




Cambois Connection Onshore Scheme

Environmental Statement Volume 2

Chapter 9: Terrestrial Ecology and Ornithology

	Cambois Connection – Onshore Scheme ES Chapter 9: Terrestrial Ecology and Ornithology	Doc No: A100796-S01 – Terrestrial Ecology and Ornithology – A01
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Acronyms

Acronym	Description
aOD	above Ordnance Datum
BNG	Biodiversity Net Gain
BoCC	Birds of Conservation Concern
CEA	Cumulative Effects Assessment
CEMP	Construction Environmental Management Plan
DEFRA	Department for Environment Food and Rural Affairs
eDNA	Environmental DNA
EA	Environment Agency
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EPS	European Protected Species
ERIC	Environmental Records Information Centre
ES	Environmental Statement
EU	European Union
GCN	Great Crested Newt
HDD	Horizontal Directional Drilling
HVDC	High Voltage Direct Current
HVAC	High Voltage Alternating Current
INNS	Invasive Non Native Species
JNCC	Joint Nature Conservation Committee
Km	Kilometre
m	Metre
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MAGIC	Multi-Agency Geographic Information for the Countryside
MCZ	Marine Conservation Zone
MDS	Maximum Design Scenario

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Acronym	Description
MLWS	Mean Low Water Springs
NCC	Northumberland County Council
NE	Natural England
NERC	Natural Environment and Rural Communities Act 2006
NPPF	National Policy Planning Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NTS	Non Technical Summary
OS	Ordinance Survey
PEA	Preliminary Ecological Assessment
PDE	Project Design Envelope
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Special Site of Scientific Interest
SWO	Surface Water Outfall
WCA	Wildlife & Countryside Act 1981
WeBS	Wetland Bird Survey

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9. Terrestrial Ecology and Ornithology


9.1. Introduction

1. This Chapter presents the assessment of the likely significant effects (as per the ‘Environmental Impact Assessment (EIA) Regulations’¹) on the environment arising from the Cambois Connection Onshore Scheme (‘the Onshore Scheme’) on terrestrial ecology and ornithology receptors. Specifically, this Chapter considers the potential impact of the Onshore Scheme landward of Mean Low Water Springs (MLWS) during the construction, operation and maintenance, and decommissioning phases.
2. This Chapter summarises baseline information contained within:
 - Volume 3, Technical Appendix 9.1: Ecology – Habitat Survey Report;
 - Volume 3, Technical Appendix 9.2: Ecology – Great Crested Newt Survey Report;
 - Volume 3, Technical Appendix 9.3: Ecology – Invertebrate Survey Report;
 - Volume 3, Technical Appendix 9.4: Ecology – Mammal Survey Report;
 - Volume 3, Technical Appendix 9.5: Ecology – Bat Survey Report;
 - Volume 3, Technical Appendix 9.6: Ornithology – Breeding Bird Survey Report;
 - Volume 3, Technical Appendix 9.7: Ornithology – Wintering Bird Survey Report; and
 - Volume 3, Technical Appendix 9.8: Ecology – Preliminary Ecological Appraisal
3. An indicative Biodiversity Net Gain (BNG) Indicative Design Stage Report (SLR, 2023) has also been prepared to accompany this application.
4. A Report to Inform Appropriate Assessment has also been prepared to accompany the application which considers Habitats Regulations Assessment (HRA) for the Onshore Scheme.

9.2. Purpose of this Chapter

5. This Chapter:
 - Presents the existing environmental baseline established from desk studies, site-specific surveys and feedback obtained during technical engagement with stakeholders;
 - Identifies any assumptions and limitations encountered in compiling the environmental information;
 - Presents the potential environmental impacts on terrestrial ecology and ornithology arising from the Onshore Scheme, and reaches a conclusion on the likely significant effects on terrestrial ecology and ornithology based on the information gathered and the analysis and assessments undertaken; and
 - Highlights any necessary monitoring and/or mitigation measures recommended to prevent, minimise, reduce or offset the likely significant adverse environmental effects of the Onshore Scheme on terrestrial ecology and ornithology.

¹ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended).

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6. In addition to the assessment on terrestrial and ornithology receptors, this Chapter also considers potential impacts to the intertidal environment associated with the proposed Surface Water Outfall (SWO) into the Sleaford Burn.

9.3. Study Area

7. The Onshore Scheme is located at Cambois, Blyth, south of the River Wansbeck and north of the River Blyth.
8. The red line boundary for this area (hereafter referred to as 'the Site') is shown on Figure 1.2 and the Indicative Zones of Infrastructure are shown on Figure 5.1 (Volume 4).
9. The Site encompasses approximately 188 ha of land. The Site is approximately 188 ha in area, the maximum footprint of the Onshore Scheme, as described below. However, the maximum footprint of the Onshore Scheme as described in Chapter 5 Project Description and section 9.8 below will be considerably smaller than the 188 ha and therefore will not utilise the full extent of the Site. Furthermore, once installed, there will be limited permanent infrastructure that will be visible above ground.
10. Please note that at the scoping stage, a much larger area was considered. This area is referred to as the Onshore Scheme Scoping Boundary hereafter.
11. The Terrestrial Ecology and Ornithology study area varies according to the ecological receptor in question, based on relevant good practice guidance. A search was conducted for designated sites within 10 km of the Site and non-designated sites within 2 km of the Site.
12. The study areas for all surveys conducted are summarised in TThe study area used for habitats and vegetation is shown in Figure 9.1.1 within Technical Appendix 9.1 (Volume 3) and includes all areas within the Site.
13. The study areas for relevant faunal species are summarised in Table 9-1 and are described in more detail within Technical Appendices 9.2 to 9.7 in Volume 3.


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Table 9-1 Study Areas


Title	Study Area	Reference to Further Information
Habitat Survey	The habitat survey was conducted in all areas within the Site. A survey for invasive non-native species (INNS) was carried out alongside the habitat survey.	Figure 9.1.1 (Volume 3, Technical Appendix 9.1)
Invertebrates: Dingy Skipper (<i>Erynnis tages</i>) and Grayling (<i>Hipparchia semele</i>)	Surveys were undertaken in areas of suitable habitat for the target species. Three survey areas were identified and these cover all potentially suitable habitat for each of the target species within the Site.	Figure 1 (Volume 3, Technical Appendix 9.3)
Great Crested Newt (<i>Triturus cristatus</i>) (GCN)	Habitat Suitability Index (HSI) – ponds within the Site and 250 m buffer, where accessible. eDNA Survey – seven ponds identified as potentially suitable from the HSI survey.	Figure 9.2.1 (Volume 3, Technical Appendix 9.2)
Breeding Birds	Suitable habitats for breeding waders within the Landfall/HVDC zone and habitats that could be lost permanently in the Converter Station zone.	Figure 1 (Volume 3, Technical Appendix 9.6)
Wintering Birds	Surveys specifically targeted intertidal and coastal habitats that could be significantly adversely affected by the Project, as follows: Cambois Beach – including 1 km offshore. Sleek Burn– all parts of Sleek Burn and adjacent Blyth Estuary that could be adequately viewed from the north bank of the Sleek Burn. The study area used for this assessment includes intertidal habitats within 400 m of the Site to allow for assessment of disturbance effects ² .	Figure 1.1 (Volume 3, Technical Appendix 9.6)
Protected Mammals (excluding bats)	Otter (<i>Lutra lutra</i>) and water vole (<i>Arvicola amphibius</i>) – all suitable habitat within the Site and 250 m buffer, where accessible, excluding areas south of the Sleek Burn / Blyth Estuary. Badger (<i>Meles meles</i>) – areas of suitable habitat within the Site and a 30 m buffer, where accessible. Red Squirrel (<i>Scuirus vulgaris</i>) – All suitable habitat within the Site.	Figure 9.4.1 (Volume 3, Technical Appendix 9.4) and associated confidential appendix.
Bats	The study area for the bat survey incorporated all land within the boundary of the Site.	Figure 9.5.1 (Technical Appendix 9.5, Volume 3)

9.3.1. Intertidal Area

14. The Site includes two intertidal areas. The intertidal area at the landfall overlaps with the marine topics of:

- Benthic Subtidal and Intertidal Ecology (Chapter 8, Volume 2 of Marine Scheme ES);
- Fish and Shellfish Ecology (Chapter 9, Volume 2 of Marine Scheme ES);
- Marine Mammals (Chapter 11, Volume 2 of Marine Scheme ES); and

² A 400 m maximum disturbance buffer is in line with recent advice provided by Natural England for other offshore wind farm connection projects.

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- Offshore and Intertidal Ornithology (Chapter 10, Volume 2 of Marine Scheme ES).

- The intertidal area at the Landfall has also been assessed in detail within the Marine Scheme Environmental Statement (ES). This Chapter only assesses impacts on ecological receptors (specifically birds) occurring within the intertidal zone at the Landfall where these may result from activities associated with the Onshore Scheme. The potential for cumulative effects on ecological receptors occurring within the intertidal zone at the Landfall is also considered in the cumulative effects assessment (Section 9.13).
- Effects on intertidal habitats (and associated faunal species, notably non-breeding birds) arising from the Onshore Scheme within the Sleek Burn and Blyth Estuary are assessed in this Chapter. It is important to note that for licensable activities below MHWS on the Sleek Burn, a Marine Licence will be required from the Marine Management Organisation (MMO) under the Marine and Coastal Access Act 2009. The Applicant is aware of all licensing requirements and will engage with the MMO to discuss this and formally apply in due course. The approach to obtaining a Marine Licence from the MMO, separate to the planning application to NCC, is required due to the lack of detailed design information associated with the SWO on the Sleek Burn (noting also that the approach is consistent with that which was followed by the adjacent North Sea Link converter station development).
- As detailed within this document, the Applicant’s commitment to trenchless technology at the Landfall means that there is no potential for any direct interaction with the intertidal area for both the Marine Scheme and Onshore Scheme. The trenchless technology ducts will pass beneath the intertidal area from a point at least 250 m seawards of MLWS to a location onshore landwards of the dune system. There is no above ground infrastructure located within the intertidal area, thereby limiting the likelihood of significant effects on terrestrial ecological receptors in the intertidal area, other than birds, which could be affected by disturbance taking place outside the intertidal area itself. Effects on birds within the intertidal area are therefore assessed within this Chapter.

9.4. Policy and Legislative Context

- A summary of the policy and legislative provisions relevant to terrestrial ecology and ornithology are provided in Table 9-2 and Table 9-3.



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Table 9-2 Summary of national and local policy relevant to Terrestrial Ecology and Ornithology


Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the ES
National Planning Policy Framework (NPPF) (England)	<p>Sets out the Government’s planning policies for England and how these should be applied. Provides a framework within which locally prepared plans for development can be produced.</p> <p>Policy 15 of the Framework sets out what should be considered within planning applications in order to conserve and enhance the natural environment.</p> <p>Specifically, Policy 15 paragraph 174 states: <i>‘Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)... d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.’</i></p> <p>Paragraph 179 states: <i>‘To protect and enhance biodiversity and geodiversity, plans should: a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.’</i></p>	Relevant policies from the NPPF were considered in determining the scope of the assessment and are therefore considered throughout the Chapter.
The Overarching National Policy Statement (NPS) for Energy (EN-1) ^{3,4}	<p>NPS EN-1 notes in Paragraph 4.3.1 that prior to an order to grant development consent, due consideration must be given as to whether the project may have a significant effect on a European site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects.</p>	Relevant policies from EN-1 were considered in determining the scope of the assessment and are therefore considered throughout the Chapter.

³ Whilst it is acknowledged that the Onshore Scheme does not comprise or form part of an NSIP (please see Volume 2, Chapter 2: Legislative and Policy Context. NPSs are however a statement of government intention relating, in this case, to renewable energy projects, therefore can be taken into consideration during the preparation of the Onshore Scheme ES.

⁴ A suite of draft revised Energy NPSs were published and consulted on by the UK Government in March 2023, and consultation closed on 23rd June. The consultation responses will be subject to consideration and the draft revised NPSs may now be revised before the NPSs are formally adopted. There is currently no date for the next stage of the review process and therefore this ES presents the extant adopted NPSs which have been considered during the preparation of this ES. It is however noted by the Applicant that the new draft NPSs state that they may be material considerations in other applications which are not considered under the Planning Act (2008), which includes the Marine Scheme. Further detail on the consideration of the draft NPSs in this ES is provided in Volume 2, Chapter 2 Legislative and Policy Context.

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Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the ES
	<p>Section 5.3 of NPS EN-1 discusses the generic biodiversity and geological conservation effects associated with energy infrastructure, recognising the need to protect the most important biodiversity and geological conservation interests.</p> <p>Where the development is subject to EIA, the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity (NPS Section 5.3.3).</p> <p>The EIA should illustrate where the project has been able to use opportunities to conserve and enhance biodiversity interests (Section 5.3.4) and should aim to avoid significant harm through the use of mitigation and considering reasonable alternatives. Where significant harm cannot be avoided, then appropriate compensation measures should be provided (Section 5.3.7).</p> <p>The draft update to NPS EN-1 also encourages the applicant to consider how proposals can contribute to Biodiversity Net Gain (BNG) in Section 4.5 and Paragraph 5.4.21, , noting that the scope of potential gains is dependent on the type, scale and location of each project.</p>	
NPS for Renewable Energy Infrastructure (EN-3)	Guidance specific to offshore wind farms is provided in NPS for Renewable Energy Infrastructure (EN-3), however the guidance regarding biodiversity relates to offshore impacts; for more generic ecology and biodiversity effects EN-3 refers to the relevant sections of EN-1.	
Northumberland Local Plan 2016-2036	<p>Sets strategic planning policies of Council, provides planning principles and key environmental designations. Reflects government NPPF and sits underneath regional framework and strategies.</p> <p>Chapter 10 of the Plan sets out environmental policies including Policy ENV 1: Approaches to assessing the impact of development on the natural, historic and built environment, and Policy ENV 2: Biodiversity and geodiversity. Of particular relevance to this assessment, Policy ENV 1 states:</p> <p><i>'1) The character and/or significance of Northumberland's distinctive and valued natural, historic and built environments, will be conserved, protected and enhanced by: a. Giving appropriate weight to the statutory purposes and special qualities of the hierarchy of international, national and local designated and non-designated nature and historic conservation assets or sites and their settings...</i></p> <p><i>2) In applying part (a) above, recognising that: a. Assets or sites with a lower designation or non-designated, can still be irreplaceable, may be nationally important and/or have qualitative attributes that warrant giving these the appropriate protection in-situ; b. Development and associated activity outwith designations can have indirect impacts on the designated assets or sites.</i></p>	Relevant policies from the Northumberland Local Plan were considered in determining the scope of the assessment and are therefore considered throughout the Chapter.

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Relevant Policy	Summary of Relevant Policy Framework	How and Where Considered in the ES
	<p>3) <i>An ecosystem approach will be taken that demonstrates an understanding of the significance and sensitivity of the natural resource. This should result in a neutral impact on, or net benefit for those ecosystems and the ecosystem services that they provide.</i></p> <p>Policy ENV 2 states: <i>‘Development proposals affecting biodiversity and geodiversity, including designated sites, protected species, and habitats and species of principal importance in England (also called priority habitats and species), will: a. Minimise their impact, avoiding significant harm through location and/or design. Where significant harm cannot be avoided, applicants will be required to demonstrate that adverse impacts will be adequately mitigated or, as a last resort compensated for; b. Secure a net gain for biodiversity as calculated, to reflect latest Government policy and advice, through planning conditions or planning obligations.’</i></p>	



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Table 9-3 Summary of legislation relevant to Terrestrial Ecology and Ornithology

Relevant Legislation	Summary of Relevant Legislative Framework	How and Where Considered in the ES
Wildlife and Countryside Act 1981 (as amended) (WCA)	Primary legislation for protection of animals, plants and habitats in the UK.	Relevant legislation was considered in determining the scope of the assessment and within the subsequent impact assessment. It is therefore considered throughout the Chapter.
Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations)	<p>The Habitats Regulations are one of the pieces of domestic law that transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) into English and Welsh law. These regulations were last amended in 2019 to make them operable from 1 January 2021 despite the UK’s withdrawal from the European Union (EU).</p> <p>The Habitats Regulations cover the requirements for protecting sites that are internationally important for threatened habitats and species and set out a legal framework for species requiring strict protection.</p>	<p>With specific regard to the requirements of the Habitats Regulations, please refer to also the Report to Inform Appropriate Assessment (RIAA) which accompanies this application which considers Habitats Regulations Assessment (HRA) in further detail. This follows on from HRA Screening (BBWFL, 2023) assessment carried out by the Applicant which was provided to NCC as well as Natural England in March 2023.</p>
Natural Environment and Rural Communities (NERC) Act 2006	<p>Makes provisions about bodies concerned with the natural environment and rural communities, placing duty to conserve biodiversity onto public authorities in England in the exercise of their functions.</p> <p>Section 41 of the Act requires the publication of a list of habitats and species which are of principal importance for the purpose of conserving biodiversity.</p>	
Environment Act 2021	<p>Includes wide-ranging provisions including provisions relating to nature and biodiversity at Part 6.</p> <p>Sets clear targets for the recovery of the natural world including biodiversity. Schedule 14 makes provision for biodiversity gain to be a condition of planning permission in England.</p>	
Hedgerows Regulations 1997	Provides protection for important hedgerows in England and Wales.	
The Protection of Badgers Act 1992	Prohibits the killing, injuring or capturing of a badger; and intentional or reckless interference with badger setts.	

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9.5. Consultation and Technical Engagement

19. A summary of the key issues raised during consultation and technical engagement activities undertaken to date, specific to terrestrial ecology and ornithology, is presented in Table 9-4, together with how these issues have been considered in the production of this Chapter. Further detail is presented within Volume 1, Chapter 6 of this ES.



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Table 9-4 Summary of key consultation and technical engagement undertaken for the Onshore Scheme relevant to Terrestrial Ecology and Ornithology

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
Relevant consultation and engagement undertaken to date			
16 January 2023	Natural England (NE) - Project Update	<p>The Applicant provided a general Project update.</p> <p>The proposed approach to develop a single HRA Stage 1 Screening Report to cover both the Marine Scheme and the Onshore Scheme was discussed, including the advantages to this approach. Natural England confirmed agreement with this approach for the HRA Screening Report.</p>	<p>Advice from Natural England was used to inform the HRA Screening Report and RIAA.</p>
22 February 2023	NE – Project Update	<p>A Project update was provided via a Microsoft Teams meeting, with discussion undertaken on the detail required regarding permits for Ground Inspection works, Natural England’s expectations for mitigation for any works undertaken within Sites of Special Scientific Interest and Priority Habitat, along with deliverables outlining said mitigation.</p>	<p>A Project decision was taken during the pre-application consultation process to bring the offshore export cables ashore using trenchless technology (e.g., Horizontal Directional Drilling (HDD)) where the offshore export cables will be passed through cable ducts that are drilled beneath the intertidal zone (the beach) to connect directly into the underground TJBs. This has removed the need for open cut trenching within the intertidal zone and within the Northumberland Shore Site of Special Scientific Interest and sand dune Priority Habitat, thereby protecting the sand dune habitat from direct environmental effects. See Volume 2, Chapter 6: Site Selection and Consideration of Alternatives.</p>
26 April 2023	Northumberland County Council (NCC) Ecologist Response to Pre-Application Enquiry	<p>NCC state that the comments provided in relation to the Scoping Report remain valid.</p> <p>Within the pre-application enquiry the applicant sought confirmation that noise modelling for ecological receptors is not required at this stage. The NCC response stated: ‘Until the location of specific elements of the scheme are established, it is accepted that it would not be possible to undertake meaningful noise modelling for ecological receptors. However, once scheme design is finalised, it will need to be demonstrated that measures are in place to either avoid or mitigate disturbance of sensitive ecological receptors.’</p>	<p>Noted.</p> <p>Assumptions on noise levels under the maximum design scenario are detailed in Table 9-12.</p> <p>Proposed mitigation measures to avoid, minimise or reduce any significant effects on designated sites is detailed in Table 9-14.</p> <p>Assessment of impacts of noise on ecological receptors can be found in section 9.11.</p>

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		<p>NCC state that if works are proposed during wintering period, appropriate mitigation measures will be required to mitigate impacts on wintering birds utilising the Northumbria Coast SPA and Northumberland Shore SSSI.</p> <p>NCC highlight that the NPPF makes it clear that any development must include biodiversity enhancement. As per the Environment Act 2021 a net gain of 10% must be demonstrated using a metric based approach, and secured in management for 30 years.</p>	<p>Proposed measures to mitigate significant adverse effects on designated sites are detailed in Table 9-14.</p> <p>A Biodiversity Net Gain Assessment has been prepared to accompany this EIA (SLR, 2023). The Applicant notes that the provisions included in the Environment Act 2021 requiring a 10% net gain in biodiversity are stated by Government to be coming into force in 'from January 2024'. The details of transitional arrangements have not yet been made available from Government, however a recent Government blog post states that '<i>Mandatory BNG will only apply to new applications for planning permission for major development made after January 2024. We are working with DLUHC on transitional arrangements to ensure that BNG is not applied retrospectively to planning applications that have been submitted or have already been granted planning permission before the implementation date</i>'⁵. However, the applicant notes that as a responsible developer, even though the submission date falls before the requirement to provide BNG becomes mandatory, they will commit to deliver 10% biodiversity net gain.</p>
2 May 2023	Northumberland Wildlife Trust (NWT)	A Project update was provided via a Microsoft Teams meeting. Discussions were held on planned ecological surveys with NWT confirming that dinky skipper surveys should be completed between mid-May and mid-June.	Dinky skipper surveys were completed during the period 12th June to 22nd June under optimal weather conditions. The results of this survey can be found in Section 9.7.1.3.1 and full details are contained in Technical Appendix 9.3, Volume 3.
5 May 2023	Northumberland County Council (NCC) –	Noted that there are a number of international, national and local environmental designations which the current red line boundary or in the very close vicinity. These include: Northumbria Coast Ramsar Convention Wetlands; Northumberland Marine	Assessment of impacts upon designated sites can be found in section 9.11.

⁵ Defra, BNG: what's happened and what's coming next, <https://defralanduse.blog.gov.uk/2023/07/20/bng-whats-happened-and-whats-coming-next/> [Accessed October 2023].

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
	Response to Pre-Application Enquiry	SPA; Northumberland Shore SSSI; Coquet to St Mary's Marine Conservation Zone; and Blyth Estuary Local Wildlife Site. Highlighted that Policy ENV 1 states that the character and significance of Northumberland's valued natural environments will be conserved and protected. Policy ENV 2 states that development proposals affecting designated sites will minimise their impact, avoiding significant harm through location and/or design, as well as securing a net gain for biodiversity.	A RIAA has been prepared which accompanies this application and considers HRA in further detail. This follows on from HRA Screening (BBWFL, 2023) assessment carried out by the Applicant which was provided to NCC as well as Natural England in March 2023A Biodiversity Net Gain Assessment has been prepared to accompany this EIA (SLR, 2023).
16 May 2023	NCC County Ecologist meeting.	Discussion regarding surveys completed to date and future ecology surveys. Initial discussion regarding the approach to providing and assessing Biodiversity Net Gain (BNG).	Proposed survey scope and approach to BNG subsequently agreed in writing (see consultation detailed below dated 18 May 2023 and 01 June 2023 respectively).
18 May 2023	Proposed Scope of Ecology Survey Work (letter to NCC).	Proposed scope of ecological survey requirements for the project.	Email from NCC ecologist accepting the proposed additional ecological survey work dated 24 May 2023. The proposed scope of survey work is as described in section 9.6.2 and Table-9-6 of this Chapter.
31 May 2023	NCC	A specific request was also made in relation to the confirmation of noise modelling locations and the approach to the noise assessment with regard to ecological receptors, as well as any other considerations, including any technical constraints not identified in the Preliminary Ecological Appraisal Report that should be addressed.	It was agreed with NCC that noise modelling for ecological receptors would not be required (email dated 31 May 2023 from David Love)
01 June 2023	Note to NCC setting out the proposed approach to BNG.	Applicant note to NCC ecologist outlining SSEs approach to BNG. Refer to Chapter 6: Stakeholder Consultation and Engagement for further detail.	NCC response dated 09 June 2023 confirmed that the approach outlined within the note is acceptable, subject to NCC making various comments. The BNG approach, which includes consideration of comments made by NCC, is provided in the BNG Indicative Design Stage Report prepared to accompany this EIA (SLR, 2023).
08 June 2023	NE – Project Update	A Project update was provided to outline the commitments process to bring the offshore export cables ashore using trenchless technology (e.g., Horizontal Directional Drilling (HDD)) at landfall.	Volume 2, Chapter 6: Site Selection and Consideration of Alternatives.

Consultation on the Onshore Scheme: Scoping Opinion



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12 December 2022	NE consultation response to Scoping Opinion for the Cambois Connection Onshore Scheme	<p>NE notes that an impact assessment should identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out.</p> <p>NE states that the ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within the following European/internationally designated nature conservation site(s): Berwickshire and North Northumberland Coast Special Area of Conservation (SAC); Durham Coast Special Area of Conservation (SAC); Northumbria Coast Special Protection Area (SPA); Northumberland Marine SPA; Teesmouth and Cleveland Coast SPA; Northumbria Coast Ramsar; Teesmouth and Cleveland Coast Ramsar; and Lindisfarne Ramsar</p>	<p>A cumulative assessment evaluating effects in combination with other developments and activities can be found in section 9.13.</p> <p>Details of designated sites can be found Table 9-7 and their locations are shown in Figures 9.1 and 9.2 (Volume 3). Assessment of impacts upon designated sites can be found in section 9.11. Designated sites scoped out of the assessment, along with appropriate justification, are listed in Table 9-13. Please refer to the RIAA that accompanies this application, which considers HRA in further detail. This follows on from HRA Screening (BBWFL, 2023) assessment carried out by the Applicant which was provided to NCC as well as Natural England in March 2023.</p>
		<p>NE states that the ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within identified SSSIs (Durham Coast SSSI, Hadston Links SSSI and Northumberland Shore SSSI) and identify appropriate mitigation measures to avoid, minimise or reduce any adverse significant effects. The consideration of likely significant effects should include any functionally linked land outside the designated site.</p>	<p>Details of designated sites can be found in Table 9-7 and their locations are shown in Figures 9.1 and 9.2 (Volume 3). Assessment of impacts upon designated sites can be found in section 9.11. Designated sites scoped out of the assessment, along with appropriate justification, are listed in Table 9-13. Proposed mitigation measures to avoid, minimise or reduce any significant effects on designated sites is detailed in Table 9-14 and within section 9.11.</p>
		<p>NE states that the ES should include a full assessment of the direct and indirect effects on nearby Marine Conservation Zones (MCZs) (Coquet to St Marys MCZ and Berwick to St Marys MCZ) and identify appropriate mitigation to minimise or avoid adverse significant effects.</p>	<p>Details of designated sites can be found in Table 9-7 and their locations are shown in Figures 9.1 and 9.2 (Volume 4). Assessment of impacts upon designated sites can be found in section 9.11. Designated sites scoped out of the assessment, along with appropriate justification, are listed in Table 9-13. Proposed mitigation measures to avoid, minimise or reduce any significant effects on designated sites is detailed in Table 9-14. It should also be noted as part of the Marine Licence Application for the Marine Scheme a MCZ/Marine Protected Area (MPA) assessment was undertaken which considered effects of the</p>

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Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
		NE states the ES should consider impacts upon local wildlife and geological sites including local nature reserves and set out proposals for mitigation of any impacts.	<p>Marine Scheme (as well as any cumulative impacts with the Onshore Scheme) on the conservation objectives of nearby MCZs.</p> <p>Details of local wildlife sites and local nature reserves considered within this Chapter are detailed in paragraph 26 and are shown on Figures 9.1 and 9.2 (Volume 3)</p> <p>Potential impacts on geological sites are not included in this Chapter but are considered in Chapter 10: Geology and Soils.</p>
		NE states that the ES should assess the impact of all phases of the proposed development on protected species, and consideration given to the wider context of the site e.g., habitat/ population linkages.	<p>Impacts of all phases of the Onshore Scheme are assessed in sections 9.11.1, 9.11.2 and 9.11.3.</p> <p>Cumulative Impacts are considered in Table 9-16 and section 9.13.2.</p>
		NE state that an appropriate level of habitat survey should be carried out on the site, to identify any important habitats present. In addition, ornithological, botanical and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present.	<p>Details of all field surveys carried out (including survey timings) are provided in section 9.6.2 and Table 9-6.</p>
		NE states that consideration should be given to the potential environmental value of brownfield sites. Sites can be checked against the (draft) national Open Mosaic Habitat (OMH) inventory.	<p>Details and evaluation of habitats present on site (including Open Mosaic Habitat) are provided in Table 9-9.</p>
		NE states that the ES should assess the impacts of the proposal on any ancient woodland, ancient and veteran trees, and the scope to avoid and mitigate any adverse impacts. It should also consider opportunities for enhancement.	<p>Details and evaluation of habitats present on site (including woodland) are provided in Table 9-9. Details of opportunities for enhancement are provided in the Indicative Design Stage Report (SLR, 2013).</p>
		NE states that the ES should use an appropriate biodiversity metric together with ecological advice to calculate the change in biodiversity resulting from proposed development and demonstrate how proposals can achieve a net gain.	<p>BNG calculations and proposals can be found in the BNG Indicative Design Stage Report (SLR, 2023).</p>
13 December 2022	NCC Scoping Opinion (County Ecologist)	NCC states that this scoping opinion is based on an undefined project covering a large area and as such, it is important that they are reconsulted when further decisions have been made.	<p>As outlined in Chapter 6 Site Selection and Consideration of Alternatives, the boundary of the Onshore Scheme has been refined since submission of the Scoping Report. Furthermore,</p>

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	Response – appended to the Scoping Opinion)		the NCC Ecologist was reconsulted on 18 May 23 as detailed above.
		NCC states that there will be a need for a HRA for ornithology, in addition to full EIA for terrestrial and ornithological receptors.	<p>Potential impacts on birds, including bird species forming qualifying or notified features of nearby designated sites, are assessed in section 9.11.</p> <p>A RIAA has been prepared which accompanies this application considers HRA in further detail. This follows on from HRA Screening (BBWFL, 2023) assessment carried out by the Applicant which was provided to NCC as well as Natural England in March 2023.</p>
		NCC states that the potential impacts to the European Protected Sites listed in the NE response need to be considered within the EIA.	<p>Potential impacts to European Protected Sites are considered in section 9.11.</p> <p>Designated sites scoped out of the assessment, along with appropriate justification, are listed in Table 9-13.</p>
		NCC states that if the refined development footprint contains Open Mosaic Habitat then surveys for invertebrates may be required.	<p>Surveys for invertebrates were undertaken between June and August 2023. The scope of survey work was agreed with NCC in May 2023 (see above).</p> <p>Results of these surveys are summarised in section 9.7 with further details provided in Technical Appendix 9.3 (Volume 3).</p>
		NCC states that noise levels may need to be assessed for ecological receptors (especially, but not necessarily exclusively for birds). NCC highlight potential requirement for consideration of noise impacts on terrestrial ecology specifically.	<p>Impacts of noise disturbance on birds are considered in section 9.11, based on information provided in Chapter 13: Noise and Vibration. It is noted that noise modelling for ecological receptors is not possible at this stage, in the absence of detailed project designs (see also NCC pre-application enquiry response dated 26th April 2023 and separate correspondence dated 31st May 2023 - above) and therefore a precautionary approach has been taken.</p>
		NCC notes that there is a site at Cambois managed by NCC as a mitigation site for SSSI waders, in connection with the Blyth Local Development Order. Development should avoid impacts on this area.	<p>The mitigation site was included in the wintering bird survey area (Volume 3, Technical Appendix 9.7) but is located over 400 m from the Site boundary and therefore will not be affected.</p>



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Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
		NCC states it is unlikely breeding birds or wintering bird surveys will be required but this cannot be ruled out completely.	The survey scope was refined and agreed with NCC as detailed in consultation dated 18 May 2023. The revised scope included surveys for breeding birds and wintering birds. Survey results are summarised in section 9.7 with further details provided in Technical Appendix 9.6 and Technical Appendix 9.7 (Volume 3).
14 December 2022	Environment Agency (EA) consultation response to Scoping Opinion	EA notes that they consider the proposed scope of the EIA to be appropriate and are satisfied with the recommendations for proposed further ecological survey requirements.	Noted.
		EA states that in accordance with the NPPF, BNG should be considered within the EIA. EA recommends that a BNG calculator is used to calculate biodiversity net gain.	BNG calculations and proposals can be found in the BNG Indicative Design Stage Report (SLR, 2023).
29 December 2022 (cover letter dated 04 January 2023)	NCC scoping Opinion (general)	NCC states that the ES should thoroughly assess the potential to affect designated sites including marine sites where relevant. Should a likely significant effect be identified, an appropriate assessment should be prepared.	Details of designated sites can be found in Table 9-7 and their locations are shown in Figures 9.1 and 9.2 (Volume 4). Assessment of impacts upon designated sites can be found in section 9.11. Designated sites scoped out of the assessment, along with appropriate justification, are listed in Table 9-13. A RIAA has been prepared that accompanies this application, which considers HRA in further detail. This follows on from HRA Screening (BBWFL, 2023) assessment carried out by the Applicant which was provided to NCC as well as Natural England in March 2023.
		NCC states that the need to address cumulative impacts, as set out in the scoping report, should be included within the ES.	Cumulative Impacts are considered Table 9-16 and section 9.13.2.

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9.6. Methodology to Inform Baseline

9.6.1. Desktop Study

20. Existing information on terrestrial ecological and ornithological features within the study area was collected through a detailed desktop review of existing studies and datasets, the results of which were provided in the Preliminary Ecological Assessment (PEA) report (SLR, 2022) appended to the Scoping Report and included here as Technical Appendix 9.8 (Volume 3). These are summarised in Table 9-5 below.

21. Please note that the study area at the time of the desktop study was much larger than the current study area, however the results of the desktop study are still valid.

Table 9-5 Summary of key desktop studies & datasets

Title	Source	Year	Author
Environmental Records Information Centre (ERIC) North East	https://www.ericnortheast.org.uk/	Accessed 2022	ERIC NE
Multi-agency Geographic Information Centre (MAGIC) website and Natural England’s Designated Site Viewer	https://magic.defra.gov.uk/magicmap.aspx	Accessed 2022	Natural England
BritishVolt Project Phoenix Environmental Statement (ES): Main Report	BritishVolt	2021	Ridge
BritishVolt Project Phoenix Environmental Statement (ES): Volume 3: Appendices	BritishVolt	2021	Ridge
Project Phoenix EN20037 Construction Environmental Management Plan	BritishVolt	2021	ISG
Battery Storage Site, West Sleek Burn, Preliminary Ecological Appraisal	Northumberland.gov.uk	2022	Quants Environmental
Battery Storage Site, West Sleek Burn, Bedlington, Dusk Emergence Survey	Northumberland.gov.uk	2022	Quants Environmental

9.6.2. Site-specific Surveys

22. To inform the assessment, a range of site-specific surveys were undertaken. Whilst it is noted that some further surveys may be required to inform subsequent reserved matters applications, once the detailed design is known (e.g., surveys for roosting bats), it has been agreed with NCC that the scope of surveys undertaken is sufficient to inform this assessment. A summary of the surveys undertaken to inform this assessment is outlined in Table 9-6.



