes, wet heath and calcareous fens) in favourable condition
			Conservation measures	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain the structure, function and/or the supporting processes associated with breeding Golden Plover feature and its supporting habitats.
			Predation	Restrict the predation of and disturbance to breeding Golden Plover by native and non-native predators.
			Air quality	Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature's supporting habitats on the Air Pollution Information System (www.apis.ac.uk)
			Extent and distribution of supporting breeding habitat	Maintain the extent, distribution and availability of suitable breeding habitat which supports breeding Golden Plover for all necessary stages of its breeding cycle (courtship, nesting, feeding)
			Vegetation characteristics	Maintain a mosaic [1:3 ratio] of short (<5 cm) to tall (10-15 cm) vegetation within core breeding areas
			Minimising disturbance caused by human activity	Restrict the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging, feeding, moulting and/or loafing birds so that the breeding Golden Plover population is not significantly disturbed
			Landscape	Maintain the amount of suitable grassland feeding habitat within 4 km of moorland nesting areas
			Population abundance	Maintain the size of the breeding Golden Plover population at a level which is above 526 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.
		Supplementary Advice for Qualifying Features: A6.50a Merlin Falco columbarius (breeding)		
		The supporting processes on which the habitats of the qualifying features rely The population of each of the qualifying features	Water quality/ quantity	Where the supporting habitats of the SPA feature are dependent on surface water, maintain water quality and quantity a standard which provides the necessary conditions to support Merlin breeding within the SPA.
			Conservation measures	Maintain or restore management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain or restore] the structure, function and/or the supporting processes associated with the supporting habitats of breeding Merlin.
			Predation	Restrict the predation of and disturbance to breeding Merlin caused by native and non-native predators
			Air quality	Restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for the supporting habitats of this feature on the Air Pollution Information System (www.apis.ac.uk).

		The structure and function of the habitats of the qualifying features The extent and distribution of the habitats of the qualifying features The distribution of the qualifying features within the site	Extent and distribution of supporting breeding habitat	Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding).
			Vegetation characteristics	Maintain or restore a high proportion of medium to tall (>50 cm) ground vegetation within nesting habitat
			Minimising disturbance caused by human activity	Restrict the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging and/or feeding birds so that the breeding Merlin population is not significantly disturbed
			Landscape	Maintain a high proportion of open and unobstructed terrain within and around nesting and feeding areas.
			Food availability within supporting habitat	Maintain or restore the overall availability of small birds throughout the year and day flying moths in the breeding season.
			Population abundance	Maintain or restore the size of the breeding Merlin population at/to a level which is above 35 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.

A.3. European Sites Vulnerabilities

All threats and vulnerabilities for each SAC and SPA designated site have been identified using Natura 2000 summary data spreadsheet (version UK Natura 2000_2017-01-30.zip accessed on 25th October 2017) found on the JNCC website (http://jncc.defra.gov.uk) . Each threat for SAC's and SPA's have a code and description, detailed in below in Table A-2. The threats have been grouped together in Table A-3 where it is considered appropriate, all codes that have been grouped are provided in the heading.

All threats and vulnerabilities for each Ramsar designated site have been identified using Ramsar summary data spreadsheet (version is 21 October 2015, filename UK_RAMSAR_DATA_20151021.xls accessed on 25th October 2017) found on the JNCC website. The adverse factor's[7] listed were grouped where deemed appropriate with threat headings listed for SAC's and SPA's.

Table A-2 – Threat Codes for SACs and SPAs

CODE	DESCRIPTION
A01	Cultivation
A02	Modification of cultivation practices
A03	Mowing / cutting of grassland
A04	Grazing
A05	Livestock farming and animal breeding (without grazing)
A06	Annual and perennial non-timber crops
A07	Use of biocides, hormones and chemicals
A08	Fertilisation
A10	Restructuring agricultural land holding
A11	Agriculture activities not referred to above
B01	Forest planting on open ground
B02	Forest and Plantation management & use
B03	Forest exploitation without replanting or natural regrowth
B04	Use of biocides, hormones and chemicals (forestry)
B06	Grazing in forests/ woodland
B07	Forestry activities not referred to above
C01	Mining and quarrying
C02	Exploration and extraction of oil or gas
C03	Renewable abiotic energy use
D01	Roads, paths and railroads
D02	Utility and service lines
D03	Shipping lanes, ports, marine constructions
D04	Airports, flightpaths
D05	Improved access to site
E01	Urbanised areas, human habitation
E02	Industrial or commercial areas
E03	Discharges
E04	Structures, buildings in the landscape
E06	Other urbanisation, industrial and similar activities
F01	Marine and Freshwater Aquaculture
F02	Fishing and harvesting aquatic resources
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)
F04	Taking / Removal of terrestrial plants, general
F05	Illegal taking/ removal of marine fauna
F06	Hunting, fishing or collecting activities not referred to above
G01	Outdoor sports and leisure activities, recreational activities
G02	Sport and leisure structures
G03	Interpretative centres
G04	Military use and civil unrest
G05	Other human intrusions and disturbances
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)
H02	Pollution to groundwater (point sources and diffuse sources)
H03	Marine water pollution
H04	Air pollution, air-borne pollutants
H05	Soil pollution and solid waste (excluding discharges)
H06	Excess energy
H07	Other forms of pollution
I01	Invasive non-native species
I02	Problematic native species
I03	Introduced genetic material, GMO
J01	Fire and fire suppression

[7] UK_RAMSAR_DATA_20151021.xls Adverse factors - contains summary information on significant natural or human-caused factors which have been adversely affecting Ramsar sites, and any measures being taken to address these issues, as reported to the Ramsar Secretariat. This information is sourced from the latest Ramsar UK National Report. Note that some minor factors may not be listed. The worksheet also includes Adverse factors reported previously, but which are not considered to be operating at present, or which have been addressed effectively. This information is sourced from the previous Ramsar UK National Report to provide an audit trail.

