


## **Cambois Connection – Onshore Scheme**

### **Environmental Statement Volume 3**

#### **Appendix 9.10 Report to Inform Appropriate Assessment**


|   |  |                                     |
|---|--|-------------------------------------|
|  | <b>Cambois Connection – Onshore Scheme</b><br><b>Appendix 9.10: RIAA</b> | Doc No:<br>A100796-S00 – RIAA – A01 |
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## Acronyms

| Acronym | Description  |
|---------|--|
| AEoSI   | Adverse Effect on Site Integrity                     |
| BBWF    | Berwick Bank Wind Farm                               |
| BBWFL   | Berwick Bank Wind Farm Limited                       |
| CEA     | Cumulative Effects Assessment                        |
| CEMP    | Construction Environmental Management Plan           |
| ECoW    | Environmental Clerk of Works                         |
| EIA     | Environmental Impact Assessment                      |
| EMP     | Environmental Management Plan                        |
| ES      | Environmental Statement                              |
| HDD     | Horizontal Directional Drilling                      |
| HVAC    | High Voltage Alternating Current                     |
| HVDC    | High Voltage Direct Current                          |
| HRA     | Habitat Regulations Assessment                       |
| IEMA    | Institute of Environmental Management and Assessment |
| LPA     | Local Planning Authority                             |
| LSE     | Likely Significant Effect                            |
| MDS     | Maximum Design Scenarios                             |
| MHWS    | Mean High Water Springs                              |
| MLWS    | Mean Low Water Springs                               |
| MMO     | Marine Management Organisation                       |
| MD-LOT  | Marine Directorate Licensing and Operations Team     |
| NCC     | Northumberland County Council                        |
| NGESO   | National Grid Electricity System Operator            |
| NPPF    | National Planning Policy Framework                   |
| NSIP    | Nationally Significant Infrastructure Project        |
| NSL     | North Sea Link                                       |
| OCSP    | Offshore Converter Station Platform                  |
| PDE     | Project Design Envelope                              |
| PINS    | Planning Inspectorate                                |


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| Acronym | Description                             |
|---------|---|
| RIAA    | Report to Inform Appropriate Assessment |
| SAC     | Special Areas of Conservation           |
| SPA     | Special Protection Areas                |
| SPEN    | Scottish Power Energy Networks          |
| SSER    | SSE Renewables                          |
| SuDS    | Sustainable Urban Drainage              |
| SWO     | Surface Water Outfall                   |
| UK      | United Kingdom                          |
| UXO     | Unexploded Ordnance                     |
| WFD     | Water Framework Directive               |

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## Units


| Unit | Description              |
|------|--------------------------|
| GW   | Giga watt (power)        |
| km   | Kilometre (distance)     |
| nm   | Nautical mile (distance) |

|   |  |                          |
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## Glossary

| Term                               | Description   |
|------------------------------------|---|
| Berwick Bank Wind Farm (BBWF)      | Refers to the offshore wind farm from which the Cambois Connection (the Project) will export part of the produced electricity. The BBWF array area (where the wind turbines are located) is shown in Figure 1-1. The BBWF is under development, with the consent applications being determined.   |
| Cambois Connection (the Project)   | Offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at the existing National Grid ESO, Blyth substation near Cambois in Northumberland. The purpose of this infrastructure is to facilitate the export of a portion of the green electricity from BBWF, allowing the BBWF to reach its full generation capacity before 2030.           |
| EIA Regulations                    | Collectively, this term is used to refer to the suite of Environmental Impact Assessment (EIA) Regulations which are of relevance to the Marine Scheme and to the Onshore Scheme. For the Onshore Scheme, this is the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended). For the Marine Scheme, this is the Marine Works (EIA) Regulations 2007 (as amended). |
| Environmental Impact Assessment    | Assessment of the likely significant effects of a plan, programme, project or activity on the receiving environment.  |
| Firth of Forth                     | Estuary or Firth of the River Forth in Scotland which flows into the North Sea and is flanked by Fife to the north and West Lothian, City of Edinburgh and East Lothian to the south.   |
| Horizontal Directional Drilling    | Horizontal Directional Drilling or 'HDD' refers to a trenchless method of drilling generally used for installation of underground utilities, which does not require any direct works, and can aid installation of crossings with sensitive or challenging features and obstructions.  |
| High Voltage Alternating Current   | Refers to high voltage electricity in alternating current ('AC') form.  |
| High Voltage Direct Current (HVDC) | Refers to high voltage electricity in direct current ('DC') form. In relation to transmission, HVDC is often selected for longer transmission infrastructure on the basis that losses are typically lower when compared to transmission infrastructure utilising alternating current.   |
| HVAC Zone                          | The area within the Site in which the HVAC cables connecting the Onshore Converter Station and existing Blyth substation will be located.   |
| Intertidal Zone                    | Section of the coastline located between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).  |




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|--|---|
| Landfall                                     | Area where the offshore export cables carrying power from BBWF are brought ashore at MHWS to connect the offshore and onshore infrastructure.   |
| Landfall/HVDC Zone                           | The area within the Site in which the Landfall will be located and the HVDC cables, extending from the Transition Joint Bays to the Onshore Converter Station.  |
| Local Planning Authority                     | Local Planning Authority (or 'LPA') refers to the local government body legally empowered to exercise terrestrial (onshore) planning functions for a given area. In the case of the Project, this is Northumberland County Council (NCC).   |
| Marine Licence                               | A licence granted under the Marine and Coastal Access Act 2009.   |
| Marine Scheme                                | Activities required as part of the Project extending seawards below Mean High Water Springs.  |
| Maximum Design Parameters                    | The maximum range of design parameters of each Onshore Scheme asset.  |
| Mean High Water Springs                      | Monthly tides are defined as 'Springs' or 'Spring tides' when the tidal range is at its highest and 'Neaps' or 'Neap tides' when the tidal range is at its lowest. The height of Mean High Water Springs (MHWS) is the average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest (Spring tides).  |
| Mean Low Water Springs                       | The height of Mean Low Water Springs (MLWS) is the average throughout a year of the heights of two successive low waters during periods of 24 hours (approximately once a fortnight).   |
| National Site Network                        | Formerly referred to as 'Natura 2000 (network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types, which are protected in their own right) this now refers to the national site network within the UK territory. It is comprised of the protected sites that were designated under the Nature Directives (Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) until the UK's exit of the EU, and any further sites designated under the Conservation of Habitats and Species Regulations 2017 (as amended). |
| Offshore Converter Station Platforms (OCSPs) | Offshore converter stations mounted on platforms within the BBWF array area. These are used to convert AC electricity generated by the wind turbines to DC electricity for transfer back to shore.  |
| Onshore Converter Station                    | The onshore Converter Station is used to convert DC electricity to AC for connection into the national transmission network.  |
| Onshore Converter Station Zone               | An area within the Site in which the Onshore Converter Station will be located.   |
| Onshore HVDC Export Cable                    | HVDC cables used for exporting power produced by BBWF between the landfall and the onshore converter station.   |

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|---------------------------------------|---|
| Onshore HVAC Export Cable/Grid Cables | HVAC cables used for transporting electricity from the onshore convertor station to the National Grid Substation.   |
| Onshore Scheme                        | Activities and infrastructure required as part of the Project extending landwards above Mean Low Water Springs.   |
| Open Cut Trenching                    | Method of cable installation involving trenching. The applicant has made the decision to eliminate open cut trenching at landfall due to engineering (see Volume 2, Chapter 6 Site Selection and Alternatives).   |
| Planning Permission                   | Planning permission for development under the Town and Country Planning Act 1990.   |
| Project Design Envelope               | A series of maximum design parameters which are defined for the Onshore Scheme which are considered to be the worst case for any given assessment.  |
| Substation                            | Refers to the point at which electricity is connected into the UK electricity network. For the Onshore Scheme, this is the National Grid substation at Blyth.   |
| The Site                              | The area within the red line boundary as shown on Figure 1.1 (Volume 4).  |
| The Project (Cambois Connection)      | Offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at the existing National Grid ESO, Blyth substation near Cambois in Northumberland. The purpose of this infrastructure is to facilitate the export of a portion of the green electricity from BBWF, allowing the BBWF to reach its full generation capacity before 2030. |
| Transition Joint Bay                  | A concrete structure where offshore export cables and onshore export cables are connected together.   |