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Table 9-6 Summary of site-specific surveys undertaken

Title	Overview of Survey	Survey Contractor	Date	Reference to Further Information
Habitat Survey	Habitats within the Site were mapped using the UK Habitat Classification (UKHab) following the methods described in the UK Habitat Classification User Manual (Butcher <i>et al.</i> , 2020). The survey identified habitats of conservation concern, protected or notable plant species and INNS. Habitats were defined using primary codes to label the overall habitat and secondary codes to define the details of the habitat. A habitat condition assessment was carried out in conjunction with the UKHab survey, in order to inform the BNG assessment.	SLR Consulting Ltd.	April to August 2023 (multiple dates)	Habitat Survey: Technical Appendix 9.1 (Volume 3). Habitat Condition Assessment: Contained within the BNG Indicative Design Stage Report (SLR, 2023).
Invertebrates	Targeted surveys for dingy skipper and grayling consisted of four survey visits during which all potentially suitable habitat for each species was surveyed twice during the flight periods for each species.	SLR Consulting Ltd.	June to August 2023	Volume 3, Technical Appendix 9.3
Great Crested Newt (<i>Triturus cristatus</i>) (GCN)	HSI assessment to assess suitability of water bodies within the site and survey buffer using the standard HSI assessment method (ARG UK, 2010). eDNA survey then conducted on seven water bodies (out of 12) noted as having potential GCN habitat to determine GCN presence.	SLR Consulting Ltd.	June 2023	Volume 3, Technical Appendix 9.2
Breeding Birds	Breeding wader surveys based on methods in Gilbert <i>et al.</i> (1998). Other surveys used an adapted version of the Common Birds Census methodology (Gilbert <i>et al.</i> 1998).	SLR Consulting Ltd.	May to June 2023	Volume 3, Technical Appendix 9.6
Wintering Birds	Twice monthly through-the-tide surveys recording waterbird distribution and abundance.	SLR Consulting Ltd.	October 2022 to March 2023	Volume 3, Technical Appendix 9.7
Protected Mammals (excluding bats)	Site assessed for presence of protected and otherwise notable mammals focusing on species likely to occur in the area: Eurasian otter surveys in line with the methods outlined in Chanin (2003a &b); water vole surveys following methodology as described in Dean <i>et al.</i> (2016), European badger surveys as described in Scottish Badgers (2018), and red squirrel surveys as described in Gurnell <i>et al.</i> (2009).	SLR Consulting Ltd.	June and July 2023	Volume 3, Technical Appendix 9.4.
Bats	A Site walkover to assess the suitability of the site to support commuting, foraging and roosting bats was carried out in April 2023 in line with specific criteria within Collins (2016).	SLR Consulting Ltd.	PRA: July 2023 May to September 2023.	Volume 3, Technical Appendix 9.5

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Title	Overview of Survey	Survey Contractor	Date	Reference to Further Information
	<p>A Ground-based Preliminary Roost Assessment (PRA) was carried out within the Site to identify suitable habitat for roosting bats.</p> <p>Activity surveys in the form of transects and static detector surveys were carried out in the active bat season to ascertain information regarding the bat species utilising the site and levels of associated activity. Transect surveys using two survey transects were conducted in line with Collins (2016). Static bat detector surveys were carried out at four locations. Transect and static detector surveys were carried out monthly between May and September 2023 in line with Collins (2016).</p>			

9.7. Baseline Environment

9.7.1. Overview of Baseline Environment

23. Baseline data collection has been undertaken via a combination of desk study and field study.

9.7.1.1. DESK STUDY

9.7.1.1.1. STATUTORY DESIGNATED SITES

24. A search for statutory designated sites of ecological importance was conducted up to 10 km of the Site boundary (up to 2 km for Local Nature Reserves (LNR)). There are 14 terrestrial statutory designated sites, excluding Local Nature Reserves (LNR), located within 10 km of the Site boundary (see Figure 9.1 (Volume 4)). Details of designated sites within 10 km are presented in Table 9-7, which also includes brief details of other sites, beyond 10 km, that are specifically referenced in scoping responses.



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Table 9-7 Statutory designated sites within 10 km/ specifically referenced in scoping responses

Site Name	Designation	Approximate Distance and Direction from Site Boundary	Reason for Designation
Northumberland Marine	SPA	0 km overlaps with the Site	Breeding Sandwich tern (<i>Thalasseus sandvicensis</i>), Arctic tern (<i>Sterna paradisaea</i>), common tern (<i>Sterna hirundo</i>), Roseate tern (<i>Sterna dougallii</i>), little tern, puffin (<i>Fratercula arctica</i>) and guillemot (<i>Uria aalge</i>). Breeding seabird assemblage.
Northumberland Shore	SSSI	0 km overlaps with the Site	Important wintering ground for shore birds, of international or national significance for: purple sandpiper, turnstone, sanderling (<i>Calidris alba</i>), golden plover (<i>Pluvialis apricaria</i>), ringed plover (<i>Charadrius hiaticula</i>) and redshank (<i>Tringa totanus</i>).
Coquet to St Marys	MCZ	0 km overlaps with site	Marine habitats
Berwick to St Marys	MCZ	0 km overlaps with site	Common eider (<i>Somateria mollissima</i>)
Northumbria Coast	Ramsar	0.3 km	Wintering purple Sandpiper (<i>Calidris maritima</i>) and turnstone (<i>Arenaria interpres</i>),
	SPA	0.3 km	Breeding little tern (<i>Sternula albifrons</i>), wintering turnstone and purple sandpiper.
Wansbeck Riverside Park	Local Nature Reserve	0.8 km north-west	Ancient Semi-Natural Woodland
Cresswell and Newbiggin Shore	SSSI	1.1 km north-east	Of national importance by Geological Conservation Review.
Paddock Wood	Local Nature Reserve	2.4 km north	Woodland
Ha'penny Woods	Local Nature Reserve	1.9 km south-west	Woodland
Choppington Community Woods	Local Nature Reserve	3.1 km west	Native woodland supporting native and migratory bird species.
Willow Burn Pasture	SSSI	3.9 km west	Unimproved neutral grassland in an area of former ridge and furrow cultivation.
Hawthorn Cottage Pasture	SSSI	5.2 km	Coastal dune ridge system important for diverse plant communities associated with a compiled of wet and dry dune hollows.

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Site Name	Designation	Approximate Distance and Direction from Site Boundary	Reason for Designation
New Hartley Ponds	SSSI	6.4 km south	Seasonal ponds supporting five species of breeding amphibian including great crested newt, smooth newt, palmate newt and frog and toad.
Tynemouth to Seaton Sluice	SSSI	6.9 km south	Geological designation overlapping Northumberland Shore SSSI. Supports a significant proportion of internationally important winter populations of purple sandpiper, sanderling and turnstone.
Holywell Pond	SSSI	7.7 km south	Wintering and migratory waterfowl.
Arcot Hall Grassland and Ponds	SSSI	8.3 km south-west	Species rich grasslands with heaths ponds and associated damp habitats. Supports an assemblage of regionally important invertebrates. Main pond used by wintering waterfowl and passage migrants.
Cresswell Ponds	SSSI	9.7 km north	Migratory birds and feeding and roosting areas for wintering waders and wildfowl.
Castle Island	Local Nature Reserve	1.3 km north	Woodland
<p>The sites listed below have also been included in the table as they were specifically referenced in the NE scoping response, however all lie over 10 km from the Site boundary and they are therefore not considered further in this EIA or shown in Figure 9.1 (Volume 4). The locations of the European designated sites are shown in the HRA Screening Report (Appendix 1 to the RIAA) which accompanies this application.</p>			
Durham Coast	SSSI	16.8 km	Vegetated sea cliffs
Hadston Links	SSSI	13.9 km	Geological designation
Berwickshire and North Northumberland Coast	SAC	26.2 km	Habitats: Large shallow inlets and bays; mudflats and sandflats; reefs; and submerged or partially submerged sea caves. Species: grey seal (<i>Halichoerus grypus</i>)
Teemouth and Cleveland Coast	Ramsar	49 km	Knot, redshank, Sandwich tern, waterbird assemblage
	SPA	45.5 km	Avocet (<i>Recurvirostra avosetta</i>), common tern, knot (<i>Calidris canutus</i>), little tern, redshank, Ruff (<i>Calidris pugnax</i>), Sandwich tern, waterbird assemblage.
Lindisfarne	Ramsar	52.2 km	Wintering bird assemblage
	SPA	52.2 km	Internationally important assemblage of breeding and non-breeding waterbirds.

25. Designated sites of geological importance are outside the scope of this assessment and are not considered further in this Chapter. See Chapter 10: Geology and Soils for consideration of these sites.

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9.7.1.1.2. NON-STATUTORY SITES

26. A search for non-statutory sites was conducted up to 2km of the site boundary (See Figure 9.2 (Volume 4). One non-statutory Local Wildlife Site (LWS) overlaps the Site boundary (Blyth Estuary). Sleek Burn Fen LWS and Wansbeck Estuary LWS lie 1.4 km west and 0.8 km north of the Site respectively. Additionally, two ancient woodlands lie within 2 km of the Site: Hospital Wood 1.7 km to the north and Bebside Wood 1.9 km to the south-west (see Figure 9.2, Volume 4).

9.7.1.1.3. EXISTING RECORDS OF PROTECTED AND NOTABLE SPECIES

27. A data search for existing records of protected or notable species within 2 km of the Onshore Scheme Scoping Boundary was conducted (full details are available within the Technical Appendix 9.8 (Volume 3). A summary of the results is provided in Table 9-8. Since this time, the Site boundary has been refined and is now much smaller and therefore it is possible that some of the records listed in Table 9-8 are located more than 2 km from the current Site boundary. However, the records are still relevant to the assessment as they highlight species known to be present in the wider area.

28. The data search also returned records of 64 species of protected and notable flowering plant species within 2 km of the Onshore Scheme Scoping Boundary. These are not included in Table 9-8. Details of these can be found within Table 3-2 of Technical Appendix 9.8 (Volume 3).




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Table 9-8 Existing records of protected and notable species within 2 km of Onshore Scheme Scoping Boundary


Species	Status	Notes
Grayling (<i>Hipparchia semele</i>)	Section 41	High numbers of records (>60, often records of multiple individuals) returned from ERIC NE, most recently 2010. High numbers recorded within former Britishvolt site boundary (surveyed in 2019).
Wall brown (<i>Lasiommata megera</i>)	Section 41	High numbers of records (>150, often records of multiple individuals) returned from ERIC NE, most recently 2010. Suitable habitat present within 2019 former BritishVolt site boundary.
Dingy skipper (<i>Erynnis tages</i>)	Section 41, LBAP	Three records (five individuals total) returned from ERIC NE, most recently 2013. Suitable habitat present within 2019 former BritishVolt site boundary.
Small Heath (<i>Coenonympha pamphilus</i>)	Section 41	Three records (around 10 individuals total) returned from ERIC NE, most recently 1999.
Palmate Newt (<i>Lissotriton helveticus</i>)	Schedule 5 WCA (sale only)	ERIC NE returned two records, most recent 2019.
Great Crested Newt	EPS, Schedule 5 WCA, Section 41; LBAP	ERIC NE returned 14 records, most recent from 2012. No records were returned within the Site boundary.
Smooth Newt (<i>Lissotriton vulgaris</i>)	Schedule 5 WCA (sale only)	ERIC NE returned multiple recent records within 2 km of Onshore Scheme Scoping Boundary, most recent 2019.
Common frog (<i>Rana temporaria</i>)	Schedule 5 WCA (sale only)	ERIC NE returned recent records within 2 km of Onshore Scheme Scoping Boundary.
Common Toad (<i>Bufo bufo</i>)	Schedule 5 WCA (sale only), Section 41	ERIC NE returned recent records within 2 km of Onshore Scheme Scoping Boundary.
Slow worm (<i>Anguis fragilis</i>)	Schedule 5 WCA (killing, injury and sale only); Section 41	ERIC NE returned recent records approx. 1.7 km south-east of the Site. Most recent record 2010.
Common lizard (<i>Zootoca vivipara</i>)	Schedule 5 WCA (killing, injury and sale only); Section 41	Former Britishvolt site survey returned records of common lizard during a 2007 survey.
Little ringed plover (<i>Charadrius dubius</i>)	Schedule 1 WCA	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary; Identified breeding within former Britishvolt site boundary during surveys in 2020/2021.
Barn owl (<i>Tyto alba</i>)	Schedule 1 WCA; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.

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Species	Status	Notes
Kingfisher (<i>Alcedo atthis</i>)	Annex 1, Schedule 1 WCA	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Peregrine (<i>Falco peregrinus</i>)	Annex 1, Schedule 1 WCA	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Curlew (<i>Numenius Arquata</i>)	Section 41, LBAP (coastal birds)	Identified breeding within former Britishvolt site boundary in surveys 2020/2021.
Lapwing (<i>Vanellus vanellus</i>)	Section 41, LBAP (farmland birds and coastal birds)	Identified breeding within former Britishvolt site boundary in surveys in 2020/2021.
Ringed plover (<i>Charadrius hiaticula</i>)	LBAP (coastal birds)	Identified within site boundary in both breeding and non-breeding Britishvolt surveys in 2020/2021.
Willow tit (<i>Poecile montanus</i>)	Section 41	Identified breeding within former Britishvolt site boundary in surveys 2020/2021.
Golden plover (<i>Pluvialis apricaria</i>)	Annex 1, LBAP (coastal birds)	Identified in non-breeding period within former Britishvolt site boundary in surveys 2020/2021.
Turnstone (<i>Arenaria interpres</i>)	LBAP (coastal birds)	Identified in non-breeding period within former Britishvolt site boundary in surveys 2020/2021.
Redshank (<i>Tringa totanus</i>)	LBAP (coastal birds)	Identified in non-breeding period within former Britishvolt site boundary in surveys 2020/2021.
Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	EPS; Schedule 5 of WCA; Section 41; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	EPS; Schedule 5 of WCA; Section 41; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Nathusius' pipistrelle (<i>Pipistrellus nathusii</i>)	EPS; Schedule 5 of WCA; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Daubenton's bat (<i>Myotis daubentonii</i>)	EPS; Schedule 5 of WCA; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Natterer's bat (<i>Myotis natter</i>)	EPS; Schedule 5 of WCA; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Whiskered bat (<i>Myotis mystacinus</i>)	EPS; Schedule 5 of WCA; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Whiskered/ Brandt's bat (<i>Myotis brandtii</i>)	EPS; Schedule 5 of WCA; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.

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Species	Status	Notes
Noctule bat (<i>Nyctalus noctule</i>)	EPS; Schedule 5 of WCA; Section 41; LBAP	ERIC NE returned recent records within 2 km of the Onshore Scheme Scoping Boundary.
Badger	Protection of Badgers Act	ERIC NE returned 20 records within 2km of the Onshore Scheme Scoping Boundary (majority of records dead individuals by roadside); no field signs identified within former Britishvolt site.
Otter	EPS; Schedule 5 WCA; Section 41; LBAP	ERIC NE returned 40 records; 2019 surveys for the former Britishvolt site found suspected field signs (no holts or resting places). Majority of records on River Wansbeck and River Blyth (none within the Site).
Water vole	Schedule 5 WCA, Section 41; LBAP	ERIC NE returned one record north of the Site; record appears in a field near the River Wansbeck (none within the Site).
Red Squirrel	Schedule 5 WCA, Section 41; LBAP	ERIC NE returned >500 records, with at least 20 occurring within the Onshore Scheme Scoping Boundary. Only one record returned occurs within the Site boundary (from 2010).
Hedgehog (<i>Erinaceus europaeus</i>)	Section 41; LBAP	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Brown hare (<i>Lepus europaeus</i>)	Section 41	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Invasive non-native species		
American mink (<i>Mustela vison</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary, most recent record >7 years old.
Grey squirrel (<i>Sciurus carolinensis</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary >5 years old.
Hollyberry Cotoneaster (<i>Cotoneaster bullatus</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Wall Cotoneaster (<i>Cotoneaster horizontalis</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Himalayan Cotoneaster (<i>Cotoneaster simonsii</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
New Zealand Pigmyweed (<i>Crassula helmsii</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Japanese Knotweed (<i>Fallopia japonica</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.

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Species	Status	Notes
Giant Hogweed (<i>Heracleum mantegazzianum</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Indian Balsam (<i>Impatiens glandulifera</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Rhododendron (<i>Rhododendron ponticum</i>)	Schedule 9 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.
Japanese Rose (<i>Rosa rugosa</i>)	Schedule 9 1 WCA	ERIC NE returned records within 2 km of the Onshore Scheme Scoping Boundary.

EPS: European Protected Species listed under Schedule 2 of the Habitats Regulations
Annex 1: Annex 1 of the EC Birds Directive
Schedule 5 WCA: Listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)
Schedule 9 WCA: Listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)
Section 41: Listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006
Protection of Badgers Act: Protection of Badgers Act 1992
LBAP: Priority species within the Northumberland Local Biodiversity Action Plan

9.7.1.2. VEGETATION BASELINE

29. Habitats identified under the UKHab classification within the Site are shown in Table 9-9 with more detailed habitat descriptions provided in Technical Appendix 9.1 (Volume 3). The mapped results are shown on Figure 9.1.1 (Technical Appendix 9.1, Volume 3).
30. It should be noted that due to the overlap of the Landfall/HVDC Zone and the HVAC Zone that areas contained in Table 9-9 are likely to be an overestimation.
31. Location of INNS were also recorded during the habitat survey, with full details of these provided in Appendix 9.1 (Volume 3) and locations mapped on Figure 9.1.2 (Technical Appendix 9.1, Volume 3).

9.7.1.2.1. EVALUATION OF FLORAL RECEPTORS

32. An evaluation of the importance of the habitat types (see section 9.9.2.1.1 for evaluation methodology) present within the Site is provided in Table 9-9, which also includes information regarding the conservation status of each habitat type and justification for the evaluation given.

Table 9-9 UK Habitats present on site and evaluation

UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
g3c Other Neutral Grassland	13.39 6.59%	Converter Station Zone	Common across the Site, most areas were historically arable fields and influenced by previous management practice.	None	Local	Other Neutral Grasslands do not have priority status but can have relatively high biodiversity value. The swards present on site were diverse with young trees present. Therefore, other neutral grassland on Site is assessed as being of local value.
	17.13 8.43%	HVAC Zone	g3c areas found in Converter Station Zone are more herb rich, with field in south-east of Converter Station Zone damper. Grasslands immediately east of dunes (landfall/HVDC zone) are similar but with generally shorter sward height, and more disturbed due to public access for walking.			
	17.91 8.81%	Landfall HVDC Zone				
g4 Modified Grassland	0.27 0.13%	Converter Station Zone	g4 is common in linear arrangement along roadside edges and in small areas in urban environments, these areas are subject to regular management via mowing.	None	Less than local	Modified Grassland is a very common and widespread habitat of low conservation value and has therefore been assessed as being of less than local value.
	1.86 0.92%	HVAC Zone	Other areas of modified grassland occur in a football field and a park located within the south-east of the Site (landfall/HVDC zone) and around school grounds towards the east of the Site.			
	4.18 2.06%	Landfall HVDC Zone	Both areas are regularly managed by mowing. Two smaller areas of modified grassland are located in the HVAC Zone and the east of the Landfall/HVDC Zone,			

UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
			these are used for grazing by horses and sheep.			
s3a Coastal Sand Dunes	6.43 3.42%	Landfall HVDC Zone	Located within the Landfall/HVDC Zone, adjacent to the coast. Subject to regular disturbance by dog walkers with well-worn tracks running through. The northern area of the dunes is dominated by stands of neutral grassland species on sandy ground, changing to the south where more dune species on sandy and stoney ground dominate.	Priority Habitat LBAP	County	Coastal Sand Dunes are a Priority Habitat. The dunes present on Site are degraded from human disturbance with grassland species encroaching, with some areas of the dunes being absent of common dune indicator species. Despite that, given the importance of the habitat type, this habitat on Site is assessed as being of County value.
t2a Coastal Saltmarsh	0.42 0.21%	HVAC Zone	Present in discrete locations amongst mudflats along the banks of the Sleek Burn (HVAC Zone).	Priority Habitat LBAP	County	Coastal Saltmarshes are a priority habitat. Saltmarsh communities are considered to be sensitive to development and anthropogenic activities within the coastal and intertidal environment. The saltmarsh habitat present on site is very small and may have been degraded over time. Despite that, given the importance of the habitat type, the saltmarsh on Site is assessed as being of County Value.
t2d Intertidal Mudflats	3.84 1.89%	HVAC Zone	Present at the lower intertidal area along the banks of the Sleek Burn (HVAC Zone).	Priority Habitat LBAP	County	Intertidal mudflats present on site lie within the intertidal section of the Sleek Burn. They support species for which the adjacent Northumberland Shore SSSI is notified, although they lie outside the SSSI itself. They also lie within the Northumberland Marine

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UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
						SPA, although they are not a supporting habitat for any of the SPA qualifying features and within the Blyth Estuary LWS, for which they are a key interest feature. On that basis they are not considered nationally or internationally important but are considered to be of at least county value.
t2h Beach	5.50 2.92%	Landfall/HV DC Zone	Sandy beach habitat located within the Landfall/HVDC Zone running the length of the site.	LBAP	County	The beach habitat is a local BAP habitat and lies within the Northumberland Shore SSSI, although regular disturbance via dog walkers (see Technical Appendix 9.7) limits its value for its notified bird species. Given its limited value for SSSI bird species it is not considered to be nationally important but is likely to be of county value. See Section 9.7.1.3.4 for details of wintering birds within this area.
h2a Hedgerow	1022 m	Converter Station Zone	Hedgerows border many of the fields throughout the Site. Scattered single hedgerows are found throughout the Site alongside roads, within the former Britishvolt site (Landfall/ HVDC Zone)	Priority Habitat LBAP	Local	Hedgerows are a Priority Habitat with a high biodiversity value. They also appear in the Northumberland BAP within the Trees and Hedgerows Action Plan.
	626 m	HVAC Zone	and in the urban environment. No hedgerows within the Site show signs of recent management.			Hedgerows are not currently managed on site which has resulted in some growing to the point of being designated as a line of trees. Hedgerows are largely dominated by hawthorn and therefore considered species poor. Hedgerows on the Converter Station Zone to the west and north have frequent
	328 m	Landfall/HV DC Zone	Hedgerows found within the Converter Station Zone are species poor, double planted with frequent gaps to the west			

UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
			<p>and north and unmanaged, planted amongst neutral grasslands and bounded by coniferous woodland and scrub.</p> <p>Hedgerows found in the HVAC Zone are similar to those in Converter Station Zone but with more mature trees present. Mostly double planted with less gaps. Hedgerows in this area are associated with ephemeral ditches, mostly dry.</p> <p>A single hedgerow was found to be newly planted in a single row, adjacent to the road in the southeast corner of the former Britishvolt site (Landfall/HVDC Zone).</p>			gaps. Hedgerows that are associated with ditches are largely dry. Therefore, hedgerows within the Site are assessed as being of no more than Local value.
Blackthorn Scrub (h3a)	0.05 0.02%	HVAC Zone	A single stand within woodland south of Brock Lane (HVAC Zone).	None	Less than local	Although scrub is not a priority habitat in its own right it has a high biodiversity value and provides habitat for a range of faunal species, e.g., breeding birds. The single stand of blackthorn scrub is relatively small. Therefore, blackthorn scrub is assessed as being of less than local value.
h3d Bramble Scrub	0.32 0.16%	Landfall HVDC Zone	Two single stands present within the Landfall/HVDC Zone. One on the former Britishvolt site between two watercourses leading from Cow Gut, the second between the woodland	None	Less than Local	Although scrub is not a priority habitat in its own right it has a high biodiversity value and provides habitat for a range of faunal species, e.g., breeding birds. The two single stands of bramble scrub are relatively small, however.

UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
			surrounding the disused railway and along the roadside within the Landfall/HVDC Zone.			Therefore, bramble scrub is assessed as being of less than local value.
H3e Gorse Scrub	0.54 0.26%	Landfall HVDC Zone	Two stands found in the north-eastern area of the former Britishvolt site (Landfall/ HVDC Zone) surrounded by neutral grasslands.	None	Less than Local	Although scrub is not a priority habitat in its own right it has a high biodiversity value and provides habitat for a range of faunal species, e.g., breeding birds. The two single stands of gorse scrub are relatively small, however. Therefore, gorse scrub is assessed as being of less than local value.
h3h Mixed Scrub	0.93 0.46%	Converter Station Zone	Several small stands found within the former Britishvolt site (Landfall/ HVDC Zone). A further small area found within the south of this area, bounding the two retention ponds that occur within the former Britishvolt Site boundary.	None	Small stands on former Britishvolt site - Less than Local	Although scrub is not a priority habitat in its own right it has a high biodiversity value and provides habitat for a range of faunal species, e.g., breeding birds. The stands across the former Britishvolt site are relatively small. Therefore, these small stands of mixed scrub is assessed as being of less than local value, while larger stands across the Site are assessed as being of local value.
	6.08 2.99%	HVAC Zone	The disused railway (Landfall/HVDC Zone) is bounded by mixed scrub with stands of mature trees present.		All other larger stands Local	
	7.11 3.50%	Landfall HVDC Zone	The active railway to the east (within the Landfall/HVDC Zone), adjacent to the dunes is also bordered by scrub. A linear area of mixed scrub with mature trees is found north of the Sleek Burn and the River Blyth (HVAC Zone). Within the Converter Station Zone, linear mixed scrub forms a more dense patch			

UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
			bordering neutral grasslands in the south of this zone.			
w1g6 Line of Trees	132 m	Converter Station Zone	Eight lines of trees bordering neutral grassland (likely historically arable) are present within the Converter Station Zone and the HVAC Zone. These lines of trees are likely to have been hedgerows historically but lack of management has allowed significant growth. A further single line of trees was recorded adjacent to Cow Gut (Landfall/HVDC Zone) approximately 80 m in length and double planted.	LBAP	Local	Although w1g6 is not a priority habitat in its own right it has a high biodiversity value and forms an important part of the wider network of woods, trees, hedgerows and scrub that provide habitat for a range of important bird and mammal species. Therefore lines of trees present on Site are assessed as being of local value.
	492 m	HVAC Zone				
	84 m	Landfall/HVDC Zone				
W1f7 Other Lowland Mixed Deciduous Woodland	6.75 3.32%	Converter Station Zone	w1f7 was the most common woodland across the Site, all areas were found to be of plantation origin and most are regularly disturbed by the public, excluding those within the former Britishvolt site (Landfall/HDVC Zone), which have been impacted by construction activities. Small stands are also found in the south-east corner of the former Britishvolt site (Landfall/HDVC Zone) and south of the North Sea Link converter tation (HVAC Zone), and also around the northern bank of the Sleek Burn (HVAC Zone).	Priority Habitat LBAP	Local	Although W1f7 is plantation woodland and not semi-natural, all areas of W1f7 are priority habitat and of relatively high biodiversity value. They also form an important part of the wider network of woods, trees, hedgerows and scrub that provide habitat for a range of important bird and mammal species. Therefore, other lowland mixed deciduous woodland present on Site is assessed as being of local value.
	8.46 4.16%	HVAC Zone				
	10.10 4.97%	Landfall HVDC Zone				

UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
			<p>Two large stands of plantation woodland were recorded around residential areas to the west of the former Britishvolt site (Landfall/HVDC Zone) and in the south-western corner of the Site, south of Brock Lane (HVAC Zone).</p> <p>Woodlands adjacent to the A189 could not be accessed to survey, for health and safety reasons, but are considered to meet the same classification as those described above.</p>			
w1h6 Other Woodland; Mixed, mainly conifer	1.90 0.93%	HVAC Zone	Found to the south and south-east of the disused rail area (Landfall/HDVC Zone).	LBAP	Local	Although w1h6 is not a priority habitat in its own right and is plantation woodland it forms an important part of the wider network of woods, trees, hedgerows and scrub that provide habitat for a range of important bird and mammal species, especially the mature trees located north of the River Blyth. Therefore, w1h6 is assessed as being of local value.
	2.31 1.13%	Landfall HVDC Zone				
w2b Other Scots Pine Woodland	6.08 2.99%	Converter Station Zone	<p>A large stand surrounds the grassland of the Converter Station Zone.</p> <p>Two small areas of Scots pine plantation woodland are also found along the coastal strip (within the Landfall/HVDC Zone) along dune walking routes and adjacent to car parks.</p>	LBAP	Local	Although w2b is not a priority habitat in its own right and is plantation woodland it forms an important part of the wider network of woods, trees, hedgerows and scrub that provide habitat for a range of important bird and mammal species.
	1.28 0.63%	HVAC Zone				

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UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site		Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
	1.58	0.78%	Landfall HVDC Zone				Evaluation of this habitat for use by red squirrels is covered in the evaluation in Table 9-11.
r1 Standing Open Water and Canals	0.20	0.10%	HVAC Zone	Ditches are common across the site on many of the field boundaries within all three zones of the site, most likely previously used as drainage ditches for arable fields. The majority of ditches are ephemeral and were dry at time of survey, however some contained species that suggest they are damp for some of the year. Many of the field boundary ditches are associated with hedgerows and lines of trees. Concrete-based ditches are common within the former Britishvolt site (Landfall/HVDC Zone), likely remaining from the former power station. Other ditches present on the former Britishvolt site are similar to field boundary ditches described above. Several ponds are located throughout the Site, most are considered to be ephemeral and were found to be dry in summer.	Priority habitat - ponds LBAP	Less than local	The majority of ditches present on site have grassland borders and have terrestrial species in their channels, suggesting lack of water for the majority of the year however do offer some connectivity to other habitats. The ponds within the Site meet none of the criteria for priority habitat ponds (Maddock, 2008) and were found to only contain water during part of the year. Therefore, standing water within the Site is assessed as being of less than local value.
	7.45	3.67%	Landfall HVDC Zone				
r2 Rivers and Streams	11.93	5.87%	Landfall HVDC Zone	An intertidal section of the Sleek Burn runs through the south of the Site (HVAC	Priority Habitat	County (Sleek Burn)	Maw Burn and Cow Gut have limited value due to the lack of water but the Sleek Burn

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UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
			<p>Zone), with steep sections of scrub along its northern bank and gradual slopes with mudflats and saltmarsh habitat within the intertidal zone. The channel is approximately 100 m wide, widening further to the east as it joins the Blyth Estuary.</p> <p>Maw Burn is located in the northern area of the former Britishvolt site (Landfall/HVDC Zone) and is mostly shallow with approximately 10 cm of water, and frequent dry patches. It is situated within broadleaved woodland and between neutral grasslands.</p> <p>Cow Gut is located in the southern area of the former Britishvolt site (Landfall/HDVC Zone) between the former power station area and disused rail area, situated within woodland, scrub and neutral grasslands. Cow Gut also runs along the northern boundary of the Converter Station Zone. Along the boundary of plantation woodland.</p>	LBAP	Local (Maw Burn, Cow Gut)	meets the requirements of priority habitat, and sits within the Northumberland Marine SPA and Blyth Estuary LWS. Therefore, the Sleek Burn is assessed as being of county value, with Maw Burn and Cow gut assessed as being of local value.
f2f Other Swamps	0.14 0.07%	Landfall HVDC Zone	A small flooded area was found along the north eastern length of Maw Burn (Landfall/HVDC Zone).	None	Less than Local Value	The small area of f2f on Site is a flooded section of Maw Burn, of low conservation importance therefore this habitat is assessed as being of less than local value.

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UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
u1 Built Up Areas	0.19 0.10%	Landfall HVDC Zone	Urban areas within the Landfall/HVDC Zone are associated with a school, residential area, allotments and an active industrial site.	None	Less than local	Urban areas present within the site have low conservation value and are therefore assessed as being of less than local value.
u1a Open Mosaic Habitat on Previously Developed Land	20.81 10.24%	HVAC Zone	Three areas of Open Mosaic Habitat were recorded within the Site. An area on the NorthSea Link Land (HVAC Zone) was not surveyed due to lack of access but should be noted that this area was a live construction site at the time of survey and the habitat may therefore no longer be present.	Priority Habitat LBAP	Regional	The open mosaic habitat present on Site sits within the draft Open Mosaic Habitat (OMH) Inventory (Natural England, 2022) which contains verified sites of OMH, identified as having high quality habitat. Open mosaic habitat supports rich assemblages of invertebrates and is known to be increasingly important within ecological networks for rare and scarce invertebrates (e.g. grayling and dingy skipper) as well as other species of conservation concern. Due to its relatively large extent and its inclusion in the draft OMH Inventory, the habitat within the Site is assessed as being of up to regional value.
	26.71 13.15%	Landfall HVDC Zone	The area of disused railway (Landfall/HVDC Zone) has an area of open mosaic on loose stoney surfaces and previously sealed surfaces. INNS are common in this area. This area is bounded by scrub and woodland alongside Cow Gut, intersecting the open mosaic habitats. The former Britishvolt site (Landfall/HVDC Zone) contains open mosaic habitat on loose stoney surfaces, pulverised fuel ash and previously sealed surfaces. This area had been disturbed within the last year due to construction activities.			

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UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
u1b5 Buildings	0.19 0.10%	Landfall HVDC Zone	A single building is located on the former Britishvolt site (Landfall/ HDVC Zone), which is assumed to have been built for use during previous construction in this area.	None	Less than local	Buildings present within the Site have low conservation value and are therefore assessed as being of less than local value.
u1bc Developed Land, Sealed Surface	0.19 0.09%	Converter Station Zone	Car parks, residential areas and public pathways are found across the Site.	None	Less than local	Developed land and sealed surface is of low conservation value and is therefore assessed as being of less than local value.
	0.06 0.03%	HVAC Zone				
u1e Built Linear Features	1.92 0.94%	Converter Station Zone	Slip roads lead from the A189 spine road and associated B roads to the south and east of the Site, and railway adjacent to the dunes in the east of the Site.	None	Less than local value	Sealed surfaces of the slip roads present on Site are of low conservation value and are therefore assessed as being of less than local value.
	3.65 1.80%	HVAC Zone	There is a small road to the south of the Site (HVAC Zone) which has been abandoned resulting in succession of short ephemeral herb species.			
	3.20 1.58%	Landfall HVDC Zone				
c1 Arable and Horticulture	0.23 0.11%	HVAC Zone	A single small area of cropland is located north of Cow Gut (HVAC Zone and	None	Less than local	Arable habitats are of low conservation value and are therefore assessed as being of less than local value.

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UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
	0.23 0.11%	Landfall HVDC Zone	Landfall/HVDC Zone), recently ploughed at time of survey.			
INNS	n/a	n/a	<p>Two stands of Japanese knotweed were found along the disused railway (Landfall/HVDC Zone) on the base of stoney mounds within scrub habitat at the north and south end of the disused railway.</p> <p>Cotoneaster species were identified as two single plants at the north and south ends of the disused railway (Landfall/HVDC Zone).</p> <p>A single small stand of Japanese rose recorded near sealed surface of the disused railway (Landfall/HVDC Zone).</p> <p>Dense stands of Himalayan balsam were recorded along the western length of Cow Gut (HVAC Zone and Landfall/HVDC Zone) within woodland, and within the south-eastern woodland, south of Brock Lane (HVAC Zone).</p> <p>Dense stands and smaller areas of Pirri pirri bur (<i>Acaena novae-zelandiae</i>) were recorded along the disused rail line (Landfall/HVDC Zone). Although not a Schedule 9 species, it is recognised to be extremely invasive on the Northumberland coast, particularly in dune habitats.</p>	n/a	n/a	Invasive non-native species have no conservation value.

Classification: Final


Status: Final

Rev: A01

UK Hab Habitat Type	Extent (ha unless otherwise stated) and % of total within Site	Zone	Description	Conservation Status	Evaluation	Reason for Evaluation
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Mature Buddleja was prominent on the disused railway (Landfall/ HDVC Zone) on sealed surfaces, stoney areas and encroaching within the scrub and woodland in this area. Although not a Schedule 9 species, it is known to negatively impact ecosystems and therefore considered invasive.

Priority habitats (those listed under Section 41 of the NERC Act 2006) are shown in **bold**.

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9.7.1.3. FAUNAL BASELINE


33. A summary of the protected or otherwise notable faunal species recorded within the relevant study areas during the various ecological surveys is provided below. Further details are provided in Technical Appendices 9.2 to 9.7 (Volume 3).

9.7.1.3.1. INVERTEBRATES

34. As detailed in Table 9-8, records of four priority species of butterfly were returned from ERIC NE, including high counts of grayling and wall brown.
35. Surveys undertaken within the former Britishvolt site in 2019 recorded a total of three grayling and identified suitable habitat for dingy skipper present, although no individuals of this species were recorded.
36. As detailed in Table 9-1, invertebrate surveys were undertaken on all areas of suitable habitat for grayling and dingy skipper (bare ground, tall grassland, mosaic habitats and edge habitats sheltered by woodland) within the Site.
37. Invertebrate surveys were limited to dingy skipper and grayling, as both species of butterfly were considered likely to occur on Site. Both species are priority species due to their decline (included in Section 41 of the Natural Environment and Rural Communities (NERC) Act) and the habitats on Site most likely to support these species are priority habitats, such as open mosaic habitat.
38. Habitat for other invertebrate species was noted on Site, however these habitats are relatively common and widespread, would only be subject to temporary loss and will be reinstated after construction. On this basis detailed survey for other invertebrate species were not considered necessary.
39. The detailed results of the targeted invertebrate surveys, including records of non-target butterfly species recorded, are found in Technical Appendix 9.3 (Volume 3).
40. During the four survey visits, six grayling and four dingy skipper were recorded, additionally, two incidental sightings of grayling were recorded during a habitat survey on 05 July 2023.
41. All records of grayling were within the Landfall/HVDC Zone, while dingy skipper was recorded in both the Landfall/HVDC Zone and the HVAC Zone. No records of dingy skipper or grayling occurred within the Converter Station Zone.