CODE	DESCRIPTION
J02	Human induced changes in hydraulic conditions
J03	Other ecosystem modifications
K01	Abiotic (slow) natural processes
K02	Biocenotic evolution, succession
K03	Interspecific faunal relations
K04	Interspecific floral relations
K05	Reduced fecundity/ genetic depression
L05	Collapse of terrain, landslide
L07	Storm, cyclone
L08	Inundation (natural processes)
L10	Other natural catastrophes
M01	Changes in abiotic conditions
M02	Changes in biotic conditions
U	Unknown threat or pressure
XO	Threats and pressures from outside the Member State

Table A-3 – Information about the negative threats, pressures and activities on European sites: STP area and up to 20 km from its boundaries

Designation	Sites	Vulnerabilities / Threats[8]																				Threat and Pressures Identified from Supplementary Advice
		No threats/vulnerabilities reported	Grazing / Mowing	Interspecific faunal and floral relations, ecosystem modifications and natural processes (including erosion*[9])	Fire/ fire suppression	Modification of Agricultural practices	Air Pollution	Use of Fertilisers/chemicals, eutrophication*	Forest management and associated activities	Water pollution	Problem native/ non native species	Change to hydraulic conditions, including sedimentation/siltation*	Changes to Abiotic and/or biotic conditions	Unknown threat or pressure	Human disturbance/Recreation (including Fishing/Hunting)	Industry and other urbanisation	Urbanisation (Airports, Roads, paths, railroads and utilities	Mining and quarrying	Renewable energy use	Military activities	Other forms of pollution	Soil pollution and solid waste	
Threat codes		**N/A**	**A03, A04**	**K01-K05, J03,**	**J01**	**A01,A02, A05,A11**	**H04**	**B04, A07, A08,**	**B02, B07**	**H01-H03**	**I01, I02**	**J02**	**M01, M02**	**U**	**G01-G05, F01-F05**	**E02, E04, E06**	**D01, D02, D04**	**C01**	**C03**	**G04**	**H07**	**H05**	
SAC	Arnecliff & Park Hole Woods						B[10]		I		B												
SAC	Asby Complex					II				B	B	B											
SAC	Bees Nest & Green Clay Pits						B																
SAC	Beast Cliff-Whitby (Robin Hood's Bay)		I									B											
SAC	Berwickshire & North Northumberland Coast									B	B	B			II								
SAC	Bolton Fell Moss			I								B	B										
SAC	Border Mires, Kielder-Butterburn					I	B		I			B	B										
SAC	Borrowdale Woodland Complex		I	I			B		I		B												
SPA	Bowland Fells			I	I								B		I								
SAC	Calf Hill & Cragg Woods						B																
SAC	Castle Eden Dene						B		I		BB												

[8] Threats and Vulnerabilities have been taken from Natura 2000 summary data spreadsheet found on the JNCC website http://jncc.defra.gov.uk/page-1461 for SAC and SPA and from Download Ramsar summary data spreadsheet found on the JNCC website (http://jncc.defra.gov.uk/page-2392) These have been groups together where seemed appropriate.
[9] Those threats that have asterisk only apply to Ramsar sites.
[10] Threats, pressures and activities upon SACs and SPA are marked with an I, B or O. having an impact when occurring inside (I), outside (O) or both (both) for SAC and SPA.

SPA	Castleloch, Lochmaben																	B				
SAC	Clints Quarry											B			I							
SPA	Coquet Island			I							BB		B		II							
SAC	Craven Limestone Complex		I							B		B	B									
SAC	Cumbrian Marsh Fritillary Site			BI																		
SAC	Dee Estuary										B		BB		I							
SAC	Denby Grange Colliery Ponds			B					I	B	B	B										
SPA	Din Moss-Hoselaw Loch												B					B		B		
SAC	Drigg Coast		I	I			B															
Ramsar	Duddon Estuary		x[11]	x				x		x					x	x						
SAC	Duddon Mosses			I			B				B	B	B									
SAC	Durham Coast			I				B			BB	B			I							
SAC	Ellers Wood & Sand Dale						B						B									
Ramsar	Esthwaite Water																					
SPA	Farne Islands			I							B		B		II							
SAC	Fen Bog		I	I			B				B				I							
SAC	Flamborough Head										B		B		II							
SPA	Flamborough Head & Bempton Cliffs			I							B		B		BI							
pSPA	Flamborough Head Extension																					
SAC	Ford Moss						B		I			B										
SAC	Gang Mine	hatfi					B															
pSPA	Greater Wash																					
SPA	Greenlaw Moor																	B				