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# 1. Introduction

## 1.1. Introduction

1. Berwick Bank Wind Farm Limited (BBWFL) is a wholly owned subsidiary of SSE Renewables (SSER) (hereafter referred to as 'the Applicant'). The Applicant is proposing the development of Offshore Export Cables, Onshore Export Cables, an Onshore Converter Station and associated grid connection at Blyth in Northumberland, known as 'the Project'. The onshore components of the Project, landward of Mean Low Water Springs (MLWS) comprise the Onshore Scheme, which is the subject of this Report to Inform an Appropriate Assessment (RIAA).
2. The purpose of this infrastructure is to facilitate the export of green energy from the generation assets associated with the Berwick Bank Wind Farm (BBWF), located in the outer Firth of Forth. A separate planning application for the onshore elements of a grid connection to Branxton, East Lothian, has been submitted as part of the Applicant's applications for consent for BBWF, currently being determined separately<sup>1</sup>. The Project will enable the BBWF to reach full generating capacity by 2030.
3. The BBWF is a proposed offshore wind farm located in the outer Firth of Forth and Firth of Tay, approximately 37.8 km east of the Scottish Borders coastline (St. Abb's Head) and 47.6 km from the East Lothian coastline. BBWF comprises the offshore and onshore infrastructure required to generate and transmit electricity from the BBWF array area to a Scottish Power Energy Networks (SPEN) 400kV Grid Substation located at Branxton, southwest of Torness Power station.
4. In July 2022, National Grid Electricity Systems Operator (NGESO) announced as part of its Holistic Network Review, that the Applicant had signed an agreement for an additional grid connection at Blyth, Northumberland (referred to as the Cambois Connection); it is this connection which is the subject of this document.
5. The Project comprises two proposals, or 'Schemes' which are illustrated in Figure 1:
  - **Marine Scheme:** The Applicant is proposing the construction of High Voltage Direct Current (HVDC) Offshore Export Cables from within the BBWF array area in the outer Firth of Forth (Scotland) to a proposed Landfall at Cambois, Northumberland (England). Those aspects of the Project seaward of Mean High Water Springs (MHWS) are defined as part of the Marine Scheme.
  - **Onshore Scheme:** The Applicant is proposing the construction of a Cable Landfall, onshore HVDC cables, a new Onshore Converter Station, High Voltage Alternating Current (HVAC) cables from the new Onshore Converter Station to the existing Blyth National Grid substation near Cambois and works to integrate the Onshore Scheme into the National Grid at the existing substation. Those aspects of the Project onshore and extending down to the seaward-extent of the Landfall at Mean Low Water Springs (MLWS) are defined as part of the Onshore Scheme.
6. Respective Scoping Reports for the Marine Scheme and Onshore Scheme were submitted to both Marine Directorate Licensing Operations Team (MD-LOT) and the Marine Management Organisation

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<sup>1</sup> BBWF is subject to a separate consenting process. An application for consent under Section 36 of the Electricity Act 1989 (as amended) was submitted to MD-LOT and accepted in December 2022. The Branxton onshore infrastructure is subject to a separate planning application submitted to East Lothian Council and accepted in March 2023.

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(MMO), and Northumberland County Council (NCC), in November 2022 to support a request for a formal Scoping Opinion in relation to the Project (Berwick Bank Offshore Wind Farm Cambois Connection – Firth of Forth Marine Scheme Scoping Report (BBWFL, 2022a) and Berwick Bank Offshore Wind Farm Cambois Connection – Firth of Forth Onshore Scheme Scoping Report (BBWFL, 2022b).

7. A detailed description of the Onshore Scheme is provided in section 2. The parameters outlined are considered the Maximum Design Parameters for the Onshore Scheme and therefore present a conservative, precautionary approach for the purpose of this RIAA.

## 1.2. Purpose of the RIAA


8. The RIAA has been prepared by the Applicant to support the Habitats Regulations Assessment (HRA) of the Onshore Scheme in the determination of the implications for European Sites.
9. The RIAA builds upon the HRA Stage One Screening Report (BBWFL, 2023a, included as Appendix 1), which the Applicant submitted to the Competent Authorities (MD-LOT, MMO and Northumberland County Council (NCC))<sup>2</sup> in March 2023. The report provided supporting information to enable the evaluation of potential pathways for the presence of a Likely Significant Effect (LSE) on the qualifying features and conservation objectives of sites designated as part of the National Site Network (hereafter collectively referred to as ‘European Sites’) which display potential connectivity with the Onshore Scheme.
10. The RIAA considers the likely significant environmental effects of the Onshore Scheme as it relates to relevant European site integrity at Stage Two of the HRA process. This report will provide the Competent Authority with the information required to undertake an HRA Stage Two Appropriate Assessment (see section 3 for more detail on the HRA process).
11. The scope of this document covers all relevant European sites and relevant qualifying interest features where LSEs have been identified due to impacts arising from the Onshore Scheme.
12. A parallel offshore HRA process has been undertaken for the Marine Scheme and these offshore elements will be considered (where relevant) here through the in-combination assessment.

## 1.3. Progress to Date

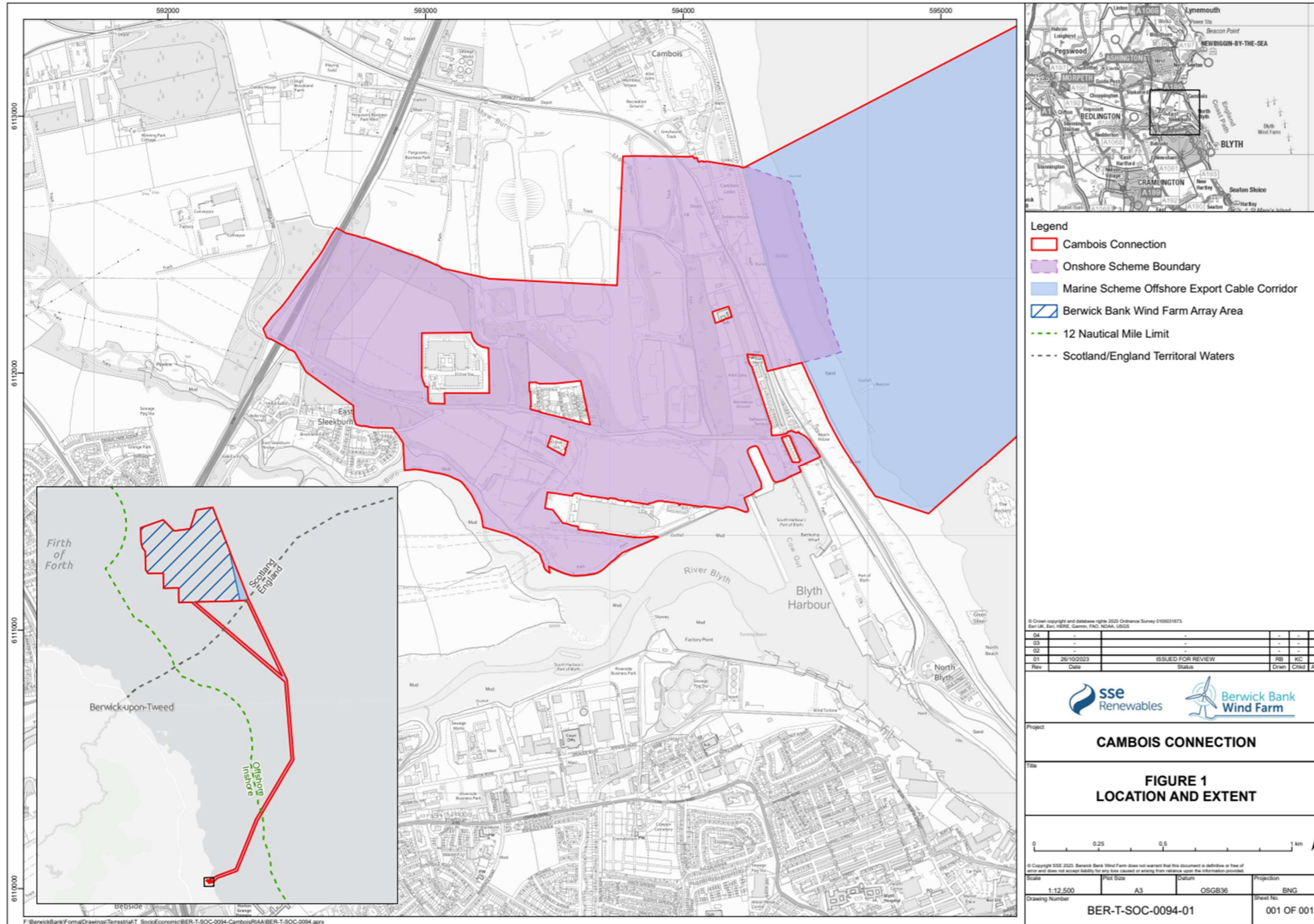
13. The RIAA has been informed by advice received in the Cambois Connection Scoping Opinions (MD-LOT, 2023; MMO, 2023), as well as the Stage One HRA Screening advice from NatureScot, Natural England and NCC (NatureScot 2023a, Natural England, 2023a and NCC, 2023).
14. The Onshore Scheme ES (BBWFL, 2023b) and this RIAA will support a Planning Application to NCC under Section 57 of the Town and Country Planning Act 1990. The Marine Scheme ES and associated RIAA supported Marine Licence applications to MD-LOT and the MMO under the Marine and Coastal Access Act 2009.
15. Separate RIAA documents have been prepared for the Onshore Scheme and the Marine Scheme.