9.7.1.3.2. GREAT CRESTED NEWT

42. HSI assessment was undertaken for 36 waterbodies within the Site and a 250 m buffer as detailed in table 9-1.
43. Of these 36, the HSI assessment identified 12 waterbodies that were potentially suitable to support newts (see Figure 9.2.1 of Technical Appendix 9.2, Volume 3).
44. Environmental DNA (eDNA) analysis was carried out at seven of the 12 waterbodies identified as having habitat potentially suitable to support GCN (the other five had either dried out since the HSI assessment or were subject to access issues (see section 9.7.3). All seven waterbodies tested returned negative eDNA test results, suggesting that GCN are likely to be absent.
45. Based on the above survey, and lack of any records of GCN within 2 km of the Site within the last 10 years, GCN are unlikely to be present on site. GCN are therefore not considered further within this assessment.

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9.7.1.3.3. BREEDING BIRDS

46. The results of breeding bird surveys undertaken in May and June 2023 are presented in detail in Technical Appendix 9.6 and a brief summary of key findings is provided below.
47. Three wader species were recorded breeding during the surveys within the Landfall/HVDC Zone: little ringed plover, ringed plover and lapwing. Three little ringed plover and two lapwing territories were confirmed, and a probable ringed plover territory was identified.
48. A total of 21 other species were recorded breeding or potentially breeding within the areas surveyed. Most of the species recorded are relatively common and widespread, although they included three species: skylark (*Alauda arvensis*); greenfinch; (*Carduelis chloris*) and linnet (*Linaria cannabina*), that are red listed birds of conservation concern (Stanbury *et al.*, 2021). They also include three priority species in England under Section 41 of the NERC Act 2006: skylark; linnet; and reed bunting (*Emberiza schoeniclus*).

9.7.1.3.4. WINTERING (NON-BREEDING) BIRDS

49. The results of wintering bird surveys undertaken at Cambois Beach and the Sleek Burn from October 2022 to March 2023, including peak count data and figures showing the distribution and relative abundance of each waterbird species recorded, are presented in detail in Technical Appendix 9.7 (Volume 3). A brief summary of key findings is provided below.
50. A total of 44 waterbird and gull species were recorded over the survey period with 36 species observed at Cambois Beach and 31 species observed at the Sleek Burn. Of the species recorded, five species are listed on Annex 1 of the EC Bird Directive, 12 species are red listed birds of conservation concern (Stanbury *et al.*, 2021), 21 species are amber listed birds of conservation concern and four species are priority species in England under Section 41 of the NERC Act 2006.
51. Two qualifying species for the Northumbria Coast SPA / Ramsar site, turnstone and purple sandpiper, were recorded. However, the peak counts of turnstone or purple sandpiper did not exceed 1% of the SPA/Ramsar population (based on either the citation population or the most recent Wetland Bird Survey (WeBS)⁶ count data) at either location. Using the standard '1% criterion' method (Drewitt *et al.*, 2023), the presence of >1% of the international population of a species is considered internationally important; >1% of the national population is considered nationally important; *etc.* Using the same principle, any species present in numbers representing >1% of the relevant designated site population is considered to represent a significant proportion of that site's population. The numbers of turnstone and purple sandpiper recorded within the areas surveys therefore do not represent a significant proportion of the Northumbria Coast SPA/Ramsar population.
52. For the notified species of Northumberland Shore SSSI, at Cambois Beach counts of sanderling exceeded 1% of the SSSI population (based on both the citation population and the most recent WeBS count data) and therefore represent a significant proportion of the SSSI population. At the Sleek Burn, counts for both ringed plover and redshank exceeded 1% of the SSSI population (citation population and the most recent WeBS count data). There were no records of the other SSSI notified species, golden plover, during the surveys.


⁶ Data were provided by the Wetland Bird Survey (WeBS), a Partnership jointly funded by the British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee, in association with The Wildfowl & Wetlands Trust, with fieldwork conducted by volunteers.

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53. At both survey locations, peak counts of oystercatcher (*Haematopus ostralegus*), curlew and bar-tailed godwit (*Limosa lapponica*), which are also referred to in the SSSI citation but are not notified features, exceeded 1% of the SSSI population (citation population and most recent WeBS Count data). Dunlin (*Calidris alpina*) and common eider (also referred to in the SSSI citation but not notified features) numbers also exceeded the 1% threshold at both locations (based on the most recent WeBS data only), albeit the numbers recorded were relatively small.
54. At Cambois Beach, the largest numbers of waterbirds and gulls were observed on the sea. Wader species were recorded along the beach within the intertidal area of the site, which provides foraging during winter months, as well as a small cluster of rocks known as ‘The Rockers’, which provides roosting and foraging during low-mid tidal cycles. Waterbirds were very rarely recorded outside of intertidal or sub-tidal areas in close proximity to the Site boundary.
55. At the Sleek Burn, waterbirds were most frequently recorded on the Sleek Burn estuary and the River Blyth which consist of riverine habitats with tidal mudflats along their shores. These mudflats provide good feeding for wader species during low-mid tidal phases, while the margins also provide roosting habitat for waders during the high tidal phase. A range of duck species were also frequently sighted on the estuary.
56. Any potential anthropogenic disturbance events that took place during each count were recorded incidentally to provide an indication of the levels of existing disturbance within the survey area (although a detailed study of existing disturbance was not carried out as the primary focus of the surveys was to record bird numbers, distribution and activity). Disturbance along Cambois Beach was high with over 3,000 potential disturbance events logged at this location during the course of the surveys. Cambois beach is popular for recreational activities, primarily walkers and dogs, during the winter months. Disturbance events at the Sleek Burn were much fewer with a total of less than 20 noted over the course of the surveys. This area provides a much less disturbed area for over wintering birds.

9.7.1.3.5. BATS


57. The desk study data search returned records of the following bat species within 2 km of the Onshore Scoping Boundary: common pipistrelle, soprano pipistrelle, *Pipistrellus* species, Daubenton’s bat, Natterer’s bat, whiskered bat, whiskered/Brandt’s bat, noctule, Leislers and *Nyctalus* species.
58. Bat surveys were undertaken on all areas of suitable habitat within the Site (as detailed in Table 9-1. Full details of the results of all bat surveys are contained within Technical Appendix 9.5 (Volume 3).
59. The Site was found to support several habitat types suitable for use by commuting and foraging bats including hedgerow, woodland edge, watercourses and wetlands, which maintain connectivity to the wider landscape. While the large fields to the west of the Site provide limited foraging potential, they may serve as open commuting pathways between areas of more suitable habitat. Bat activity was recorded within a range of habitats during transect surveys and at all four static detector locations each month, thereby indicating that habitats within the Site (particularly woodland edge and hedgerow) serve as commuting and foraging resource for a range of bat species.
60. The PRA survey identified 17 trees within the Site with features that have the potential to support roosting bats (see Figure 9.5.2 of Technical Appendix 9.5, Volume 3). Three were classified as having ‘high’ suitability, and 14 were classed as having ‘moderate’ suitability. It should be noted that one tree classified as having ‘high’ suitability was classified as such due to the presence of a bat box, rather than specific features of the tree itself. Further detailed inspections of all suitable roost features will be required in order to determine the roosting status of bats within the Site. As agreed with NCC (see Table 9-4), detailed surveys of potential roosts will be undertaken at the detailed design stage and will focus on trees with high or moderate roost potential that cannot be avoided by the detailed design.

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61. Trees with low roost potential were not recorded individually and do not require further survey at detailed design stage (Collins, 2016) and locations of these trees will be confirmed at the detailed design stage.
62. Static activity surveys were undertaken using four static bat detectors, the locations of which are shown on Figure 9.5.1 (Technical Appendix 9.5, Volume 3). Data recorded during the activity surveys confirmed that at least six species of bat utilise the Site for commuting, foraging and roosting purposes. A summary of activity relating to each of these bat species recorded during the survey period is provided in Table 9-10.
63. Due to close similarities in the echolocation call structure of certain species, some echolocation files were identified to genus only.

Table 9-10 Summary of Bat Activity recorded within the Site

Bat Species	Activity Summary
Common pipistrelle	Present during activity transect surveys and the most frequently recorded species during the static activity survey with a total of 8,436 passes recorded, accounting for 61.25% of the total bat passes within the Site. Activity levels were highest June – August, with greatest activity recorded at Static Detector A (located within the south of the Site in the HVAC Zone adjacent to woodland edge habitat).
Soprano pipistrelle	Present during activity transect surveys and the second most frequently recorded species during static activity surveys, with a total of 1,707 passes recorded accounting for 12.39% of total passes. The greatest levels of activity were recorded in July and August at Static Detector A (located within the south of the Site in the HVAC Zone adjacent to woodland edge habitat).
Nathusius' pipistrelle	Not recorded during transect surveys, however recorded during static activity surveys, accounting for 0.08% of total bat passes within the Site. Based on information provided in Mathews <i>et al.</i> (2018), in Northeast England the range of Nathusius' pipistrelle extends only to small pockets of land near the coast. While the overall number of confirmed passes was low (11 in total), several bat passes relating to either common or Nathusius' pipistrelle were also attributed to the genus <i>Pipistrellus</i> (as opposed to assigning an individual species due to overlapping call frequency parameters), therefore the total passes could potentially be higher in reality. The majority of the 11 confirmed bat passes were recorded at Static Detectors A (located within the south of the Site in the HVAC Zone adjacent to woodland edge habitat) and B (located adjacent to woodland edge habitat on the west side of the Converter Station Zone).
<i>Pipistrellus</i> species	Unidentified <i>Pipistrellus</i> species were recorded during activity transect surveys and also static activity surveys within the Site. They were recorded at all static detector locations during each survey month with a total of 272 passes recorded (accounting for 1.75% of total bat passes). The highest levels of <i>Pipistrellus</i> activity were recorded at Static Detector B (located adjacent to woodland edge habitat on the west side of the Converter Station Zone) in June and Static Detector A (located adjacent to woodland edge habitat within the south of the site in the HVAC Zone) in July.
<i>Myotis</i> species (Daubenton's, Natterer's and whiskered/Bran dt's bat)	<i>Myotis</i> species were recorded during both transect and static activity surveys. They were recorded at all static detector locations during each survey month with a total of 1,027 passes recorded, accounting for 7.26% of total bat passes. The highest levels of <i>Myotis</i> activity were recorded at Static Detector D (located in woodland edge habitat near the centre of the Site on the border between the Landfall/HVDC and HVAC Zones).
<i>Nyctalus</i> species (noctule or Leisler's bat)	Results from the activity surveys indicated that noctule and <i>Nyctalus</i> sp. demonstrated the greatest proportion of bat passes during transect activity surveys, however these were almost all recorded on a single night (19 th June 2023). Passes attributed to <i>Nyctalus</i> were also recorded at all static detector locations during almost all survey months. With a total of 635 confirmed Noctule passes, 57 confirmed Leisler's Leislers passes and 1,628 unconfirmed <i>Nyctalus</i> sp passes recorded. This accounts for 16.84% of total bat passes within the site (<i>Nyctalus</i> , noctule and Leisler's proportions combined). The highest level of <i>Nyctalus</i> activity was recorded in June across all static detector locations. The individual monitoring location with the highest level of activity was Static Detector C, adjacent to woodland edge habitat in the north of the Converter Station Zone.

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64. The highest bat activity overall (7,603 passes in total) was recorded at Static Detector A (located adjacent to woodland edge habitat within the south of the Site in the HVAC Zone), which is also in the same general location of all the trees with high roosting potential. Bat activity recorded at Static Detectors B, C and D were much lower in comparison (2,064, 2,400 and 1,706 total passes respectively).

9.7.1.3.6. BADGER

65. The desk study data search returned 20 records of badger within 2 km of the Onshore Scoping Boundary, four within the last 10 years. Three of the four records from the last ten years, however, were reports of dead badgers by the roadside.

66. Signs of badger activity were recorded during the June 2023 survey, for full details see Technical Appendix 9.4 (Volume 3) and associated Confidential Appendix.

67. Three potential setts were identified within the site. These were of the correct size and shape to suggest badger use however did not show any signs of recent use, with leaf litter / detritus present in the entrances and were recorded as inactive. In the absence of features confirming usage by badgers they have been referred to as potential setts.

68. A single badger scat was found approximately 250 m away from the nearest sett entrance, indicating badgers are active in the area.

9.7.1.3.7. OTTER

69. The desk study data search did not return any records of otter holts or resting sites, although there were several records of other field signs or sightings within the Onshore Scoping Study Area, mostly from the River Wansbeck and River Blyth (none within the Site).

70. No breeding site or resting places were observed during the mammal survey. Two potential field signs of otter presence were observed during the protected mammals survey in June 2023. These field signs were two predated crabs (possible otter feeding remains) located on the shoreline of the Sleek Burn (see Figure 9.4.1 of Technical Appendix 9.4, Volume 3).


71. Some sections of the Maw Burn and Cow Gut had moderate habitat suitability for otter, and the northern bank of the Sleek Burn was assessed as having 'good' habitat suitability for otter. No otter signs were recorded in these locations during the survey, however multiple records for otter in the area (predominantly on the River Blyth and River Wansbeck) were returned during the desk study data search (as detailed in Table 9-8).

72. Both Maw Burn and Cow Gut are hydrologically connected to the wider area, including the potentially important otter habitats of the Wansbeck estuary to the north, the River Blyth / Sleek Burn estuary to the south and to the North Sea coastline.

9.7.1.3.8. WATER VOLE

73. Only a single historical record of water vole was returned within the desk study data search within the last 10 years, however the record did not appear to be within suitable habitat.

74. Sections of the Maw Burn and Cow Gut on site were found to have moderately suitable habitat for water vole with earth banks suitable for burrowing and dense vegetation providing food and shelter but no evidence of water vole was identified during the protected mammal survey in June 2023. To the west of the Site, the Sleek Burn was also assessed as having moderately suitable habitat for water

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vole, however the estuary does not become viable for use until c.750 m west of the Site boundary due to its tidal nature.

75. The section of the English east coast where the site is located has been flagged as an area of American mink presence and/or control by the National Water Vole Database and Mapping Project (Wildlife Trusts, 2020).
76. Given the lack of evidence of water vole presence, water vole is not considered further within this assessment.

9.7.1.3.9. RED SQUIRREL

77. The desk study returned >500 records of red squirrel, with the most recent records returned from 2019. Records of grey squirrels were also returned with the most recent being over 5 years old. Numerous signs of squirrel activity were recorded during the June 2023 survey within the Site (within the western coniferous woodland), for full details see Figure 9.4.1 of Technical Appendix 9.4 (Volume 3).
78. One potential squirrel drey was recorded in woodland to the west of the Converter Station Zone, but could not be confirmed from ground observation alone.
79. No individuals were recorded at the time of the survey to distinguish whether the field signs recorded were of red or grey squirrel. Given evidence of both species being present in the area relatively recently, red squirrel presence on Site cannot be discounted.

9.7.1.4. EVALUATION OF FAUNAL RECEPTORS

80. An evaluation of the faunal receptors which are either known to be present or considered likely to be present within the relevant study areas, is provided in Table 9-11.
81. Further details of the methodology used to evaluate ecological receptors are provided in section 1.1.



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Table 9-11 Evaluation of faunal receptors

Receptor	Legal / Conservation Status	Evaluation	Reason for Evaluation
Invertebrates	Section 41	County	<p>Dingy skipper is becoming increasingly rare in Britain and has seen serious decline in recent years. It is a S41 species, forms part of the Northumberland BAP and is listed by Butterfly Conservation as a high priority species.</p> <p>Grayling is widespread around the coast and in southern heaths but is declining in many areas, particularly inland. It is also a S41 species and is listed by Butterfly Conservation as a high priority species.</p> <p>The populations recorded on site are therefore valued as being of county importance.</p>
Reptiles	Schedule 5 WCA (killing, injury and sale only); Section 41	Local value	<p>Two species of reptile (slow worm and common lizard) have previously been recorded within 2 km of the Site.</p> <p>The Site boundary contains habitat that could potentially support reptiles, however given relatively low levels of previous records, reptiles are only likely to be present in small numbers. If present, the Site is therefore assessed to be of no more than local value to reptiles.</p>
Breeding Birds	WCA Sch1 (little ringed plover) BoCC red list (five species) BoCC amber list (nine species) S41 (five species) Northumberland BAP farmland birds	Local to county value	<p>Little ringed plover and ringed plover are both uncommon breeding species in Northumberland (Mould (ed), 2021) and the breeding populations of these species at the site are considered to be of county importance.</p> <p>Species including lapwing, skylark, linnet and reed bunting are red-listed and/or S41 species and form part of the Northumberland BAP farmland birds species action plan. However, these species are all regarded as abundant, common or well-represented breeding species in Northumberland (Mould (ed), 2021) and therefore given the relatively low numbers recorded are considered to be of no more than local importance.</p> <p>Other breeding species are common and widespread and most were recorded in relatively low numbers. Their populations are considered to be of less than local importance.</p>
Wintering Birds	Annex 1 (five species) BoCC red list (12 species) BoCC amber list (21 species) S41 (four species) Northumberland BAP coastal birds	Local to national value	<p>The Wintering Birds Study Area supports a significant proportion of the Northumberland Shore SSSI population of sanderling, ringed plover and redshank (SSSI notified species). These populations are therefore considered to be nationally important. It also supports a significant proportion of the SSSI population of oystercatcher, curlew, bar-tailed godwit, dunlin and common eider (not SSSI notified features but referred to in SSSI citation).</p> <p>Although not nationally important, these populations are considered to be of at least county importance.</p> <p>Other waterbird species populations recorded within the survey area vary in importance by species, although based on the numbers recorded none are considered to be of more than county importance, with most being of no more than local value.</p>
Bats	EPS; Schedule 5 of WCA; Section 41	Local	<p>Bat surveys identified 17 trees considered to have potential for roosting bats (with one containing a bat box). Activity surveys confirmed the presence of at least six species of foraging and commuting bats within the Site.</p> <p>Common pipistrelle and soprano pipistrelle are common and widespread species. Population trends for Nathusius' pipistrelle are not known at this time but considered to be widespread in the</p>

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Receptor	Legal / Conservation Status	Evaluation	Reason for Evaluation
			<p>UK, (JNCC, 2018).). <i>Nyctalus</i> species were recorded during activity surveys with both Noctule and LeislersLeislars confirmed to be present on Site. Noctule bats are widespread in England, however Leisler's populations are unknown and considered to be widespread throughout the UK (JNCC, 2018). <i>Myotis</i> species were also recorded during the static surveys and given the location of the Site and previous records, it is possible these bats are either Daubenton's, Natterer's or whiskered/Brandt's bat. Populations of these species appear to be increasing in England (Bat Conservation Trust, 2023).</p> <p>Most foraging/commuting activity recorded across the Site was attributed to common pipistrelle. Lowest foraging/commuting activity was attributed to Nathusius pipistrelle.</p> <p>In comparison to the above, moderate foraging/commuting activity was noted for soprano pipistrelle, <i>Myotis</i> sp and <i>Nyctalus</i> and activity for these species was less widespread across the Site. Roosting habitat within the Site is relatively limited due to the abundance of relatively young plantation woodland, with most trees not yet mature enough to provide suitable roost features. Based on the species present and the relative lack of potential roosts on Site, the Site is assessed to be of local value to bats.</p>
Badger	Protection of Badgers Act	Local value	<p>Three potential badger setts were recorded during the June 2023 survey, though no setts contained any evidence of recent badger use. However, a single scat was found 250 m from nearest sett entrance, suggesting badgers are active within the area. The badger signs recorded on site confirm badger presence in the area however no signs of recent sett use were recorded, therefore the Site is assessed to be of no more than local value to badger.</p>
Otter	EPS; Schedule 5 WCA; Section 41	Local Value	<p>Potential signs of otter presence were recorded on the shoreline of the Sleek Burn during the June 2023 surveys. There is habitat present within the Site that was assessed as having moderate suitability for otter. The northern bank of the River Blyth / Sleek Burn estuary was assessed as having good habitat suitability for otter.</p> <p>Although the Site is hydrologically connected to the wider area including potentially important otter habitats of the Wansbeck estuary to the North and River Blyth / Sleek Burn to the south, minimal otter activity was recorded onsite during the survey. Therefore, the Site is assessed to be of no more than local value to otter.</p>
Red Squirrel	Schedule 5 WCA, Section 41	Local value	<p>Signs of squirrel presence were recorded during the June 2023 surveys in the form of feeding signs and a potential drey. No individuals were recorded, therefore it is not known whether the signs relate to grey or red squirrel, although red squirrel presence on site cannot be discounted.</p> <p>On a precautionary basis the Site is therefore assessed as being of local value to red squirrel.</p>


Key:

EPS: European Protected Species listed under Schedule 2 of the Habitats Regulations

Schedule 5 WCA: Listed under Schedule 5 of the Wildlife and Countryside Act 1981

Section 41 species: Listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006

Protection of Badgers Act: Protection of Badgers Act 1992


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9.7.2. Future Baseline Scenario


82. Parts of the Site are currently subject to other development proposals (see Table 9-16) and are therefore likely to change over time (with associated loss of habitats and species). As such, the current value of the Site is likely to reduce over time. However, there is uncertainty over whether other proposed developments will go ahead and their timing. A precautionary approach has therefore been applied to this assessment, which assumes the current baseline will remain for the foreseeable future.
83. In the absence of the Onshore Scheme (or other development), the Site is likely to remain grassland with lines of woodland and scattered open mosaic habitat, primarily used for recreation such as dog walking.
84. In the absence of the Onshore Scheme, it is likely that birds, otter, water vole, badger, bats, invertebrates, reptiles and red squirrel will continue to utilise suitable habitat within the Site. To allow for possible changes in the distribution of protected species, a pre-construction survey for protected species, focusing on badgers and riparian mammals is proposed to ensure legislative compliance during construction as detailed in Table 9-14.
85. Climate change is predicted to result in complex changes to biodiversity. This may result in changes to the vegetation present or the potential for new species to colonise the Site, which potentially includes non-native species, although the extent of any such changes cannot be accurately predicted at this time.

9.7.3. Data Assumptions and Limitations

86. Presented here is a summary of limitations encountered during the surveys, further details are presented in Technical Appendices 9.1 to 9.7 (Volume 3). It should be noted that none of these limitations are considered likely to significantly affect the assessment.
87. The UKHab Minimum Mapping Unit (MMU) for the field survey was 400 m², which may result in small areas of habitat being excluded from UKHab output maps. In order to ensure all areas of notable habitat were sufficiently captured, priority habitats such as ponds and saltmarsh, where too small to be picked up using the MMU, were still mapped to ensure this habitat was recorded. Remaining non-priority/notable habitats not meeting the MMU have been captured within descriptions and secondary codes. This approach is robust and seeks to ensure that all important habitats that are present on site have been recorded.
88. During the habitat survey, the following areas could not be accessed:
- Open Mosaic Habitat, grassland and Scrub on the NSL land to the south-east of Site;
 - Open Mosaic Habitat within the north-east of the site (within fenced boundaries, north of the disused railway);
 - woodlands adjacent to and west of the A189;
 - partial access to mudflats; and
 - partial access to watercourses, woodland and scrub where vegetation dense.
89. Where access was not possible, areas of open mosaic habitat, woodland and mudflats were precautionarily assessed to be of the same priority habitat as similar areas recorded elsewhere within the Site.
90. Where access was not possible for watercourse, woodland and scrub, it is assumed that these areas are representative of the same habitats that were able to be accessed, and they were recorded as such.

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91. Due to the precautionary approach adopted in the assessment, the limitations encountered during the habitat survey are not considered to have adversely impacted the conclusions of the assessment.
92. In terms of invertebrate surveys, given that dingy skipper mainly fly from mid-May to mid-June, additional surveys in May may have been beneficial for the purpose of better determining abundance. Surveys in May were not possible however due to the generally poor weather conditions during the second half of the month. Similarly, also due to poor weather conditions, the first two surveys were conducted within two days of one another, where ideally, there would be a gap of one week between surveys. However, given that the primary aim was to determine presence and/or absence, the surveys conducted provide sufficient data in that they confirm presence of the species at the Site.
93. On one of two days the mammal survey was conducted (20th June 2023) rainfall was moderate to heavy. It is therefore possible that some field signs may have been washed away by heavy showers, although water levels in watercourses were not significantly affected and this is not considered to have caused a significant impact to the results of the surveys.
94. Some sections of the Maw Burn and Cow Gut watercourses were inaccessible during the mammal surveys due to vegetation growth, steep banks and/or fencing. These watercourses were assessed for riparian mammals from a distance where bankside access was restricted to build up a good general overview of their suitability for protected mammals. It is possible that some evidence may have been missed as a result, although areas affected were relatively small and it is considered unlikely that whole populations would have been missed.
95. During the HSI assessment of waterbodies within the study area for GCN, a total of 36 waterbodies were identified, including ditches and ephemeral waterbodies, 12 of which were deemed suitable for further eDNA survey. Water samples for eDNA survey were collected from seven of the 12 ponds due either to the other five waterbodies having dried out (and therefore no longer being suitable) or access issues (bankside conditions).
96. A further two ponds were not able to be accessed for either HSI assessment or eDNA survey as they were located on former BritishVolt land and surrounded by barrier fencing. Given the return of negative results for the seven ponds tested, it is unlikely that GCN were present within the ponds not sampled.
97. The GCN eDNA surveys can confirm presence but cannot reliably be deemed to prove absence without interpretation by a qualified ecologist using emerging research to guard against false negative results (CIEEM, 2020). As the survey was conducted at the beginning of June (within the optimal survey period for GCN) it is considered likely that larvae and/or adult newts would still have been present in the water bodies at this time and a false negative is considered highly unlikely.
98. Two bat transect survey routes were initially designed to incorporate the range of habitat types present within the Site. By combining both transect routes into one survey visit, the total length of survey became slightly greater than the recommended distance detailed within Collins (2016) (total length of transect routes combined was 6 km, while the recommended distance is 3-5 km). In turn, the potential for missing periods of peak bat activity at certain locations within the Site increased slightly. This issue was however rectified as far as possible by ensuring the transect was walked in different directions, and starting locations varied, during each survey visit. Therefore, this limitation is not considered to have caused an impact to survey findings.
99. Each static bat detector was deployed for a period of five nights per month between May and September 2023 (totalling 20 nights of deployment per survey period across the four detectors). The total number of nights for which static detectors were deployed over the entire survey period was therefore 100. However, due to a technical malfunction with Static Detector C, no data was returned for the following nights: 26th-31st May (five nights); 21st-23rd August (three nights) and 31st August – 5th September (five nights). Due to this limitation, the total number of survey nights with data returned was

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87. Despite this issue, data collected from surrounding monitoring locations is considered adequate in demonstrating bat species assemblage and associated levels of activity across the Site.

100. Weather data, to confirm that weather conditions during the static detector surveys were suitable, were collected from a Met Office accredited weather station in Blyth. However, no data were available for the month of August at this location. In addition, no data relating to wind speed were available for the September survey period at this location. In order to provide indicative information relating to temperature, windspeed and rainfall during the August survey period, and wind speed for September survey period, data were instead obtained through the ‘World Weather Online’ website⁷. This is not considered to represent a limitation as the data obtained provide a good representation of weather conditions in the wider area.
101. Due to land access issues, the breeding bird survey visits were all completed over a one-month period between late May and late June. As no visits were undertaken earlier in the season, and given the relatively short time between the first two visits, this may have resulted in some territorial activity being missed. However, based on the behaviour observed and the nature of the survey areas it is considered unlikely that any breeding waders were missed. Based on the habitats present and species observed it is also considered unlikely that any other species of particular conservation importance were missed.
102. A small area of intertidal habitat in the north-eastern part of the Blyth Estuary was excluded from the wintering bird survey area because it couldn’t be viewed from the northern bank of the estuary due to a lack of access from the north (due to ongoing construction works) and the presence of dense vegetation restricting visibility from the west. However, the exclusion of this small area is unlikely to change the evaluation of the wintering bird populations identified in Table 9-11, which already include several nationally important populations. In addition, no works are anticipated within the part of the Site lying adjacent to this area and this omission is therefore unlikely to affect the assessment of potential impacts.
103. No wintering bird surveys were undertaken in October 2022 at the Sleek Burn or the northern extent of Cambois Beach (outside the current site boundary) as these areas were not added to the survey scope until November 2022. Surveys were undertaken twice per month from November to March, however. The lack of survey data for October is unlikely to have significantly affected the survey results as the period between November and March is considered the core survey period for over-wintering birds (BTO, 2017).
104. An ecological survey provides only a ‘snapshot’ of the conditions prevailing at the time of survey. Whilst it is considered unlikely that any significant evidence of protected or otherwise notable species were overlooked during the survey work, due to the nature of the subjects of ecological surveys, it is feasible that species that use the site may not have been recorded by virtue of their seasonality, cryptic behaviour, habit, or random chance. This is a standard limitation that is common to all ecological survey work. It is considered unlikely, however, that additional surveys of the Site would materially alter the conclusions of the baseline survey work. It is likely that further survey work will be required to inform subsequent reserved matters applications. These surveys will account for the potential future changes since the surveys referred to in this Chapter. Pre-construction surveys are also proposed for protected species such as otter and badger (see Table 9-14).

⁷ <https://www.worldweatheronline.com/> [Accessed October 2023].

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9.8. Key Parameters for Assessment

9.8.1. Maximum Design Scenario

105. The maximum design scenario(s) (MDS) summarised here have been selected as those having the potential to result in the greatest likely significant effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in Chapter 5: Project Description. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the PDE (e.g., different infrastructure layout), to that assessed here, be taken forward in the final design scheme.
106. Given that the maximum design scenario is based on the design option (or combination of options) that represents the greatest potential for change, confidence can be held that development of any alternative options within the design parameters will give rise to no worse effects than assessed in this impact assessment.
107. Table 9-12 presents the maximum design scenario for potential impacts on terrestrial ecological and ornithological receptors during construction, operation and maintenance and decommissioning.
108. The boundary and extent of the Onshore Scheme have been the subject of discussions with NCC. There are some design details related to the Onshore Scheme that are still to be finalised following the completion of further ground investigations, ongoing engineering design work and the procurement of and converter station suppliers. The Site boundary provides flexibility to allow for further refinement and finalisation of design details which will be subject to future application(s) for approval of Reserved Matters.
109. It is anticipated that the worst-case assessments presented here will be updated to inform more detailed reserved matters applications, once a detailed design has been developed.


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Table 9-12 Maximum design scenario specific to Terrestrial Ecology & Ornithology impact assessment

Potential Impact	Maximum Design Scenario	Justification
Construction		
<p>Issue 1: Impacts on Northumberland Shore SSSI including habitat loss, disturbance to notified bird species and indirect effects due to accidental pollution.</p>	<ul style="list-style-type: none"> • Habitat loss: Horizontal directional drilling (HDD) will be used at the landfall so there will be no habitat loss within the SSSI. • Disturbance: Visual and noise disturbance is possible during construction works within approximately 400 m⁸ of the beach and the Sleek Burn / Blyth Estuary, where used by SSSI notified bird species. Disturbance could take place during the winter throughout the construction period of 48 months, but noting that construction works within each zone of the Site will extend for shorter periods, estimated on an indicative basis as follows: <ul style="list-style-type: none"> ○ Site preparation/ enabling works - up to 15 months; ○ Landfall construction – up to 24 months; ○ Onshore Cable (HVAC and HVDC) - up to 18 months; ○ Onshore Converter Station construction - up to 18 months; and ○ SWO installation - up to 9 months. • Visual disturbance is possible at any time when construction works are taking place, where there is a direct line of sight between the source of disturbance and the relevant receptor. • Maximum construction noise levels are set out in Chapter 13: Noise & Vibration. Noise generated by construction activities would mostly be regular in character although impact/percussive piling is possible at the Onshore Converter Station, which would represent irregular noise. • Accidental pollution: In the absence of mitigation, construction works could result in pollution of water-based resources, although these will be minimised by the adoption of standard pollution prevention measures (see section 9.10). Dust arising from construction activities and associated movements of traffic could affect sensitive habitats within 50 m of the Site boundary (or the route(s) used by construction vehicles on the public highway up to 500 m from the Site entrances). Deposition of airborne pollutants generated by construction traffic has been assessed within 200 m of roads expected to experience increases in traffic flows as a result of the Onshore Scheme. 	<p>The MDS includes the maximum development footprint (temporary and permanent) and therefore the largest possible area of disturbance to ecological receptors.</p> <p>It also assumes use of the technologies likely to cause most damage where the technology to be used is uncertain, e.g., open cut trenching rather than trenchless techniques (with the exception of the Landfall). It also assumes that the most ecologically sensitive habitats would be affected, where there is uncertainty over which areas within each Indicative Zone of Infrastructure (refer to Figure 5.1, Volume 4) may be impacted.</p> <p>The approach to the assessment of air quality impacts is in line with relevant</p>


⁸ A 400 m maximum disturbance buffer is in line with recent advice provided by Natural England for other offshore wind farm connection projects.

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Potential Impact	Maximum Design Scenario	Justification
Issue 2: Impacts on Northumbria Coast SPA/Ramsar including disturbance to notified bird species and indirect effects due to accidental pollution.	<ul style="list-style-type: none"> • Disturbance: Visual and noise disturbance is possible during construction works within approximately 400 m of the beach and the Sleek Burn / Blyth Estuary, where used by SPA/Ramsar qualifying species. Disturbance could take place during the winter throughout construction. Visual and noise disturbance assumptions are as outlined above for Issue 1. • Accidental pollution: Northumbria Coast SPA/Ramsar is located 0.3 km from the Site boundary and is therefore not likely to be affected by aquatic or airborne pollution. 	<p>guidance (see Chapter 14: Air Quality for further details).</p> <p>See justification for Issue 1.</p>
Issue 3: Impacts on Northumberland Marine SPA including habitat loss, disturbance to notified bird species and indirect effects due to accidental pollution.	<ul style="list-style-type: none"> • Habitat loss: No construction work will take place within inter-tidal habitats so there will be no habitat loss within the SPA. • Disturbance: Visual and noise disturbance is possible during construction works within approximately 400 m of the beach and the Sleek Burn / Blyth Estuary, if used by SPA qualifying species. Visual and noise disturbance assumptions are as outlined above for Issue 1. • Accidental pollution: In the absence of mitigation, construction works could result in aquatic and airborne pollution, as outlined above for Issue 1. 	See justification for Issue 1.
Issue 4: Impacts on Blyth Estuary LWS including habitat loss, disturbance to faunal species and indirect effects due to accidental pollution.	<ul style="list-style-type: none"> • Habitat loss: No construction work will take place within inter-tidal habitats so there will be no habitat loss within the SPA. • Disturbance: Visual and noise disturbance is possible during construction works close to the Sleek Burn / Blyth Estuary, where used by notable faunal species. Disturbance could take place during the winter throughout construction but noting that construction works within each zone of the Site will extend for shorter periods, as set out for Issue 1 above. Visual and noise disturbance assumptions are as outlined above for Issue 1. • Accidental pollution: In the absence of mitigation, construction works could result in aquatic and airborne pollution, as outlined above for Issue 1. 	See justification for Issue 1.
Issue 5: Impacts on Berwick to St Marys MCZ including habitat loss, disturbance to protected bird species (common eider) and indirect effects due to accidental pollution.	<ul style="list-style-type: none"> • Habitat loss: Trenchless techniques will be used at the landfall so there will be no habitat loss within the MCZ. • Disturbance: Visual and noise disturbance is possible during construction works within approximately 400 m of the beach and the Sleek Burn / Blyth Estuary, where used by protected bird species (common eider). Visual and noise disturbance assumptions are as outlined above for Issue 1. • Accidental pollution: In the absence of mitigation, construction works could result in aquatic and airborne pollution, as outlined above for Issue 1. 	See justification for Issue 1.