[11] Threats, pressures and activities upon each Ramsar are marked with an X

Ramsar	Greenlaw Moor	X																				
SAC	Harbottle Moors						B				B				I							
SAC	Hatfield Moor			I			B				B	B			I							
SAC	Helbeck & Swindale Woods			I			I	I														
Ramsar	Holburn Lake & Moss																					
SPA	Holburn Lake & Moss			I								B	B									
Ramsar	Holburn Lake and Moss	x																				
SPA	Hornsea Mere									B		B			I							
Ramsar	Humber Estuary		x	x				x		x		x			x							
SAC	Humber Estuary			I						B		B	B			O						
SPA	Humber Estuary			I							B		BB		I							
SAC	Ingleborough Complex		I	I		I	B					B										
Ramsar	Irthinghead Mires	x																				
SAC	Kirk Deighton			B		I																• Cover of macrophytes; • Shading of ponds.
SAC	Lake District High Fells		I				B				B		B		I							
SPA	Langholm-Newcastleton Hills		I	B											I							
Ramsar	Leighton Moss							x		x		x										
SPA	Leighton Moss									B	B	B	B									
Ramsar	Lindisfarne							x		x	x	x										
SPA	Lindisfarne			I						B	B		B		I							
SPA	Liverpool Bay											B			I		B	B				
pSPA	Liverpool Bay Extension																					
Ramsar	Lower Derwent Valley											x water diversion/reservoir/dam/flooding										

SAC	Lower Derwent Valley		I	I			I				B				I							
SPA	Lower Derwent Valley		I	B							B	B			I							
SAC	Manchester Mosses						B					B										
Ramsar	Martin Mere	x																				
SPA	Martin Mere									B	B	B										
Ramsar	Mersey Estuary	x																				
SPA	Mersey Estuary										B		B		I							
Ramsar	Mersey Narrows & North Wirral Foreshore			x										x	x							
SPA	Mersey Narrows & North Wirral Foreshore										B		BB		I							
Ramsar	Midland Meres & Mosses - Phase 1							x			x					x						
Ramsar	Midland Meres & Mosses Phase 2							x			x											
SAC	Moor House-Upper Teesdale		I	I	I	I																
Ramsar	Morecambe Bay														x							
SAC	Morecambe Bay						B								II							
SPA	Morecambe Bay and Duddon Estuary			I			I			B			B		I		I					
SAC	Morecambe Bay Pavements		I	I					I		B											
SAC	Naddle Forest						B				B											
SAC	Newham Fen						B															
SAC	North Northumberland Dunes			I						B	B		B		I							
SAC	North Pennine Dales Meadows																					
SAC	North Pennine Moors		I	I	I	I						B										

SPA	North Pennine Moors		I	I	I							B			I							
SAC	North York Moors			I	I		B				B		B									
SPA	North York Moors				I		B				B		B		I							
Ramsar	Northumbria Coast	x																				
SPA	Northumbria Coast									B		B	B		II							
SAC	Oak Mere						B			B	B	B										
SAC	Ox Close		I	I					I		B	B										
SAC	Peak District Dales		I	I				B		B		B										
SPA	Peak District Moors (South Pennine Moors Phase 1)			I	I							B			II							
Ramsar	Ribble & Alt Estuaries		x	x			x			x					x			x		x		
SPA	Ribble & Alt Estuaries			I			B				B	B	B									
SAC	River Derwent					I				B	B	B										
SAC	River Derwent & Bassenthwaite Lake									B	B	B										
SAC	River Eden					I				B	BB	B	B									
SAC	River Kent					I				I	I	I										
SAC	Rixton Clay Pits														I							
SAC	Rochdale Canal						B					B										
SAC	Roman Wall Loughs									B	B			O								
Ramsar	Rostherne Mere							x			x											
SAC	Roudsea Wood & Mosses			I					I		B	B	B									
SAC	Sefton Coast			B			B				B	B	B									
SAC	Simonside Hills					I					B	I			II							
SAC	Skipwith Common			I			B					B			I							

SAC	Solway Firth		I											I				B				
SAC	South Pennine Moors				I	B	B					B			I								
SPA	South Pennine Moors Phase 2			I	I							B			II								
SAC	South Solway Mosses						I				I	I											
SAC	Strensall Common			I			B								I								
SAC	Subberthwaite, Blawith & Torver Low Commons					I	B					B			II								
SAC	Tarn Moss						I		I	I	I												
Ramsar	Teesmouth and Cleveland Coast							x															
SPA	Teesmouth and Cleveland Coast									B		B			II	O							
Ramsar	The Dee Estuary			x							x				x	x (pollution)							
SPA	The Dee Estuary										B		B		I								
SPA	Thorne & Hatfield Moors														I	B (only E06)							
SAC	Thorne Moor			I			B				B	B			I								
SAC	Thrislington						B						B	O									
SAC	Tweed Estuary									B	B	B			II								
SAC	Tyne & Allen River Gravels			I			B				B												
SAC	Tyne & Nent			II			B							O	I								• River processes on the Tyne and Nent continue to have significant impacts on the distribution of Calaminarian grassland through the ongoing erosion and deposition of sediment and shingle. • Fluvial processes operating on the rivers Tyne and Nent continue to have significant impacts on the distribution of Calaminarian grassland through the ongoing erosion and deposition of sediments and shingle.

SAC	Ullswater Oakwoods		I				I		I		I												• soil compaction, (such as caused by vehicles or construction works); agricultural operations or other soil, disturbance (like trenches); and agro chemicals or other chemicals which get into the soil
Ramsar	Upper Solway Flats & Marshes	x																					
SPA	Upper Solway Flats & Marshes[12]		I										B						B				
SAC	Walton Moss					I	B					B											
SAC	Wast Water					I	B			B	B		B										
SAC	Witherslack Mosses						B				B	B											
SAC	Yewbarrow Woods		I								B												

[12] Upper Solway Flats and Marshes SPA has been extended and renamed Solway Firth pSPA, it is included in this assessment as it is still listed on JNCC website.