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<sup>2</sup> The report, (BBWFL, 2023a), provided supporting information to enable the evaluation of potential pathways for the presence of a Likely Significant Effect (LSE) on the qualifying features and conservation objectives of sites designated as part of the National Site Network (hereafter collectively referred to as ‘European Sites’) which display potential connectivity with the Project.

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16. This report addresses Stage Two of the HRA process by assessing the implications of the Onshore Scheme for European sites, in light of their conservation objectives, where LSEs could not be ruled out, to determine if the Onshore Scheme will have any adverse effects on the site integrity of any of these sites. The RIAA as presented in this document will provide the competent authority with the information required to undertake an HRA Appropriate Assessment for the Onshore Scheme.
  
17. HRA is an iterative process. Since the HRA Stage One Screening Report was shared with consultees, aspects of the Onshore Scheme design have evolved and additional information is available, reflecting progress made by the Applicant to refine the Onshore Scheme design; for full details, please refer to ES, Volume 2, Chapter 4: Site Selection and Consideration of Alternatives. A summary of the changes is presented in section 2.2. Design evolution of the Onshore Scheme is not considered to have changed the conclusions of the HRA Stage One Screening Report and indeed has had the effect of *reducing* the potential for LSEs as a result of the Onshore Scheme. By way of example, since the Scoping exercise and consultation on the HRA Stage One Screening Report, works at Landfall will adopt trenchless techniques, such as Horizontal Directional Drilling (HDD). Open cut trenching at the Landfall has been ruled out.



**Figure 1 Cambois Connection Location and Extent**

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## 1.4. Structure of the RIAA

18. This RIAA has been prepared to support the HRA of the Onshore Scheme in the determination of the implications for European Sites (and specifically, to provide information to the Competent Authority to undertake an HRA (see section 3 for more detail on the HRA process)). This RIAA assesses whether the Onshore Scheme, alone or in combination with other plans or projects, would give rise to an Adverse Effect on Site Integrity (AEoSI) of any European site.

19. For clarity and ease of navigation, this document is structured and reported under the structure outlined in Table 1.1

**Table 1.1 Structure of this document**

| Section Number            | Title  |
|---------------------------|--|
| <a href="#">Section 1</a> | Introduction                                 |
| <a href="#">Section 2</a> | Project Description                          |
| <a href="#">Section 3</a> | Legislation and Policy                       |
| <a href="#">Section 4</a> | Consultation                                 |
| <a href="#">Section 5</a> | Approach to the RIAA                         |
| <a href="#">Section 6</a> | Information to Inform Appropriate Assessment |
| <a href="#">Section 7</a> | Conclusions of the RIAA                      |
| <a href="#">Section 8</a> | References                                   |

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## 2. Project Description

### 2.1. Overview

20. The Onshore Scheme will support the transmission of green energy generated by the BBWF (located in Scottish waters) to the grid connection in England (Blyth substation).
21. The Onshore scheme will involve the construction, operation and maintenance, and decommissioning of a cable landfall (down to MLWS), including up to four onshore HVDC cables (Onshore Export Cables), an Onshore Converter Station, HVAC grid cables and works to integrate into the existing National Grid Blyth substation. This includes all aspects of the Onshore Scheme landward of MLWS.
22. The onshore cables will have a length of up to approximately 3.6 km (2.1 km for the HVDC cables and 1.5 km for the HVAC cables). At Landfall the Project has committed to installing cables via trenchless techniques. It is anticipated that along the remainder of the cable route a combination of installation methods will be used to install the cables including open cut trenching, trenchless technology e.g., HDD and bridge crossings.
23. The Project will require a new converter station to convert HVDC electricity into HVAC, such that it can be used for onward distribution on the UK energy network via the existing National Grid Blyth substation.


#### 2.1.1. Indicative Project Programme

24. An outline of the programme for construction of the Onshore Scheme is given below to provide indicative commencement and completion dates, together with estimated durations of key construction activities.
25. Until detailed design of the Onshore Scheme is progressed and further refined pre-construction, this programme is indicative and subject to further refinement, but is used to inform assessment of construction phase impacts for the Onshore Scheme.
26. The indicative outline construction programme includes the following:
  - Commencement of construction expected in Q4 2025 and completion of construction expected in Q4 2029;
  - Site preparation/ enabling works for an estimated duration of up to 15 months;
  - Landfall construction for an estimated duration of up to 24 months;
  - Onshore Cable (HVAC and HVDC) installation for an estimated duration of up to 18 months;
  - Onshore Converter Station construction for an estimated duration of up to 18 months; and
  - Outfall installation for an estimated duration of up to 9 months.
27. Whilst the site preparation works will occur for the duration of the construction phase, these will not be continuous. There are expected to be periods when site preparation, Landfall and cable installation and onshore converter station construction works occur concurrently.