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Potential Impact	Maximum Design Scenario	Justification
Issue 6: Loss and fragmentation of important habitats.	<p>Permanent habitat loss:</p> <ul style="list-style-type: none"> Permanent habitat loss will be limited to the Onshore Converter Station site and the SWO into the Sleek Burn (and associated infrastructure such as TJBs and permanent access roads). All other permanent structures will be situated underground and it is assumed that associated habitats will be reinstated where practicable, excluding directly over underground cables. The Onshore Converter Station Converter Station will result in permanent habitat loss of up to 9.2 ha (based on a platform up to 300 m x 300 m in size), plus a permanent access road, which may require a land take of up to 2,000 m². It is assumed that permanent habitat loss could occur anywhere within the Converter Station Zone, except for the areas of woodland which it is confirmed will be retained (see Technical Appendix 7.2, Volume 3). The SWO into the Sleek Burn will result in permanent habitat loss of up to 10m. Although the outfall is most likely to be situated adjacent to the existing North Sea Link (NSL) outfall, the MDS assumes that it could be located anywhere along the northern bank of the Sleek Burn within the Site boundary, except for the sections of bank lying directly above saltmarsh habitat (to avoid water running off over saltmarsh habitat). <p>Temporary habitat loss</p> <p>Temporary habitat loss will occur during construction of the landfall, HVDC cable route, HVAC cable route, the Onshore Converter Station and SWO into the Sleek Burn, as follows (see Chapter 5: Project Description for full details):</p> <ul style="list-style-type: none"> Landfall/HVDC cable corridor – up to 28.4 ha (based on a working corridor of maximum length 2.1 km and maximum width 110 m, plus up to eight main compounds (up to 37,800 m²) and up to six HDD compounds at the landfall (up to 15,000 m²). the Onshore Converter Station – up to 2.34 ha (based on up to two temporary compounds (up to 20,400m²) and an indicative working area of 5 m surrounding the Onshore Converter Station platform (up to 3,025m²). HVAC cable corridor – up to 24.5 ha (based on a working corridor of maximum length 1.7 km and maximum width for open cut trenching of 125 m (212,500m²), plus up to eight temporary compounds (up to 32,980 m²). SWO into Sleek Burn – up to 0.65 ha (based on a temporary working area of 10m x 650 m) and may include a small area of intertidal habitat. In addition to the above, a total area of up to 65,980 m² (6.5 ha) may be used for temporary materials storage. Except where HDD has been specifically committed to (i.e. beneath the beach and sand dunes) it is assumed that open cut trenching will be used as this is likely to result in greater habitat loss compared with HDD. It is noted that HDD may require a wider corridor and larger compounds but impacts are still likely to be greater if open cut trenching is used and therefore the figure for open cut trenching has been used for the assessment. Additional use of HDD may reduce temporary habitat loss, although additional HDD locations cannot be confirmed until the detailed design stage. 	See justification for Issue 1.

Potential Impact	Maximum Design Scenario	Justification
	<ul style="list-style-type: none"> Temporary habitat loss could take place throughout construction 48but noting that construction works within each zone of the Site will extend for shorter periods, as set out for Issue 1 above. It is assumed that the temporary habitat loss could occur anywhere within the relevant zones, except for the beach and sand dunes (which will be avoided via use of HDD), intertidal habitats within the Sleek Burn and areas of woodland which will be retained (see Technical Appendix 7.2, Volume 3). <p>It is assumed that all habitats subject to temporary loss will be reinstated as soon as reasonably practicable following the completion of construction works in the relevant areas, although it is noted that some habitats, notably woodland, may take several years to re-establish to their current state.</p>	
Issue 7: Impacts on important invertebrate species due to habitat loss and fragmentation	<p>Habitat loss: temporary loss of suitable habitat for important invertebrate species will only occur within Landfall/HVDC and HVAC Zones. Habitat loss assumptions for these areas are set out as for Issue 6. No habitat suitable for the target invertebrate species will be permanently lost as neither target species was recorded within the Converter Station Zone.</p>	See justification for Issue 1.
Issue 8: Impacts on reptiles including habitat loss/fragmentation, disturbance and injury / death.	<ul style="list-style-type: none"> Habitat loss: habitat loss assumptions are as set out for Issue 6. Disturbance: disturbance could occur during works within or adjacent to potentially suitable reptile habitat. Areas potentially affected by construction works are as described for Issue 6. Disturbance could take place throughout construction 48 but noting that construction works within each zone of the Site will extend for shorter periods, as set out for Issue 1 above. Injury / death: in the absence of mitigation inadvertent injury or death to reptile species could occur during works within potentially suitable reptile habitat. Areas potentially affected by construction works are as described for Issue 6. 	See justification for Issue 1.
Issue 9: Impacts on breeding birds including habitat loss/fragmentation, disturbance and damage to nests.	<ul style="list-style-type: none"> Habitat loss: habitat loss assumptions are as set out for Issue 6. Disturbance: disturbance could occur during works within or adjacent to potentially suitable habitat for breeding birds. Areas potentially affected by construction works are as described for Issue 6. Disturbance could take place for up to five breeding seasons (based on a construction period of 48 months) but noting that construction works within each zone of the Site will extend for shorter periods, as set out for Issue 1 above. Injury / death: in the absence of mitigation damage to active nests could occur during works within potentially suitable habitat for breeding birds. Areas potentially affected by construction works are as described for Issue 6. 	
Issue 10: Disturbance impacts on wintering birds (where not included as qualifying or notified features for designated sites).	<ul style="list-style-type: none"> Disturbance: Visual and noise disturbance is possible during construction works within approximately 400 m of areas used by notable wintering bird species (limited to the beach and the Sleek Burn / Blyth Estuary). Disturbance could take place during the winter throughout construction 48but noting that construction works within each zone of the Site will extend for shorter periods, as set out for Issue 1 above. Visual and noise disturbance assumptions are as outlined for Issue 1. 	See justification for Issue 1.


Potential Impact	Maximum Design Scenario	Justification
Issue 11: Impacts on otter including habitat loss/fragmentation, disturbance and injury / death	<ul style="list-style-type: none"> Habitat loss: habitat loss assumptions are as set out for Issue 6. Permanent loss of habitat suitable for otter is limited to the SWO into the Sleek Burn. Temporary habitat loss could include up to 135 m of the Maw Burn and Cow Gut (based on a maximum wording corridor of up to 110 m for the Landfall/HDVC cable route and 125 m for the HVAC cable route and assuming on a precautionary basis that the cable route would cross each water course only once in each zone for a maximum period of 36 months (Maw Burn and Cow Gut) and nine months at the Sleek Burn. Disturbance: disturbance could occur during works within or adjacent to potentially suitable otter habitat, e.g., Sleek Burn, Cow Gut and the Maw Burn. Areas potentially affected by construction works are as described for Issue 6. Disturbance could take place throughout the construction period of 36 months (Maw Burn or Cow Gut) and nine months at the Sleek Burn.. Whilst 24-hour working could take place at HDD locations, it is assumed that other construction works will be limited to standard working hours, i.e., 7am to 7pm. Injury / death: in the absence of mitigation inadvertent injury or death to otters could occur during works within potentially suitable otter habitat. Areas potentially affected by construction works are as described for Issue 6. 	See justification for Issue 1.
Issue 12: Impacts on badger including habitat loss/fragmentation, disturbance and injury / death.	<ul style="list-style-type: none"> Habitat loss: habitat loss assumptions are as set out for Issue 6. It is possible that badger setts could be affected as well as foraging habitat. Disturbance: disturbance could occur during works close to active badger setts. Areas potentially affected by construction works are as described for Issue 5. Disturbance could take place throughout construction⁴⁸, but noting that construction works within each zone of the Site will extend for shorter periods, as set out for Issue 1 above. Injury / death: in the absence of mitigation inadvertent injury or death to badgers could occur during works within potentially suitable habitat. Areas potentially affected by construction works are as described for Issue 5. 	See justification for Issue 1.
Issue 13: Impacts on red squirrel, including habitat loss/fragmentation, disturbance and injury / death.	<ul style="list-style-type: none"> Habitat loss: habitat loss assumptions are as set out for Issue 6. Habitat suitable for red squirrel is limited to woodland habitats. Although woodland would be reinstated loss of woodland habitat is assumed to effectively represent a permanent loss of habitat for red squirrel due to the time it would take woodland to re-establish. Disturbance: disturbance could occur during works within or adjacent to potentially suitable red squirrel habitat, i.e., woodland. Areas potentially affected by construction works are as described for Issue 6. Disturbance could take place throughout construction⁴⁸, but noting that construction works within each zone of the Site will extend for shorter periods, as set out for Issue 1 above. Injury / death: in the absence of mitigation inadvertent injury or death to red squirrels, or damage to a red squirrel drey, could occur during works within potentially suitable habitat. Areas potentially affected by construction works are as described for Issue 6. 	See justification for Issue 1.

Potential Impact	Maximum Design Scenario	Justification
Issue 14: Impacts on bats, including loss of potential roost sites, loss/fragmentation of foraging/commuting habitat and disturbance due to construction lighting.	<ul style="list-style-type: none"> Habitat loss: habitat loss assumptions are as set out for Issue 6. As agreed with NCC, this assessment is based on the findings of a preliminary roost assessment and bat activity surveys only. More detailed bat roost presence/absence surveys will be undertaken at the detailed design stage (to inform reserved matters applications). It is likely that many trees with bat roost potential will be able to be avoided at the detailed design stage. However, for the maximum design scenario considered here it is assumed that all trees with bat roost potential could be lost (except for trees within areas of woodland which will be retained (see Technical Appendix 7.2, Volume 3) and that all trees with bat roost potential could support bat roosts. Lighting disturbance: Whilst 24-hour working could take place at HDD locations, it is assumed that other construction works will be limited to standard working hours, i.e. 7am to 7pm. Temporary lighting has been assumed to be necessary during construction hours at the times of year when working hours would otherwise be in darkness (approximately October – April). Additional 24-hour security lighting has been assumed at all temporary construction compounds. 	See justification for Issue 1.
Issue 15: Spread of invasive non-native species (INNS).	INNS are present in several locations within the Site boundary. In the absence of mitigation, INNS could be spread during construction work. Areas potentially affected by construction works are as described for Issue 6.	See justification for Issue 1.
Issue 16: Impacts on important habitats and species due to accidental pollution events.	In the absence of mitigation, construction works could result in pollution of water-based resources, although these will be minimised by the adoption of standard pollution prevention measures (see section 9.10). Dust arising from construction activities and associated movements of traffic could affect sensitive habitats within 50 m of the Site boundary (or the route(s) used by construction vehicles on the public highway up to 500 m from the site entrances). Deposition of airborne pollutants generated by construction traffic has been assessed within 200 m of roads expected to experience increases in traffic flows as a result of the Onshore Scheme.	See justification for Issue 1.
Operation and Maintenance		
Issue 1: Impacts on designated sites due to disturbance and changes to surface water flows.	<p>In the absence of mitigation, designated sites could be affected by disturbance to notified or qualifying species due to lighting and noise and due to planned and unplanned maintenance. They could also be affected by changes to surface water flows via the proposed SWO into the Sleek Burn.</p> <ul style="list-style-type: none"> Onshore Converter Station Lighting and Noise: At the Onshore Converter Station, the maximum design scenario assumes that 24-hour lighting will be required for safety and security. Lighting would be directional and, where practicable, glare and the spread of upward light will be minimised. Task-specific lighting could also be used externally to undertake routine operational maintenance tasks after dark. Operational noise levels associated with the Onshore Converter Station are set out in Chapter 13. Disturbance due to planned and un-planned maintenance: 	<p>Information regarding the likely extent of planned and unplanned maintenance works is taken from Chapter 5: Project Description.</p> <p>Information regarding surface water flows is taken from Technical Appendix 11.2: Surface and Foul Water Drainage Strategy (Volume 3).</p>

Potential Impact	Maximum Design Scenario	Justification
	<ul style="list-style-type: none"> ○ Landfall and Transition Joint Bays: Annual routine maintenance at each joint bay. Manhole access to transition bay and non-intrusive cable checks via radar or visual inspection. Non-scheduled maintenance to address faults as necessary. Off road vehicles used for access. ○ Onshore Cable: Routine maintenance not anticipated other than periodic inspection (as above). Non-scheduled maintenance to address faults as necessary. Off road vehicles used for access. ○ Onshore Converter Station: To be confirmed following design of Onshore Converter Station. It is anticipated that the Onshore Converter Station will not be staffed, though will require occasional maintenance visits. ● Changes to surface water flows: the proposed SWO into the Sleek Burn will result in changes to surface water discharges into the Sleek Burn, which forms part of the Northumberland Marine SPA and Blyth Estuary LWS. 	
Issue 2: Impacts on protected and notable faunal species due to disturbance.	<p>In the absence of mitigation, protected and notable faunal species could be subject to disturbance due to lighting and noise and due to planned and unplanned maintenance.</p> <ul style="list-style-type: none"> ● Onshore Converter Station Lighting and Noise: As detailed for Issue 1. ● Disturbance due to planned and un-planned maintenance: As detailed for Issue 1. Routine maintenance of the HVDC and HVAC cables is not anticipated, however inspection and non-scheduled maintenance may be required, including access to landfall with light 4x4 vehicles. <p>The Onshore Converter Station maintenance regime will be confirmed within detailed design; however maintenance is thought to be occasional rather than regular. It is not anticipated that the Onshore Converter Station would be permanently staffed.</p>	Information regarding operational lighting and noise and the likely extent of planned and unplanned maintenance works is taken from Chapter 5: Project Description and Chapter 13: Noise and Vibration.
Issue 3: Spread of invasive non-native species (INNS).	<p>In the absence of mitigation, INNS could be spread during planned and unplanned maintenance, as detailed in Issue 1. Routine maintenance of the HVDC and HVAC cables is not anticipated, however inspection and non-scheduled maintenance may be required, including access to landfall with light 4x4 vehicles. The Onshore Converter Station maintenance regime will be confirmed within detailed design, however maintenance is thought to be occasional rather than regular. It is not anticipated that the Onshore Converter Station would be permanently staffed.</p>	Information regarding the likely extent of planned and unplanned maintenance works is taken from Chapter 5: Project Description.
Issue 4: Impacts on important habitats and species due to accidental pollution events/ impacts on watercourses	<p>In the absence of mitigation, planned and unplanned maintenance could result in pollution of water-based resources, as detailed in Issue 1. Routine maintenance of the HVDC and HVAC cables is not anticipated, however inspection and non-scheduled maintenance may be required, including access to landfall with light 4x4 vehicles. The Onshore maintenance regime will be confirmed within detailed design, however maintenance is thought to be occasional rather than regular.</p>	Information regarding the likely extent of planned and unplanned maintenance works is taken from Chapter 5: Project Description.
Decommissioning		

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Potential Impact	Maximum Design Scenario	Justification
<p>At the end of the operational lifetime of the Onshore Scheme, the operator of the Onshore Scheme will develop and agree a solution for the onward handling of the onshore infrastructure with the regulator. This decision will be based on the advice from the regulator at the time and informed by the prevailing environmental regulatory requirements at that time, and relevant good practice.</p> <p>Decommissioning of the Onshore Converter Station would involve the main components being dismantled and removed for recycling or disposal in accordance with the relevant waste disposal regulations. Decommissioning of underground cables would involve disconnection from operational cable, with options for leaving redundant cable in-situ or removal. Removal would involve similar activities to installation.</p> <p>The approach to decommissioning will align with regulatory guidance, requirements, and industry best practices at the time of decommissioning and will be agreed with the relevant stakeholder and regulatory bodies. A decommissioning plan and supporting decommissioning environmental management plan will be prepared prior to commencement of decommissioning and will be subject to its own environmental assessment.</p> <p>Impacts from decommissioning are expected to be similar to those for construction but over a reduced timescale and affecting a smaller area since the assets are already <i>in situ</i>.</p>		

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9.8.2. Impacts Scoped Out of the Assessment

110. Designated sites scoped out of the assessment are presented in Table 9-13.


Table 9-13 Designated sites scoped out of the assessment for Terrestrial Ecology and Ornithology

Potential Impact	Phase ⁹			Justification
	C	O	D	
Willow Burn Pasture SSSI Hawthorn Cottage Pasture SSSI	X	X	X	These SSSIs are designated for species rich grassland. They are located 3.9 km and 5.2 km respectively from the Site boundary and there is a lack of hydrological connections between them and the Site. Therefore, no impacts are anticipated to arise due to the onshore scheme and these sites are therefore scoped out of further assessment.
New Hartley Ponds SSSI	X	X	X	The ponds are designated for breeding amphibians, notably GCN. These ponds are 6.4 km from the Site boundary with no hydrological connections between them and the site. Due to the separation distance, the presence of intervening barriers to amphibian movement (e.g., the tidal River Blyth) and the lack of GCN records within the Site, no impacts are anticipated to arise due to the onshore scheme and this site is scoped out of further assessment.
Holywell Pond SSSI	X	X	X	Holywell Pond is designated for its aggregations of non-breeding birds, notably whooper swan (<i>Cygnus cygnus</i>), and standing waters. The pond is 7.7 km to the south of the Site. Holywell Pond is a freshwater lake and is not hydrologically connected to the site. There were no records of whooper swan during the wintering bird surveys undertaken at the Site in 2022-23 and there is therefore no potential for functional linkage between the Site and the SSSI in relation to whooper swan. On that basis, and given the intervening distance, no impacts are anticipated to arise due to the Onshore Scheme and this site is scoped out of further assessment.
Arcot Hall Grasslands and Ponds SSSI	X	X	X	Arcot Hall Grasslands and Ponds is the largest lowland species grassland in NE England and its notified features also include heathland habitat and its invertebrate assemblage. It lies 8.3 km to the south-west of the Site. Due to the separation distance and lack of hydrological connection, no impacts are anticipated to arise due to the Onshore Scheme and this site is scoped out of further assessment.
Cresswell Ponds SSSI	X	X	X	Cresswell Ponds are designated for their saline coastal lagoon habitat. The associated invertebrate fauna is also notable and the ponds are used as feeding and roosting areas by wintering waders and wildfowl. The SSSI is situated 9.7 km to the north of the Site and other than via the sea there is no hydrological connection. Given the intervening distance o impacts on the saline lagoon habitat for which the SSSI is notified are anticipated to arise due to the onshore scheme and this site is scoped out of further assessment.
Castle Island LNR	X	X	X	>1.5 km north-west of the Site and unlikely to be affected due to intervening distance and lack of hydrological connection. This site is therefore scoped out of further assessment.
Coquet to St Marys MCZ	X	X	X	The MCZ is designated for a range of intertidal and sub-tidal habitat features. Although the MCZ overlaps the Site, within the intertidal area at the landfall, direct impacts on intertidal habitats will be avoided via use of HDD at the landfall and there is therefore no potential for the protected features of the MCZ to be affected. This site is therefore scoped out of further assessment.
Durham Coast SSSI / SAC	X	X	X	This site is located 16.8 km to the south of the Site. The SAC is designated for its vegetated sea cliffs. The SSSI is notified for a number of features including

⁹ C= Construction, O = Operational and maintenance, D = Decommissioning

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Potential Impact	Phase ⁹			Justification
	C	O	D	
				magnesian limestone vegetation, a species-rich dune system, its plant assemblage, wintering shorebirds, notably purple sandpiper and sanderling and breeding seabirds, including little tern. Given the intervening distance and lack of hydrological connection, other than via the sea, none of the habitat features would be affected by the Onshore Scheme. Purple sandpiper and sanderling are not likely to move between the Site and the SSSI on a regular (i.e., daily) basis given the intervening distance and the Site is therefore not likely to be functionally-linked to the SSSI in relation to its wintering shorebird populations. In addition, it is noted that purple sandpiper and sanderling are both qualifying features for the Northumberland Shore SSSI and purple sandpiper is also a qualifying feature for the Northumbria Coast SPA and Ramsar site. Both species are therefore already assessed in detail and significant effects on the Durham Coast SSSI are not likely in the absence of significant effects on the other designated sites located much closer to the Site. Breeding seabird populations are not likely to use any habitats affected by the onshore scheme. No impacts are therefore anticipated to arise due to the onshore scheme and these sites are scoped out of further assessment.
Hadston Links SSSI	X	X	X	This site is located 13.9 km to the north of the Site and is designated for its sand dune communities. Given the intervening distance and the lack of hydrological connection, other than via the sea, no impacts on the SSSI sand dune communities are anticipated to arise due to the Onshore Scheme and this site is scoped out of further assessment.
Berwickshire and North Northumberland Coast SAC	X	X	X	This site is located 26.2 km to the north of the Site and is designated for its intertidal habitats and grey seal. Given the characteristics of the qualifying features, the intervening distance and the nature of the <i>Onshore Scheme</i> , no impacts are anticipated to arise due to the Onshore Scheme and this site is scoped out of further assessment.
Teesmouth and Cleveland Coast SPA / Ramsar	X	X	X	These sites are located 45.5 km to the south of the Site and are designated for a range of waterbird species. Given the very large intervening distance these sites are located well beyond the core foraging range for any of the qualifying features and they are therefore not likely to be functionally-linked to the habitats within the Study Area. No impacts are therefore anticipated to arise due to the Onshore Scheme and these sites are scoped out of further assessment.
Lindisfarne SPA / Ramsar	X	X	X	These sites are located 52.2 km to the north of the Site and are designated for a range of waterbird species. Given the very large intervening distance these sites are located well beyond the core foraging range for any of the qualifying features and they are therefore not likely to be functionally-linked to the habitats within the Study Area. No impacts are therefore anticipated to arise due to the Onshore Scheme and these sites are scoped out of further assessment.
Sleek Burn Fen LWS	X	X	X	Sleekburn Fen LWS lies 1.4 km from the Site and is unlikely to be affected due to the intervening distance and lack of direct hydrological connection. This site is therefore scoped out of further assessment.
Wansbeck Estuary LWS	X	X	X	Wansbeck Estuary LWS lies 0.8 km from the Site and is unlikely to be affected due to intervening distance and lack of direct hydrological connection. The site is therefore scoped out of further assessment.

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9.9. Methodology for Assessment of Effects


9.9.1. Overview

111. The evaluation of ecological and ornithological receptors and the assessment of likely significant effects on terrestrial ecology and ornithology are based on the methodology set out in Chartered Institute of Ecology and Environmental Management (CIEEM) ‘Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine’ (CIEEM, 2018 updated 2022) (henceforth referred to as the CIEEM guidelines). The CIEEM guidelines are widely regarded as industry best practice. It is noted that this differs in places from the generic methodology set out in Chapter 3: EIA Methodology, as is explained below.

9.9.2. Impact Assessment Criteria

9.9.2.1.1. IDENTIFICATION OF IMPORTANT ECOLOGICAL RECEPTORS

112. In accordance with the CIEEM guidelines, only ecological receptors (habitats, species, ecosystems and their functions/processes) which are considered to be important and potentially affected by a proposed development should be subject to detailed assessment. As stated in the CIEEM guidelines: *‘it is not necessary to carry out detailed assessment of receptors that are sufficiently widespread, unthreatened and resilient to impacts from the proposed development and will remain viable and sustainable’*. For this assessment effects have therefore been assessed for receptors of Local value or greater, plus any additional receptors subject to legal protection.
113. Ecological receptors should be considered within a defined geographical context. For this assessment the following geographic frame of reference has been used:
- International;
 - National (i.e., England);
 - Regional (i.e., north-east England)
 - County (i.e., Northumberland);
 - Local (i.e., within approximately 5 km); and
 - Less than local.
114. For designated sites, importance should reflect the geographical context of the designation. For example, a SSSI would normally be considered nationally important.
115. In accordance with CIEEM guidelines the value of habitats has been measured against published selection criteria and other relevant data where available. Examples of relevant criteria include Annex 1 of the Habitats Directive, Section 41 of the NERC Act and priority habitats within the Northumberland Local Biodiversity Action Plan (LBAP).
116. In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Reference has therefore been made to published lists and criteria where available. Examples of relevant lists and criteria include: species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive); species listed on the Section 41 list of species of principal importance for biodiversity in England; and priority species listed on the Northumberland LBAP. For non-breeding waterbirds, the value of species populations has been determined using the standard ‘1% criterion’ method (Drewitt *et al.*, 2023), as outlined in paragraph 51.

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9.9.2.1.2. IMPACT ASSESSMENT

117. The ecological impact assessment process involves the following steps:

- Identifying and characterising impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects (if required); and
- Identifying opportunities for ecological enhancement.

118. In accordance with CIEEM guidelines, when describing ecological impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative (i.e., whether the impact improves or reduces the quality of the environment);
- Extent (i.e., the spatial or geographical area over which the impact/effect may occur);
- Magnitude (i.e., the size, amount, intensity or Volume of an impact, which should be quantified, where practicable);
- Duration (i.e., the time period over which the impact may occur, both in terms of the activity itself and the resulting effect, which may be different);
- Frequency and timing (i.e., the number of times an activity occurs); and
- Reversibility (an irreversible effect is one from which recovery is not possible within a reasonable timescale, a reversible effect is one from which recovery is possible, e.g., via the use of mitigation measures).


119. Both direct and indirect impacts are considered. Direct ecological impacts are changes that are directly attributable to a defined action, e.g., the physical loss of habitat during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process, or receptor, e.g., the interruption of a watercourse, which, in the absence of mitigation, could lead to the drying out of downstream habitats.

9.9.2.1.3. SIGNIFICANCE OF EFFECT

120. For the purposes of this assessment, in accordance with CIEEM guidelines, a ‘significant effect’ is defined as an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological receptors’ or for biodiversity in general. Conservation objectives may be specific (e.g., for a designated site) or broad (e.g., national / local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local (paragraph 113). For example, a significant effect on a SSSI is likely to be of national significance whilst a significant effect on a regionally important population of a species is likely to be of regional significance. In some circumstances the scale of significance of an effect may also differ from the geographic context in which the feature is considered important.

121. Paragraphs 5.29 – 5.34 of the CIEEM guidelines cover how significant effects are determined. To summarise:

- For designated sites – effects may be significant if they are likely to undermine the conservation objectives of the site; or positively or negatively affect the conservation status of species or habitats for which the site is designated; or may affect the condition of the site or its interest/qualifying features.
- For ecosystems – effects may be significant if the project is likely to result in a change in ecosystem structure and function. Consideration should be given as to whether any processes or key characteristics will be removed or changed, if there will be an effect on the nature, extent,

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structure and function of component habitats or if there is an effect on the average population size and viability of component species.

- For habitats and species – consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance.

122. Conservation status is defined as follows:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions, as well as its distribution and its typical species within a given geographical area; and
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

9.9.2.1.4. AVOIDANCE, MITIGATION, COMPENSATION AND ENHANCEMENT

123. A sequential process has been adopted to avoid, mitigate, and compensate for ecological impacts. This is often referred to as the ‘mitigation hierarchy’.

124. It is important for the EIA to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g., through changes in scheme design;
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact *in situ*;
- Compensation (in EIA terms, under the CIEEM guidelines) describes measures taken to offset residual effects, i.e., where mitigation *in situ* is not possible; and
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complimentary.

9.9.2.1.5. CUMULATIVE EFFECTS


125. Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a particular location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered cumulatively with impacts of other proposed or permitted plans and projects, can result in significant effects. The potential for cumulative effects with other development proposals has been assessed in section 9.13 and further detail regarding the methodology used is provided there.

BIODIVERSITY NET GAIN

126. An BNG Indicative Design Stage Report for the Site has been produced for the project (SLR, 2023). The aims of this report were as follows:

- Clearly set out the proposed approach to provide BNG;
- Identify and justify any proposed deviations from the standard method of applying Defra Metric 4.0; and
- To provide a justified indication of the likely Biodiversity Units (BUs) loss or gain as a result of the project, based on key assumptions and the limited design information available at this stage.

127. The BNG Indicative Design Stage Report (SLR, 2023) is based on a worst-case scenario (under an approach agreed with NCC see Table 9-4) and therefore any resultant loss/gain of BUs is indicative and subject to review at the detailed design stage.

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128. At the detailed design stage, the Defra Metric will be re-run and a BNG Final Design Report shall be prepared. It is envisaged that this would form part of a Reserved Matters application and that a minimum of 10% BNG would be achieved.

9.10. Measures adopted as part of the Onshore Scheme

129. As part of the project design process, a number of measures have been proposed to reduce the potential for impacts on terrestrial ecology and ornithology (see Table 9-14). These include measures which have been incorporated as part of the Onshore Scheme’s design (referred to as ‘designed in measures’) and measures which will be implemented regardless of the impact assessment (referred to as ‘tertiary mitigation’). As there is a commitment to implementing these measures, they are considered inherently part of the design of the Onshore Scheme and have therefore been considered in the assessment presented in section 9.11 below (i.e. the determination of significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development.



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Table 9-14 Measures adopted as part of the Onshore Scheme (designed in measures & tertiary mitigation)

Mitigation Measure	Form	Justification	How Mitigation Will Be Secured
Avoidance of sensitive habitats	Designed In	<p>Direct impacts on Northumberland Shore SSSI and priority sand dune habitats will be avoided via the use of trenchless techniques such as HDD under the beach and sand dunes.</p> <p>Priority woodland habitat to the west of the Converter Station zone and certain other areas of woodland within the site (as shown in Figure 7.2, Volume 3) will be avoided at the detailed design stage.</p> <p>Intertidal habitats in the Sleek Burn, where lying within the Site boundary, will all be avoided as far as practicable and the SWO into the Sleek Burn will not be located directly above areas of saltmarsh habitat.</p>	Approval of detailed design at reserved matters stage
Volume and spatial extent of rock protection coverage at the SWO	Designed In	The Volume and spatial extent of rock protection used for the outfall will be designed in consideration of the presence and spatial extent of sensitive habitats and species within the outfall site. The design of rock protection will be discussed with the Environment Agency (EA) and Marine Management Organisation (MMO).	Approval of detailed design at reserved matters stage
Drainage Design	Designed In	A swale will be constructed around the Converter Station which will eventually discharge into Sleek Burn Estuary. A minimum of two linked SuDS components will be constructed to filter the water prior to discharge. The SWO will be designed in consultation with the Environment Agency to avoid degradation of Sleek Burn Estuary and this will include flow energy dissipation to prevent erosion of the banks. The drainage design will also maximise the use of native plants and ecological connectivity where practicable. A full SuDS maintenance plan would be produced as part of the detailed drainage design post-development and the precise requirement would depend on manufacture specification of the final design. The maintenance of the drainage network would be the responsibility of the Site owners and/or operators. This could be secured as an appropriately worded planning condition.	Approval of detailed drainage design at reserved matters stage
Construction timing restriction	Designed In	In order to avoid disturbance to wintering birds utilising the Sleek Burn construction works relating to the SWO into the Sleek Burn will be restricted to avoid the winter period (October to March inclusive).	Planning Condition
Construction Environmental Management Plan (CEMP)	Tertiary	Full details of construction mitigation measures will be provided in a Construction Environment Management Plan (CEMP), to be agreed with NCC prior to construction commencing. The CEMP will include details of all measures listed below. A draft CEMP is provided in Technical Appendix 5.1 (Volume 3)	CEMP

Mitigation Measure	Form	Justification	How Mitigation Will Be Secured
Environmental Clerk of Works (ECoW)	Tertiary	A suitably qualified ECoW will be employed for the duration of construction, to ensure natural heritage interests are safeguarded. The role of the ECoW will be defined in detail within the CEMP.	CEMP
General site good practice	Tertiary	All reasonable precautions to avoid injury or harm to protected and notable species during the construction phase will be taken, these include but are not limited to: <ul style="list-style-type: none"> • Capping pipes; • Covering excavations / providing ramps to allow animals to escape; • Appropriate storage of chemicals in line with Chapter 11: Hydrology and Hydrogeology; and • Reduced site speed limits. Wherever practicable, vegetation which could support nesting birds will be cleared outside the main bird breeding season (March to August inclusive) to avoid damage to, or destruction of nests. Where this is not possible vegetation to be cleared will be checked for active nests by the ECoW prior to clearance. If active nests are found vegetation clearance in the applicable area will be delayed until the relevant nesting attempt(s) has finished.	CEMP
Protection of retained habitats	Tertiary	Areas of habitat subject to temporary loss or disturbance will be reinstated to a similar standard. Details of habitat restoration to be set out in the detailed habitat plans to be provided at detailed design stage. Measures will be adopted to retain any intertidal mud disturbed and excavated during SWO construction works. Any intertidal mud/ sediment removed for the construction of the outfall will be reinstated and returned to the intertidal environment as close to the area of removal as practicable.	CEMP
Habitat Reinstatement	Tertiary	All areas of habitat subject to temporary loss or disturbance will be reinstated to a similar standard, or better, using appropriate methods, noting that it may not be practicable to plant trees directly above cables. Details of habitat restoration to be set out in the detailed habitat plans to be provided at detailed design stage. Measures will be adopted to retain any intertidal mud disturbed and excavated during SWO construction works. Any intertidal mud/ sediment removed for the construction of the outfall will be reinstated and returned to the intertidal environment as close to the area of removal as practicable.	CEMP
Pre-Construction Surveys	Tertiary	Due to the time that will have elapsed since the previous surveys and the possibility that protected species activity within the site could have changed in the intervening period, pre-construction surveys will be undertaken, the results of which will inform the need for further mitigation (if required) in respect of working practices, or consultation with Natural England, if required.	CEMP

Mitigation Measure	Form	Justification	How Mitigation Will Be Secured
		Surveys for Schedule 1 species and other breeding waders will take place in the Landfall/HVDC Zone prior to and during construction (as required). Avoidance of disturbance to these species whilst nesting will be achieved through the implementation of disturbance-free buffer zones around active nests. The extent of any buffer zones will be species and location-specific and will be determined by the ECoW, taking into consideration relevant guidance and experience from other sites, as appropriate. The ECoW will also monitor nesting attempts to check that the agreed buffer zones are successful.	
Development of a Marine Pollution Response Plan	Tertiary	A Marine Pollution Response Plan will be developed in line with MMO guidance. In the event of an oil, fuel or chemical spill affecting the intertidal environment as a result of construction works the event must be reported to the MMO Marine Pollution Response Team within 12 hours of the incident.	CEMP
Operation and Maintenance			
Environmental Management Plan	Tertiary	An Environmental Management Plan (EMP) (or similar document) will be produced and will detail how the site will be managed throughout Operation and Decommissioning phases in order to avoid negative impacts on the environment. The EMP will contain good practice and pollution prevention procedures in line with the prevailing future guidance and legislation.	EMP
Decommissioning			
Decommissioning Plan	Tertiary	Provision of a decommissioning plan in advance of decommissioning works will be a condition of the planning consent, to include protection of ecological features, based on up-to-date survey information and relevant guidance in place at the time of decommissioning.	Decommissioning Plan

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9.11. Assessment of Likely Significant Effects

130. The potential impacts arising from the construction, operation and maintenance and decommissioning phases of the Onshore Scheme are listed in Table 9-12 along with the MDS against which each impact has been assessed.
131. An assessment of the likely significance of the effects of the Onshore Scheme on important terrestrial ecology and ornithology receptors caused by each identified impact is given below.

9.11.1. Potential Effects During Construction

ISSUE 1: IMPACTS ON NORTHUMBERLAND SHORE SSSI


9.11.1.1. INTRODUCTION OF IMPACT

132. Northumberland Shore SSSI overlaps the Site boundary at the landfall and lies directly adjacent to the Site boundary to the south of the Site. The SSSI includes most of the coastline between the Scottish border and the Tyne Estuary and provides important wintering grounds for waterbirds, being of international or national significance for six species: purple sandpiper, turnstone, sanderling, golden plover, ringed plover and redshank.
133. Wintering bird surveys (Volume 3, Technical Appendix 9.7) recorded five of the notified bird species (all except golden plover). Three of the species (sanderling, ringed plover and redshank) were recorded in numbers representing a significant proportion of the SSSI population. Turnstone and purple sandpiper were only recorded in low numbers (peak counts of six and three respectively), which do not represent a significant proportion of the SSSI population. Sanderling and purple sandpiper were only recorded at Cambois Beach and ringed plover was only recorded on the Sleek Burn. Turnstone and redshank were recorded at Cambois Beach and the Sleek Burn, although turnstone was only recorded at the Sleek Burn on one date (a single bird). Redshank was recorded much more regularly, and in much larger numbers, at the Sleek Burn than it was at Cambois Beach. It is noted that SSSI notified species will utilise areas outside the SSSI boundary and it is assumed that all records of these species during the surveys, whether inside or outside the SSSI boundaries, refer to SSSI populations.
134. As set out in Table 9-12, trenchless technology (such as HDD) will be used at the landfall so there will be no habitat loss within the SSSI. The main potential for impacts is therefore via visual and/or noise disturbance to notified waterbird species. Visual disturbance is possible where there is a direct line of sight between the source of disturbance and the relevant receptor. Maximum construction noise levels are set out in Chapter 13: Noise & Vibration. Noise generated by construction activities would mostly be regular in character, although impact/percussive piling is possible at the Converter Station. Impacts due to accidental pollution, both via water-based resources and via dust and airborne pollutants, are also possible.