Appendix B. Findings of Stage 1 – Screening Assessment

B.1. HRA Results Tables

This appendix contains Tables B1 and B2 (see below) which summarise the broad interventions that apply to the TfN STP. The results determine whether the interventions are considered to have a likely significant effect on the European sites. The likely significant effects take into account the measures in the TFN STP which seek to protect European sites.

- Policy Type 1: Policies that will not themselves lead to development (e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy);
- Policy Type 2: Policies intended to protect the natural environment, including biodiversity;
- Policy Type 3: Policies intended to conserve or enhance the natural, built or historic environment, where enhancement measures will not be likely to have any negative effect on a European site; and
- Policy Type 4: Policies that positively steer development away from European sites and associated sensitive areas.

This has been based on The Habitats Regulations Assessment of Regional Spatial Strategies and sub-Regional Strategies (Draft Guidance) produced by Natural England in March 2007

Where possible, interventions have been categorised into sub policy types based on Natural England published guidance[13], as summarised below.

Table B-4 – Categories of Potential Effects of Land-Use Plans on European Sites

Category	Sub Category	Description
A – no negative effect	A1	Policies that will not themselves lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy.
	A2	Policies intended to protect the natural environment, including biodiversity.
	A3	Policies intended to conserve or enhance the natural, built or historic environment, where enhancement measures will not be likely to have any negative effect on a European site.
	A4	Policies that positively steer development away from European sites and associated sensitive areas.
	A5	Policies that would have no effect because no development could occur through the policy itself, the development being implemented through later policies in the same plan, which are more specific and therefore more appropriate to assess for their effects on European sites and associated sensitive areas.
B – no significant effect	N/A	Policies that could have a negative effect but would not be likely to have a significant effect on a European site alone or in combination with other plans or projects.
C – likely significant effects alone	C1	The policy could **directly affect** a European site because it provides for, or steers, a quantity or type of development onto a European site, or adjacent to it.
	C2	The policy could **indirectly affect** an European site e.g. because it provides for or steers, a quantity or type of development that may be very close to it, or ecologically, hydrologically or physically connected to it or it may increase disturbance as a result of increased recreational pressures.

[13] The Habitat Regulations Assessment of Local Development Projects (Revised Draft Guidance) (David Tyldesley & Associates for Natural England, February 2009).

	C3	Proposals for a **magnitude of development** that no matter where it was located, the development would be likely to have a significant effect on a European site.
	C4	A policy that makes provision for a quantity/ type of development but the effects are uncertain because the detailed location of the development is to be selected following **consideration of options at a later, more specific plan.**
	C5	Policies for developments or infrastructure projects that could **block options or alternatives** for the provision of other development or projects in the future which will be required in eh public interest that may lead to adverse effects on European sites, which would otherwise be avoided.
	C6	Policies which **depend on how the policies etc are implemented** in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site.
	C7	Any policies that would be **vulnerable to failure** under the Habitat Regulations at project assessment stage to include them in the plan would be regards by the EC as 'faulty planning'.
	C8	Any other proposal that may have an adverse effect on a European site which might try to pass the tests of the Habitat Regulations at project assessment stage by arguing that the **plan provides the imperative reasons** of overriding public interest to justify its consent despite a negative assessment.
D – likely significant effects in combination	D1	The policy alone would not be likely to have significant effects but if its effects are combined with the effects of other policies or proposals **provided for or coordinated** by the LDD (internally) the **cumulative** effects would be likely to be significant.
	D2	Policies that alone would not be likely to have significant effects but if their effects are **combined with the effects of other plans or projects** and possibly the effects of other developments provided for in the LDD as well the combined effects would be likely to be significant.
	D3	Policies that are or could be part of a **programme or sequence of development** delivered over a period where the implementation of the early stages would not have a significant effect on the location, timing of the whole project, the later stages of which could have an adverse effect on such sites.

The above guidance sets out criteria to assist with the screening process and addresses the management of uncertainty in the assessment process. Proposals falling with categories A and B are considered not to have an effect on a European site and can be eliminated from the assessment procedure. Proposals falling within category C and category D require further analysis, including the consideration of 'in-combination' effects to determine whether they should be included in the next stage of the HRA process.