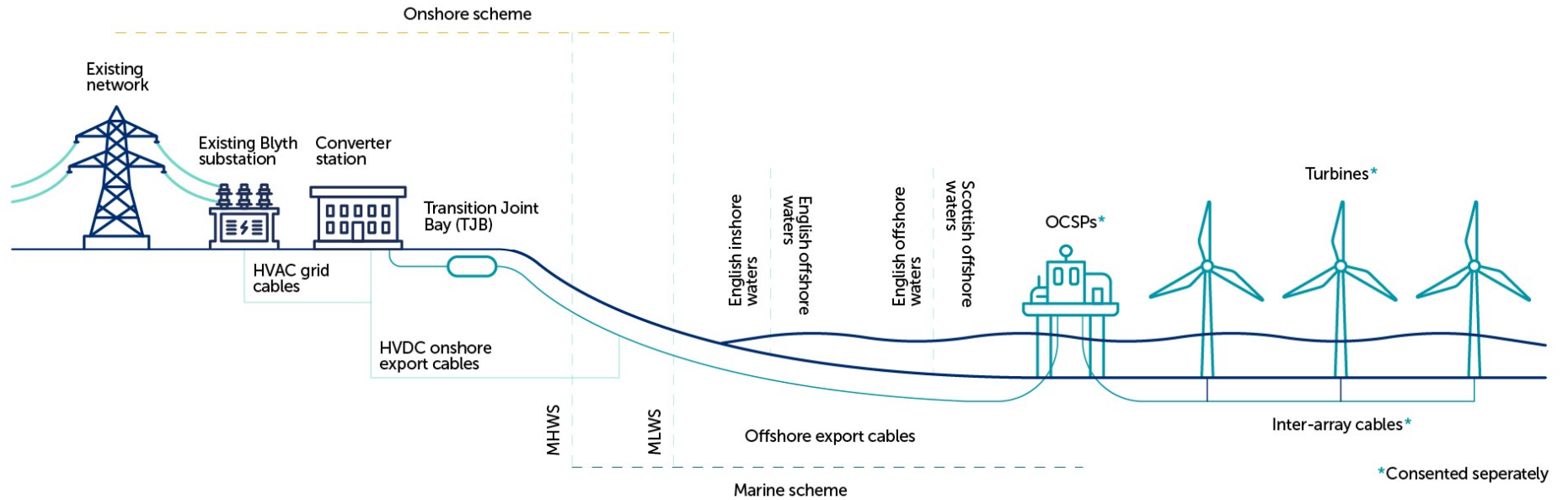
#### 2.1.2. Project Design Envelope

28. The Project Design Envelope (PDE) approach (also known as the Rochdale Envelope approach) has been adopted for the assessment of the Onshore Scheme. The PDE concept allows for some flexibility in project design options where the full details of a project are not known at Application submission.




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29. The PDE establishes a series of realistic design assumptions from which the Maximum Design Scenarios (MDS) are drawn for the Onshore Scheme.



**Plate 1 Cambois Connection Cross-Sectional Summary**

|  |  |                                     |
|--|--|-------------------------------------|
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| Status: Final  |  | Rev: A01                            |

## 2.2. Onshore Scheme Project Description (assessed as part of this RIAA)

### 2.2.1. Location and Site Information

30. The Onshore Scheme is situated near Blyth and the villages of Cambois and East Sleekburn, in Northumberland, England (volume 4, Figure 1.1). It will be located within the Red Line Boundary (RLB) presented in volume 4, Figure 1.2, hereafter referred to as ‘the Site’. The centre of the Site is 429909.845 E 583696.578N, British National Grid NZ 29311 84281. The Site encompasses approximately 188 ha of land. However, the maximum footprint of the Onshore Scheme as described below will be considerably smaller than the 188 ha and will therefore not utilise the full extent of the Site. Furthermore, once installed, there will be limited permanent infrastructure that will be visible above ground.
31. The Site comprises land to the north of Blyth and to the East of East Sleekburn and includes a mix of coastal amenity, new and legacy industrial uses and residential areas.
32. There are three zones of key infrastructure shown on Figure 5.1:
- The Landfall/HVDC Zone where the offshore export cables reach land;
  - The Onshore Converter Station Zone; and
  - The HVAC Zone where the grid cables from the Onshore Converter Station connect to the existing Blyth substation.
33. The proposed Landfall is located at Cambois North Beach. The proposed onshore cable corridor extends for approximately 2.1 km between the Landfall at Cambois North Beach, via the gigawatt battery plant site (formerly owned by BritishVolt), to the proposed Onshore Converter Station. The proposed Onshore Converter Station location is situated adjacent to the NSL Onshore Converter Station, with Brock Lane bordering the Site towards the south. The HVAC cables will be located in a corridor (approximately 1.5 km) and these cables will connect the Onshore Converter Station to Blyth substation, which is located next to Blyth Port. The western site boundary lies adjacent to the A189; however, the view from the road to the site is also well screened.
34. Cambois beach lies to the east of the Site, serving as the point of Landfall. Moving westwards from the beach, Cambois Links are found at the back of the sand dunes, followed by railway tracks and a road. The road forms part of the small residential area of Cambois, flanked by the Cambois Coastline to the east, and a larger brownfield construction area to the west. This area is the Site of the former Blyth Power Station (closed in 2001). Planning permission was granted to BritishVolt in 2021 for the construction of a ‘GigaFactory’ electric vehicle battery factory upon the grounds of the former power station. Subsequently, BritishVolt went into administration and the company, along with land upon which the factory would be built, is in the process of being sold to “Recharge Industries”. It has been stated by Recharge Industries that they intend to proceed with the plans for the new factory, although it is currently unknown whether an amended or reduced scheme will be proposed.
35. The Onshore Converter Station site is located in western part of the Site and is situated immediately to the west of the NSL Converter Station, with Brock Lane running east west along the southern boundary of the Site and the A189 forming the western boundary of the Site. The Sleekburn Business Centre lies to the north of the Site adjacent to the former British Volt gigawatt battery plant site. A band of mature woodland extends around the perimeter of the entire Onshore Converter Station site except the land adjacent to the NSL Converter Station. The residential area of East Sleekburn lies to the south of Brock Lane and is screened from the road by a strip of woodland planting.

36. Brock Lane continues to pass through the Site, with the former Blyth Power Station land (now Recharge Industries) to the north and the Port of Blyth, and River Blyth located to the south. The National Grid Blyth Substation is located on a parcel of land located between the banks of the River Blyth to south and industrial land uses relating to the Port of Blyth to the north.
37. Ground levels across the Site vary due to the sloping topography (west to east) and due to deeply incised glacial outwash valleys. Outwith the Site boundary, to the south, Sleek Burn joins the River Blyth to form the Blyth Estuary and flows out to join the North Sea.
38. The Site and the surrounding area of the Blyth Estuary has historically been a focus for economic activity in south-east Northumberland, including ship building, port logistics, and energy generation.
39. Available historical information and baseline reporting indicate the majority of the Site has experienced some degree of development, including a power station, coal storage and processing and associated industries e.g., rail, brick works, iron foundry etc. In addition, other developments on the Site include the construction of the A189 road bordering the western edge of the Site and the railway line to the east, which has been present since approximately 1898.
40. A business park and more recently a sewage works, are located northwest of the Site. Other land use in the surrounding area historically has been predominantly agricultural. The Port of Blyth and a Ferry Terminal is located to the southeast of the Site.
41. The Site is also located within the Blyth Strategic Employment Area within the Northumberland County Council Local Plan. Parts of the Site are also covered by Blyth Estuary Enterprise Zone status.

### 2.2.2. Overview of the Onshore Scheme

42. The Onshore Scheme for the Project includes the following:
  - Landfall works;
  - HVDC onshore export cables within a cable corridor between the Landfall and the new Onshore Converter Station for a cable corridor length of up to 2.1 km;
  - A new Onshore Converter Station;
  - HVAC onshore grid cables from the Onshore Converter Station to the National Grid Blyth substation within a cable corridor length of up to 1.5 km; and
  - Associated ancillary infrastructure.
43. Certain design details relating to the Onshore Scheme are still to be finalised subject to further design following the acquisition of information on ground conditions across the Site, ongoing engineering design work and the procurement of cable and Onshore Converter Station suppliers which will be completed post-consent.
44. As such, the Site boundary (Volume 4 Figure 1.2) forming the basis of the application for outline planning permission includes flexibility to allow for the final locations and design details of the various components of the Onshore Scheme to be defined post outline planning permission having been granted. These further details will be consented by way of reserved matters approvals granted by NCC.
45. The PDE for the Onshore Scheme upon which the appropriate assessment has been based is described below. A summary of the infrastructure required for the Onshore Scheme, is provided in Table 2.1 below. The values shown represent the realistic worst-case values for the purposes of this RIAA ('the maximum design scenario'). Whilst the design parameters are frozen, measurement may be classed as approximate as development of construction techniques may influence this, however

maximum and minimum parameters are presented as appropriate. Further detail on specific MDS parameters relating to the design, construction, operation and maintenance and decommissioning of each component of the Onshore Scheme is provided in section 5.5.