9.11.1.2. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

DISTURBANCE TO NOTIFIED BIRD SPECIES

135. As stated in Table 9-12, visual and noise disturbance is possible during construction works within approximately 400 m of the beach and the Sleek Burn / Blyth Estuary, where these areas are used by SSSI notified bird species. Disturbance could take place during the winter throughout the construction period.

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136. Disturbance is possible at the landfall from works at the (onshore) exit pit and onward HVDC cable corridor, where these lie within 400 m of the beach. The precise location of the exit pit is not known at this stage, although it is known that it will be situated to the west of Unity Terrace. Visual disturbance will therefore be avoided because there is no direct line of sight between construction works west of the road and birds using the beach, due to the intervening sand dunes and the topography of the beach. Noise disturbance is possible, but the beach is only used infrequently by SSSI notified bird species in relatively low numbers, i.e.: turnstone (recorded on seven of 12 survey dates with a peak count of six); sanderling (recorded on four of 12 survey dates with a peak count of 11); purple sandpiper (recorded on four of 12 survey dates with a peak count of three); and redshank (recorded on three of 12 survey dates with a peak count of three) (see Volume 3, Technical Appendix 9.7). The low frequency of use and the low numbers recorded are likely to be a reflection of the high levels of existing disturbance at the beach, mostly from walkers and dogs (over 3,000 disturbance events were recorded during the surveys – see Technical Appendix 9.7). Even if noise disturbance were to occur, the number of birds affected would be very low and disturbance is therefore not likely to be significant.
137. Disturbance to SSSI notified bird species at the Sleek Burn is possible during construction of the HVAC cables from the Converter Station to the existing National Grid substation, which will be located within 200m of the Sleek Burn or Blyth Estuary and may take place much closer, i.e., adjacent to the top of the embankment on the northern side of the estuary. As set out in Table 9-12, construction works relating to the SWO into the Sleek Burn will be restricted to avoid the winter period (October to March inclusive). Disturbance to SSSI notified wintering bird species due to construction of the SWO will therefore be avoided. Although parts of the Converter Station and HVDC zones are located within 400 m of the Sleek Burn and/or Blyth Estuary there is no line of sight between these areas and the estuary and they are separated from it by a road, various woodland blocks and other developments, which would substantially reduce any noise effects. The potential for disturbance to birds using the Sleek Burn or Blyth Estuary during most construction works in these locations is therefore negligible and has not been assessed. The one exception to this is if impact/percussive piling is used at the Converter Station site, as this can cause disturbance at much greater distances so could potentially affect birds using the Sleek Burn.
138. Visual disturbance during construction of the HVAC cables is only likely if works take place very close to the bank of the Sleek Burn or Blyth Estuary. Due to the topography of the estuary and the presence of screening vegetation along much of its northern bank, works situated more than a few metres back from the estuary bank are not likely to be in direct line of sight of birds using the estuary. However, under the MDS a precautionary approach has been taken which assumes that works could take place anywhere within the Site boundary (other than within the intertidal area). In this case a worse case assumption is that works could take place close to the northern bank of the estuary.
139. Noise disturbance during construction of the HVAC cables is possible. Cutts *et al.* (2013) summarise the levels of noise disturbance which are likely to result in disturbance to waterbirds, noting that actual distances at which disturbance takes place are likely to vary depending on the type of noise stimuli and the species involved. In general, however, noise levels of <55dB at the receptor (i.e., at the bird) are likely to result in low disturbance. Constant or repetitive noise levels of 60-72 dB at the receptor may result in a moderate level of disturbance and constant or repetitive noise levels >72 dB at the receptor could result in a high level of disturbance. It is noted however that regular noise of up to 72 dB in some highly disturbed areas, e.g., industrial or urban areas or adjacent to roads may result in only a low level of disturbance as birds will often habituate to a constant noise level.
140. The maximum predicted noise levels during construction of the HVAC cables are provided in Table 13-23 (Chapter 13). It is assumed that construction noise would be relatively continuous or repetitive throughout the 18 month construction period and in the absence of impact/percussive piling sudden loud noises are unlikely.

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141. Table 13-24 (Chapter 13) indicates that noise levels, without any mitigation in place, would drop to 65 dB within 150 m of the noise source and would drop to 55 dB within 445 m. On this basis, in the absence of mitigation, any birds within around 150 m distance could potentially be subject to moderate to high levels of disturbance. Any birds beyond 150 m are likely to be subject to moderate to low levels of disturbance, given that some habituation to noise is likely given the industrial setting of the Site. Under the MDS a precautionary approach has been taken which assumes that works could take place anywhere within the Site boundary (other than within the intertidal area). In this case a worst-case assumption is that HVAC Cable works could take place within 150 m of the estuary.
142. Predicted construction noise levels at a range of residential receptors located in proximity to the Converter Station are provided in Table 13-29 (Chapter 13). These are based on reasonable worst-case average noise levels, which would occur during the groundworks phase (Table 13-26, Chapter 13) and do not include impact/percussive piling. Although average noise levels from impact/percussive piling would be lower than during groundworks, piling noise is irregular in character. Irregular, sudden noise is more likely to result in a disturbance response from birds as habituation is not possible. According to Cutts *et al.* (2013) irregular piling noise >70 dB is likely to result in a high to moderate disturbance effect. Although not modelled, if impact/percussive piling were to take place in the south-eastern part of the Converter Station zone, closest to the Sleek Burn, the worst-case assumption is that it is likely to result in irregular noise of >70 dB at the Sleek Burn.
143. The Sleek Burn regularly supports a significant proportion of the SSSI population of redshank (recorded in double figures on all 10 survey dates with a peak count of 85 in February 2023). Sleek Burn is subject to relatively low levels of existing disturbance (less than 20 disturbance events were recorded during the surveys – see Technical Appendix 9.7) and in the absence of mitigation, redshank could be subject to visual and/or noise disturbance. Assuming a construction period of up to 18 months for the HVAC cabling works disturbance could potentially occur over two winter periods, impact/percussive piling works at the Converter Station are assumed to affect a maximum of one winter period. This disturbance could represent a significant effect on a receptor of national importance. The other SSSI notified species turnstone and ringed plover were also recorded during wintering bird surveys but both species were recorded on a single date only, in low numbers (peak counts of one and five respectively), so are not likely to be significantly affected by disturbance.
144. In summary, in the absence of secondary mitigation, construction of the HVAC cables could result in a significant disturbance effect on the SSSI redshank population, which would represent a **significant negative effect at a national level**. Secondary mitigation is therefore proposed to offset this (see below). Disturbance is **not likely to be significant** for other SSSI notified species at the Sleek Burn and **is not likely to be significant** for any SSSI notified species at the landfall.

ACCIDENTAL POLLUTION

145. During construction of the HVAC cables, works have the potential to impact the SSSI through pollution via both air quality (the production of construction dust) and water-based pollution.
146. Chapter 11 (Hydrology & Hydrogeology) concludes that, following the implementation of the CEMP (which will contain standard pollution prevention and control measures as tertiary mitigation) there will be **no significant effect** on any designated site.
147. The Air Quality Chapter (Chapter 14) concludes that, following the implementation of the CEMP (which will contain standard dust suppression measures as tertiary mitigation) there will be **no significant effect** on any designated site.

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9.11.1.3. SECONDARY MITIGATION & RESIDUAL EFFECT

148. Some or all of the following secondary mitigation measures would be implemented over the winter period (October-March inclusive) during the construction of the HVAC cables connecting to the existing National Grid substation. Detailed mitigation requirements cannot be confirmed at this stage as requirements would depend on the precise routing of the cable (to be determined at the detailed design stage) and detailed modelling of construction noise levels (to be undertaken once the detailed design is available):

- Temporary screening would be used to prevent visual disturbance during construction works that would otherwise lie within direct line of sight of the Sleek Burn and/or Blyth Estuary;
- Acoustic screening and/or other noise reduction measures outlined in Table 13-22 (Chapter 13) would be used to prevent noise disturbance during construction of the HVAC cables that could potentially result in noise disturbance to waterbirds on the Sleek Burn and/or Blyth Estuary. Use of such measures should enable a reduction in noise levels of at least 10 dB and potentially more (see Table 13-26 (Chapter 13));
- If required, based on noise modelling to be completed at the detailed design stage, measures would be put in place to avoid disturbance to birds on the Sleek Burn from construction activities within the Converter Station site, including impact/percussive piling. These would include relevant noise reduction measures outlined in Table 13-22 (Chapter 13) and, if necessary, a timing restriction on impact/percussive piling during the winter period (October to March inclusive); and
- If necessary, construction of the HVAC cables would be suspended during prolonged periods of very cold weather when disturbance to non-breeding waterbirds is likely to be most critical. Measures would be based on a scheme to minimise the level of disturbance from wildfowl shooting in frozen conditions that has been in place since 1983 (JNCC, 2019). As such, in line with the JNCC scheme, works would be suspended after seven consecutive days on which the ground was frozen (seven consecutive days of sub-zero temperatures as measured at a nearby weather station). Any suspension of works would last for a minimum of seven days thereafter and any lifting of the suspension would take into consideration the need for a period of recovery for waterbirds after the end of the severe weather itself, to be determined by the ECoW.

149. Further details of proposed mitigation measures would be provided at the detailed design stage and contained within reserved matters submissions.


150. Implementation of the proposed mitigation measures, as required, would substantially reduce the potential for disturbance to non-breeding redshank. **No significant residual effects** are therefore anticipated.

ISSUE 2: IMPACTS ON NORTHUMBRIA COAST SPA / RAMSAR SITE

9.11.1.4. INTRODUCTION OF IMPACT

151. Northumbria Coast SPA / Ramsar site is located 0.3 km south-east of the Site boundary at its closest point. The SPA and Ramsar site are designated for their non-breeding populations of purple sandpiper and turnstone. The SPA is also classified for its breeding little tern population, although the closest little tern colony to the Site is located at the Long Nanny, over 40 km to the north and little tern will not be affected by the Onshore Scheme.

152. Wintering bird surveys (Volume 3, Appendix 9.7) recorded purple sandpiper and turnstone at Cambois Beach but only occasionally and in low numbers (peak counts of three and six respectively). A single turnstone was also recorded at the Sleek Burn on a single date. The numbers recorded within the

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survey area do not represent a significant proportion of the SPA/Ramsar site population for either species.

153. As set out in

154. the only potential for impacts is via visual and/or noise disturbance to qualifying bird species. Visual disturbance is possible where there is a direct line of sight between the source of disturbance and the relevant receptor. Maximum construction noise levels are set out in Chapter 13: Noise & Vibration. Noise generated by construction activities would mostly be regular in character, although impact/percussive piling, which is irregular in character, is possible at the Converter Station and could affect birds using the Sleek Burn.

9.11.1.5. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

155. As stated in Table 9-12, visual and noise disturbance is possible during construction works within approximately 400 m of the beach and the Sleek Burn / Blyth Estuary, where used by SPA/Ramsar site qualifying bird species. Disturbance could take place during the winter throughout the construction period of 60 months.

156. As discussed in relation to Issue 1, there is no potential for visual disturbance at the Landfall because there is no direct line of sight between construction works west of the road and birds using the beach. With respect to noise, even if noise disturbance were to occur, the number of birds affected would be very low and disturbance is therefore **not likely to be significant**.

157. At the Sleek Burn, given there was only one record of a single turnstone during the surveys (and no records of purple sandpiper), SPA qualifying species **are not likely to be significantly affected** by disturbance.

158. In summary, disturbance is **not likely to be significant** for any qualifying features of the Northumbria Coast SPA/Ramsar site, either at the landfall or during works close to the Sleek Burn / Blyth Estuary.

9.11.1.6. SECONDARY MITIGATION & RESIDUAL EFFECT

159. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is **not significant**.


ISSUE 3: IMPACTS ON NORTHUMBERLAND MARINE SPA

9.11.1.7. INTRODUCTION OF IMPACT

160. Northumberland Marine SPA overlaps the Site boundary at the landfall, where it shares the same boundary as Northumberland Shore SSSI, and also overlaps the Site boundary to the south of the Site, along the Sleek Burn. The SPA is designated for its breeding seabird assemblage.

161. As set out in Table 9-12, trenchless techniques, such as HDD, will be used at the Landfall so there will be no habitat loss within the SPA. None of the SPA qualifying features breed within the sections of the SPA close to the Site (based on desk study data and lack of suitable habitat) and there are no non-breeding (wintering) qualifying features. As such there is **no potential for disturbance to significantly affect qualifying features** of the Northumberland Marine SPA.

162. The only potential for impacts is therefore via accidental pollution, both via water-based resources and via dust and airborne pollutants. It is noted that the SWO into the Sleek Burn will be situated directly

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adjacent to the SPA and construction of the SWO could result in a very small area of temporary habitat loss within the SPA.

163. The SWO into the Sleek Burn may include a headwall up to 10m² comprising of consolidated materials. The culvert and the headwall will be placed at the base of the riverbed, on top of an appropriate concrete foundation, which will, in effect, prevent any undercutting or de-stabilisation during periods of high discharge. On a precautionary basis, it is assumed that these works will include various sources of construction noise and visual disturbance including heavy plant equipment and vibro piling.

9.11.1.8. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

164. During the construction phase, works have the potential to impact the SPA through pollution via both air quality (the production of construction dust) and water-based pollution.
165. Specifically, the works associated with the SWO construction have the potential to result in localised impacts to water quality as a result of accidental spillages and pollution incidents. The nature of these works will be highly localised and temporary, with potential impacts appropriately managed through implementation of the pollution prevention measures in the CEMP. Additionally, the outfall will be designed following consultation with the Environment Agency, to be approved by NCC through planning conditions. Works will take place at low tide and therefore will not directly interact with the waters of the Sleek Burn, therefore no likely significant effects due to increased suspended sediment concentrations are anticipated to occur.
166. Chapter 11 (Hydrology & Hydrogeology) concludes that, following the implementation of the CEMP (which will contain standard pollution prevention and control measures) there will be **no likely significant effect on any designated site**.
167. Chapter 14 (Air Quality) concludes that, following the implementation of the CEMP (which will contain standard dust suppression measures) there will be **no likely significant effect to any designated site**.
168. During the construction phase, works could result in temporary loss/disturbance to a very small area of intertidal habitat within the SPA. According to the MDS (Table -9-12), the total area affected during construction of the SWO will be 0.65 ha, most of which will affect terrestrial habitats meaning that the area of intertidal habitat affected will be very small. Embedded mitigation (Table 9-14) includes a commitment to avoid siting the SWO next to saltmarsh habitat and also includes measures to reinstate affected mudflat habitats. Following the implementation of the proposed mitigation measures **no significant effects are likely**.


9.11.1.9. SECONDARY MITIGATION & RESIDUAL EFFECT

169. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is **not significant**.

ISSUE 4: IMPACTS ON BLYTH ESTUARY LWS

9.11.1.10. INTRODUCTION OF IMPACT

170. The Blyth Estuary LWS overlaps the Site boundary to the south of the Site and includes the whole of the intertidal section of the Sleek Burn. Further details in respect of the reason for importance of the LWS were not available from ERIC North East, although based on survey results and existing species

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data it is assumed that the LWS is important for its inter-tidal habitats and associated fauna, notably wintering waterbirds and also otter.

171. As set out in Table 9-12, the SWO into the Sleek Burn will be situated directly adjacent to the LWS and construction of the SWO could result in a very small area of temporary habitat loss within the LWS. There is also potential for impacts via visual and/or noise disturbance to wintering waterbirds and other fauna. Visual disturbance is possible where there is a direct line of sight between the source of disturbance and the relevant receptor. Maximum construction noise levels are set out in Chapter 13: Noise & Vibration. Noise generated by construction activities would mostly be regular in character, although impact / percussive piling, which is irregular in character, may be required at the Converter Station and may affect birds using the Sleek Burn. Impacts due to accidental pollution, both via water-based resources and via dust and airborne pollutants, are also possible and it is noted that the SWO into the Sleek Burn will be situated directly adjacent to the LWS (see paragraph 163).

9.11.1.11. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

TEMPORARY HABITAT LOSS


172. As stated for Issue 3, during the construction phase, works could result in temporary loss/disturbance to a very small area of intertidal habitat within the LWS. According to the MDS (Table 9-12), the total area affected during construction of the SWO will be 0.65 ha, most of which will affect terrestrial habitats meaning that the area of intertidal habitat affected will be very small. Embedded mitigation (Table 9-14) includes a commitment to avoid siting the SWO next to saltmarsh habitat and also includes measures to reinstate affected mudflat habitats. Following the implementation of the proposed mitigation measures **no significant effects are likely**.

DISTURBANCE TO BIRDS AND OTHER FAUNA

173. As stated in Table 9-12, visual and noise disturbance to wintering waterbirds and other fauna is possible during construction works close to the Sleek Burn / Blyth Estuary, where used by wintering waterbird species. Disturbance could take place, at the relevant times of year, throughout the construction period.
174. Potential disturbance to wintering waterbirds at the Sleek Burn is discussed separately in relation to Issues 1 and 9 and that discussion is not repeated here. In summary, in the absence of secondary mitigation, construction of the HVAC cables could result in a significant disturbance effect on wintering waterbirds within the Blyth Estuary LWS, which would represent a **likely significant negative effect at a county level**.
175. Potential disturbance to otter is discussed separately (see Issue 10) and that discussion is not repeated here. In summary, given limited evidence of otter activity, the likelihood that nocturnal working will be limited and following the implementation of the proposed tertiary mitigation measures, **no significant disturbance effects on otter are likely**.

ACCIDENTAL POLLUTION

176. Works close to the Sleek Burn/ Blyth Estuary have the potential to impact the Blyth Estuary LWS through the production of construction dust. However, Chapter 14 (Air Quality) concludes that, following the implementation of the CEMP (which will contain standard dust suppression measures) there will **be no significant effect to any designated site**.

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177. As stated in paragraph 165, the works associated with the SWO construction will be localised in nature and take place at low tide, therefore no direct impact on the Sleek Burn is anticipated. Pollution prevention measures will be implemented via the CEMP.
178. Chapter 11 (Hydrology & Hydrogeology) concludes that, following the implementation of the CEMP (which will contain standard pollution prevention and control measures) there will be **no likely significant effect on any designated site**.

9.11.1.12. SECONDARY MITIGATION & RESIDUAL EFFECT

179. Some or all of the secondary mitigation measures set out in relation to Issue 1 would be implemented during the winter period (October-March inclusive) during the construction of the HVAC cables connecting into the existing National Grid substation. Detailed mitigation requirements cannot be confirmed at this stage as requirements would depend on the precise routing of the cable (to be determined at the detailed design stage) and detailed modelling of construction noise levels (to be undertaken once the detailed design is available). Further details of proposed mitigation measures, as required, would be provided at the detailed design stage and contained within reserved matters submissions.
180. Implementation of the proposed mitigation measures, as required, would substantially reduce the potential for disturbance to wintering waterbirds. No significant residual effects on the Blyth Estuary LWS are therefore anticipated.

ISSUE 5: IMPACTS ON BERWICK TO ST MARYS MCZ


9.11.1.13. INTRODUCTION OF IMPACT

181. Berwick to St Marys MCZ overlaps the Site boundary at the Landfall, where it shares the same boundary as Northumberland Shore SSSI (i.e., Mean High Water Springs). The MCZ is designated for common eider. The conservation aim for both breeding and non-breeding common eider is to provide a critical seaward maintenance and foraging extension surrounding the breeding colonies at Coquet Island and the Farne Islands.
182. Wintering bird surveys (Volume 3, Technical Appendix 9.7) regularly recorded common eider at Cambois Beach and at the Sleek Burn but only in low numbers (peak counts of five at both locations).
183. As set out in Table 9-12, trenchless techniques will be used at the landfall so there will be no habitat loss within the MCZ. Visual disturbance to common eider is possible where there is a direct line of sight between the source of disturbance and the relevant receptor. Noise disturbance is also possible. Maximum construction noise levels are set out in Chapter 13: Noise & Vibration. Noise generated by construction activities would mostly be regular in character, although impact / percussive piling is possible at the Converter Station. Impacts due to accidental pollution, both via water-based resources and via dust and airborne pollutants, are also possible.

9.11.1.14. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

DISTURBANCE

184. As stated in Table 9-12, visual and noise disturbance is possible during construction works within approximately 400 m of the beach and the Sleek Burn / Blyth Estuary, where used by common eider. Disturbance could take place during the winter throughout the construction period of 60 months.

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185. As discussed in relation to Issue 1, there is no potential for visual disturbance at the landfall because there is no direct line of sight between construction works west of the road and birds using the beach. With respect to noise, even if noise disturbance were to occur, the number of birds affected would be very low (maximum five) and disturbance is therefore **not likely to be significant**.
186. Similarly, at the Sleek Burn, whilst noise and visual disturbance are possible (in the absence of mitigation) the number of birds affected would be very low (maximum five) and disturbance is therefore **not likely to be significant**.
187. In summary, disturbance is not likely to be significant for common eider (protected feature of the Berwick to St Marys MCZ), either at the landfall or during works close to the Sleek Burn / Blyth Estuary.

ACCIDENTAL POLLUTION


188. Construction works taking place near the beach have the potential to cause impacts via the production of construction dust. Chapter 14 (Air Quality) concludes that following the CEMP (which will contain standard dust suppression measures) there will be **no likely significant effect** on the MCZ.
189. Chapter 11 (Hydrology & Hydrogeology) concludes that, following the implementation of the CEMP (which will contain standard pollution prevention and control measures) there will be **no likely significant effect** on any designated site.

9.11.1.15. SECONDARY MITIGATION & RESIDUAL EFFECT

190. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is **not significant**.

ISSUE 6: LOSS AND FRAGMENTATION OF IMPORTANT HABITATS

191. Habitats that were evaluated in Table 9-9 as being of local value or greater are assessed in this section. These habitats include:
- g3c Other Neutral Grassland;
 - Intertidal Habitats (t2a Coastal Saltmarsh and t2d Intertidal Mudflats);
 - h2a Hedgerows;
 - Scrub Habitat (h3a Blackthorn Scrub, h3d Bramble Scrub, h3e Gorse Scrub, h3h Mixed Scrub);
 - Woodland Habitats (w1g6 Line of Trees, w1f7 Other Lowland Mixed Deciduous Woodland, w1h6 Other Woodland, Mixed Mainly Conifer, w2b Other Scots Pine Woodland);
 - r2 Rivers and Streams (specifically the Sleek Burn, Maw Burn and Cow Gut); and
 - u1a Open Mosaic Habitat on Previously Developed Land.
192. Impacts on coastal habitats (s3a Coastal Sand Dunes and t2h Beach) have not been assessed as impacts on these habitats will be avoided through the use of trenchless techniques, such as HDD.
193. Impacts on habitats are assessed separately for each of the three indicative zones of infrastructure: Landfall/HVDC Zone, HVAC Zone (including the SWO into the Sleek Burn) and Converter Station Zone (see Figure 5.1, Volume 3).
194. It is not possible to determine the area of each habitat type that is likely to be affected in the absence of detailed design information at this stage. Therefore, the assessment of impacts has used a qualitative 'worst-case scenario' approach.

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195. The route of the cable corridor will be designed considering technical and economic factors, which are likely to mean that the HVDC and HVAC corridors will take a relatively direct route to create the required links. This is taken into account in the below assessment of impacts.
196. Mitigation of temporary habitat loss in the form of reinstatement of habitats is proposed as detailed within Table 9-14. The significance of impacts following reinstatement is dependent on the time taken for the reinstated habitat to return to original value. The assessment of impacts below therefore assesses the significance of impacts in reference to short-term (<5 years), mid-term (5-10 years) and long-term (>10 years), depending on the habitats being assessed.
197. Following construction, habitat creation is proposed within the Converter Station Zone (see secondary mitigation sections below), full details of which will be provided within a Landscape and Ecological Management Plan (LEMP) at the detailed design state. This habitat creation is likely to include native scrub, native woodland (avoiding cable route), species rich grassland, species rich hedgerow and wet meadow and ponds.


Landfall/HVDC Zone

9.11.1.16. INTRODUCTION OF IMPACT

198. As described in Table 9-12, all habitat loss within the Landfall/ HVDC Zone will be temporary in nature.
199. Temporary habitat loss in this area will be due to the construction of the HVDC cable route, up to eight temporary construction compounds and up to six temporary compounds (for trenchless technology and TJBs) at the Landfall.
200. Additional temporary habitat loss may be experienced in the Landfall/ HVDC Zone through temporary materials storage, the locations of which within the Site are still to be confirmed.

9.11.1.17. HABITATS THAT MAY BE LOST INCLUDE AREAS OF GRASSLAND, HEDGEROWS, SCRUB, WOODLAND AND OPEN MOSAIC HABITAT. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

201. Under the MDS, total temporary habitat loss in the Landfall/HVDC zone may be up to 28.4 ha for up to 24 months.
202. The temporary habitat loss in the Landfall/HVDC zone could be greater than the above figure by up to 6.5 ha due to temporary materials storage, the locations of which are still to be confirmed. This is assessed on the reasonable worst-case assumption that this storage will occur in this zone only, and could affect potentially important habitats, however this is the worst-case scenario and is likely to be much lower in reality i.e., spread across the different zones and sited to avoid important habitats.
203. Loss of grassland habitat in the Landfall/HVDC zone is not likely to be large given the relatively small areas (17.91 ha total but split amongst smaller areas) of g3c present and given that the area is already subject to disturbance. Additionally, reinstatement of this habitat will take place once construction is completed, and will reinstate quickly, therefore this is **not likely to constitute a significant negative effect over any timescale**.
204. Mixed scrub (h3h) is present within the Landfall/HVDC in small, relatively narrow patches (7.11 ha). Given the route design information mentioned in paragraph 195 and the known corridor width stated in Table 9-12, it is unlikely that all of this habitat will be temporarily lost in the Landfall/ HVDC zone . This **is likely to constitute a likely significant negative effect in the short-term, with no significant**

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effects predicted in the mid to long term. Secondary mitigation (compensation) is therefore proposed to offset this short-term effect (see below).

205. There are a small number of single scattered hedgerows within the Landfall/HVDC zone (328 m), which may be temporarily lost during construction. Given the route design information mentioned in paragraph 195 and the known corridor width stated in Table 9-12, it is unlikely that all of this habitat will be temporarily lost. Additionally, these habitats will be reinstated after construction is completed (as detailed in Table 9-14). However, the time taken for these habitats to return to their previous state is significant (~ 5 years), therefore this loss could constitute a likely **significant negative effect at a local level in the short-term, with no significant effect likely in the mid- to long term.** Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this short-term effect (see below).
206. There is a very small line of trees (w1g6) and some other lowland woodland habitat (w1f7) (10.1 ha) within the Landfall/ HVDC zone, which could be lost. However, given the route design information mentioned in paragraph 195 and the known corridor width stated in Table 9-12, it is unlikely that all of this habitat will be temporarily lost. Given that woodland and trees cannot be reinstated directly over the cables, and the time taken for these habitats to return to their previous state is significant, this loss could constitute a **significant negative effect at a local level in the long term.** Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).
207. Given the importance of open mosaic habitat (u1a) and the relatively large areas (26.71 ha) of this habitat present in Zone the Landfall/ HVDC zone, habitat loss due to construction of the cable route could constitute a significant negative effect, in the absence of mitigation. However, this habitat will be reinstated once construction completed (maximum 24 months) (as detailed in Table 9-14Table 9-14). However, the time taken to return to a previous state is significant (~5 year). This **constitutes a likely significant negative effect in the short-term with no significant effects likely in the mid to long term.**


9.11.1.18. SECONDARY MITIGATION & RESIDUAL EFFECT

208. Habitat creation within the Onshore Converter Station Zone (see paragraph 197) and the provision of offsite habitat creation to meet BNG requirements (paragraph 197) will provide compensation for habitats subject to temporary loss and will also provide a minimum 10% net gain (see BNG Assessment (SLR, 2023)). Note, although not yet mandatory, the Applicant has committed to delivering a minimum of 10% BNG through onsite habitat creation and offsite provision.
209. **Significant residual negative effects identified above will remain, i.e., a significant negative effect in the short-term in respect of loss of hedgerows and scrub and a significant effect in the long term in respect of loss of woodland. However, these residual significant effects will be offset via compensatory measures.**

HVAC Zone

9.11.1.19. INTRODUCTION OF IMPACT

210. As described in Table 9-12, most habitat loss within the HVAC Zone will be temporary in nature, with the exception of habitat lost due to the construction of the SWO into the Sleek Burn.
211. Temporary habitat loss in the HVAC Zone will be due to the construction of the HVAC cable route plus up to eight temporary compounds and the working area required for construction of the SWO.

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212. Additional temporary habitat loss may occur in the HVAC Zone through temporary materials storage, the locations of which within the Site are still to be confirmed.
213. Construction within the HVAC Zone has the potential to result in the permanent loss of woodland and hedgerow habitats and the temporary loss of hedgerows, scrub, woodland and open mosaic habitats, plus a very small area of intertidal habitat during construction of the SWO.


9.11.1.20. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

PERMANENT HABITAT LOSS

214. Permanent habitat loss within the HVAC Zone is limited to the SWO. This habitat loss is estimated to be around 10 m² as detailed in Table 9-12.
215. Although the SWO is most likely to be situated adjacent to the existing NSL outfall, the MDS assumes it could be located anywhere along the northern bank of the Sleek Burn, within the Site boundary, with the exception of the sections of bank lying directly above saltmarsh habitat.
216. Depending on where it is located, the construction of the SWO into the Sleek Burn has the potential to result in the permanent loss of priority hedgerow habitat (h2a). This loss is **likely to constitute a significant negative effect at a local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).
217. Outfall construction may also result in permanent loss of mixed scrub habitat (h3h), though given the relatively small amount that would potentially be permanently lost, would **not constitute a likely significant negative effect over any time scale**.
218. Outfall construction could also result in the permanent loss of woodland habitat (w1f7), though this will be avoided where practicable. Under the reasonable worst-case scenario, loss of woodland habitat is **likely to constitute a significant negative effect at the local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).

TEMPORARY HABITAT LOSS

219. As detailed in Table 9-12, temporary habitat loss in the HVAC Zone may be up to 24.5 ha plus an additional temporary habitat loss of 0.65 ha for the SWO construction working area.
220. The temporary habitat loss in the Landfall/ HVDC zone could be greater by up to 6.5 ha due to temporary materials storage, the locations of which are still to be confirmed. This is assessed on the worst-case assumption that this storage will occur in this zone only, and potentially impact important habitats, however this is the worst-case scenario and is likely to be much lower in reality i.e., spread across the different zones and sited to avoid important habitats.
221. Temporary loss of a very small area of intertidal mud (t2d)/ sandflats is possible due to the SWO construction works in this Zone, this has the potential to constitute a significant effect. However, intertidal mudflats and sandflats are extensively distributed along the coastline of NE England and therefore this temporary loss will be minor in the wider context of the habitat availability within the area. Additionally, as detailed in Table 9-14, any material (sediment / mud) removed will be reinstated to the intertidal environment as close to the area of removal as possible. Following the implementation of the proposed mitigation measures **no significant effects are likely**.
222. Temporary loss of mixed scrub habitat (h3h) in the HVAC Zone (6.08 ha) is **considered to constitute a significant negative effect in the short-term, with no significant effects likely in the mid to long term** as these habitats will be reinstated following construction (as stated in Table 9-14). Secondary

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mitigation (compensation, in CIEEM terms) is therefore proposed to offset this short-term effect (see below).

223. There is the potential that some priority hedgerows (h2a) will be temporarily lost in the HVAC Zone. Given the route design information mentioned in paragraph 195 and the known corridor width stated in Table 9-12, it is unlikely that all of this habitat will be temporarily lost in this area. Additionally, these hedgerows will be reinstated after construction is completed (as detailed in Table 9-14). However, the time taken for these habitats to return to their previous state is significant (~ 5 years), therefore this loss could constitute a **significant negative effect at local level, in the short-term, with no significant negative effects likely in the mid- to long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this short-term effect (see below).
224. The HVAC Zone contains some lines of trees (w1g6) and some other lowland woodland habitat (w1f7) (1.9 ha). Given the route design information mentioned in paragraph 195 and the known corridor width stated in Table 9-1, it is unlikely that all of this habitat will be temporarily lost in this area. Given that woodland / trees cannot be reinstated directly over cables this loss could constitute a **significant negative effect at local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).
225. There is a large area of open mosaic habitat (u1a) within this zone (20.81 ha), given the importance of this habitat, in the absence of mitigation, any loss has the potential to constitute a significant negative effect. However, in reality any loss is likely to be much less, given that the subsea cable manufacturing development is currently under construction in this area (specifically within the largest area of open mosaic habitat), therefore the Onshore Scheme is more likely to result in much smaller losses of this habitat. The disturbance period in this area will be no more than 18 months, after which this habitat will be reinstated, however the time taken to return to a previous state is significant (~5 year). This **constitutes a likely significant negative effect in the short-term with no significant effects likely in the mid to long term**.


9.11.1.21. SECONDARY MITIGATION & RESIDUAL EFFECT

226. Habitat creation within the Onshore Converter Station Zone (see paragraph 197) and the provision of offsite habitat creation to meet BNG requirements will provide compensation for habitats subject to temporary loss and will also provide a minimum 10% net gain (see BNG Indicative Design Stage Report (SLR, 2023)). Note, although not yet mandatory, the Applicant has committed to delivering a minimum of 10% BNG through onsite habitat creation and offsite provision.
227. **Significant residual negative effects identified above will remain, i.e., a significant negative effect in the short-term in respect of loss of hedgerows, open mosaic habitat and scrub and a significant effect in the long term in respect of loss of woodland. However, these residual significant effects will be offset via these compensatory measures.**

Onshore Converter Station Zone

9.11.1.22. INTRODUCTION OF IMPACT

228. As described in Table 9-12, habitat loss within the Onshore Converter Station Zone will be both permanent and temporary in nature.
229. Permanent habitat loss in the Onshore Converter Station Zone will be due to construction of the Converter Station platform plus a permanent access road.

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- 230. Temporary habitat loss in this area will be due to the construction of up to two temporary compounds, and a working buffer around the Converter Station platform.
- 231. Additional temporary habitat loss may be lost in the Onshore Converter Station Zone through temporary materials storage, the locations of which within the Site are still to be confirmed.
- 232. Construction activities within the Onshore Converter Station Zone have the potential to result in the loss of grassland, scrub, hedgerow and woodland habitats.

9.11.1.23. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT


- 233. Under the MDS, permanent habitat loss in the Onshore Converter Station Zone may be up to 9.2 ha, and temporary habitat loss up to 2.34 ha.
- 234. The temporary habitat loss in the Landfall/ HVDC zone could be greater by up to 6.5 ha due to temporary materials storage, the locations of which are still to be confirmed. This is assessed on the worst-case assumption that this storage will occur in this zone only, and potentially impact important habitats, however this is the worst-case scenario and is likely to be much lower in reality i.e., spread across the different zones and sited to avoid important habitats.

PERMANENT HABITAT LOSS

- 235. Permanent loss of grassland in the Onshore Converter Station Zone is likely to be relatively large given the large area of grassland (g3c) (13.39 ha) present in the centre of the zone. As the majority of permanent habitat loss in this area is likely to be grassland this is likely to constitute a likely **significant negative effect at the local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).
- 236. Permanent loss of mixed scrub (h3h) habitat in this zone (0.93 ha) is likely given the location of the habitat within the zone. This is **likely to constitute a likely significant negative effect at the local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).
- 237. There is a high potential that some priority hedgerows (h2a) may be lost in the Onshore Converter Station Zone, given their location within the zone it is likely that the majority may be permanently lost. It is therefore **likely to constitute a significant negative effect at the local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).
- 238. The Onshore Converter Station Zone contains some line of trees (w1g6) and other woodland habitat (w1f7 and w2b) (12.13 ha). Although some of the woodland habitats in this area are to be retained, as set out in Table 9-14 and shown in Technical Appendix 7.2, Volume 3, under the worst-case scenario, it is assumed that much of the rest of this habitat could potentially be lost. Its loss is **likely to constitute a significant negative effect at the local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).