Table B-5 – HRA Stage 1 Screening Findings for Objectives and Principles

TfN Strategic Transport Plan Objectives		
Objective	**Will the broad interventions lead to likely significant effects on the European sites?**	**Justification of Findings**
Transforming economic performance *This objective aims to secure investment in transport between the important urban and rural economic centres and assets to support sustainable transformation of the North's economic performance. The objective focuses on addressing the challenges identified in the Northern Powerhouse Independent Economic Review. This includes securing investment in transport interventions, which improve productivity, unlock investment and deliver agglomeration benefits between the North's important economic centres and assets, both rural and urban. It is also vital to connect the North to the world's most important economic markets to enhance trade, tourism and inward investment through international gateways.*	No	**Category A1:** Policies that will not themselves lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy. Intentions in this objective include securing funding and addressing challenges to secure funding. The objective does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. The Strategic Transport Plan and Investment Programme seeks to protect European sites (through text under the 'TfN's principle for Pan-Northern Transport Investment' on page 86 – 87 of the Strategic Transport Plan). Any potential direct or indirect impacts on these sites that may arise from new and/or upgraded transport interventions will be appropriately assessed, mitigated, or, as a last resort, compensated for, in-line with existing best practice and relevant legislation across the life span of the Plan. Therefore, should infrastructure development arise from the interventions, the need for HRA will be highlighted and undertaken at the development management stage. This objective is considered to have no likely significant effects on the European sites.
Promoting and enhancing the built, historic, and natural environment*This objective will ensure that through collaboration with TfN's Partners, stakeholders and communities, transport interventions across the strategic transport system protect and enhance the natural, historic and built environment, making sure that the North's strategic transport system is as sustainable as possible. It covers a range of issues, including the need to provide sustainable travel choices for the movement of people and goods across the North, reducing air pollutant and carbon emissions from transport, making best use of existing transport infrastructure before investing in new capacity and ensuring that new infrastructure is designed to minimise the negative impacts on the natural, historic and built environment, including on biodiversity and where possible result in net environmental gains. Promoting access to the natural and green environment will also promote physical and mental health.*	No	**Category A3: -** Policies intended to conserve or enhance the natural, built or historic environment, where enhancement measures will not be likely to have any negative effect on an European site. The Strategic Transport Plan and Investment Programme seeks to protect European sites (through text under the 'TfN's principle for Pan-Northern Transport Investment' on page 86 – 87 of the Strategic Transport Plan). Any potential direct or indirect impacts on these sites that may arise from new and/or upgraded transport interventions will be appropriately assessed, mitigated, or, as a last resort, compensated for, in-line with existing best practice and relevant legislation across the life span of the Plan. Therefore, should infrastructure development arise from the interventions, the need for HRA will be highlighted and undertaken at the development management stage. This objective actively seeks to protect the environment (including European site) and there the objective is considered to have no likely significant effects on the European sites.
Improving inclusivity, health, and access to opportunities for all This objective will ensure that the Strategic Transport Plan works for everyone who lives and works in the North through improved access to opportunities. Ultimately, transport is a means to an end. Economic growth in the North should be as inclusive as possible, avoiding transport poverty where the transport network limits access opportunities in communities. Investment in the strategic transport network should enable better access to key opportunities, including employment, health, social activities and education, regardless of an individual's age, income level, location and mobility, and promoting active and sustainable travel will also improve people's health, reduce air pollution and improve the environment. A carefully co-ordinated approach is required to ensure strategic and local transport investment programmes and policies are aligned and complementary.	No	**Category A1:** Policies that will not themselves lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy. Intentions in this objective include securing funding and addressing challenges to secure funding. Interventions in this category include increased access, pricing and availability. The objective does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. The Strategic Transport Plan and Investment Programme seeks to protect European sites (through text under the 'TfN's principle for Pan-Northern Transport Investment' on page 86 – 87 of the Strategic Transport Plan). Any potential direct or indirect impacts on these sites that may arise from new and/or upgraded transport interventions will be appropriately assessed, mitigated, or, as a last resort, compensated for, in-line with existing best practice and relevant legislation across the life span of the Plan. Therefore, should infrastructure development arise from the interventions, the need for HRA will be highlighted and undertaken at the development management stage. This objective is considered to have no likely significant effects on the European sites.
Increasing efficiency, reliability, integration, and resilience in the transport system *This objective aims to improve the performance and integration of the North's strategic transport network by making the case for interventions that improve its efficiency, reliability and resilience. The North's strategic transport networks and its connections with more local networks, must meet the needs of its users, whether they are residents, businesses or visitors. The management of these networks will need to be able to adapt to changing demands over the period to 2050, such as shifting commuter patterns, changing leisure aspirations, more extreme weather conditions as a result of climate change, and the emergence of new disruptive technologies, such as connected and autonomous vehicles. TfN will also identify opportunities to improve travel choices for the movement of both people and freight and to boost the resilience and sustainability of pan-Northern networks across the whole journey. This will include a*	No	**Category A1:** The objective will not itself lead to development e.g. because they relate to design or other qualitative criteria for development, or they are not a land use planning policy. The objective does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Interventions in this category include the increased access, performance and resilience. The Strategic Transport Plan and Investment Programme seeks to protect European sites (through text under the 'TfN's principle for Pan-Northern Transport Investment' on page 86 – 87 of the Strategic Transport Plan). Any potential direct or indirect impacts on these sites that may arise from new and/or upgraded transport interventions will be appropriately assessed, mitigated, or, as a last resort, compensated for, in-line with existing best practice

particular focus on making more sustainable travel options as attractive as possible, acknowledging that mode choice in often influenced by the ease of the initial part of any journey. TfN will also promote measures that help support modal shift and make the best of our existing networks, exploring new technologies and demand management tools that help to maximise network efficiency.		and relevant legislation across the life span of the Plan. Therefore, should infrastructure development arise from the interventions, the need for HRA will be highlighted and undertaken at the development management stage. This objective is considered to have no likely significant effects on the European sites.