**Table 2.2. Infrastructure required for the Onshore Scheme and Maximum Design Parameters**

| Infrastructure  | Number  | Maximum Design Parameters  |
|---|---|--|
| <b>Landfall</b>   |   |  |
| Landfall trenchless technology ducts (e.g., Horizontal Directional Drill) (HDD)       | Up to four  | 0.3 to up to 2.5 m diameter<br>Up to 2.4 km duct length per cable (up to 9.6 km total)   |
| Transition Joint Bays   | Up to four  | Up to 6 m width per TJB<br>Up to 25 m length per TJB   |
| Construction compounds (trenchless technology and TJBs)                               | Up to two   | Up to 15,000 m <sup>2</sup>  |
| <b>HVDC Cable Corridor</b>  |   |  |
| Onshore HVDC cables (Landfall to Onshore Converter Station)                           | Up to four  | Up to 525 kV<br>Up to 2.1 km in length per cable   |
| Onshore HVDC cable trenches (including working corridor for installation) – open cut* | Up to four  | 2 m width per trench (Four trenches - one cable per trench)<br>12 m width trench (One trench - four cables per trench)<br>Working corridor up to 110 m width<br>Up to 2.2 m depth  |
| Onshore HVDC cable corridor–trenchless technology ducts                               | Up to four  | Working corridor up to 110 m<br>Up to 15 m depth from ground level to top of duct  |
| Joint Bays (HVDC cable route)   | Up to 16  | Up to 16 m total length<br>Up to 6 m width   |
| Onshore HVDC cable corridor construction compounds                                    | Up to eight   | Up to 37,800 m <sup>2</sup>  |
| <b>Onshore Converter Station</b>  |   |  |
| Onshore Converter Station footprint   | One station comprising multiple buildings within the overall envelope | Up to 290 m length by 275 m width.<br>Maximum building height of 30 m + platform level (maximum total height 45.2 m AoD), not including any earthing finial or external electrical equipment.  |
| Onshore Converter Station platform  | One   | Up to 300 m length by up to 300 m width; platform level up to 15.2 m AoD.  |
| Onshore Converter Station construction compounds                                      | Two   | Up to 20,400 m <sup>2</sup>  |
| Outfall from the Onshore Converter Station site into Sleek Burn                       | One   | Surface water will be discharged into the River Blyth, via an underground outfall to the Sleek Burn, in an arrangement similar to the NSL Converter Station. It is assumed flows will enter the Sleek Burn adjacent to the existing NSL outfall.<br>Working corridor up to 10 m width. |

| Infrastructure  | Number   | Maximum Design Parameters   |
|---|--|---|
| Sustainable Urban Drainage (SuDS)/ Attenuation Ponds                | Up to two  | This will confirmed by detailed design.   |
| <b>HVAC Cable Corridor</b>  |  |   |
| Onshore HVAC cables (Onshore Converter Station to Blyth substation) | Up to 12   | Up to 400 kV<br>Up to 1.7 km length per cable   |
| Onshore HVAC cable trenches – Open Cut                              | Up to four   | Up to 12m width per trench<br>Up to 125 m width working corridor<br>Up to 2.2 m depth |
| Onshore HVAC cable – trenchless technology ducts                    | Up to 12   | Working corridor up to 200 m<br>Up to 15 m depth                                      |
| Onshore HVAC construction compounds                                 | Up to 8  | Up to 32,980 m <sup>2</sup>   |
| Joint Bays  | Up to 24   | Up to 16 m total length<br>6 m width  |
| <b>Access roads and material storage</b>                            |  |   |
| Permanent access road   | One of two options:<br>existing NSL access<br>or new access from<br>Brock Lane | Up to 8 m width<br>This will confirmed by detailed design.                            |
| Temporary access roads  | Two for HVDC route<br>Three for HVAC<br>route                                  | Up to 12 m width<br>Length to be confirmed by detailed design.                        |
| Material storage area (all areas)                                   | Up to 15   | Up to 65,980 m <sup>2</sup>   |

\*Cables may be laid in a different arrangement within the bounds of the Maximum Design Scenarios, e.g., two trenches with two cables per trench. This will be defined based on further design work following the application submission.

46. An extension of the Blyth substation is being developed by National Grid, which is subject to a separate planning application, consented in March 2023. However, the potential cumulative impacts on relevant environmental receptors of the Onshore Scheme and the Blyth substation have been considered within chapters 7 to 15 of the ES. Further relocation of local infrastructure such as overhead lines and underground cables may be required following confirmation of cable route and completion of detailed design.
47. The Onshore scheme will involve the construction, operation and maintenance, and decommissioning of a cable landfall (down to MLWS), including up to four onshore HVDC cables (Onshore Export Cables), an Onshore Converter Station, up to twelve HVAC grid cables and works to integrate into the existing National Grid Blyth substation. This includes all aspects of the Onshore Scheme Landward of MLWS.
48. The onshore cables will have a length of up to approximately 3.6 km (2.1 km for the HVDC cables and 1.5 km for the HVAC cables). At Landfall the Project has committed to installing cables via trenchless techniques. It is anticipated that along the remainder of the cable route a combination of installation methods will be used to install the cables including open cut trenching, trenchless technology e.g., HDD and bridge crossings.

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49. The Project will require a new Onshore Converter Station to convert HVDC electricity into HVAC, such that it can be used for onward distribution on the UK energy network via the existing National Grid Blyth substation.
50. A full description of the construction, operation and maintenance and decommissioning activities is provided in the Onshore Scheme ES, Volume 2, Chapter 5: Project Description.

### 2.3. Changes to the Design since HRA Screening


51. A list of the main changes to the PDE since the Applicant made a formal request for an EIA Scoping Opinion to NCC, and subsequently submitted a Habitats Regulations Appraisal/Assessment Screening Request to Natural England and NCC. These refinements are summarised below:
- Removal of Landfall options to the north of the River Wansbeck (post scoping), providing a number of benefits including removing the requirement for an additional trenchless technology, such as HDD, under the River Wansbeck<sup>3</sup>;
  - Removal of open cut trench technique and commitment to the use of trenchless techniques at Landfall to avoid impact on the intertidal area and the habitats and species in this area (post HRA Screening);
  - Priority woodland habitat to the west of the Converter Station Zone and certain other areas of woodland within the Site will be avoided at the detailed design stage; and
  - 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.

### 2.4. Marine Scheme Project Description (not assessed as part of this RIAA)

52. The Marine Scheme will involve the construction, operation and maintenance, and decommissioning of up to four subsea HVDC cables (Offshore Export Cables) from within the BBWF array area located in Scottish waters. The Offshore Export Cables will originate at up to two Offshore OSCP's which will be located within the wider BBWF array area. From this point, the Offshore Export Cables will be installed along a route with a broad north-south alignment to the proposed Landfall location along the Cambois coastline, Northumberland, as presented in Figure 1.
53. It should be noted that the Marine Scheme is not the development being assessed within this RIAA but is assessed in-combination with the Onshore Scheme where relevant within this document.

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<sup>3</sup> A Landfall to the east of North Seaton would likely require an approach to the north-east of the River Wansbeck. In this area, there are understood to be larger volumes of intertidal rock meaning that installation of the Offshore Export Cables would be far more technically challenging, if not infeasible. Owing to engineering considerations, such as the cliff to the east of Sandy Bay caravan park, the selection of a method of landfalling would likely be more restricted at this location. As described above, this Landfall would require a river crossing under the River Wansbeck resulting in significant additional technical complexity, cost and the need for additional construction activity on the north and south banks of the River Wansbeck to facilitate a river crossing. For further details, please refer to Volume 2, Chapter 6: Route Appraisal and Consideration of Alternatives of the Marine Scheme ES.

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|---|--|------------|
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| Status: Final   |  |            |

## 2.5. Measures Adopted as Part of the Onshore Scheme

54. In line with the IEMA (2016b) Guide to Delivering Quality Development and as part of the project design process, a number of designed in measures have been included in the Onshore Scheme and are committed to be delivered by the Applicant as part of the Onshore Scheme. These designed in measures are integrated into the project description for the Onshore Scheme and are not considered as mitigation measures intended to specifically avoid or reduce effects on European sites.
55. Designed in measures of relevance to the assessment of potential impacts are tabulated separately in each of the receptor sections, according to the effect-pathway under consideration.
56. Measures intended specifically to avoid or reduce effects on European sites were not considered during the HRA Stage One Screening but are included within the HRA Stage Two Appropriate Assessment for determination of Adverse Effects on Integrity. The RIAA will indicate whether adverse impacts on European sites are likely and if so, whether those effects can be avoided through the introduction of mitigation measures that avoid or reduce the impact. These measures are referred to as Secondary Mitigation and may be taken from topic chapters within the Onshore ES (Volume 2) or, where necessary, may have been developed specifically to comply with HRA requirements. Where the latter is the case, this is made clear throughout.
57. The relevant designed-in mitigation for each receptor assessed within the RIAA is considered within each relevant section below.