TEMPORARY HABITAT LOSS

- 239. Temporary habitat loss within the Onshore Converter Station Zone will not be reinstated in the same manner as within the Landfall/HVDC and HVAC zones owing to the fact that after construction is completed, the area will be subject to habitat creation and enhancement (details of which will be outlined in the LEMP at the detailed design stage) rather than direct reinstatement of habitats lost.

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240. The habitats outlined here as being temporarily lost within the Converter Station Zone refers to habitats that will require removal for the cable route and working buffer around the Converter Station (rather than permanent above ground infrastructure). However, as these habitats will not be reinstated in the same manner as within the Landscape/HVDC and HVAC Zone, these habitats will therefore be assessed as if being permanently lost, compensated for through secondary mitigation.
241. Loss of grassland habitat due to works associated with the cable route and Converter Station working buffer is likely in the Onshore Converter Station Zone, given the abundance of the habitat in this area, and is therefore **likely to constitute a significant negative effect in the short-term, with no significant effects likely in the mid to long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this short-term effect.
242. Loss of mixed scrub (h3h) habitat in the Onshore Converter Station Zone associated with the cable route and Converter Station working buffer is likely to be small but is **likely to constitute a significant negative effect at the local level in the short-term, with no significant negative effect likely in the mid- to long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this short-term effect (see below).
243. As stated in paragraph 237, the majority of hedgerow habitat (h2a) in this zone is likely to be permanently lost for the construction of permanent infrastructure, however some additional loss associated with the cable route and Converter Station working buffer cannot be ruled out, This has the potential to constitute a **significant negative effect at the local level in the short-term, with no significant effects likely mid-term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this short-term effect (see below).
244. There is the potential for the loss of some lines of trees (w1g6) and other woodland habitat (w1f7, w1f6 and w2b) associated with the cable route and Converter Station working buffer. This habitat loss has the **potential to constitute a likely significant negative effect at local level in the long term**. Secondary mitigation (compensation, in CIEEM terms) is therefore proposed to offset this effect (see below).


9.11.1.24. SECONDARY MITIGATION & RESIDUAL EFFECT

245. Habitat creation within the Converter Station Zone (see paragraph 197) and the provision of offsite habitat creation to meet BNG requirements will provide compensation for habitats subject to temporary loss and will also provide a minimum 10% net gain (see BNG Indicative Design Stage Report (SLR, 2023)). Note, although not yet mandatory, the Applicant has committed to delivering a minimum of 10% BNG through onsite habitat creation and offsite provision.
246. **Significant residual negative effects identified above will remain, i.e., a significant negative effect in the short-term in respect of loss of hedgerows and scrub and a significant effect in the long term in respect of loss of woodland. However, these residual significant effects will be offset via these compensatory measures.**

ISSUE 7: IMPACTS ON IMPORTANT INVERTEBRATE SPECIES DUE TO HABITAT LOSS AND FRAGMENTATION

9.11.1.25. INTRODUCTION OF IMPACT

247. As described in paragraphs 34 to 40, both dingy skipper and grayling were recorded within the Landfall/HVDC Zone and dingy skipper was also recorded within the HVAC Zone.

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248. Due to the sub-optimal habitat present within the Converter Station Zone, and the absence of records of dingy skipper and grayling in this area during the surveys, it is assumed that any loss of habitat suitable for these species will be temporary.
249. Due to their known presence in the Landfall/HVDC and HVAC Zones, there is also a risk of death to these species during construction in these areas.
250. There is no risk of disturbance, e.g., via construction noise, to individuals of these species, given their short lifespan and low level of sentience compared to other protected species.

9.11.1.26. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

HABITAT LOSS


251. The Onshore Scheme will result in the temporary loss of habitats suitable to support important invertebrate species (grassland, scrub and open mosaic and habitat) within the Landfall/HVDC and HVAC Zones during the construction period (up to 18 months each in the Landfall/HVDC Zone and HVAC Zone and nine months within the Converter Station Zone). Although some of this habitat will be reinstated after construction is completed, and reinstatement is likely to be relatively quick (see paragraph 207), it will still take some time to re-establish to a condition where they are suitable for invertebrates. Additionally, recolonisation of suitable areas is based on the assumption that the site populations are part of a wider metapopulation (i.e., that there are individuals present in the wider area able to recolonise reinstated habitat areas). Data returned during the desk study data search (contained within Technical Appendix 9.8) show records of both grayling and dingy skipper south of the Blyth Estuary, supporting this assumption. Additionally, it is unlikely that all areas of suitable habitat within the Site will be lost (specifically dune habitat will be retained as per Table 9-14), it is therefore possible there will still be individuals present within the Site, that can recolonise reinstated habitat. This **therefore constitutes a likely significant short-term negative effect at County level, with no significant effects likely at mid to long term.**

INJURY / DEATH

252. Construction within the Landfall/HVDC and HVAC Zones has the potential to kill individual butterflies and their larvae, or to destroy their eggs. This has the potential to affect the conservation status of each species. As detailed above, habitats will be subject to reinstatement once construction is complete, though will take time to reach a level suitable for successful recolonisation of invertebrates. This therefore constitutes a **likely significant short-term negative effect at County level, with no significant effects likely at mid to long term.**

9.11.1.27. SECONDARY MITIGATION & RESIDUAL EFFECT

253. Secondary mitigation is not proposed as the Client does not have control of relevant areas post construction, so would be unable to implement any relevant secondary mitigation in these areas. Additionally, open mosaic habitat creation is unlikely to be appropriate for inclusion in the habitat creation that will be proposed within the LEMP.
254. As no secondary mitigation is proposed, the above significant effects cannot be ruled out.

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ISSUE 8: IMPACTS ON REPTILES INCLUDING HABITAT LOSS / FRAGMENTATION, DISTURBANCE AND INJURY / DEATH

9.11.1.28. INTRODUCTION OF IMPACT

255. As described in Table 9-11, both slow worm and common lizard have previously been recorded within 2 km of the Site, although only common lizard has been recorded within the Site boundary, the number of common lizard records is low (two) and not within the last 10 years. The Onshore Scheme contains rough grassland, scrub, watercourses, waterbodies, woodland and open mosaic habitat with rubble / early successional trees that could potentially support reptiles, if present. However, the relative lack of records, despite surveys over parts of the onshore scheme area in the past, indicates that reptiles are only likely to be present in small numbers and are unlikely to be present in much of the potentially suitable habitat present within the site. As such it was agreed with NCC that reptile surveys were not required to inform this assessment and the assessment is based on a precautionary assumption that small numbers of reptiles may be present in suitable habitat throughout the site.
256. The MDS assumes that some habitat potentially suitable for supporting reptiles will be temporarily (and potentially permanently) lost as a result of the works.
257. Disturbance could occur during works within or adjacent to potentially suitable reptile habitat for the duration of the construction period.
258. As reptiles are known to be present on Site, there is the risk of inadvertent injury or death to reptile species as a result of the works, for the duration of the construction period.

9.11.1.29. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

HABITAT LOSS


259. As detailed in Table 9-12, the Onshore Scheme will result in permanent habitat loss of approximately 9.2 ha of habitat potentially suitable to reptiles, and the temporary habitat loss of approximately 61.74 ha for the duration of the works (48 months), although this is based on the worst-case scenario and assuming all habitat is suitable for reptiles, so in reality the area affected is likely to be much smaller. Although assumed to be present on site in small numbers only, this could constitute a **significant negative effect to reptile populations at a local level** and therefore secondary mitigation is proposed (see below).

DISTURBANCE

260. Construction activities have some potential to cause temporary disturbance to reptiles utilising potentially suitable habitat within the site during the construction phase (18 months in each zone). This disturbance would likely be via noise, machinery and human presence. Given the large areas unaffected and the likelihood that reptile populations, if present, are very small, this is **not likely to be significant**.

INJURY / DEATH

261. In the absence of mitigation, the death or injury of a reptile during construction could potentially represent an offence under the relevant legislation and also have a significant effect on the conservation status of the species in the local area. This could constitute a likely **significant negative effect to reptile populations at a local level**, therefore secondary mitigation is proposed (see below).

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9.11.1.30. SECONDARY MITIGATION & RESIDUAL EFFECT

262. The following secondary mitigation measures would be implemented during the construction phase to prevent killing or injury of reptiles:
- Post-development habitat creation within the Onshore Converter Station Zone to compensate for the permanent habitat loss;
 - Cutting vegetation in stages during the active season (March-October) to encourage displacement from working areas; and
 - Removal of all potential refugia present on Site by the ECoW (e.g., log piles, stone piles, brush piles etc.) ahead of construction works taking place in affected areas.
263. Further details of proposed mitigation measures during construction will be provided within a reptile protection plan which would form part of the CEMP (see Table 9-14). Further details of proposed habitat creation and management at the Converter Station will be provided within an LEMP, at the detailed design stage.
264. Implementation of the proposed mitigation measures would substantially reduce the potential for significant negative effects arising from habitat loss, disturbance and injury / death. **Therefore, no significant residual effects are anticipated.**

ISSUE 9: IMPACTS ON BREEDING BIRDS


9.11.1.31. INTRODUCTION OF IMPACT

265. Three wader species were recorded breeding during the surveys within the Landfall/HVDC Zone. Three little ringed plover and two lapwing territories were confirmed, and a probable ringed plover territory was identified. The little ringed plover and ringed plover populations are considered to be of county importance and the lapwing population is considered to be locally important.
266. Most of the other breeding bird species recorded are relatively common and widespread, although they included four species which are either red listed birds of conservation concern and/or priority species in England under Section 41 of the NERC Act 2006: skylark; greenfinch; linnets and reed bunting. None of the species' populations recorded are considered to be more than locally important.
267. As set out in Table 9-12, impacts on breeding birds are possible during construction in respect of habitat loss (permanent and temporary), disturbance and damage to nests. Permanent habitat loss will be limited to the Converter Station site (up to 9.2 ha) and the SWO into the Sleek Burn (10 m²). Temporary habitat loss could extend to up to 61.74 ha across the Site as a whole and could take place throughout the construction period of 48 months. In the absence of mitigation, disturbance could occur during works within or adjacent to potentially suitable habitat for breeding birds and damage to active nests could occur during works within potentially suitable habitat for breeding birds. Disturbance and damage to nests could take place during the breeding season throughout the construction period.

9.11.1.32. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

HABITAT LOSS

268. Breeding wader populations are all located within the Landfall/HVDC Zone and will not be affected by permanent habitat loss. Up to 28.4 ha of habitat will be temporarily lost within the Landfall/HVDC Zone. Adopting a precautionary approach, it is assumed this is all potentially suitable for breeding waders, although in practice it is likely that the area of suitable habitat affected would be much smaller. Habitats


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would be reinstated following construction works and it is anticipated that suitable habitat for breeding waders would re-establish relatively quickly (as discussed in relation to Issue 6).

269. A substantial area of additional habitat is currently also present outside the Site boundary to the north), and habitats would only be lost for a maximum of two breeding seasons, based on an estimated duration of 18 months for HVDC cable installation. In practice the areas affected by temporary habitat loss are likely to be permanently lost during the construction of other consented development projects (i.e., Britishvolt or its successor), in the context of which the temporary loss predicted here is not likely to be significant. However, even assuming that the existing habitat conditions remain in place for the foreseeable future, the conservation status of breeding wader populations in the local area is unlikely to be adversely affected by the level of temporary habitat loss predicted because birds should temporarily relocate to unaffected areas of habitat within or adjacent to the Site and the time period over which birds would be affected is relatively short.
270. With respect to other breeding bird species, up to 9.2 ha of habitat would be permanently lost, primarily at the Converter Station. This could result in the loss of small numbers of territories for a range of common bird species. The species affected would depend on the detailed design but based on 2023 survey data could include the red listed and/or Section 41 (as described in Tables 9-3 and 9-8) species skylark, greenfinch and linnet, albeit in very small numbers (maximum one or two territories of each species). This level of loss is not likely to significantly affect the conservation status of the species concerned in the local area.
271. Temporary habitat loss could also affect a small number of territories for a range of common bird species, including red listed and/or Section 41 species such as skylark, greenfinch, linnet and reed bunting. However, large areas of similar habitat will remain unaffected and most habitats would only be lost for two breeding seasons (woodland habitats would take longer to re-establish but are not important for these species). This level of loss is not likely to significantly affect the conservation status of the species concerned in the local area.
272. In summary, **no significant effects on breeding birds are likely in respect of permanent and temporary habitat loss.**

DISTURBANCE

273. In the absence of mitigation, breeding wader populations within the Landfall/HVDC Zone could be affected by disturbance by construction works taking place during the breeding season. Breeding waders are susceptible to disturbance during the breeding season (see Goodship and Furness, 2022, for example). Under the MDS, it is possible that all of the breeding wader territories identified could be subject to disturbance for up to two breeding seasons. If disturbance prevented successful breeding this could affect the conservation status of the relevant species in the local area. Disturbance to little ringed plover, which is included on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended), could also represent an offence under the legislation. A significant negative effect on receptors of local to county importance is therefore likely.
274. Given that other bird species recorded during the surveys are relatively common and widespread and mostly present in relatively low numbers, disturbance to other breeding bird species during construction is unlikely to affect the conservation status of the species concerned in the local area.
275. In summary, in the absence of secondary mitigation, construction in the Landfall/HVDC Zone could result in a significant disturbance effect on breeding waders, which would represent a significant negative effect at a local to county level. Disturbance is not likely to be significant for other breeding bird species.

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DAMAGE TO NESTS

276. Under Section 1 of the Wildlife & Countryside Act 1981 it is an offence to damage or destroy the nest of any wild bird while that nest is in use or being built. Tertiary mitigation will therefore be implemented to (see Table 9-14) to avoid damaging or destroying active nests during construction. Following the implementation of the mitigation no significant effects are likely.

9.11.1.33. SECONDARY MITIGATION & RESIDUAL EFFECT

277. Surveys for Schedule 1 species and other breeding waders will take place in the Landfall/HVDC Zone prior to and during construction (as required). Avoidance of disturbance to these species whilst nesting will be achieved through the implementation of disturbance-free buffer zones around active nests. The extent of any buffer zones will be species and location-specific and will be determined by the ECoW, taking into consideration relevant guidance and experience from other sites, as appropriate. The ECoW will also monitor nesting attempts to check that the agreed buffer zones are successful.
278. Further details of proposed mitigation measures will be provided within a bird protection plan which would form part of the CEMP.
279. Implementation of the proposed mitigation measures, including the designed in measures & tertiary mitigation (Table 9-14) and the secondary mitigation outlined above, would substantially reduce the likelihood for disturbance to breeding waders and **no likely significant residual effects are anticipated.**


ISSUE 10: DISTURBANCE TO WINTERING BIRDS (WHERE NOT INCLUDED AS QUALIFYING OR NOTIFIED FEATURES FOR DESIGNATED SITES)

9.11.1.34. INTRODUCTION OF IMPACT


280. A total of 44 waterbird and gull species were recorded during the surveys in winter 2022/23. Six of these species form qualifying or notified features for designated sites (see Issues 1 and 2) but several other species of conservation importance were also recorded. For example, the study area supports a significant proportion of the Northumberland Shore SSSI population of oystercatcher, curlew, bar-tailed godwit, dunlin and common eider. Whilst not representing SSSI notified features and therefore not nationally important, these species are referred to in the SSSI citation and are considered to be of at least county importance. Other waterbird species populations recorded within the survey area vary in importance by species, although based on the numbers recorded none are considered to be of more than county importance, with mos Table 9-12t being of no more than local value.
281. As set out in no intertidal habitat will be directly affected by the Onshore Scheme and therefore the main potential for impacts to wintering waterbirds is via visual and/or noise disturbance. Disturbance could take place during the winter throughout the construction period. Visual disturbance is possible where there is a direct line of sight between the source of disturbance and the relevant receptor. Maximum construction noise levels are set out in Chapter 13. Noise generated by construction activities would mostly be regular in character, although impact/percussive piling, which is irregular in character is possible at the Converter Station and could affect birds using the Sleek Burn.

9.11.1.35. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

282. As stated in Table 9-12, visual and noise disturbance is possible during construction works up to 400 m from the beach and the Sleek Burn / Blyth Estuary, where used by SPA/Ramsar site qualifying bird species. Disturbance could take place during the winter throughout the construction period.

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283. As discussed in relation to Issue 1, there is no potential for visual disturbance to wintering waterbirds at the landfall because there is no direct line of sight between construction works west of the road and birds using the beach. Noise disturbance is possible, but the beach is subject to high levels of existing disturbance and is only used infrequently by waterbird species and/or in relatively low numbers. For example, curlew and oystercatcher were the only wader species recorded in double figures (and were both only recorded in double figures on two of 12 survey dates). Double figure counts of wigeon (*Mareca penelope*), mallard (*Anas platyrhynchos*) and teal (*Anas crecca*) were recorded on the sea and therefore further away from sources of potential noise disturbance. However, these were only recorded on six of 12 survey dates (wigeon), one of 12 survey dates (mallard) and three of 12 survey dates (teal). Shag (*Gulosus aristotelis*) was the only other non-gull species recorded in double figures, also on the sea and only on two dates. Even if noise disturbance were to occur, the number of waterbirds affected would be very low and disturbance is therefore not likely to be significant.
284. As for Issue 1, disturbance to wintering waterbirds at the Sleek Burn is possible during construction of the HVAC cables from the Converter Station to the existing National Grid substation, which will be located in relatively close proximity to the Sleek Burn and/or Blyth Estuary. As set out in Table 9-14, construction works relating to the SWO into the Sleek Burn will be restricted to avoid the winter period (October to March inclusive). Disturbance to wintering bird species due to construction of the outfall will therefore be avoided and has not been assessed. Impact/percussive piling at the Converter Station site may also result in noise disturbance to birds using the Sleek Burn.
285. Due to the topography of the estuary and the presence of screening vegetation along much of its northern bank, works situated more than a few metres back from the estuary bank are not likely to be in direct line of sight of birds using the Sleek Burn or Blyth Estuary. However, under the MDS a precautionary approach has been taken here which assumes that works could take place anywhere within the Site boundary (other than within the intertidal area) including, in this case, the area close to the northern bank of the estuary. Visual disturbance is therefore possible.
286. Noise disturbance during construction of the HVAC cable is possible, as discussed for Issue 1. In the absence of mitigation any birds within around 150 m of construction of the HVAC cables could potentially be subject to moderate to high levels of disturbance. Under the MDS a precautionary assumption is that works could take place within 150 m of the estuary and therefore cause disturbance. Impact/percussive piling at the Converter Station could potentially also result in high to moderate levels of disturbance.
287. The Sleek Burn regularly supports significant numbers of waterbirds. For example, of the species referred to in the Northumberland Shore SSSI citation that do not represent SSSI notified features, both oystercatcher and curlew were recorded on all ten survey dates with a peak count of 43 for both species. Double figure counts were also regularly recorded for shelduck (*Tadorna tadorna*), gadwall (*Anas strepera*) and teal (*Anas crecca*). Assuming a construction period of up to 18 months for the HVAC cabling works disturbance could potentially occur over two winter periods, impact/percussive piling works at the Converter Station are assumed to affect a maximum of one winter period. Sleek Burn is subject to relatively low levels of existing disturbance and in the absence of mitigation, these birds could be subject to visual and/or noise disturbance, and a significant negative effect is possible.
288. In summary, in the absence of secondary mitigation, construction of the HVAC cables could result in a significant disturbance effect on wintering waterbirds not included as qualifying or notified features for designated sites, which would represent a **likely significant negative effect at up to county level**. Disturbance is not likely to be significant at the Landfall.

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9.11.1.36. SECONDARY MITIGATION & RESIDUAL EFFECT

289. Some or all of the secondary mitigation measures set out in relation to Issue 1 would be implemented during the winter period (October-March inclusive), as required, subject to detailed design, during the construction of the HVAC cables connecting to the existing National Grid substation. Detailed mitigation requirements cannot be confirmed at this stage as requirements would depend on the precise routing of the cable (to be determined at the detailed design stage) and detailed modelling of construction noise levels (to be undertaken once the detailed design is available). Further details of proposed mitigation measures would be provided at the detailed design stage and contained within reserved matters submissions.
290. Implementation of the proposed mitigation measures, as required, would substantially reduce the potential for disturbance to wintering waterbirds. **No likely significant residual effects on wintering waterbirds not included as qualifying or notified features for designated sites are therefore anticipated.**

ISSUE 11: IMPACTS ON OTTER INCLUDING HABITAT LOSS / FRAGMENTATION, DISTURBANCE AND INJURY / DEATH


9.11.1.37. INTRODUCTION OF IMPACT

291. As described in paragraphs 69 to 72, although no otter resting or breeding sites were identified, two potential otter feeding signs were recorded within the Study Area, along the north bank of the Sleek Burn. Additionally, habitat suitable for otter is present along Maw Burn and Cow Gut and there are numerous existing records of otter within the wider area, mostly from the River Wansbeck and the River Blyth, both of which are located within 2 km of the Site.
292. Permanent loss of habitat suitable for otter is limited to the SWO into the Sleek Burn, which would be located on the northern bank of the estuary where otter field signs have been recorded. The MDS assumes that the HVDC cable route will cross other potentially suitable habitat (either Maw Burn and Cow Gut) resulting in the temporary loss of up to 235 m habitat suitable for otter foraging and commuting (see Table 9-12 for habitat loss assumptions).
293. Although no resting sites were identified, there is the potential for disturbance to otter using Sleek Burn, Maw Burn and Cow Gut for foraging during works in or adjacent to these areas. There is the potential for disturbance impacts for the duration of the construction period (up to 36 months at Cow Gut and Maw Burn and up to nine months at Sleek Burn).
294. As otters are suspected to be present on Site, at least occasionally, there is risk of death or injury of an individual otter resulting from collision with construction traffic, being trapped in excavation, pipes or machinery, or poisoning via harmful chemicals stored on Site.

9.11.1.38. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

HABITAT LOSS

295. The Onshore Scheme will result in the permanent loss of 10m² of suitable otter habitat adjacent to the Sleek Burn (9 months), and the temporary loss of up to 235 m of suitable habitat elsewhere on Site (either the Maw Burn or Cow Gut) for the duration of the construction period (up to 36 months). However, given the limited evidence recorded on Site, the relatively small area of permanent habitat loss and following implementation of the mitigation measures outlined in Table 9-14, **no significant effects are likely.**

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KILLING OR INJURY

296. The death or injury of an otter during construction could potentially represent an offence under relevant legislation (i.e., the Habitats Regulations and/or the Wildlife & Countryside Act) and also have a significant effect on the conservation status of this species in the local area. However, given the limited evidence recorded on Site and following implementation of the general site good practice measures outlined in Table 9-14, death or injury to otters during construction is not likely. As such, **no significant effects are likely.**

DISTURBANCE

297. Construction activities have some potential to cause temporary disturbance to otters which may use some of the waterbodies on and around the Site for foraging and commuting. This disturbance would likely be via noise and human presence. However, the area of disused railway that runs close to both Maw Burn and Cow Gut is currently utilised by dog walkers so is subject to some low-level disturbance already. Otters have large home ranges and are able to adapt to a certain level of human disturbance (Chanin, 2003). They are also mostly active at night and therefore the majority of construction works, which will take place during daylight hours are **unlikely to significantly disturb their foraging or commuting.**
298. HDD works within the Landfall/HDVC zone may be required to operate on a 24-hour period until the HDD works are complete (see Chapter 5: Project Description for full details) and this has the potential to cause further disturbance effects given that otters are most active at night and the Zone also houses both Maw Burn and Cow Gut. However, given the relatively short duration of the HDD works, the low-level disturbance already present, referred to in paragraph 139, and the low levels of otter usage recorded during surveys, **no significant effects are likely due to disturbance.**


9.11.1.39. SECONDARY MITIGATION & RESIDUAL EFFECT

299. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is **not significant.**

ISSUE 12 IMPACTS ON BADGER INCLUDING HABITAT LOSS / FRAGMENTATION, DISTURBANCE AND INJURY / DEATH

9.11.1.40. INTRODUCTION OF IMPACT

300. As described in section 9.7.1.3.6, evidence of badger activity has been recorded on Site. Although potential badger setts identified did not show signs of recent activity, a badger scat was identified indicating that badger are active within the area. In the absence of features confirming usage by badgers they have been referred to as potential setts.
301. Although it may be possible to avoid the potential setts, under the MDS, loss of a potential sett cannot be ruled out. Both permanent and temporary loss of habitat suitable for badger foraging also cannot be ruled out (see Table 9-12 for details of habitat loss assumptions).
302. Construction activities have the potential to cause temporary disturbance to badgers, if works come within 30 m of potential setts and setts are active at that time.
303. As badgers are known to be present within the Site, there is risk of death or injury of an individual badger resulting from collision with construction traffic, being trapped in excavation, pipes or machinery, or poisoning via harmful chemicals stored on site.

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9.11.1.41. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

HABITAT LOSS

304. Construction activities have the potential to cause damage or destroy badger setts. Under the MDS and in the absence of mitigation, the Onshore Scheme could result in the loss of previously identified badger setts, which would contravene relevant legislation and would constitute a likely **significant effect at a local level**.
305. Construction activities have the potential to cause both permanent and temporary loss of habitat suitable for badger foraging. However, given the low number of signs of recent badger activity, and the temporary nature of the construction works and the relatively small area of permanent habitat loss in the context of a badger territory (maximum 9 ha), **no significant effects are likely**.

DISTURBANCE


306. Construction activities have the potential to cause temporary disturbance to badgers within their setts if works come within 30 m of a sett, if active at the time of construction, which would contravene relevant legislation and **could constitute a likely significant effect at local level**.

INJURY/DEATH

307. The death or injury of a badger during construction could potentially represent an offence under the relevant legislation (i.e., the Protection of Badgers Act) and also have a significant effect on the conservation status of this species in the local area. However, following implementation of the general site good practice measures outlined in Table 9-14, death or injury to badgers during construction is not likely. **As such, no significant effects are likely**.

9.11.1.42. SECONDARY MITIGATION & RESIDUAL EFFECT

308. Full details of secondary mitigation requirements will be provided at the detailed design stage, details of potentially appropriate secondary mitigation are provided in this section.
309. If required, i.e., if damage or disturbance to active badger setts is unavoidable (to be determined at the detailed design stage), the following secondary mitigation measures would be implemented during the construction phase:
- Micro-siting works to avoid damage or disturbance to active setts during construction, if possible.
 - Maintaining a disturbance exclusion buffer around any retained setts that are active at the time of construction;
 - If destruction of an active sett is unavoidable then a licence will be sought from NE to allow the exclusion of badgers and destruction of a sett, this may also require the provision of a replacement artificial sett; and/or
 - If disturbance of an active sett is unavoidable then a licence will be sought from NE to allow a temporary closure of the sett or works within the disturbance buffer. Such works may be subject to timing restrictions to reduce disturbance.
310. Further details of proposed mitigation measures will be provided at the detailed design stage, if required, to inform subsequent reserved matters applications.
311. Due to secondary mitigation proposed, **no significant negative residual effects are predicted**.

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ISSUE 13: IMPACTS ON RED SQUIRREL, INCLUDING HABITAT LOSS / FRAGMENTATION, DISTURBANCE AND INJURY / DEATH

9.11.1.43. INTRODUCTION OF IMPACT

- 312. As described in paragraphs 77 to 79, evidence of squirrel presence was recorded on Site and the data search returned relatively recent records of both red and grey squirrels. As no individuals were observed, red squirrel presence cannot be ruled out.
- 313. A potential drey was identified within the woodland to the west of the Converter Station Zone. As such, the loss of a red squirrel drey cannot be ruled out.
- 314. All other squirrel activity was also recorded within the Converter Station Zone and mainly concentrated in the woodland to the west of that area. The MDS assumes the permanent loss of habitat suitable for red squirrel. See Table 9-12 for habitat loss assumptions.
- 315. Construction activities have the potential to cause temporary disturbance to red squirrels using a drey, for the duration of the construction phase within the Converter Station Zone (up to 18 months).
- 316. As red squirrel presence on site cannot be ruled out, there is risk of death or injury of an individual red squirrel resulting from collision with construction traffic, being trapped in excavation, pipes or machinery, or poisoning via harmful chemicals stored on site.

9.11.1.44. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

DISTURBANCE / DAMAGE / DESTRUCTION OF DREYS


- 317. In the absence of mitigation, construction activities have the potential to cause temporary disturbance to red squirrels within their dreys if works come within 50 m of a drey during the breeding season (February to September inclusive) or within 5 m of a drey outwith (as per NatureScot species planning advice, which in the absence of an English alternative is also relevant in England) this period, This would contravene relevant legislation and would constitute a likely **significant effect at local level**.
- 318. Construction activities have the potential to cause damage or destroy a potential red squirrel drey. In the absence of mitigation this would contravene relevant legislation and would also **constitute a likely significant effect at a local level**.

HABITAT LOSS

- 319. Under the MDS, construction activities have the potential to cause both permanent and temporary loss of habitat suitable for foraging red squirrels. However, given the relatively small area of permanent habitat loss and following the implementation of the mitigation measures outlined in Table 9-14, **no significant effects are likely**.

INJURY /DEATH

- 320. The death or injury of a red squirrel during construction could potentially represent an offence under the legislation and may also have a significant effect on the conservation status of this species in the local area. However, following implementation of the general site good practice measures outlined in Table 9-14 death or injury to red squirrels during construction is not likely. **As such, no significant effects are likely**.

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9.11.1.45. SECONDARY MITIGATION & RESIDUAL EFFECT

321. Full details of secondary mitigation requirements will be provided at the detailed design stage, details of potentially appropriate secondary mitigation are provided in this section.
322. If required, i.e., if disturbance or destruction of a red squirrel drey is unavoidable (to be determined at detailed design stage), the following secondary mitigation is proposed:
- Micrositing of the works to avoid disturbance or destruction of an active drey, if possible;
 - Rescheduling works in close proximity to active dreys (if present);
 - Implementing a disturbance-free buffer of 50 m (February to September) or 5 m (October to January); and/or
 - If disturbance of a drey is unavoidable, a licence will be sought in order for works to proceed.
323. Further details of proposed mitigation measures will be provided at the detailed design stage, if required, to inform subsequent reserved matters applications.
324. Due to secondary mitigation proposed, **no residual significant effects are likely.**

ISSUE 14: IMPACTS ON BATS, INCLUDING LOSS OF POTENTIAL ROOST SITES, LOSS/FRAGMENTATION OF FORAGING/COMMUTING HABITAT AND DISTURBANCE DUE TO CONSTRUCTION LIGHTING

9.11.1.46. INTRODUCTION OF IMPACT

325. As described in paragraph 57 to 63, the Site contains 17 trees with the potential to support roosting bats (see Figure 9.5.1, Appendix 9.5, Volume 3). Three trees were considered to have high potential, including one containing a bat box. The remaining 14 trees were considered to have moderate potential. Trees with Low potential were present but not recorded individually, locations will be confirmed at the detailed design stage.
326. Additionally, transect and static bat detector surveys confirmed the presence of at least six species of bat utilising the Site for foraging and commuting purposes.
327. Construction activities have the potential to impact bats through the loss of potential roost sites. The MDS assumes the loss of all trees with bat roost potential (see Table 9-12).
328. although in reality it is very unlikely that all trees with bat roost potential would be lost. Habitat loss could further impact bats through loss or fragmentation of foraging/commuting habitat, e.g., woodland edges, tree lines, hedgerows and watercourses. Habitat loss assumptions are as detailed in Issue 6.
329. Construction activities have the potential to cause disturbance impacts to bats due to the use of construction lighting. The MDS assumes that 24 hour working could take place at HDD locations, while other construction works will be limited to standard working hours i.e. 7am to 7pm. Temporary lighting is assumed to be necessary during construction hours at the time of year when working hours would be dark (approximately October – April), though this would be for short periods of the day (i.e. until sunrise/sunset) and bat activity is generally greatly reduced or non-existent during these months. Additionally, 24 hour security lighting has been assumed at all temporary construction compounds. Disturbance to roosting bats during construction is also possible due to noise/ vibration in close proximity to bat roosts.


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9.11.1.47. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

330. Construction activities have the potential to cause damage to or destroy a confirmed bat roost. In the absence of mitigation this would contravene relevant legislation (Habitats Regulations and Wildlife & Countryside Act) and would also constitute a **likely significant effect at a local level** therefore secondary mitigation is proposed (see below).
331. Under the MDS, construction activities have the potential to cause both temporary and permanent loss and fragmentation of suitable foraging and commuting habitat. Although reinstatement of temporarily lost habitats is proposed (Table 9-14), trees are not able to be reinstated directly on top of the cable locations. It would also take time (up to five years) for hedgerows and scrub to re-establish. Loss of these features would constitute a **likely significant effect at a local level** therefore secondary mitigation is proposed (see below).
332. The disturbance of bats in their roosts through construction noise and/or use of construction lighting could contravene relevant legislation (Habitats Regulations and Wildlife & Countryside Act) and would also constitute a **likely significant effect at local level**. Construction lighting could also cause disturbance to foraging and commuting bats, depending on its location which, in the absence of mitigation, could also result in a **likely significant effect at a local level** therefore secondary mitigation is proposed (see below).

9.11.1.48. SECONDARY MITIGATION & RESIDUAL EFFECT

333. Full details of secondary mitigation requirements will be provided at the detailed design stage, details of potentially appropriate secondary mitigation are provided in this section if required.
334. If required, i.e., if disturbance to a roosting bat or destruction of a bat roost is unavoidable (to be determined at detailed design stage following more detailed bat roost surveys, as necessary), the following secondary mitigation is proposed:
- Provision of bat boxes in suitable habitat areas to mitigate permanent loss of potential roosts;
 - Retention of linear habitats, where practicable, to reduce fragmentation of foraging / commuting habitats;
 - Micrositing the works to avoid disturbance of roosting bats or destruction of bat roosts (if practicable);
 - Implementing a disturbance free buffer around confirmed roosts as far as is practicable;
 - Lighting should be directional and light spill should be avoided onto suitable roosting, commuting or foraging habitat as far as is practicable;
 - Precautionary felling measures (through timing of works to avoid maternity and hibernation seasons, and through 'soft telling') of any trees with Low bat roosting suitability;
 - If disturbance to a roosting bat is unavoidable, a licence will be sought from NE to allow works to proceed, and/or
 - If destruction of a bat roost is unavoidable, a licence will be sought from NE to allow works to proceed. Any works will be undertaken sensitively, in accordance with the licence/best practice when destroying the roost.
335. If required, i.e., if disturbance to or destruction of habitats used for commuting / foraging is unavoidable (to be determined at detailed design stage), the following secondary mitigation is proposed:
- Retention of linear habitat where practicable, to reduce fragmentation of foraging/commuting routes;
 - Provision of temporary artificial hedges, where practicable, to maintain commuting routes during construction/until relevant habitats have been re-established; and

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- Provision of good quality foraging habitat within the habitat creation area at the Converter Station.
336. Further details of proposed mitigation measures will be provided at the detailed design stage, if required, to inform subsequent reserved matters applications.
337. Due to the secondary mitigation proposed, **no residual significant effects are likely.**

ISSUE 15: SPREAD OF INVASIVE NON-NATIVE SPECIES (INNS)

9.11.1.49. INTRODUCTION OF IMPACT

338. As detailed in Section 9.7.1.2.1, INNS are known to be present within the Site. Full details of INNS present on site can be found within Technical Appendix 9.1 (Volume 3) and are mapped on Figure 9.1.2 in Technical Appendix 9.1.
339. In the absence of mitigation, construction activities have the potential to spread INNS throughout the Site and also to other areas outwith the Site.

9.11.1.50. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

340. Disturbance of INNS due to construction activities has the potential to spread INNS throughout the Site and also to other areas out with the Site, which could contravene relevant legislation and would constitute a significant effect at local level. However, following the mitigation set out in Table 9-14 **no significant effects are likely.**

9.11.1.51. SECONDARY MITIGATION & RESIDUAL EFFECT

341. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is not significant.


ISSUE 16: IMPACTS ON IMPORTANT HABITAT AND SPECIES DUE TO ACCIDENTAL POLLUTION EVENTS

9.11.1.52. INTRODUCTION OF IMPACT

342. As detailed in Table 9-9, there are several habitats present within the Site that have the potential to be impacted by pollution. Full details of these habitats can be found within Technical Appendix 9.1 (Volume 3) and are mapped on Figure 9.1.2 in Technical Appendix 9.1
343. Additionally, as detailed in 69 to 72, otter are known to be present in the wider area with some habitat suitable for foraging and commuting present on site (full details can be found within Technical Appendix 9.4).
344. In the absence of mitigation, construction activities have the potential to cause pollution of water-based resources which could impact these important habitat and species.