Seven Strategic Development Corridors

Strategic Development Corridors	Broad Interventions	Will the broad interventions lead to likely significant effects on the European sites?	Justification of Findings
Connecting the Energy Coasts *Improving connectivity for people and goods between the nationally significant non-carbon energy and research assets located in Cumbria, Lancashire, North Yorkshire, the North East, and Tees Valley.*	Strategic and economic context: • This corridor seeks to enhance the strategic connectivity, for people and goods, between the advanced manufacturing and energy generation research centres and assets. This is crucial to support the transformational growth potential within this economic area. There is a strong presence of the North's prime capabilities within this corridor. • These economic centres and assets need to be better connected within the corridor, as well as to the north-south transport corridors. Strategic transport investment in this corridor will support nationally significant infrastructure investment, unlock opportunities for employment, support the supply chain, and housing construction, such as the proposed garden villages. Enhanced connectivity will also support tourism and leisure connectivity to some of the North's natural assets, such as the National Parks. • To the west of the corridor, strategic connectivity improvements can support the delivery and operation of a range of major projects including investment at Sellafield; this will also support wider growth in the centre of European excellence for the nuclear sector found in Cumbria. There are also growth aspirations for the Port of Workington and Barrow, and strengths in advanced manufacturing and renewable energy schemes in the south of Cumbria, such as BAE Systems. To the east of the corridor, there is significant growth potential in the energy generation industries in the North East and Tees Valley, as well as in logistics at Teesport, Port of Tyne and Port of Blyth. Specialisation in manufacturing and production is a key asset in this corridor. Transport context: • East-West movements are constraining opportunities for investment, and connectivity to ports and airports. Improvements have supported the existing rail network and Strategic Road Network for movements north-south. However, the corridor is significantly affected by efficiency and resilience issues and poor East-West connectivity, that not just hinders movements on this corridor, but movements across the North as a whole. This includes rail lines such as the Tyne Valley Line, Durham Coast Line and the Cumbrian Coast Line and Furness Line.	Yes	**Category C6:** Policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. The Connecting the Energy Coasts Strategic Development Corridor does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites and as such will require a Stage 2 Appropriate Assessment to be undertaken.
West and Wales *Improving connectivity, for people and goods, to, from and through the important economic centres and assets of Cheshire, Liverpool City Region and Greater Manchester, with strategic connectivity in to North Wales and the Midlands.*	Strategic and economic context: • This corridor can strengthen the connectivity between important and densely populated economic centres and assets, including some of the North's largest cities, such as Liverpool and Manchester. This corridor will also strengthen strategic cross-border connectivity in to North Wales and the Midlands. • There is significant economic and population growth forecast within this corridor, with associated transport demand. Economically, there is a strong representation of all the prime and enabling capabilities, along with nationally important economic assets that will support economic growth across the North as a whole. Strategic connectivity improvements can support growth at Manchester Airport, Liverpool John Lennon Airport, the Cheshire Science Corridor Enterprise Zones, the Atlantic Gateway, the North Wales Arc, the Port of Liverpool, and the Crewe HS2 Hub. Work by Growth Track 360, including connectivity with the Constellation Partnership, has highlighted how connectivity improvements would transform the North Wales and Cheshire regional economies. Transport economic context: • This corridor has a complex, dense transport network but future interventions need to be focussed on the key economic assets and adjacent markets for goods and labour. For example, there is currently poor southern and western access to Manchester Airport, the largest airport in the North. Current investment plans provide capacity in the short term. The Halton Curve re-instatement will unlock direct journey opportunities beyond Chester to North Wales in the medium term. Significant congestion, efficiency, capacity, and reliability impacts on the road and rail networks are constraining economic growth, such	Yes	**Category C6:** Policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. The West and Wales Strategic Development Corridor does not outline any development proposals and the exact details of where dvelopment may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites and as such will require a Stage 2 Appropriate Assessment to be undertaken.