## 3. Legislation and Policy

### 3.1. International Commitments

58. The requirement to consider the potential effects of a plan or project on a European Site is outlined as part of the international commitments of the following pieces of European Union (EU) legislation:

- The Conservation of Habitats and Species Regulations 2017 (as amended) (applicable to terrestrial applications and those extending seawards to 12 nm in English waters);
- The Conservation on Wetlands of International Importance especially as Waterfowl Habitat (the ‘Ramsar Convention’) (as implemented through the Habitats Regulations<sup>4</sup>)
- European Directive 92/43/EEC on the ‘Conservation of Natural Habitats and Wild Fauna and Flora’ (referred to as the ‘Habitats Directive’); and
- Council Directive 2009/147/EC (Birds Directive) and the Conservation of Wild Birds (the codified version of Council Directive 79/409/EEC on the conservation of wild birds) (referred to as the ‘Wild Birds Directive’).

59. Sites designated under these directives, regulations and conventions are collectively referred to as European Sites and include: Special Areas of Conservation (SAC); candidate SAC (cSAC); Special Protection Areas (SPA); and sites listed as a site of community importance (SCI). Possible SACs (pSAC), potential SPAs (pSPA) and all Ramsar sites are also Natura 2000 sites (taken as European sites, see paragraph 63 below).

### 3.2. UK Legislation and Policy

#### 3.2.1. Habitats Regulations

60. The Habitats Directive and the Birds Directive have been transposed into English Law through The Conservation of Habitats and Species Regulations 2017 respectively. These regulations are referred to as the ‘Habitats Regulations’.

61. The Habitats Regulations require an assessment of the implications of a plan or project on a European Site’s conservation objectives to be undertaken by the Competent Authority prior to granting consent for a plan or project. Regulation 63 of The Conservation of Habitats and Species Regulations 2017 (as applicable in England for the Onshore Scheme) outlines the requirements for HRA assessment, stating that:

*‘(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, must make an appropriate assessment of the implications of the plan or project for that site in view of that site’s conservation objectives [...] (5) ...the competent authority may agree to the plan or project only after*

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<sup>4</sup> All pSPAs, pSACs and Ramsar sites are also protected in the same manner as European sites and included under the HRA process as a result of guidance in the National Planning Policy Framework (NPPF).

*having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).’*

62. Regulation 63 of the Habitat Regulations also require that ‘(2) A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable it to determine whether an appropriate assessment is required.’

### 3.2.1.1. EUROPEAN SITES POST EU EXIT

63. European sites are commonly referred to as Natura 2000 sites (as part of the Natura 2000 Network).
64. Following the UK’s exit from the EU (referred to as EU Exit) in January 2020, the UK was no longer part of the Natura 2000 Network. Hereafter, all sites within the UK and the EU are referred to as European Sites, with Natura 2000 Network sites collectively referred to as the UK’s ‘National Site Network’. The National Site Network encompasses all European Sites within the UK that were designated pre-EU Exit (i.e., those sites which were already designated under the Habitats and Birds Directives) or proposed to the European Commission pre-EU Exit and any new protected sites designated under the Habitats and Birds Regulations under an amended designation process.

### 3.2.1.2. HRA PROCESS

65. The UK Government Guidance on Habitat Regulations Assessments: Protecting a European Site (UK Government, 2021) identifies three key stages to the HRA process. These are summarised below.
- **Stage 1 - HRA Screening (Assessment of Likely Significant Effects (LSE)):** Assessment of whether a proposal is likely to have a significant effect on the conservation objectives of a site either alone or in-combination with other plans and projects. If it is concluded at this stage that there is no potential for LSE, there is no requirement to carry out subsequent stages of the HRA. This stage was fulfilled by the HRA Screening Report (BBWFL, 2023a, included as Appendix 1).
  - **Stage 2 - Appropriate Assessment and Integrity Test (this RIAA):** Where an LSE for a European and Ramsar sites cannot be ruled out, either alone or in-combination with other plans and projects, it is necessary to provide further information to enable the competent authority to carry out an appropriate assessment of the implications of the project on the integrity of the site(s), either alone or in-combination with other plans and projects, in view of the site’s conservation objectives. Where it is not possible to rule out an adverse effect on site integrity (AEOSI) (integrity test), the HRA must progress to Stages 3 (Derogation).
  - **Stage 3: Derogation:** Where it is concluded that AEOSI cannot be ruled out, there is a requirement to make a case for a derogation to allow the proposal to go ahead. The derogation process involves three legal tests, all three of which must be passed for a derogation to be granted:
    - Consideration of alternative solutions - identifying and examining alternative ways of achieving the objectives of the project to establish whether there are solutions that would avoid or have a lesser effect on the site(s).
    - Demonstrating Imperative Reasons of Overriding Public Interest (IROPI) for the project
    - Identification of compensatory measures needed to maintain site integrity or the overall coherence of the designated site network.

### 3.2.2. National Planning Policy Framework

66. The National Planning Policy Framework (NPPF) sets out the Government’s planning policies for England and how these should be applied and provides a framework within which locally prepared plans for development can be produced.
67. Policy 15 of the Framework sets out what should be considered within planning applications in order to conserve and enhance the natural environment.
68. Specifically, Policy 15 paragraph 174 states: “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.”
69. Paragraph 179 states: “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.”
70. Relevant policies from the NPPF were considered in determining the scope of this assessment and are therefore considered throughout this RIAA.

### 3.2.3. Northumberland Local Plan

71. The Northumberland Local Plan, 2016-2036, sets strategic planning policies of NCC, provides planning principles and key environmental designations and reflects government NPPF and sits underneath regional framework and strategies.
72. 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:

*“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...*

*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.*

*3) 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.”*

73. Policy ENV 2 states:

*“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.”*


74. Relevant policies from the Northumberland Local Plan were considered in determining the scope of this assessment and are therefore considered throughout this RIAA.

## 4. Consultation

75. Consultation has been undertaken with statutory stakeholders during key stages of the evolution of the Onshore Scheme.
76. Alongside feedback provided on the approach to HRA within the Scoping Opinion from NCC, advice on the HRA Stage One Screening Report was received from Natural England on the 18 May 2023 and NCC on 10 May 2023 (Natural England, 2023a, NCC, 2023). Comments received have been taken into consideration, as far as is appropriate, during the development of the RIAA.
77. Further, this RIAA has been developed alongside the Onshore Scheme ES. Where design, supporting information or stakeholder feedback is common to both assessments this has been used, as referenced. Consultation has been undertaken with statutory stakeholders throughout the development of the Project and the Onshore Scheme.
78. A summary of the details of all consultation undertaken to date which is relevant to the RIAA and the HRA process in general, is presented in Table 4.1.