9.11.1.53. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

345. The pollution of water-based resources and the subsequent impacts to important species and habitats could constitute a significant effect at local level, however, following the pollution control mitigation set out in Table 9-14 and described in more detail in Chapter 11, **no significant impacts are likely.**

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346. Additionally, dust arising from construction traffic and activities could affect sensitive habitats within 50 m of the site (or the routes utilised by construction vehicles). The Air Quality Chapter (Chapter 14) concludes no significant effects on ecological receptors following the implementation of the CEMP, which will contain details of standard dust suppression measures. **No significant effects are therefore likely.**

9.11.1.54. SECONDARY MITIGATION & RESIDUAL EFFECT

347. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is not significant.


9.11.2. Potential Effects During Operation and Maintenance

348. The number of issues presented in this section is reduced compared with construction owing to the fact that the potential impacts during operation and maintenance are expected to be much less than potential impacts during construction. The issues presented in section 9.11.1, have therefore been grouped in this section to avoid unnecessary duplication.

ISSUE 1: IMPACTS ON DESIGNATED SITES DUE TO DISTURBANCE AND CHANGES TO SURFACE WATER FLOW

9.11.2.1. INTRODUCTION OF IMPACT

349. Wintering bird surveys in 2022-23 recorded five of the notified bird species for Northumberland Shore SSSI. Three of the species (sanderling, ringed plover and redshank) were recorded in numbers representing a significant proportion of the SSSI population. Turnstone and purple sandpiper, which also represent qualifying features for Northumbria Coast SPA and Ramsar site, were only recorded in low numbers (peak counts of six and three respectively), which do not represent a significant proportion of the SSSI or SPA populations. Sanderling and purple sandpiper were only recorded at Cambois Beach and ringed plover was only recorded on the Sleek Burn. Turnstone and redshank were recorded at Cambois Beach and the Sleek Burn, although turnstone was only recorded at the Sleek Burn on one date (a single bird). Redshank was recorded much more regularly, and in much larger numbers, at the Sleek Burn than it was at Cambois Beach. Sleek Burn also lies within the Blyth Estuary LWS, which is important for its inter-tidal habitats and associated fauna, notably wintering waterbirds.
350. At its closest point the Sleek Burn is located circa 160 m from the Converter Station zone. Disturbance to birds using the Sleek Burn is therefore possible due to operational noise at the Converter Station.
351. Disturbance to birds forming qualifying or notified features for nearby designated sites is also possible due to planned and unplanned maintenance.
352. It is proposed that all run off from the Onshore Converter Station will discharge into the Sleek Burn via the SWO within the HVAC Zone. A Surface Water Drainage Strategy (Technical Appendix 11.3, Volume 3) will be implemented for the Converter Station prior to works commencing and will be in place throughout the operational lifespan of the Converter Station. The surface water drainage is sized to prevent flooding on site for all events up to and including a 1 in 100 annual probability rainfall event plus 40% climate change uplift allowance, to account for changes in peak rainfall intensity throughout the anticipated lifespan of the development.


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9.11.2.2. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

353. Details of the proposed mitigation measures for operational noise at the Converter Station are given in section 13.12.2.5 (Chapter 13). With these mitigation measures in place, section 13.12.2.10 (Chapter 13) states that the maximum rating level at the closest residential property considered (located 90 m from the Converter Station Zone) is 40 dB. This is well below the level that would cause disturbance to birds (see discussion for construction period Issue 1) and as such no significant effects are likely in respect of operational noise disturbance to birds forming qualifying or notified features for nearby designated sites.
354. As set out in Table 9-12, routine maintenance is anticipated to consist of one annual visit to each transition bay to carry out integrity testing, which would be accessed via manhole covers, and periodic inspection of the onshore cable route. There may also be occasional maintenance visits to the substation. Following the implementation of the mitigation measures set out in **Table 9-14 no significant effects are likely in respect of disturbance to birds forming qualifying or notified features for nearby designated sites during routine maintenance.**
355. Non-scheduled maintenance to address faults as and when these arise may also be required, and this maintenance could be required in between jointing bays. The nature and extent of any such works cannot be predicted. However, major unplanned maintenance would be subject to any necessary consents and consultation with the relevant nature conservation bodies prior to work taking place, with mitigation measures implemented as necessary. **As such no significant effects are likely in respect of disturbance to birds forming qualifying or notified features for nearby designated sites in relation to non-scheduled maintenance.**
356. The physical presence of the SWO has the potential to result in increased flow as a result of outfall discharge, which in turn could result in coastal erosion of the river bed and bank below the outfall (SEPA, 2019). Moreover, increased bank erosion and associated increases in sediment concentrations have the potential to result in increased sediment supply, in turn leading to higher suspended sediment concentrations (SSC) and associated impacts on habitats and water quality.
357. A swale will be constructed around the Converter Station which will intercept surface water from the Converter Station prior to discharge into Sleek Burn. Up to two linked SuDS components will be constructed to filter the water prior to discharge. The SWO will be designed in consultation with the Environment Agency to avoid degradation of the Sleek Burn, including flow energy dissipation to prevent erosion of banks. It will also be located away from areas of saltmarsh habitat.
358. Given the tidal and dynamic nature of the Sleek Burn it is considered highly likely that SSC levels are already high with silt and sediment constantly moving within the estuary. On this basis any minor increases will likely be indiscernible from background concentrations as tidal flows wash over and redistribute the sediment. Furthermore, the development at detailed design stage will help ensure optimisation of the SWO against the requirements and advice of the Environment Agency. As such, **no significant effects are likely to designated sites due to coastal erosion and sedimentation.**

9.11.2.3. SECONDARY MITIGATION & RESIDUAL EFFECT

359. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is **not significant.**

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ISSUE 2: IMPACTS ON PROTECTED AND NOTABLE FAUNAL SPECIES DUE TO DISTURBANCE

9.11.2.4. INTRODUCTION OF IMPACT

360. The Sleek Burn regularly supports significant numbers of waterbirds not included as qualifying or notified features of nearby designated sites. These include oystercatcher, curlew, shelduck, gadwall and teal. As noted for Issue 1, at its closest point the Sleek Burn is located circa 160 m from the Converter Station zone. Disturbance to waterbirds using the Sleek Burn is therefore possible due to operational noise at the Converter Station. It is also possible due to planned and unplanned maintenance.
361. As suitable habitat for otter, badger and red squirrel are present on site, there is the potential for disturbance to these species during operation of the Converter Station, and planned and unplanned maintenance within the Converter Station Zone, the Landfall/HVDC Zone and the HVAC Zone.
362. During operation and maintenance, vehicles would be present within the Converter Zone Station and along the cable route for planned and unplanned maintenance. There is therefore potential, albeit limited, for injury or death of reptiles, otter, badger and red squirrels to occur due to vehicle collision during this time.
363. During operation, the MDS assumes that 24-hour security lighting will be present within the Converter Station Zone. Lighting would be directional and the glare upwards minimised, where practicable. Task specific lighting would be used externally to undertake routine inspections and maintenance after dark, limiting light spill.

9.11.2.5. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

364. As noted in respect of Issue 1, the maximum predicted mitigated operational noise level at the substation is well below the level that would cause disturbance to birds. As such, no significant effects are likely in respect of operational noise disturbance to birds not included as qualifying or notified features of nearby designated sites.
365. Also as noted in respect of Issue 1, following the implementation of the mitigation measures set out in Table 9-14 no significant effects are likely in respect of disturbance to birds during routine maintenance. The nature and extent of any non-scheduled maintenance can't be predicted but it would be subject to any necessary consents, consultation with the relevant nature conservation bodies prior to work taking place and the implementation of appropriate mitigation measures, if required. **No significant effects are therefore likely** in respect of disturbance to breeding or non-breeding birds not included as qualifying or notified features of nearby designated sites.
366. Otters are known to be present within 2 km of the site. Evidence of otter was recorded along the Sleek Burn and the Maw Burn and Cow Gut contain habitat suitable for use by otter while foraging or commuting. There is therefore a potential risk of both disturbance to otter and injury / death to otter due to vehicle collision. However, given the suitable habitat within the site is only likely to be used by otter occasionally and following the implementation of the mitigation measures set out in Table 9-14, to be detailed in an EMP, **significant effects on otter are unlikely**.
367. During operation, only minimal traffic would be present on the Site, and this would mainly be restricted to driving along the permanent access road to the Converter Station, or occasional access for cable route maintenance, both with an applied speed limit. Additionally, any areas of reptile refugia will be identified and detailed within the EMP (as detailed in Table 9-14) in order to be avoided. As a result of this, **no significant effects upon reptiles are likely**.

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368. There is some evidence of badger presence within the woodland to the west of the Converter Station, and suitable habitat for badgers is present in woodland in this area therefore there is a potential risk of both disturbance and injury / death during maintenance works. However, following the implementation of the mitigation measures set out in Table 9-14, to be detailed in an EMP, **no significant negative effect is likely.**
369. Red squirrel presence cannot be ruled out in this area. There is therefore a potential risk of both disturbance and injury / death to these species, during maintenance works. However, following the implementation of the mitigation measures set out in Table 9-14, to be detailed in an EMP, **no significant negative effect is likely.**
370. There are some trees with high and moderate potential to support roosting bats in close proximity to the Converter Station, additionally, the majority of bat activity took place at monitoring locations in this Zone. Therefore, there is a risk of disturbance through lighting to both bats utilising roosts (if confirmed) and foraging/commuting bats. Based on the MDS assumption that lighting would be directional (i.e., not pointing upward) and focused towards the Converter Station rather than towards habitats outside of it, **no significant effects on bats are likely.**

9.11.2.6. SECONDARY MITIGATION & RESIDUAL EFFECT

371. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is **not significant.**

ISSUE 3: SPREAD OF INVASIVE NON-NATIVE SPECIES (INNS)

9.11.2.7. INTRODUCTION OF IMPACT

372. There is a potential risk of the spread of INNS within the site and to the wider area due to vehicles accessing the site for planned and unplanned maintenance and during maintenance work itself, if INNS are present within or close to working areas.

9.11.2.8. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

373. Although there is a risk that INNS will be spread via vehicles utilising the site for maintenance, as detailed in Table 9-14, an EMP will be produced which will contain locations of known stands of INNS, to allow avoidance, and details of biosecurity measures to be adopted if avoidance of these areas is not possible. **No significant effects are therefore likely.**


9.11.2.9. SECONDARY MITIGATION & RESIDUAL EFFECT

374. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is not significant.

ISSUE 4: IMPACTS ON IMPORTANT HABITATS AND SPECIES DUE TO ACCIDENTAL POLLUTION EVENTS / IMPACTS ON WATERCOURSES

9.11.2.10. INTRODUCTION OF IMPACT

375. In the absence of mitigation, planned and unplanned maintenance could result in the pollution of water-based resources which has the potential to impact important habitats and species present.

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376. Operational discharge from the SWO into the Sleek Burn could result in changes in water quality, thus impacting species that utilise these habitats.

9.11.2.11. IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECT

377. The discharge of surface water through the SWO will be continuous and long term. Potential pollution of this surface water will be managed by pollution prevention measures to be outlined in the EMP (Table 9-14) prior to discharge.

378. Following the implementation of pollution control mitigation measures detailed in Table 9-14, Chapter 11 Hydrology & Hydrogeology and Chapter 14 Air Quality, **no significant effects are likely.**

9.11.2.12. SECONDARY MITIGATION & RESIDUAL EFFECT

379. No secondary mitigation is considered necessary because the likely effect in the absence of secondary mitigation is not significant.

9.11.3. Potential Effects During Decommissioning

380. No decision has been made regarding the final decommissioning plan for the Onshore Scheme, as it is recognised that industry standard practice, rules and legislation change over time. The detailed activities and methodology would be determined and agreed with the relevant planning authority later within the lifetime of the Onshore Scheme.

381. The principal options for decommissioning of the HVDC and HVAC cables include:

- Leaving the cabled in-situ, trenched;
- Leaving the cabled in-situ and providing additional protection; and
- Remove sections of the cables.

382. It is anticipated that the Onshore Converter Station would be gradually dismantled with certain infrastructure removed for recycling or reuse. Following this, the area is likely to be remediated and restored.

383. The anticipated operational life of the Converter Station and cables is approximately 35 years. At the end of the lifetime a decommissioning plan will be prepared. In addition, it is also recognised that policy, legislation and local sensitivities constantly evolve, which limits the relevance of undertaking an assessment at this stage. Nevertheless, decommissioning activities are not anticipated to exceed the construction phase worst-case criteria assessed; further to this in most cases impact magnitude will be much lower than during construction.

9.12. Proposed Monitoring

384. Proposed monitoring measures that are likely to be required, based on the information available at this stage, are outlined in Table 9-15 below. Detailed monitoring requirements will be determined at the detailed design stage.


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Table 9-15 Monitoring commitments for terrestrial ecology and ornithology

Potential Environmental Effect	Monitoring Commitment	Justification for Monitoring	Means of Implementation
Habitat loss	Botanical monitoring of areas of reinstated habitat for 5 years	To monitor the success of reinstatement of habitats temporarily lost.	LEMP
Habitat Enhancement	Botanical monitoring of areas of habitat creation (both within the Converter Station Zone and potentially offsite habitat creation) for at least 5 years (to be determined at the detailed design stage based on habitats to be created/enhanced).	To monitor the success of habitat creation and enhancement to meet BNG requirements of minimum 10% gain.	LEMP
Impacts on protected species	Species specific monitoring would be implemented as required, based on results of pre-construction surveys.	To monitor the effectiveness of species-specific mitigation measures, if required.	CEMP


9.13. Cumulative Effects Assessment

9.13.1. Methodology

385. The Cumulative Effects Assessment (CEA) takes into account the impact associated with the Onshore Scheme together with other relevant plans, developments and activities. Cumulative effects are therefore the complete set of effects arising from the Onshore Scheme together with the effects from a number of different developments, on the same receptor or resource. Please see Volume 2, Chapter 3 of this ES for detail on CEA methodology.
386. The developments selected as relevant to the CEA presented within this Chapter are based upon the results of a screening exercise and the development of a 'long list' of cumulative developments relevant to the Onshore Scheme (see Volume 3, Technical Appendix 3.1). Each development has been considered on a case by case basis for screening in or out of this Chapter's assessment based upon data confidence, effect-receptor pathways and the spatial / temporal scales involved, to create the 'short list' as summarised in Table 9-16.
387. The specific projects scoped into the CEA for terrestrial ecology and ornithology are outlined in Table 9-16. Projects have been scoped in that either overlap the Site boundary spatially or are located in close proximity to the Site boundary (i.e., within the area of land between the River Blyth and River Wansbeck, east of the A189 Spine Road) and may overlap temporally with construction of the Onshore Scheme. All other developments included on the 'long list' of cumulative developments are unlikely to result in significant cumulative effects for terrestrial ecology and ornithology and have therefore been excluded. This includes other developments which have already been constructed but not included as part of the baseline, except where the operation of these development may lead to significant cumulative effects with the Onshore Scheme. It also excludes other developments at the screening or scoping stage, for which insufficient information is available to undertake a meaningful assessment of cumulative effects.

Table 9-16 List of other developments considered within the CEA for terrestrial ecology and ornithology

Development / Plan	Status	Distance from Study Area (km)	Description of Development / Plan	Dates of Construction	Dates of Operation	Overlap with the Onshore Scheme
Cambois Connection Marine Scheme	In Planning	0 km (potential for direct overlap)	Offshore works (below MHWS therefore has overlap with the Onshore scheme at the intertidal) associated with the Cambois Connection project (whilst subject to separate consents) are linked to the Onshore Scheme. Construction 2025 onward; anticipated to be operational from 2030.	Simultaneous	Simultaneous	Spatial overlap within intertidal area at the landfall. Temporal overlap as construction works at the landfall will take place concurrently.
Land at Former Power Station Site on Northern Side of Cambois (21/00818/FULES)	Consented	0 km (adjacent to boundary)	Erection of battery manufacturing plant with associated development and infrastructure works. Construction currently understood to be on hold.	Unknown	Unknown	Spatial overlap within the Landfall/HVDC zone. Potential for construction and operational overlap with the Onshore Scheme.
Land to north of Spring Ville East Sleekburn (21/03723/FUL)	Consented	c.0.1 km	Proposed residential development for 48 dwellings with associated access and an area of public open space. Ecological information relied on in preparation of Ecological Impact Assessment not publicly available.	Under Construction	Unknown	No spatial overlap, although could affect similar receptors due to close proximity. Potential for construction and operational overlap with the Onshore Scheme.
Pump house and land south of River Wansbeck, West Sleekburn (21/03930/FUL)	Consented	c.0.7 km	Construction of extension to existing pipeline to supply water to Britishvolt factory.	Unknown	Unknown	No spatial overlap, although could affect similar receptors due to close proximity. Potential for construction and operational overlap with the Onshore Scheme.
Land north of Blyth Power Station, East Sleekburn (22/00879/FUL)	Consented	0 km (within boundary)	Erection of building for manufacturing of subsea cables, with ancillary offices and outdoor cable storage, together with associated development and infrastructure works including vehicular accesses off Brock Lane, landscaping and vehicular parking. Limited ecological information available.	Under Construction	2027	Spatial overlap within the Landfall/HVDC zone. Potential for overlap of construction and operational phases with Onshore Scheme.
Land East of Sleekburn Business Centre, West Sleekburn 21/01746/FUL	Consented	0 km (within boundary)	Provision of temporary substations and associated cabling for the construction of the proposed Gigaplant (battery manufacturing plant above).	Unknown	Unknown	Spatial overlap within the Landfall/HVDC zone. Potential for construction and operational overlap with the Onshore Scheme.

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9.13.2. Cumulative Effects Assessment

388. An assessment of the likely significance of the cumulative effects of the Onshore Scheme upon terrestrial ecology and ornithology receptors arising from each identified impact set out in sections 9.11.1, 9.11.2 and 9.11.3 is given below.
389. Note that some of the specific issues presented in sections 9.11.1, 9.11.2 and 9.11.3 have been grouped in this section to avoid unnecessary duplication.

9.13.3. Potential Cumulative Effects During Construction


390. The proposals detailed within Table 9-16 were considered in the cumulative assessment of potential effects during construction.

ISSUE 1 CUMULATIVE IMPACTS ON DESIGNATED SITES DURING CONSTRUCTION

391. Cumulative effects during construction are possible in respect of the Cambois Connection Marine Scheme, the battery manufacturing plant within the land at the former power station site and associated substation and cabling works on land east of Sleekburn Business Centre, the pipeline extension at West Sleekburn, the residential development on land north of Spring Ville and the erection of buildings for the manufacturing of subsea cables north of former Blyth Power Station. Cumulative effects are possible in respect of disturbance to qualifying or notified bird species, accidental pollution and temporary loss of habitat.

9.13.3.1. IMPACTS ON QUALIFYING OR NOTIFIED BIRD SPECIES


392. The Marine Scheme ES (Chapter 10: Offshore and Intertidal Ornithology) concluded that the potential for disturbance to birds using intertidal habitats at the landfall, including qualifying and notified features for the relevant designated sites, resulting from vessel-based construction activity associated with trenchless technology exit pits in the nearshore area is negligible. Offshore works will approach no closer than approximately 250m seaward of MLWS and this conclusion also took into account the relatively low importance of the beach for feeding and roosting waders and the high baseline levels of disturbance. No significant disturbance effects are likely for any qualifying or notified species at the landfall for the Onshore Scheme (see section 9.11.1) and on account of the negligible effect resulting from the Marine Scheme **no significant cumulative effects are likely**. The Marine Scheme is located over 1 km from the Sleek Burn and is therefore not likely to result in cumulative disturbance effects to qualifying or notified bird species there.
393. The EIA for the battery manufacturing plant (Ridge, 2021) predicted potential disturbance effects on qualifying or notified bird species for the Northumbria Coast SPA/Ramsar and Northumberland Shore SSSI, although mitigation measures were proposed to avoid significant effects. The NCC consultation response dated 21 June 2021 confirmed that a HRA had been conducted and concluded that the proposed development would not have an adverse effect on any European Sites, subject to the imposition of planning conditions reflecting mitigation detailed within the HRA. The NCC decision notice (21/00818/FUL dated 20th July 2021) refers to the findings of the HRA under 'Notes to Applicant' number 15 which states that Natural England concur with the assessment conclusions providing that all mitigation measures are secured. Following the implementation of embedded and secondary mitigation measures, for both the Onshore Scheme (see Section 9.11) and those required by conditions for the battery manufacturing plant, **no significant cumulative effects are likely**.

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394. The EIA for the battery manufacturing plant also predicts the loss of roosting areas used by qualifying or notified bird species for the Northumbria Coast SPA/Ramsar and the Northumberland Shore SSSI (Ridge, 2021), although it concludes that residual effects would not be significant the following the short-term retention of roost sites and off site compensation via the provision of alternate roost sites in the long term. The Onshore Scheme will not result in the loss, permanent or temporary, of roost sites and therefore **no significant cumulative effects are likely.**
395. The impacts on designated sites due to the provision of temporary substations and cabling associated with the battery manufacturing plant (21/01746/FUL) were included within the HRA conducted for the battery manufacturing plant (see paragraph 393) as detailed in the NCC consultation response (dated 10th June 2021). Therefore, it is not considered further here.
396. The residential development north of Spring Ville Ecological Impact Assessment (E3 Ecology, 2021) concluded that there was potential for disturbance impacts on SSSI species, and the potential loss of roosting / loafing or feeding sites for SSSI bird species. The EIA states that overwintering bird surveys were going to be undertaken to determine any direct impacts on the SSSI qualifying species. Details of these surveys and their results were not available on the NCC website, however the NCC decision notice (21/03723/FUL, dated 15th May 2023) states that the development shall be carried out in accordance with the details included within both the EIA and the Wintering Bird Survey Report so it is considered that proposed mitigation measures must be sufficient to mitigate against any potential impact on the Northumberland Shore SSSI. Following the implementation of these mitigation measures and proposed mitigation measures for the Onshore Scheme (see Section 9.11), and noting that the Onshore Scheme will not result in the loss of roost or feeding sites for SSSI bird species, **no significant cumulative effects are likely.**
397. Full details of the pipeline extension at West Sleekburn were not available on the NCC website, however the Natural England Consultation Response (dated 25 November 2021) stated that they consider the proposed development to have no likely significant effects on any European Sites or SSSIs. Given that no significant disturbance effects are likely for any qualifying or notified species for the Onshore Scheme, following the implementation of embedded and secondary mitigation measures (see section 9.11.1), **no significant cumulative effects are likely.**
398. A detailed impact assessment for the erection of the subsea cable manufacturing buildings was not available on the NCC website, however the Natural England consultation response (dated 5th May 2022) states that without appropriate mitigation the proposed development would '*have an adverse effect on the integrity of the Northumberland Marine SPA and Northumbria SPA/Ramsar*', and the '*potential to damage or destroy the interest features for which Northumberland Shore SSSI has been notified*'. The NCC Ecologist consultation response dated 10th May 2022 confirms that the proposed development may impact on designated nature conservation sites in the absence of mitigation, however, it also confirms that mitigation is secured by condition and the LPA's HRA can conclude that no significant effects are likely. Given that no significant disturbance effects are likely for any qualifying or notified species for the Onshore Scheme, following the implementation of embedded and secondary mitigation measures (see section 9.11.1), **no significant cumulative effects are likely.**

9.13.3.2. ACCIDENTAL POLLUTION

399. Cumulative effects resulting from accidental pollution events (for all ecological receptors) are discussed under Issue 5 (below). No significant cumulative effects are likely (for any receptor) and therefore **no significant cumulative effects are likely** for designated sites in relation to accidental pollution.


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9.13.3.3. TEMPORARY LOSS OF HABITAT

400. None of the other developments will result in habitat loss, temporary or permanent, within any of the nearby designated sites. Therefore, **no cumulative effects are likely** in relation to temporary habitat loss.

ISSUE 2 CUMULATIVE IMPACTS ON HABITATS DURING CONSTRUCTION


401. Cumulative effects on habitats are possible in respect of the construction of a battery manufacturing plant at the former power station site, the provision of temporary substations and associated cabling on land east of Sleekburn Business Centre for the proposed battery plant, the provision of a pipeline extension at West Sleekburn, the residential development north of Spring Ville and the erection of buildings for the manufacturing of subsea cables on land north of former Blyth Power Station. Cumulative effects are possible in respect of permanent and temporary habitat loss.
402. Cumulative effects on habitats are not considered for the Cambois Connection Marine Scheme as the development will not directly impact any terrestrial or intertidal habitats.
403. The EIA for the battery plant (Ridge, 2021) predicts likely significant effects due to the permanent loss of open mosaic habitats, inundation communities on stressed substrates and grassland. Measures proposed to compensate for this loss include offsite creation (approximately 65 ha) of wet grassland and inundation communities, creation of neutral and calcareous grassland habitats, wetlands and scattered scrub, to be managed in line with a LEMP to ensure long term delivery. The residual effects on habitats are, however, still considered to result in a significant 'moderate adverse effect' during construction due to the loss of open mosaic habitat, though this is proposed to be compensated for through further offsite habitat creation. Open mosaic habitat restoration is not committed to however there is provision for the enhancement of dune habitat suitable for grayling if required, which is considered to partially offset the loss of open mosaic habitat. The Onshore Scheme could also result in significant negative effect on open mosaic habitat in the short-term, although significant effects on habitats due to the Onshore Scheme will be offset through habitat creation and enhancement, both onsite and via the element of offsite BNG provision providing compensation for habitats loss (see section 9.11.1). Therefore, **no significant cumulative effects are likely**.
404. No details regarding the habitat loss associated with the provision of temporary substations and cables on the land east of Sleekburn Business Centre are available on the NCC website. However, the NCC decision notice (21/01746/FUL dated 20 July 2021) states that the temporary substations shall be removed and the land reinstated to its former use, suggesting no long term habitat loss. Given that significant effects on habitats due to the Onshore Scheme will be offset through habitat creation and enhancement, both onsite and via the element of offsite BNG provision providing compensation for habitat loss (see section 9.11.1), **no significant cumulative effects are likely**.
405. The residential development on land north of Spring Ville Ecological Impact Assessment (E3 Ecology, 2021) states that there is the potential for loss of poor semi-improved grassland and small areas of dense scrub. Compensatory measures in the form of wildflower landscape planting and general landscaping principles of native flower and tree planting are proposed to offset this impact. The NCC decision notice (dated 15 May 2023) states that no development will commence unless in accordance with the mitigation and enhancement recommendations of the Ecological Impact Assessment, therefore it is considered that impacts on habitats will be adequately offset. Given that significant effects on habitats due to the Onshore Scheme will be offset through habitat creation and enhancement, both onsite and via the element of offsite BNG provision providing compensation for habitat loss (see section 9.11.1), **no significant cumulative effects are likely**.

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406. Full details of the potential impacts on habitats resulting from the pipeline extension at West Sleekburn were not available on the NCC website. However, the NCC consultation response (dated 18th November 2021) states that although the pipeline passes through a range of habitats, mostly scrub and plantation woodland close to the Wansbeck estuary, it is located adjacent to an existing track, and agrees that it is unlikely to have any significant ecological impacts, subject to appropriate precautions as detailed in the Ecological Scoping Assessment (not available on the NCC website). The NCC decision notice (21/03930/FUL dated 19 January 2022) states that the development must be carried out in line with the precautionary working methods detailed within the Ecological Scoping Assessment, therefore it is expected that no significant effects are likely. As the likely significant effects on habitats due to the Onshore Scheme will be offset through habitat creation and enhancement, both onsite and via the element of offsite BNG provision providing compensation for habitat loss (see section 9.11.1), **no significant cumulative effects are likely.**
407. A detailed impact assessment was not available on the NCC website for the subsea cable manufacturing buildings, however, their Baseline UKHab figure (Waterman, 2022) shows that prior to construction the majority of the site consisted of artificial unvegetated, unsealed surface (u1c), with small areas of grassland. Their 'UKHab Post Development' figure (Waterman, 2022) shows the retention of these small grassland areas, in addition to the creation some further grassland habitat and areas of mixed scrub. Additionally, the CEMP (Waterman, 2022) also commits to 'where possible, providing suitable habitats for fauna and flora, such as (...) translocation of short perennial/ ephemeral vegetation'. The decision notice (22/00879/FUL 8th June 2022) states that a Habitat Management and Monitoring Plan must be submitted to 'mitigate and compensate impacts on biodiversity and provide enhancement in line with NPPF' and that the development must be carried out in accordance with the Biodiversity Net Gain Design Stage Report (not currently available on the NCC website). It is therefore expected that this level of habitat loss is adequately offset by the mitigation and compensation measures proposed. As the significant effects on habitats due to the Onshore Scheme will be offset through habitat creation and enhancement, both onsite and via the element of offsite BNG provision providing compensation for habitat loss (see section 9.11.1), **no significant cumulative effects are likely.**


ISSUE 3 CUMULATIVE IMPACTS ON PROTECTED AND NOTABLE FAUNAL SPECIES DURING CONSTRUCTION

408. Cumulative effects on protected and notable species are possible in respect to the proposed battery manufacturing plant at the former power station site, associated temporary substations and cabling within the land east of Sleekburn Business Park, the proposed residential development on the land north of Spring Ville, the construction of a pipeline extension at West Sleekburn and the erection of a building for the manufacturing of subsea cables within the land north of former Blyth Power Station.
409. The above developments are close enough in proximity to the protected and notable faunal receptors that may be affected by the Onshore Scheme that there is a potential for cumulative effects, if construction works take place simultaneously. Cumulative effects are possible in respect of habitat loss and disturbance. It is expected that cumulative effects due to inadvertent killing and injury or damage to active nests would be avoided by the use of standard mitigation measures.
410. Cumulative effects on protected and notable faunal species are not considered for the Cambois Connection Marine Scheme as it will not impact any terrestrial protected or notable faunal species.
411. The EIA for the battery plant (Ridge, 2021) predicts likely significant impacts on wading birds (due to habitat loss and disturbance), breeding birds (due to habitat loss) and invertebrates (including grayling, due to habitat loss). No other protected or notable species are predicted to be significantly affected. As discussed in relation to qualifying or notified bird species for nearby designated sites (see paragraph

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393), **no significant cumulative effects are likely** in respect of disturbance to non-breeding waterbirds following the implementation of proposed mitigation measures and this conclusion also applies to other non-breeding waterbird species. Proposed mitigation and compensation measures for the battery plant include creation of wetlands suitable for roosting, foraging and breeding waders and provision of further habitat creation suitable for grayling butterflies, if required (based on long term monitoring of local populations). Significant residual effects are predicted for breeding ringed plover and little ringed plover (moderate adverse) and grayling (major moderate adverse) due to habitat loss during construction, although these residual effects are to be compensated for through creation of habitats which will provide long term beneficial effects for waders and breeding birds and reduce adverse effects on grayling to minor (not significant). The Onshore Scheme predicts a non-significant effect on breeding ringed plover and little ringed plover due to temporary habitat loss during construction while disturbance effects will be avoided via the implementation of mitigation measures. A significant proportion of the potentially suitable habitat impacted by both developments is within the area that would be permanently lost as a result of the proposed battery plant (and therefore compensated for via the proposed battery plant). On that basis **no significant cumulative effects are likely** for breeding waders. The Onshore Scheme predicts a significant effect on grayling in the short-term due to temporary habitat loss despite the proposed mitigation, although as for breeding waders a significant proportion of the area that could be temporarily lost is within the area that would be permanently lost as a result of the proposed battery plant (and therefore compensated for via the proposed battery plant, if required). On that basis **no significant cumulative effects are likely** for grayling.


412. No details regarding potential impacts on protected and notable species associated with the provision of temporary substations and cables on the land east of Sleekburn Business Centre are available on the NCC website. The Construction Management Plan (Freedom, 2021) states that works are anticipated to last eight weeks, and aims to reduce any potential adverse environmental impacts as far as reasonably practicable through minimising noise, dust and vibration from the works area. The NCC decision notice (21/01746/FUL dated 20 July 2021) states that the development shall be carried out in line with the Construction Management Plan, so it is expected that mitigation measures are considered appropriate and **no significant cumulative effects are likely** on protected and notable faunal species.
413. The residential development on the land north of Spring Ville EIA (E3 Ecology, 2021) predicts potential disturbance impacts to foraging bats, breeding birds, badger, red squirrel and amphibians. Mitigation proposed within the EIA includes pre-construction checks for nesting birds, red squirrel, badger, amphibians and states that lighting impacts are mitigated for through low lux lighting. Given the NCC decision notice (dated 15 May 2023) states that no development will commence unless in accordance with the mitigation measures detailed within EIA it can be concluded that no residual significant effects are likely to occur. As the Onshore Scheme does not predict any significant effects on these species, following the implementation of embedded and secondary mitigation measures (see section 9.11.1), **no significant cumulative effects are likely**.
414. Full details of the potential impacts on protected and notable species resulting from the pipeline extension at West Sleekburn were not available on the NCC website. However, the NCC decision notice (21/03930/FUL dated 19 January 2022) states that the development must be carried out in line with the precautionary working methods detailed within the Ecological Scoping Assessment. It is expected that these working methods are considered appropriate and that no significant effects on protected and notable species are therefore likely. As the potential significant effects due to the Onshore Scheme, following the implementation of embedded and secondary mitigation measures (see section 9.11.1), are limited to invertebrates, and the fact that the pipeline (based on information in the NCC decision notice) does not appear to impact habitats suitable for the invertebrate species potentially affected by the Onshore Scheme (grayling and dingy skipper), **no significant cumulative effects are likely**.