	as on parts of the West Coast Main Line and M6 Motorway. The freight and logistics industry require enhanced connectivity on both the road and rail networks, as well as exploring opportunities for greater use of waterborne and intermodal freight. • Major strategic interventions can allow the important economic centres within the corridor to capitalise on inward investment and ensure that centres and assets continue to stimulate investment. Significant investment in rail, benefitting both passengers and freight, including the enhancement of Liverpool Lime Street Station and the redevelopment of Liverpool Central, will further enhance its capabilities.		
Central Pennines *Improving strategic east-west connectivity for some of the North's important economic centres and assets in North Yorkshire, West Yorkshire, East Riding and Hull and Humber through to Greater Manchester, Lancashire and Liverpool City Region.*	Strategic and economic context: • This corridor has some of the North's key economic and population centres, with a diverse mix of strategic movements. With enhanced strategic connectivity, there is the potential to uncap the significant economic growth potential. Addressing East-West connectivity is a priority for TfN, and a failure to address current connectivity constraints would critically restrict the transformational growth potential of this corridor and the wider Northern economy. • This corridor is a major economic area of the North, and is home to globally significant businesses, supply chains and economic assets across all the North's prime and enabling capabilities. The corridor has the largest aerospace cluster in the UK, including BAE Systems and Rolls Royce, with major sector representation and Europeanly competitive advantages in sectors such as automotive and other advanced manufacturing. • Enhanced connectivity can support complementary high-growth, high-value economic sectors and clusters and could attract new high-value business activity and inward investment to the corridor and the North. Freight and logistics is a key element of this corridor, connecting the Port of Liverpool with the Ports on the Humber. Leeds Bradford and Liverpool John Lennon Airport are situated within this corridor, providing important air connectivity which is enhanced by the catchment areas of other airports such as Manchester Airport. The visitor economy is also a key element of this corridor. Blackpool remains the UK's largest seaside resort, with economic renewal a key priority locally. Transport context: • There is a need to provide enhanced, additional road and rail capacity across the Pennines to provide alternatives to existing routes and to open up new opportunities. Across the corridor there is a diverse mix of strategic movements to cater for. Freight and logistics support the ports, airports and inland ports as well as servicing the businesses located across the corridor. Improving connectivity would accelerate increased employment, new housing developments, and increase the scale of the overall growth opportunity. • There is currently strong road and rail demand between Liverpool, Manchester and Leeds, with demand exceeding the current capacity on the rail network and the M62, with alternative connections along this corridor not providing a strong alternative movement option.	Yes	**Category C6:** Policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. The Central Pennines Strategic Development Corridor does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites and as such will require a Stage 2 Appropriate Assessment to be undertaken.
Southern Pennines *Improving the strategic East-West, multi-modal connectivity between the important economic centres, assets and ports within Liverpool City Region, Greater Manchester, Cheshire, Sheffield City Region, East Riding and Hull and Humber, as well as cross-border movements to the Midlands.*	Strategic and economic context: • This corridor provides connectivity between some of the major economic and population centres of the North, including Liverpool, Manchester, Sheffield and Hull, along with four major ports, and three European airports. East-West connectivity will need to be transformed in order to support the forecasted economic and population growth. • The North's prime and enabling capabilities are highly represented in this economic area. The corridor is home to globally significant businesses, supply chains and economic assets with major sector representation and • European competitive advantages in advanced manufacturing, low-carbon/energy and logistics, including the Energy Estuary in Hull and the Humber. Advanced manufacturing is a particular strength with a strong • cluster in the Sheffield City Region, which is home to the Advanced Manufacturing Research Centre managed by the University of Sheffield and the top Enterprise Zone for Modern Manufacturing and Technology in the UK. Greater Manchester also offers significant opportunities for growth in the advanced materials sector and advanced manufacturing is one of four specific areas of 'smart specialisation' identified by the Liverpool City Region. This corridor has the opportunity for freight and logistics to continue to strengthen the operations and investment at the corridor's ports, airports and inland ports. Enhancing strategic connectivity to the growth plans of Doncaster Sheffield Airport, Manchester Airport, and the Ports of Liverpool and the Humber, can have associated economic growth benefits along the corridor and the wider Northern economy. Grimsby and Immingham ports are the busiest in the UK by combined freight tonnage. • Investment in the corridor will also need to be sensitive to sustainability considerations, particularly the Peak District National Park, as well as identifying the visitor economy benefits from the enhanced strategic connectivity. Transport context: • Providing transport routes to complement the M62 corridor and linking the Sheffield City Region west and east more effectively, thereby improving overall Trans Pennine connectivity are key aims, with an additional need to	Yes	**Category C6:** Policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. The Southern Pennines Strategic Development Corridor does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites and as such will require a Stage 2 Appropriate Assessment to be undertaken.

	• improve connections to the growing Humber ports. The important economic centres can be supported to grow and invest through significant agglomeration benefits gained through improved, efficient, resilient strategic road and rail connectivity. Improved multi-modal connectivity would address the economic challenges and ambitions of the corridor. Improving resilience will enhance conditions for freight movements particularly, and therefore continuity of supply for businesses.		
North west to Sheffield City Region *Strengthening rail connectivity between the advanced manufacturing clusters and assets in Cumbria, Lancashire, Greater Manchester and Sheffield City Region, with improved connectivity from the North in to Scotland.*	Strategic and economic context: • This rail corridor looks to strengthen the strong and growing connectivity and collaboration between the advanced manufacturing, health technology, digital businesses, and research centres in the Sheffield City Region and those in Lancashire and Cumbria. • The corridor is home to globally significant businesses, supply chains and economic assets. Important centres including Samlesbury Enterprise Zone, Blackpool Airport Enterprise Zone, which is home to the National Energy College, the University of Manchester's Dalton Nuclear Institute in Cumbria, Manchester Airport, and the Sheffield City Region Advanced Manufacturing Park, which is home to the Nuclear Catapult Research Centre, and in Barrow-in-Furness and its major role in subsea technologies and marine engineering. The Fylde Coast is an established base for polymer science, nuclear and renewable energy. • Greater Manchester sits between these two clusters and, in addition to forming part of the expertise in these sectors, it provides access to professional and financial services which support the prime capabilities. Bringing all these centres of research closer together by improving connectivity will increase productivity and support collaboration and innovation. • The logistics industry is also important for servicing the businesses located across the corridor, and within the corridor. There is also a strong visitor and tourism offer from two of the UK's national parks, which enhanced strategic connectivity and access to European gateways across the North can support. Transport context: • The potential economic links between the two areas are not served well by the existing rail network, and so this corridor needs to complement other investments being pursued in road improvements in the North West and across the Pennines. There is also strong demand for growth on this corridor through to Scotland, for passengers and freight. On the line between Blackpool North, Preston and Manchester, journey times and frequencies are being improved. • Locations north-west of Manchester are poorly connected to Sheffield City Region and the West Coast Main Line has capacity constraints north of Preston. Frequency of through services across Manchester are insufficient, and journey times are also poor. This issue extends in to Cumbria with speed and capacity constraints. There are also significant freight flows, such as on the Hope Valley Line, where freight flows are driven by the cement and aggregates industries. • Current challenges on the Hope Valley line is the current mix of fast and stopping passenger services and freight services. Journey time and frequency improvements are also an issue on the South Fylde line.	Yes	**Category C6:** Policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. The North west to Sheffield City Region Strategic Development Corridor does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites and as such will require a Stage 2 Appropriate Assessment to be undertaken.
East Coast to Scotland *Strengthening rail connectivity and capacity along the East Coast Main Line and other key parallel rail lines, such as the Durham Coast Line, to provide enhanced strategic and local connectivity in the North East, Tees Valley, East Riding and North Yorkshire.*	Strategic and economic context@ • This rail corridor looks to strengthen the significant economic development in this corridor. These developments include the major ports, airports including Newcastle and Leeds Bradford, major rail hubs, strategic rail freight interchanges and intermodal terminals. • The corridor also contains several nationally significant assets, such as the European Advanced Manufacturing Park (IAMP), in Sunderland and South Tyneside, Tees CCPP NSIP, York Potash Harbour Facilities and Walney Extension offshore wind farm. There is potential for future longer term investment at Hartlepool nuclear power station and major renewable energy assets at Dogger Bank and Blyth, with links to those within Hull and the Humber. Advanced manufacturing is a particular strength with a strong automotive sector in the North East and the Tees Valley and advanced manufacturing in the Sheffield City Region. • There is also a growing renewable energy sector along the east coast, requiring collaboration and connectivity across the corridor. The North East also has particular strengths in the health sector, which are complemented by emerging growth areas within the Tees Valley, and Sheffield City Region, and a strong and growing health and life science sector in the Leeds City Region. These prime capabilities are supported by strengths in the enabling capabilities including professional services (particularly in the North East and Leeds City Region) and logistics associated with the corridor's ports, airports and freight hubs. • There are significant freight and logistics centres along the corridor with key national links within the North East, as well as to the Midlands and Scotland. Both air and freight hubs provide a focus for growth in the movements of goods, supported by a growing inland port and distribution capability. There is also a strong visitor and tourism offer, including Hadrian's Wall World Heritage Site, Northumberland Dark Skies Park, Northumberland and North Yorkshire Moors National Parks. Transport Context:	Yes	**Category C6:** Policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. The East Coast to Scotland Strategic Development Corridor does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites and as such will require a Stage 2 Appropriate Assessment to be undertaken.