**Table 4.1 Consultation undertaken in relation to the RIAA and HRA process**

| Date   | Consultee Stakeholder                  | Topic / receptor / site                             | Issues Discussed / comment received  | How and Where Considered in the RIAA  |
|--|--|---|--|---|
| <b>Consultation on the Marine Scheme: Pre-Application Engagement</b> |  |   |  |   |
| 24 March 2022  | Natural England – consultation meeting | Ecology and Nature Conservation / HRA               | <p>A meeting was held to introduce the Project, and to discuss a range of topics of relevance to ecology and nature conservation, as well as the intended approach and scope of the ensuing EIA and Habitats Regulations Appraisal / Assessment (HRA).</p> <p>The intended approach to the impact assessment for ornithology was discussed; specifically, this included the Applicant’s position that a desk-based approach to offshore ornithology would be followed which was outlined by the Applicant as being proportionate to the scale and nature of a cable project. Natural England were in agreement.</p>                                      | <p>Follow-up meetings to agree specifics around ornithology data requirements. As reported in ES, Volume 2, Chapter 10: Offshore and Intertidal Ornithology, overwintering (non-breeding) surveys have supported the assessment of potential impacts on ornithology and this has helped to inform the RIAA.</p> <p>For further details, please refer to section 6: Approach to RIAA).</p>   |
| 22 April 2022  | Natural England – consultation meeting | Ornithology   | <p>Discussion around quality and availability of existing baseline ornithology data and best EIA practices for use of the data.</p>  | <p>The Applicant scheduled additional follow-up meetings and investigated available baseline data. This helped inform the approach to the EIA and RIAA, as reported within this document.</p> <p>For further details, please refer to section 6 (approach to RIAA).</p>   |
| 6 July 2022  | Natural England – consultation meeting | Ecology and Nature Conservation / HRA / Ornithology | <p>Discussion of the Applicant’s position regarding overwintering bird surveys.</p> <p>Based on the wealth of existing ornithological data in the area, the Applicant did not propose overwintering (non-breeding) bird surveys; Natural England were accepting of this but suggested it may lead to a risk of seasonal conditions.</p> <p>Natural England explained to the Applicant during the course of the meeting that a potential overwintering condition (interpreted to relate to an effective ban on licensable activities between 01 November and 31 March) would likely negate the need for further non-breeding (overwintering) surveys.</p> | <p>At this relatively early stage in the design process and recognising that a contractor(s) has not been engaged, nor has a detailed programme been provided, it is not possible to rule-out working during the winter period.</p> <p>This was discussed with Natural England previously and on the basis of their clear advice, surveys were commissioned in order to provide the required level of flexibility.</p> <p>Non-breeding bird survey of Cambois coast undertaken over 2022/23 winter. Survey results are summarised in this document and within ES, Volume 2, Chapter 9</p> |

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| Date | Consultee Stakeholder | Topic / receptor / site | Issues Discussed / comment received   | How and Where Considered in the RIAA  |
|------|-----------------------|-------------------------|---|---|
|      |                       |                         | <p>However, noting that if flexibility or work within this period may be required, Natural England explained that the Applicant should consider survey requirements further.</p> <p>Natural England provided a clear request for non-breeding (winter) bird survey covering coastal habitats if the Applicant were to pursue work during the winter period.</p> | <p>Ecology and Ornithology and ES, Volume 3, Appendix 10.1: Non-Breeding / Over-Wintering Bird Survey Report.</p> <p>For further details, please refer to section 6 (approach to the RIAA).</p> |

| Consultation on the Onshore Scheme: Scoping Opinion |                                   |                                  |  |   |
|---|-----------------------------------|----------------------------------|--|---|
| 12 December 2022                                    | Natural England: Scoping Response | International and European Sites | <p>The development site is within or may impact on the following European/internationally designated nature conservation site(s):</p> <ul style="list-style-type: none"> <li>• Berwickshire and North Northumberland Coast Special Area of Conservation (SAC)</li> <li>• Durham Coast Special Area of Conservation (SAC)</li> <li>• Northumbria Coast Special Protection Area (SPA)</li> <li>• Northumberland Marine Special Protection Area (SPA)</li> <li>• Teesmouth and Cleveland Coast SPA</li> <li>• Northumbria Coast Ramsar</li> <li>• Teesmouth and Cleveland Coast Ramsar</li> <li>• Lindisfarne Ramsar</li> </ul> <p>European site conservation objectives are available at <a href="http://publications.naturalengland.org.uk/category/649006889408921">http://publications.naturalengland.org.uk/category/649006889408921</a></p> | <p>Potential impacts to internationally designated sites are assessed through the HRA process. The Applicant has fulfilled HRA requirements through HRA Stage One Screening, which is documented in the HRA Stage One Screening Report (BBWFL, 2023a) and this RIAA.</p> <p>An assessment to decide which designated sites, the Marine Scheme and Onshore Scheme have potential connectivity to was undertaken as part of HRA Stage One Screening. Where LSE was identified for these sites, they were brought forward for assessment as part of this RIAA.</p> <p>Northumbria Coast SPA and Ramsar and Northumberland Marine SPA are included for assessment to ornithological features (section 5.3).</p> <p>During HRA Screening Stage One, Berwickshire and North Northumberland Coast SAC, Durham Coast SAC, Lindisfarne SPA and Ramsar site and Teesmouth and Cleveland Coast SPA and Ramsar were screened out for assessment in the RIAA for the Onshore Scheme, based on the foraging distances of the qualifying species and the distance of the nearest landfall activities to the site.</p> <p>Screening advice received from Natural England does not request Lindisfarne SPA/Ramsar to be included as part of the RIAA (Natural England, 2023a).</p> |


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|------------------|-----------------------------------|----------------------------------|--|---|
| 12 December 2022 | Natural England: Scoping Response | Internationally Designated Sites | <p>The ES should thoroughly assess the potential for the proposal to affect nationally and internationally designated sites of nature conservation importance, including marine sites where relevant. European sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA) fall within the scope of the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations'). In addition paragraph 181 of the National Planning Policy Framework (NPPF) requires that potential SPAs, possible SAC, listed or proposed Ramsar sites, and any site identified or required as compensatory measures for adverse effects on habitat (European) sites, potential SPAs, possible SACs and listed or proposed Ramsar sites have the same protection as classified sites (NB. sites falling within the scope of regulation 8 of the Conservation of Habitats and Species Regulations 2017 are defined as 'habitats sites' in the NPPF). Under Regulation 63 of the Habitats Regulations, an appropriate assessment must be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site.</p> <p>The consideration of likely significant effects should include any functionally linked land outside the designated site. These areas may provide important habitat for mobile species populations that are qualifying features of the site, for example birds and bats. This can also include areas which have a critical function to a habitat feature within a designated site, for example by being linked hydrologically or geomorphologically.</p> <p>Should a likely significant effect on a European/Internationally designated site be identified (either alone or in-combination) or be uncertain, the competent authority (in this case the Local Planning Authority) may need to prepare an appropriate assessment in addition to the consideration of impacts through</p> | <p>Potential impacts to internationally designated sites are assessed through the HRA process. The Applicant has fulfilled HRA requirements through HRA Stage One Screening, which is documented in the HRA Stage One Screening Report (BBWFL, 2023a) and this RIAA.</p> <p>The potential for loss of functionally linked land has been greatly reduced by virtue of the Applicant's commitment to adopting trenchless technologies, such as HDD, for the Landfall.</p> <p>Mitigation measures have been considered as part of each of the assessments included within this RIAA.</p> |




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|--|-------------------------------------|------------------------------|---|--|
|  |                                     |                              | <p>the EIA process. Further guidance is set out in Planning Practice Guidance on appropriate assessment.</p> <p><a href="https://www.gov.uk/guidance/appropriate-assessment">https://www.gov.uk/guidance/appropriate-assessment</a></p> <p>This should also take into account any agreed strategic mitigation solution that may be being developed or implemented in the area to address recreational disturbance, nutrients, or other impacts.</p> |  |
| <b>Consultation on the Onshore Scheme: HRA Screening</b> |                                     |                              |   |  |
| 10 May 2023  | Northumberland County Council (NCC) | Northumbria Coast SPA/Ramsar | In table 7.3 (page 93-96) The qualifying features of the Northumbria Coast SPA / Ramsar and Northumberland Marine SPA (p94-95) have been reversed.  | Noted and will be corrected in any further reference to these sites.   |
| 10 May 2023  | Northumberland County Council (NCC) | Northumbria Coast SPA/Ramsar | Para 144: Agree that disturbance and / or displacement should be screened in for assessment in relation to the Northumbria Coast SPA / Ramsar and Northumberland Marine SPA.  | Disturbance and displacement have been screened in for the assessment on this designated site as per section 5   |
| 10 May 2023  | Northumberland County Council (NCC) | SPAs                         | Para 193: While noting the rationale for screening out impacts arising through direct habitat loss, this may need to be reconsidered as scheme design develops and should ongoing survey work (p.143) suggest that functionally linked land used by the qualifying features of the SPAs will be permanently lost to the development.  | <p>Considering the small operational footprint of the Onshore Scheme (i.e., the Onshore Converter Station) in parallel with the extent of onshore habitat available for foraging and roosting for qualifying features of the SPAs, it is not considered that long-term habitat loss as a result of the Onshore Scheme will have effects on SPA bird populations from the physical presence of onshore infrastructure during the operation and maintenance phase.</p> <p>Survey records, as outlined in section 7.2.3, suggest relatively low numbers of qualifying species are present therefore any effects are unlikely to be seen on a population level. It is also important to recognise that the Onshore Converter Station Zone is significantly distanced from the land most likely to be used by</p> |