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415. A detailed impact assessment was not available for the subsea cable manufacturing buildings on the NCC website; however, the CEMP (Waterman 2022) commits to various mitigation including noise control limits, visual screening, disturbance exclusion zones, creation of access pathways for bats, provision of suitable habitat for species such as grayling butterfly and reptiles and provision of escape ramps in pits on site. It is expected that this is considered appropriate mitigation and no significant effects are likely. The Onshore Scheme anticipates no likely significant effects on any of these species (other than a short-term significant effect on grayling), following the implementation of embedded and secondary mitigation measures (see section 9.11.1). Assuming it is expected that the mitigation will be adequate on the basis it is reflective of standard best practice therefore any effects on grayling resulting from the subsea cable manufacturing buildings are adequately offset via the proposed mitigation, **no significant cumulative effects are likely.**

ISSUE 4 CUMULATIVE IMPACTS ON SPREAD OF INVASIVE NON-NATIVE SPECIES (INNS) DURING CONSTRUCTION

416. Cumulative effects on the spread of INNS are possible in respect to the proposed battery manufacturing plant at the former power station site, as INNS are known to be present on the site. In the absence of information to the contrary, cumulative effects cannot be ruled out in respect of the provision of temporary substations and cabling associated with the proposed battery plant within the land east of Sleekburn Business Park, the proposed residential development on the land north of Spring Ville, the construction of a pipeline extension at West Sleekburn and the erection of buildings for the manufacturing of subsea cables within the land north of former Blyth Power Station.
417. Cumulative effects on INNS are not considered for the Cambois Connection Marine Scheme as there are no predicted impacts on terrestrial or intertidal INNS.
418. The EIA for the battery plant (Ridge, 2021) confirms the presence of INNS on site, and proposes to 'greatly reduce invasive plant species present' resulting in a moderate beneficial effect. The development CEMP (Ridge, 2021) states that INNS on site will be pro-actively reduced and removed as part of landscape management following appropriate method statements. Given that the Onshore Scheme results in no significant effects on INNS, following the implementation of embedded mitigation measures (see section 9.11), **no significant cumulative effects are likely.**
419. No details regarding potential impacts on INNS associated with the provision of temporary substations and cables on the land east of Sleekburn Business Centre are available on the NCC website. The NCC decision notice (21/01746/FUL dated 20 July 2021) makes no mention of INNS, and states that the development shall be carried out in line with the Construction Management Plan, so it is expected that mitigation measures, if required, are considered appropriate, and no significant effects are likely. Given that the Onshore Scheme results in no significant effects on INNS, following the implementation of embedded mitigation measures (see section 9.11), **no significant cumulative effects are likely.**
420. The residential development on land north of Spring Ville EIA (E3 Ecology, 2021) notes that there is a 'low risk' of spread of Himalayan balsam, which will be mitigated against through the implementation of a precautionary invasive species method statement. As there are no likely significant effects on INNS due to the Onshore Scheme, following the implementation of embedded mitigation measures (see section 9.11), **no significant cumulative effects are likely.**
421. No details regarding potential impacts on INNS resulting from the pipeline extension at West Sleekburn were available on the NCC website. The NCC decision notice (21/03930/FUL dated 19 January 2022) states that the development must be carried out in line with the precautionary working methods detailed within the Ecological Scoping Assessment, so it is expected that mitigation measures are considered appropriate, and no significant effects are likely. Given that the Onshore Scheme results in no


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significant effects on INNS, following the implementation of embedded mitigation measures (see section 9.11), **no significant cumulative effects are likely.**

422. No details regarding potential impacts on INNS resulting from the construction of the subsea cable manufacturing development were available on the NCC website, and the CEMP (Waterman, 2022) makes no specific mention on INNS. The NCC decision notice (22/00879/FUL 8th June 2022) states that the development must be carried out in line with various documents provided at the planning stage, including the Ecological Impact Assessment (not available), which suggests that any mitigation measures required were deemed appropriate. Given that the Onshore Scheme results in no significant effects on INNS, following the implementation of embedded mitigation measures (see section 9.11), **no significant cumulative effects are likely.**

ISSUE 5 CUMULATIVE IMPACTS ON IMPORTANT HABITATS AND SPECIES DUE TO ACCIDENTAL POLLUTION EVENTS / IMPACTS ON WATERCOURSES DURING CONSTRUCTION

423. Cumulative effects on important habitats and species due to accidental pollution events are possible in respect to the proposed battery manufacturing plant at the former power station on north side of Cambois, associated temporary substations and cabling within the land east of Sleekburn Business Centre, the proposed residential development on the land north of Spring Ville, the construction of a pipeline extension at West Sleekburn and the erection of buildings for the manufacturing of subsea cables within the land north of former Blyth Power Station.
424. Cumulative pollution effects are not considered for the Cambois Connection Marine Scheme as pollution impacts on terrestrial or intertidal habitats are not likely.
425. The battery manufacturing development has the potential to impact important habitats, species and watercourses through accidental pollution events. The EIA (Ridge, 2021) states that embedded mitigation measures (including, but not limited to best practice measure for pollution prevention of watercourses and waterbodies) will be contained within the CEMP. It also states that the CEMP will incorporate a Pollution Control Plan, outlining emergency procedures to control and limit the severity of any pollution incident. No residual significant adverse effects are therefore expected due to pollution events. Given that no significant effects from pollution events are predicted for the Onshore Scheme due to embedded mitigation measures (see Table 9-14) **no significant cumulative effects are likely.**
426. Works associated with the residential development on the land north of Spring Ville have the potential to impact important habitats, species and watercourse due to accidental pollution events. A CEMP (Amethyst Homes, 2023) and Construction Phase Drainage Management Plan (Portland Consulting Engineers, 2023) have been produced detailing dust suppression and surface water management mitigation measures, which are expected to represent adequate mitigation for potential pollution risks. Given that no significant effects from pollution events are predicted for the Onshore Scheme due to embedded mitigation measures (see Table 9-14).
427. The Construction Management Plan (Freedom, 2021) produced for the provision of temporary substations and cables on the land east of Sleekburn Business Centre, states that sufficient precautionary measures will be taken to prevent discharge of pollutants into controlled waters or the vicinity of the site, in accordance with Environment Agency Pollution Prevention Guidelines. The NCC decision notice (21/01746/FUL dated 20 July 2021) states that the development shall be carried out in line with the Construction Management Plan, therefore it is expected that mitigation measures are considered appropriate and no significant effects are likely. Given that no significant effects due to accidental pollution events are predicted due to the Onshore Scheme due to embedded mitigation measures (see Table 9-14), **no significant cumulative effects are likely.**

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428. Works associated with the pipeline extension at West Sleekburn have the potential to impact important habitats, species and watercourses due to accidental pollution events. The Environment Agency consultation response (29th November 2021) states that the site is immediately adjacent to a river and that all works must adhere to the Pollution Prevention Guidance for Businesses (DEFRA, 2016). The NCC decision notice (21/03930/FUL dated 19 January 2022) reiterates this as a condition, and states appropriate permits should be obtained where relevant. It is expected that, following the conditions set out within the decision notice and appropriate permits, and following the implementation of the embedded measures set out for the Onshore Scheme (Table 9-14), **no significant cumulative effects are likely.**
429. Works associated with the subsea cable manufacturing buildings have the potential to impact important habitat, species and watercourses due to accidental pollution events. The CEMP (Waterman, 2022) contains details of water management and pollution control measures, including measures to reduce sediment run off (e.g., silt fences) and various pollution prevention measures (e.g. provision of spill kits and drip trays). The NCC decision notice (22/00879/FUL 8th June 2022) states that the development must be carried out in line with various documents provided at the planning stage including the CEMP, which suggests pollution prevention measures are considered adequate, Given that no significant effects due to accidental pollution events are predicted due to the Onshore Scheme due to embedded mitigation measures (see Table 9-14), **no significant cumulative effects are likely.**

9.13.4. Potential Cumulative Effects During Operation

430. Only the battery manufacturing plant at the former power station on north side of Cambois, the proposed residential development on the land north of Spring Ville and the subsea cable manufacturing buildings within the land north of former Blyth Power Station are considered to have the potential to contribute to cumulative effects during operation and are therefore considered in the assessment below. There is no potential for significant cumulative effects during operation with the other developments detailed within Table 9-16, as the potential impacts of these developments are temporary in nature/ underground infrastructure with no operational impacts predicted.

ISSUE 1 CUMULATIVE IMPACTS ON DESIGNATED SITES DURING OPERATION

431. The EIA produced for the residential development on the land north of Spring Ville (E3 Ecology, 2021) states that there is the potential for indirect disturbance impacts on qualifying or notified bird species for the Northumbria Coast SPA/Ramsar and Northumberland Shore SSSI due to increased recreational pressure. Mitigation is proposed within the EIA in the form of contributions towards The Northumberland Coastal Mitigation Service, which aims to prevent any net increase in disturbance to SSSI and SPA bird species arising from increased recreational pressure on the coast caused by new development (NCC, 2018). Taking this into account and accounting for the fact that the Onshore Scheme predicted no likely significant effects to qualifying or notified bird species during operation (see section 9.11.2), **no significant cumulative effects are likely.**
432. The detailed impact assessment for the subsea cable manufacturing buildings development was not available on the NCC website, however consultation responses from Natural England (5th May 2022) and NCC (10th May 2022) confirmed that a Habitat Regulations Assessment was carried out, concluding no significant effects likely. Given that no significant effects due to disturbance are likely for any qualifying or notified bird species for the Onshore Scheme during operation (see Section 9.11.2), **no significant cumulative effects are likely.**
433. None of the other developments will discharge surface water into the Sleek Burn and therefore **no significant cumulative effects are likely** in respect of changes to surface water flows.

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ISSUE 2 CUMULATIVE IMPACTS ON HABITATS DURING OPERATION

434. Given that there will be no negative effects on habitats during operation of the Onshore Scheme (see section 9.11.2), **no significant cumulative effects are likely** with any of the other developments.

ISSUE 3 CUMULATIVE IMPACTS ON PROTECTED AND NOTABLE FAUNAL SPECIES DURING OPERATION

435. The EIA produced for the battery manufacturing plant (Ridge, 2021) predicts significant effects on breeding birds (specifically little ringed plover and ringed plover) and grayling due to habitat loss (considered at the construction stage). However, these effects will be compensated for through the provision of off-site habitat creation, which is expected to result in a moderate beneficial effect to breeding birds, and reduce adverse effects on grayling to minor (which is not significant) during the operational phase. Given also that the Onshore Scheme does not predict any likely significant operational effects on breeding birds or grayling, **no significant cumulative effects are likely**.

436. The EIA produced for the residential development north of Spring Ville (E3 Ecology, 2021) predicts potential impacts to foraging and commuting bats due to increased lighting. Mitigation is proposed in the form of low light levels and low lux lighting around bat foraging/ commuting areas. The NCC decision notice (21/03723/FUL, dated 15 May 2023) stipulates that no development will commence unless in accordance with the mitigation contained within the EIA. Given also that the Onshore Scheme does not predict any likely significant operational effects on bats following the implementation of embedded and secondary mitigation measures, **no significant cumulative effects are likely**.

437. Limited information was available on the NCC website in respect of potential operational impacts resulting from the operation of the subsea cable manufacturing development, however it noted that this development was granted approval (22/00879/FUL 8th June 2022), and given the nature of the development significant negative effects on faunal receptors during its operation are unlikely. Given also that the Onshore Scheme does not predict any likely significant operational effects on protected or notable species, **no significant cumulative effects are likely**.


ISSUE 4 CUMULATIVE IMPACTS ON SPREAD OF INVASIVE NON-NATIVE SPECIES (INNS) DURING OPERATION

438. Given that there will be no negative effects on INNS during operation of the Onshore Scheme (see section 9.11.2), **no significant cumulative effects are likely** with any of the other developments.

ISSUE 5 CUMULATIVE IMPACTS ON IMPORTANT HABITATS AND SPECIES DUE TO ACCIDENTAL POLLUTION EVENTS / IMPACTS ON WATERCOURSES DURING CONSTRUCTION

439. The EIA produced for the battery manufacturing plant (Ridge, 2021) states that during operation, all systems and processes will be regulated, and no listed substances are planned to be discharged to sewage. Additionally, the proposed water drainage design includes water quality measures such as permeable paving, filter strips and oil separators, resulting in no significant adverse effects being expected. Given that no significant effects are likely due to the Onshore Scheme (Section 9.11.2) due to embedded pollution prevention measures (as detailed in Table 9-14), **no significant cumulative effects are likely**.

440. The NCC decision notice for the residential development north of Spring Ville (21/03723/FUL, dated 15th May 2023) states that a written method statement or remediation strategy will be submitted and approved to take account of any potential risks through the site's current or new use. It also states that the development will be implemented in line with the drainage scheme provided within the Drainage

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Strategy and that a verification report will be carried out to ensure all sustainable drainage systems are designed to DEFRA non-technical standards and in line with local policies. In light of these conditions, it is expected that there will be no significant effects on the water environment due to pollution during operation. Given that no significant effects are likely due to the Onshore Scheme (Section 9.11.2) (Section 9.11.2) due to embedded pollution prevention measures (as detailed in Table 9-14) **no significant cumulative effects are likely.**

441. The NCC decision notice for the subsea cable manufacturing development (22/00879/FUL 8th June 2022) states that the development will be carried out in accordance with the Indicative Drainage Strategy. It is expected that this is considered appropriate and there will be no significant effects on the water environment due to pollution during operation. Given that no significant effects due to accidental pollution events are predicted due to the Onshore Scheme, due to embedded pollution prevention measures (as detailed in Table 9-14), **no significant cumulative effects are likely.**

9.13.5. Potential Effects During Decommissioning


442. As set out in section 9.11.3, decommissioning activities associated with the Onshore Scheme are not anticipated to exceed the construction phase worst-case criteria assessed and in most cases impact magnitude will be much lower than during construction. In the absence of information to the contrary, it is assumed that all of the other projects included in the CEA will remain operational at the time of decommissioning of the Onshore Scheme. As no significant cumulative effects are predicted during either the construction or operational phases (see sections 9.11.1 and 9.11.2) **no significant cumulative effects are likely** during decommissioning.

9.14. Inter-Related Effects

443. Inter-related effects are the potential effects of multiple impacts, effecting one receptor or a group of receptors. Inter-related effects include interactions between the impacts of the different stages of the Onshore Scheme (i.e., interaction of impacts across construction, operation and maintenance and decommissioning), as well as the interaction between impacts on a receptor within an Onshore Scheme stage.
444. The assessment of effects on important terrestrial ecology and ornithology receptors, as presented in section 9.11, has already taken into account the potential for multiple impacts from the Onshore Scheme affecting particular receptors. For example disturbance effects on species receptors resulting from noise and vibration, visual disturbance and lighting have all been assessed together. Significant impacts resulting from the interaction of impacts across the construction, operation and maintenance and decommissioning phases are unlikely because the potential for significant effects during operation and maintenance is so low and the decommissioning phase is so far in the future. As such, no additional inter-related effects are anticipated in respect of terrestrial ecology and ornithology.

9.15. Summary of Impacts, Mitigation Measures, Likely Significant Effects and Monitoring

445. Information on Terrestrial Ecology and Ornithology within the Study Area was collected through desktop review, site surveys and consultation. Table 9-17 presents a summary of the potential impacts, mitigation measures and the conclusion of likely significant effects in EIA terms in respect to Terrestrial Ecology and Ornithology. The impacts are listed below.
446. Potential impacts during construction:

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- Impacts on Northumberland Shore SSSI;
- Impacts on Northumbria Coast SPA/Ramsar site;
- Impacts on Northumberland Marine SPA;
- Impacts on Blyth Estuary LWS;
- Impacts on Berwick to St Marys MCZ;
- Loss and fragmentation of important habitats;
- Impacts on important invertebrate species;
- Impacts on reptiles;
- Impacts on breeding birds;
- Impacts on otter;
- Impacts on badger;
- Impacts on red squirrel;
- Impacts on bats [R03];
- Spread of INNS; and
- Accidental pollution events.


447. Potential impacts during operation:

- Impacts on designated sites due to disturbance and changes to surface water flow;
- Impacts on protected and notable faunal species due to disturbance;
- Spread of INNS; and
- Accidental pollution effects.

448. Decommissioning impacts.

449. Overall, it is concluded that there will be the following likely significant effects arising from the Onshore Scheme during the construction phase (no significant negative effects likely during operation and maintenance or decommissioning phases):

- Significant negative effects at National level on Redshank utilising the Northumberland Shore SSSI;
- Significant negative effect at County level to wintering waterbirds utilising the Blyth Estuary;
- Significant negative effect on hedgerows (local) and open mosaic habitat (regional) in short-term, and significant negative effect on trees and woodland at local level in long term due to temporary habitat loss within the Landfall/HVDC Zone;
- Significant negative effect on hedgerows trees and woodland at local level in long term due to permanent habitat loss in the HVAC Zone;
- Significant short-term negative effect on hedgerows (local) and open habitat mosaic (regional) in short-term, and significant negative effect on trees and woodland at local level in long term due to temporary habitat loss within the HVAC Zone;
- Significant negative effect in long term at local level of grassland, mixed scrub, hedgerows, trees and woodland due to permanent habitat loss within the Converter Station Zone;
- Significant negative effect at county level on invertebrate species in short-term due to habitat loss;
- Significant negative effect at local level to reptiles due to habitat loss and risk of injury / death;
- Significant negative effects at local to county level on breeding waders due to disturbance;
- Significant negative effects up to county level on wintering waterbirds due to disturbance;
- Significant negative effects at local level to badger due to disturbance and damage/destruction of setts;
- Significant negative effects at local level to red squirrel due to disturbance and/or damage / destruction of dreys; and

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- Significant negative effects on bats at local level due to disturbance and roost/habitat loss and fragmentation.
450. Table 9-18 presents a summary of the potential cumulative impacts, mitigation measures and the conclusion of likely significant effects on Terrestrial Ecology and Ornithology in EIA terms. The cumulative effects assessed include:
- Cumulative impacts on designated sites during construction and operation;
 - Cumulative impacts on habitats during construction and operation;
 - Cumulative impacts on protected and notable faunal species during construction and operation;
 - Cumulative impacts on the spread of INNS during construction and operation; and
 - Cumulative impacts on important species and habitats due to accidental pollution of watercourses during construction and operation.
451. Overall, it is concluded that there will be no likely significant cumulative effects from the Onshore Scheme alongside other developments / plans.

Table 9-17 Summary of potential likely significant environmental effects, mitigation and monitoring

Description of Impact	Phase			Significance of Effect	Secondary Mitigation (if required, to be confirmed at detailed design stage)	Residual Effect	Proposed Monitoring	
	C	O	D					
Impacts on Northumberland Shore SSSI								
Disturbance to birds	✓			Five SSSI notified bird species potentially affected by visual and noise disturbance. Of these species, redshank is present in significant numbers at the Sleek Burn, where disturbance cannot be avoided. The other four species (sanderling, purple sandpiper, turnstone, ringed plover) are only present in low numbers and unlikely to be significantly affected. Outfall construction at the Sleek Burn will be restricted to avoid the winter period (Oct-March), however there is potential for disturbance from construction in HVAC and Converter Station Zones.	Significant negative effect at national level on redshank. No significant effects likely for other SSSI notified species.	Over winter period (Oct -March): <ul style="list-style-type: none"> • Temporary visual and acoustic screening during works in HVAC Zone; • Suspension of works in HVAC Zone during very cold weather when disturbance most critical; and • No percussive piling Oct-March (or quieter method employed). Further details of proposed mitigation to be provided at the detailed design stage.	No residual significant effects	None
Accidental Pollution	✓			Accidental pollution impacts to SSSI possible via air quality and water-based pollution. Embedded mitigation in the form of a CEMP containing pollution prevention measures will be in place.	No significant effects likely	None	No residual significant effects	None
Impacts on Other Designated Sites								
Impacts on Northumbria Coast SPA/Ramsar site	✓			Visual and noise disturbance to SPA/Ramsar qualifying bird species (purple sandpiper and turnstone) considered but both species are only present in small numbers and unlikely to be significantly affected.	No significant effects likely	None.	No residual significant effect	None
Impacts on Northumberland Marine SPA	✓			Accidental pollution impacts to SPA possible via both air quality and water-based pollution. Embedded mitigation in the form of a CEMP containing pollution prevention measures will be in place.	No significant effects likely	None	No residual significant effects	None



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Description of Impact	Phase			Significance of Effect	Secondary Mitigation (if required, to be confirmed at detailed design stage)	Residual Effect	Proposed Monitoring	
	C	O	D					
Impacts on Blyth Estuary LWS								
Disturbance to birds and other fauna	✓			Visual and noise disturbance to various wintering waterbird species within LWS. Disturbance to otter within the LWS. Outfall construction at the Sleek Burn will be restricted to avoid the winter period (Oct-March), however there is potential for disturbance from construction in HVAC and Converter Station Zones.	Significant negative effect to wintering waterbirds at county level. No significant effects to otter.	Over winter period (Oct -March): <ul style="list-style-type: none"> • Temporary visual and acoustic screening during works in HVAC Zone • Suspension of works during very cold weather when disturbance most critical during works in HVAC Zone • No percussive piling Oct-March (or quieter method employed) Further details of proposed mitigation to be provided at the detailed design stage.	No residual significant effects	None
Accidental pollution	☐			Pollution to the Sleek Burn/ Blyth Estuary possible via both air and water-based pollution. Embedded mitigation in the form of a CEMP containing pollution prevention measures will be in place.	No significant effects likely	None	No residual significant effect	None
Impacts on Berwick to St Marys MCZ								
Disturbance	✓			Visual and noise disturbance to non-breeding common eider (protected feature of the MCZ) considered but only present in small numbers and unlikely to be significantly affected.	No significant effects likely	None.	No residual significant effects	None
Accidental Pollution	✓			Accidental pollution possible via air and water-based pollution. Embedded mitigation in the form of a CEMP containing pollution prevention measures will be in place.	No significant effects likely	None	No residual significant effects	None
Loss and fragmentation of important habitats								
Landfall/HVDC Zone	✓			Temporary loss of grassland, scrub, woodland and open mosaic habitats for up to 24 months. Habitats subject to temporary loss will be reinstated following construction.	Significant effect on hedgerows and open mosaic habitat in short-term at local level (hedgerows) and regional	Compensatory habitat creation at the Onshore Converter Station and via offshore BNG provision.	Significant negative residual effects on hedgerow, open mosaic habitat	Habitat reinstatement and compensatory habitat creation

Description of Impact	Phase			Significance of Effect	Secondary Mitigation (if required, to be confirmed at detailed design stage)	Residual Effect	Proposed Monitoring
	C	O	D				
				level (open mosaic habitat). No significant effects in mid- to long term. Significant effect on trees and woodland at local level in long term. No other significant effects.		and woodland will be offset by compensatory habitat creation.	at the Onshore Converter Station subject to botanical monitoring for 5 years.
HVAC Zone	✓			<p><u>Permanent loss:</u> Significant long term effect on hedgerows, trees and woodland at local level.</p> <p><u>Temporary loss:</u> Significant short-term negative effect on hedgerows and open mosaic habitat at local level (hedgerows) and regional level (open mosaic habitat). No significant mid- to long term negative effects. Significant negative long term effect on trees and woodland at local level. No further significant effects.</p>	Compensatory habitat creation at the Onshore Converter Station and via offshore BNG provision.	Significant negative residual effects on hedgerow, open mosaic habitat and woodland will be offset by compensatory habitat creation.	Habitat reinstatement and compensatory habitat creation at the Onshore Converter Station subject to botanical monitoring for 5 years.
Converter Station Zone	✓			<p><u>Permanent Loss:</u> Significant long term negative effect on grassland, mixed scrub, hedgerows, trees and woodland at a local level.</p>	Compensatory habitat creation at the Onshore Converter Station and via offshore BNG provision.	Significant negative residual effects on grassland, mixed scrub, hedgerows, trees and	Habitat reinstatement and compensatory habitat creation at the Onshore



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	C	O	D					
				zone, which will not be reinstated but would be subject to compensatory habitat creation.			woodland will be offset by compensatory habitat creation.	Converter Station subject to botanical monitoring for 5 years.
Impacts on important invertebrate species								
Habitat Loss / loss of larvae or eggs	✓			Temporary loss of habitats supporting priority species dingy skipper and grayling including grassland, scrub and open mosaic habitat, for up to 18 months in HVDC Zone and HVAC Zone. Habitats subject to temporary loss will be reinstated following construction.	Significant short-term negative effect at county level, no significant long term effects predicted.	None	Significant negative residual effects in short-term	None
Impacts on reptiles								
Habitat Loss	✓			Permanent and temporary loss of habitat suitable for reptiles (common lizard and slow worm) which may be present on site in low numbers. Habitats subject to temporary loss will be reinstated following construction.	Significant negative effect at local level.	Compensatory habitat creation at the Onshore Converter Station.	No significant residual effects.	None
Disturbance	✓			Disturbance to reptiles (common lizard and slow worm) which may be present on site in low numbers for up to 18 months in HVDC, HVAC and Converter Station Zones. Large areas of suitable habitat likely to be unaffected.	No significant effects likely	None	No significant residual effects	None
Injury / Death		□		Possible death or injury of reptiles (common lizard and slow worm), which may be present on the site in low numbers.	Significant negative effect at local level and contravention of relevant legislation.	Staged vegetation cutting during the active season (March – Oct) Removal of all reptile refugia prior to construction. Further details of species-specific mitigation will be provided at the detailed design stage in the CEMP.	No significant residual effects	None

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	C	O	D				
Impacts on breeding birds							
Habitat Loss	✓			No significant effects likely	None	No significant residual effects	None
<p>Wader species present in landfall/HVDC zone (little ringed plover, lapwing, ringed plover) of local to county importance. Potential for temporary habitat loss of habitat suitable for these breeding waders for up to 18 months.</p> <p>Other common breeding bird species present in low numbers and unlikely to be significantly affected. Habitats subject to temporary loss will be reinstated following construction.</p>							
Disturbance	✓			Significant negative effect at local to county level on breeding waders. No other significant effects predicted.	<ul style="list-style-type: none"> • Surveys for Schedule 1 species and other breeding waders pre- and during construction. • Avoidance of disturbance while nesting via disturbance free buffer zones. Further details of proposed mitigation will be provided in the CEMP at the detailed design stage. 	No significant residual effects	None
<p>Potential for visual and noise disturbance to breeding waders in Landfall/HVDC Zone during construction within breeding bird season, for up to 24 months. Other common breeding bird species present in low numbers and unlikely to be significantly affected.</p>							
Damage to nests	✓			No significant effects likely	None	No significant residual effects	None
<p>Potential to damage or destroy nests of breeding birds nesting during construction. Where practicable vegetation suitable for nesting birds will be cleared outside of nesting bird season (March – August inclusive), where not possible suitable habitat will be checked for active nests prior to clearance.</p>							
Disturbance to wintering birds (where not included as qualifying or notified feature)	✓			Significant negative effect at up to county level.	<p>Over winter period (Oct -March):</p> <ul style="list-style-type: none"> • Temporary visual and acoustic screening during works in HVAC Zone; • Suspension of works during very cold weather when disturbance most critical during works in HVAC Zone; and 	No significant residual effects	None
<p>Visual and noise disturbance to several species of conservation importance regularly recorded at the Sleek Burn in relatively large numbers (e.g., oystercatcher, curlew, shelduck, gadwall and teal).</p>							



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	C	O	D					
for designated sites)				Outfall construction at the Sleek Burn will be restricted to avoid the winter period (Oct-March), however there is potential for disturbance from construction in HVAC and Converter Station Zones.		<ul style="list-style-type: none"> No percussive piling Oct-March (or quieter method employed). Further details of proposed mitigation to be provided at the detailed design stage. 		
Impacts on otter								
Habitat Loss	✓			Potential for small permanent loss of suitable habitat for otter foraging and commuting at the Sleek Burn outfall and temporary habitat loss at Maw Burn and Cow Gut for up to 9 months at the Sleek Burn and up to 18 months at each of the other locations. Habitats subject to temporary loss will be reinstated following construction.	No significant effects likely	None	No significant residual effects	None
Injury or Death	✓			Potential for injury / death of any otters present on site due to collision with vehicle, being trapped in excavations/ machinery or poisoning via harmful chemicals stored on site. Pollution prevention measures and general good site practice measures will be in place, detailed in CEMP.	No significant effects likely	None	No significant residual effects	None
Disturbance	✓			Works have the potential to cause temporary disturbance to otter utilising suitable habitat on site for up to 18 months in each zone. Pre-construction surveys will be conducted. Most works will take place during daytime hours (when otters are less active) although some 24-hr works within Landfall/HDVC Zone may be required, for a short duration.	No significant effects likely	None	No significant residual effects	None

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	C	O	D					
Some areas of suitable habitat are already subject to disturbance from dog walkers.								
Impacts on badger								
Disturbance	✓			Some evidence of badger presence within Converter Station Zone. Potential to cause disturbance to badgers within their setts if works within 30 m of an active sett. Pre-construction surveys will be conducted.	Significant negative effect at local level and contravention of relevant legislation.	If required following pre-construction surveys: <ul style="list-style-type: none"> • micro-siting of works to avoid coming within 30 m of an active sett; • Disturbance exclusion buffers; and • Licence to disturb / temporarily exclude sett from Natural England. Full details of species-specific mitigation will be included within CEMP and confirmed at the detailed design stage.	No significant residual effects	None
Habitat Loss	✓			Potential for permanent and temporary loss of habitat suitable for foraging. Habitats subject to temporary loss will be reinstated following construction.	No significant effects likely	None	No significant residual effects	None
Damage / destruction of setts	✓			Potential for construction works to damage or destroy setts. Pre-construction surveys will be conducted.	Significant negative effect at local level and contravention of relevant legislation.	If required following pre-construction surveys: <ul style="list-style-type: none"> • Licence to destroy sett from Natural England. Full details of species-specific mitigation will be included within CEMP and confirmed at the detailed design stage.	No significant residual effects	None
Death / injury	✓			Potential for the works to cause injury or death to badgers due to collision with vehicles or being trapped in excavations/ machinery. General site good practice measures including site speed limits will be in place, detailed in CEMP.	No significant effects likely	None	No significant residual effects	None
Impacts on red squirrel								
Disturbance / damage/ destruction of dreys	✓			Habitat suitable for red squirrels present in Converter Station Zone. Evidence of squirrel presence recorded therefore cannot rule out red squirrel presence.	Significant effect at local level	If required, following pre-construction surveys: <ul style="list-style-type: none"> • Micrositing to avoid disturbance/ destruction of dreys; 	No significant residual effects	None

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	C	O	D					
				There is potential to disturb red squirrel and potential for the destruction of red squirrel dreys. Pre-construction surveys will be conducted.		<ul style="list-style-type: none"> rescheduling works in close proximity to active dreys (if present); disturbance free buffers; and licence from Natural England for works affecting red squirrel. Full details of species-specific mitigation will be included within CEMP and confirmed at the detailed design stage.		
Habitat Loss	✓			Potential for relatively small area of permanent and temporary loss of suitable habitat for red squirrel in Converter Station Zone. Habitats subject to temporary loss will be reinstated following construction.	No significant effects likely	None	No significant residual effects	None
Injury / death	✓			Potential for injury or death to red squirrels during construction due to collision with vehicles or being trapped in excavations/ machinery. General site good practice measures including site speed limits will be in place, detailed in CEMP.	No significant effects likely	None	No significant residual effects	None
Impacts on Bats								
Damage / Destruction of Roosts / Disturbance to bats in roost	✓			Potential for damage or destruction of roosts. Potential for disturbance to roosts through construction noise and lighting.	Likely significant effect at local level.	<ul style="list-style-type: none"> Provision of bat boxes in suitable habitat areas to mitigate permanent loss of potential roosts; Retention of linear habitats, where practicable, to reduce fragmentation of foraging/commuting habitats; Micrositing the works to avoid disturbance of roosting bats or destruction of bat roosts (if possible); Implementing a disturbance free buffer around confirmed roosts; 	No significant residual effects	None



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Classification: Final

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Rev: A01

Description of Impact	Phase			Impact Assessment	Significance of Effect	Secondary Mitigation (if required, to be confirmed at detailed design stage)	Residual Effect	Proposed Monitoring
	C	O	D					
Disturbance to foraging bats/ loss of foraging habitat	✓			Potential for disturbance to foraging / commuting bats. Potential for loss and fragmentation of suitable habitat.	Likely significant effect at local level.	<ul style="list-style-type: none"> Lighting should be directional and light spill should be avoided onto suitable roosting, commuting or foraging habitat as far as is practicable; Precautionary felling measures (through timing of works to avoid maternity and hibernation seasons, and through 'soft telling') of any trees with Low bat roosting suitability; If disturbance to a roosting bat is unavoidable, a licence will be sought from NE to allow works to proceed, and/or If destruction of a bat roost is unavoidable, a licence will be sought from NE to allow works to proceed. Any works will be undertaken sensitively, in accordance with the licence/best practice when destroying the roost. 	No significant residual effects	None
Spread of INNS	✓			INNS known to be present on site. There is potential for INNS to be spread with the Site and to other areas outside the Site. General site good practice measures including biosecurity measures will be in place, detailed in CEMP.	No significant effects likely	None	No significant residual effects	None



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Description of Impact	Phase			Impact Assessment	Significance of Effect	Secondary Mitigation (if required, to be confirmed at detailed design stage)	Residual Effect	Proposed Monitoring
	C	O	D					
Accidental pollution events	✓			Accidental pollution impacts to important habitats and species possible via air quality and water-based pollution. Embedded mitigation in the form of a CEMP containing pollution prevention measures will be in place.	No significant effects likely	None	No significant residual effects	None
Operation								
Impacts on designated sites due to disturbance and changes to surface water flow	✓			Five SSSI notified bird species potentially affected by operational noise disturbance and planned and unplanned maintenance. Maximum predicted operational noise levels at Onshore Converter Station is well below the level that would cause disturbance to birds. Planned maintenance consists of one annual visit plus occasional maintenance at the Onshore Converter Station. Unplanned maintenance would be subject to any necessary consents and mitigation with relevant nature conservation bodies prior to work taking place.	No significant effects likely	None	No significant residual effects	None
Impacts on protected and notable faunal species due to disturbance	✓			Potential for disturbance to waterbirds, otter, badger and red squirrel during planned and unplanned maintenance. Potential for death or injury to protected species due to vehicle collisions. Maximum predicted operational noise levels at Onshore Converter Station is well below the level that would cause disturbance to birds. Potential for disturbance to roosting/foraging and commuting bats through lighting.	No significant effects likely	None	No significant residual effects	None



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Description of Impact	Phase			Impact Assessment	Significance of Effect	Secondary Mitigation (if required, to be confirmed at detailed design stage)	Residual Effect	Proposed Monitoring
	C	O	D					
				Planned maintenance consists of one annual visit plus occasional maintenance at the Onshore Converter Station. Unplanned maintenance would be subject to any necessary consents and mitigation with relevant nature conservation bodies prior to work taking place. EMP will be in place detailing any necessary mitigation.				
Spread of INNS	✓			INNS present on site. Potential to spread INNS during planned and unplanned maintenance. EMP will be in place, detailing locations of INNS on site.	No significant effects likely	None	No significant residual effects	None
Accidental pollution events	✓			Potential for pollution of water-based resources during planned and unplanned maintenance. Unplanned maintenance would be subject to any necessary consents and mitigation with relevant nature conservation bodies prior to work taking place. EMP will be in place detailing any necessary pollution prevention measures.	No significant effects likely	None	No significant residual effects	Non.
Decommissioning Impacts	✓			At the end of its 40-year lifetime a decommissioning plan will be prepared for the Onshore Scheme, which will take into account relevant changes in policy, legislation and local sensitivities. Decommissioning activities are not anticipated to exceed the construction phase worst-case criteria assessed and in most cases impact magnitude / significance will be much lower than during construction.	No significant effects likely	None	No significant residual effects	None

Table 9-18 Summary of likely significant cumulative environment effects, mitigation and monitoring [R03]


Description of Impact	Phase			Impact Assessment	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D					
Construction								
Issue 1 Cumulative Impacts on Designated Sites								
Impacts on Qualifying or Notified Bird Species	✓			Due to the potential overlap of construction of developments, there is a potential for cumulative impacts on qualifying or notified bird species for designated sites though noise disturbance and loss of roosting / loafing sites.	No significant cumulative effects likely	None	No significant residual cumulative effects	None
Accidental Pollution	✓			Due to the potential overlap of construction of developments, there is a potential for cumulative impacts on designated sites through accidental pollution events	No significant cumulative effects likely	None	No significant residual cumulative effects	None
Temporary Loss of Habitat	✓			There are no potential cumulative impacts to temporary loss of habitat for designated sites.	No significant cumulative effects likely	None	No significant residual cumulative effects	None
Issue 2 Cumulative Impacts on habitats during construction	✓			Due to the potential overlap of construction of developments, there is a potential for cumulative impacts due to permanent and temporary habitat loss.	No significant cumulative effects likely.	None	No significant residual cumulative effects	None
Issue 3 Cumulative Impacts on protected and notable faunal species during construction	✓			Due to the potential overlap of construction of developments, there is a potential for cumulative impacts on protected and notable faunal species through disturbance and loss of suitable habitat.	No significant cumulative effects likely	None.	No significant residual cumulative effects	None
Issue 4 Cumulative impacts on spread of invasive non-native species (INNS) during construction	✓			Due to the potential overlap of construction of developments, there is a potential for cumulative impacts on spread of invasive non-native species (INNS)	No significant cumulative effects likely	None.	No significant residual cumulative effects	None
Issue 5 Cumulative Impacts on important habitats and species due to accidental pollution events / impacts on	✓	☐	☐	Due to the potential overlap of construction of developments, there is a potential for cumulative impacts watercourses through accidental pollution events	No significant cumulative effects likely	None.	No significant residual cumulative effects	None

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Description of Impact	Phase			Impact Assessment	Significance of Effect	Secondary Mitigation	Residual Effect	Proposed Monitoring
	C	O	D					
watercourses during construction								
Operation								
Issue 1 Cumulative Impacts on designated sites during Operation	✓			Due to the potential operational overlap of developments, there is a potential for cumulative impacts on designated sites due to increased disturbance.	No significant cumulative effects likely	None	No significant residual cumulative effects	None
Issue 2 Cumulative impacts on habitats during operation	✓			No negative effects likely.	No significant cumulative effects likely	None	No significant residual cumulative effects	None
Issue 3 Cumulative Impacts on protected and notable faunal species during operation	✓			Due to the potential operational overlap of developments, there is a potential for cumulative impacts on protected and notable faunal species through disturbance and habitat loss.	No significant cumulative effects likely	None	No significant residual cumulative effects	None
Issue 4 Cumulative impacts on spread of invasive non-native species (INNS) during operation	✓			There are no potential cumulative impacts to the spread of INNS during operation.	No effects likely	None	No significant residual cumulative effects	None
Issue 5 Cumulative Impacts on important habitats and species due to accidental pollution events / impacts on watercourses during construction	✓			Due to the potential operational overlap of developments, there is a potential for cumulative impacts on watercourses due to accidental pollution events.	No significant cumulative effects likely	None	No significant residual cumulative effects	None

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