	• Although the East Coast Main Line provides a key spine for North-South freight and passenger movements, this rail corridor is wider than just that route, encompassing parallel rail lines, including the Durham Coast Line where journey time and peak capacity are key issues that constrain opportunities. The wider connectivity requirements along the Eastern Corridor link several key economic centres and also include links to the Northern Powerhouse Rail and HS2 programmes. • Investment is required at rail stations including Darlington, Middlesbrough, Newcastle, York, Hartlepool, Morpeth and Sunderland to increase capacity, promote economic growth, and make the most of the opportunities provided by HS2. There are existing capacity, operability, timetabling, and reliability constraints along the corridor, which is limiting economic growth and the movement of people.		
Yorkshire to Scotland *Strengthening road connectivity between the Midlands, South Yorkshire, West Yorkshire, North Yorkshire, East Riding, Tees Valley, the North East, and Scotland, building on the existing road investment commitments.*	Strategic and economic context: • This road corridor looks to strengthen and complement the East Coast Corridor to Scotland road corridor and will examine the transformational requirements to better connect the economic centres in this corridor beyond the current Road Investment Strategy commitments. • The significant economic developments in this corridor include ports (Tyne, Tees, Sunderland), airports (Newcastle, Durham Tees Valley and Doncaster Sheffield), major rail hubs (Newcastle and Doncaster), and intermodal freight terminals. • The corridor also contains several nationally significant assets, such as the European Advanced Manufacturing Park (IAMP), in Sunderland and South Tyneside, Tees CCPP NSIP and York Potash Harbour Facilities. There is potential for future longer term investment at Hartlepool nuclear power station and major renewable energy assets at Dogger Bank and Blyth, with links to those within Hull and the Humber. Advanced manufacturing is a particular strength with a strong automotive sector in the North East and the Tees Valley and advanced manufacturing in the Sheffield City Region. There is also a growing renewable energy sector along the east coast, requiring collaboration and connectivity across the corridor. The North East also has particular strengths in the health sector, which are complemented by emerging growth areas within the Tees Valley, and Sheffield City Region, and a strong and growing health and life science sector in the Leeds City Region. These prime capabilities are supported by strengths in the enabling capabilities including professional services (particularly in the North East and Leeds City Region) and logistics associated with the corridor's ports, airports and freight hubs. • There are significant freight and logistics centres along the corridor with key national links within the North East, as well as to the Midlands and Scotland. Both air and freight hubs provide a focus for growth in the movements of goods, supported by a growing inland port and distribution capability. There is also a strong visitor and tourism offer, including Hadrian's Wall World Heritage Site, Northumberland Dark Skies Park, Northumberland and North Yorkshire Moors National Parks. Transport context: • The major North-South routes of the A1 and A19 must provide a consistent level of service and resilience to meet the needs of the important economic centres they link and the strategic journeys they facilitate. Improved transport connectivity between the cities and surrounding economic centres, such as along the A19, will increase productivity and support the growth of complementary industrial capabilities. • This corridor can transform the movement of people and goods within this corridor, as well as strategic movements between Scotland and the Midlands. This will complement Midlands Connect and Transport Scotland's aspirations for additional north-south connectivity and resilience.	Yes	**Category C6:** Policies which depend on how the policies etc are implemented in due course. There is a theoretical possibility that if implemented in one or more particular ways the proposals could possibly have a significant effect on a European site. The Yorkshire to Scotland Strategic Development Corridor does not outline any development proposals and the exact details of where development may be located other than general areas, their design and/or when (or if) these sites will be constructed upon are not stated. Using the precautionary approach this policy may lead to a likely significant effect on European protected sites and as such will require a Stage 2 Appropriate Assessment to be undertaken.

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