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| Date        | Consultee Stakeholder                   | Topic / receptor / site | Issues Discussed / comment received   | How and Where Considered in the RIAA   |
|-------------|---|-------------------------|---|--|
| 18 May 2023 | Natural England: HRA Screening Response | Ornithology             | <b>Onshore Scheme</b><br>We agree with the conclusions of potential LSE for the onshore scheme. | Noted.<br><br>seabirds designated as part of neighbouring European Sites. Furthermore, potential for loss of functionally linked land has been greatly reduced by virtue of the Applicant's commitment to adopting trenchless technologies, such as HDD, for the Landfall. |

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## 5. Conclusions from Stage 1 - HRA Screening

### 5.1. Stage 1 – HRA Screening

#### 5.1.1. Sites Requiring Consideration in this RIAA

79. In total 20 sites were included in the Stage 1 HRA Screening Report (BBWFL, 2023a). Of these 20 sites, LSE could not be ruled out for two sites with respect to potential effects associated with the Onshore Scheme:

- Northumberland Marine SPA
- Northumbria Coast SPA / Ramsar

#### 5.1.2. Approach to Stage 1 HRA Screening

80. Identification of the two sites listed above was completed in line with the following process:

- Identification of the range of potential effects of the Onshore Scheme on a designated site, its qualifying features and conservation objectives and the identification of any potential pathways for LSE; and
- A determination of the potential connectivity of these designated sites with the Onshore Scheme. It was identified that there is potential for connectivity to occur:
  - Where the European site overlaps with the Onshore Scheme.
  - Where mobile species can move outwith the designated site – due to migration or foraging, for example – and still be impacted by the Onshore Scheme.

81. With regards to the Onshore Scheme due to the interface with the Marine Scheme at the Landfall, it was identified that there is a potential for a pathway between the Onshore Scheme and qualifying features of coastal and marine sites. It was therefore necessary to undertake further assessment of the potential effects associated with the Onshore Scheme in order to conclude no LSE. This additional assessment required to determine no LSE was based up on:

- The qualifying feature(s) would, as a result of their foraging, behavioural, breeding or migratory characteristics, be determined as having limited sensitivity to the activities proposed as part of the Onshore Scheme (e.g. the Onshore Scheme and associated activities are outwith the foraging range of a particular qualifying bird species); and/or
- The qualifying feature(s) or species of interest are likely to be affected by activities proposed as part of the Onshore Scheme, however the impacts are considered inconsequential such that the conservation objectives for the site’s qualifying interest features would not be undermined.

82. This approach was supported by Screening Advice received from Natural England (Natural England, 2023a).

#### 5.1.3. Conclusions

83. **Error! Reference source not found.** details which sites which have been taken forward for assessment in the RIAA and the impacts that have been identified as requiring further assessment based on the conclusions from the Stage 1 HRA Screening Report. The location of these sites in relation to the Onshore Scheme is illustrated in Figure 2 below.

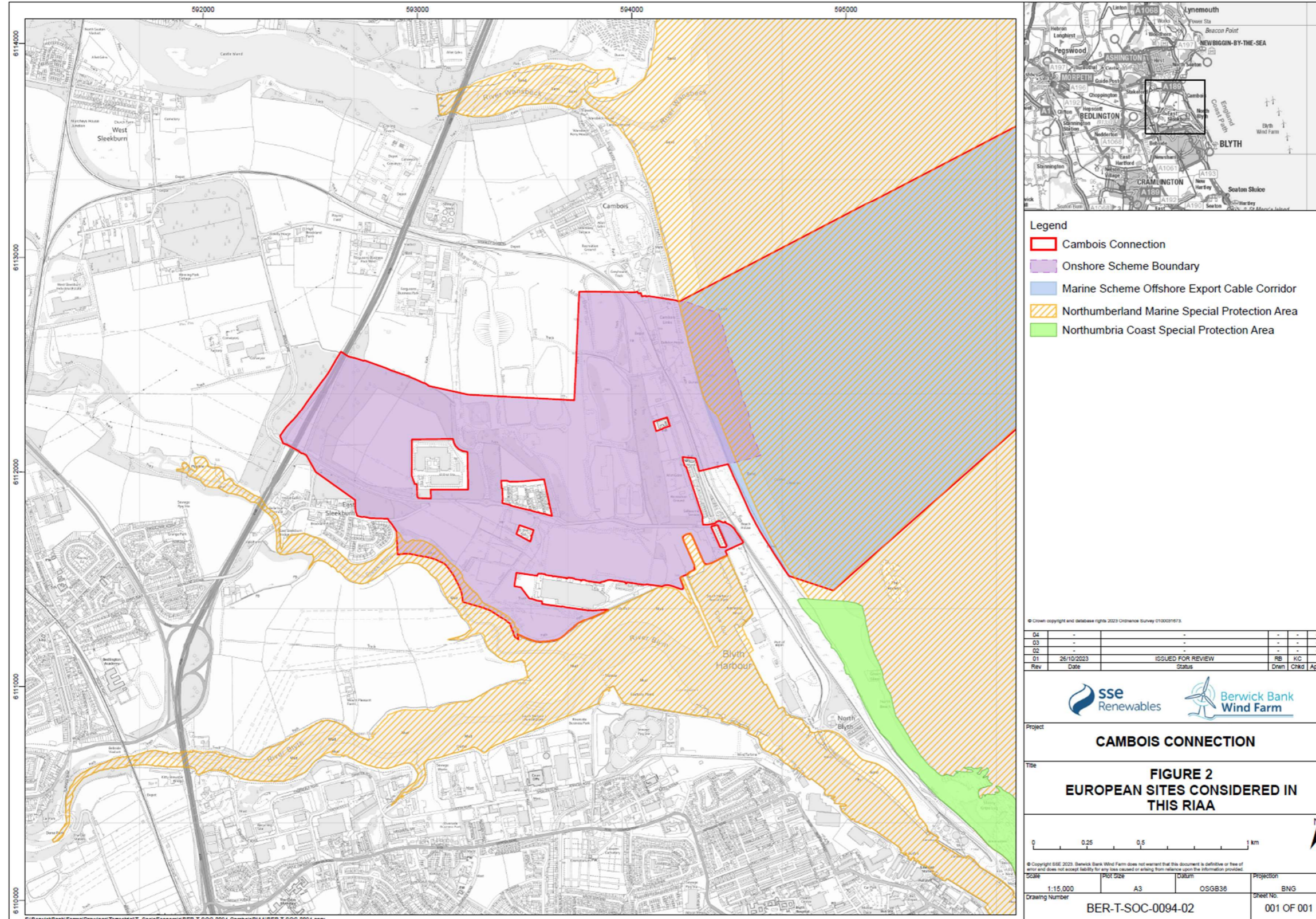



Figure 2 European Sites Considered in the RIAA

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**Table 5.1 Conclusions of LSE for the Onshore Scheme from HRA Stage One Screening and Screening Responses**

| Sites where it was concluded LSE in relation to the Onshore Scheme could not be ruled out | Qualifying feature/s (only those features screened into the RIAA are listed)   | Distance to Onshore Scheme | Potential Impact pathways                              |
|---|--|----------------------------|--|
| Northumberland Marine SPA   | <ul style="list-style-type: none"> <li>• Guillemot (<i>Uria aalge</i>) (Breeding)</li> <li>• Common tern (<i>Sterna hirundo</i>) (Breeding)</li> <li>• Little tern (<i>Sterna albifrons</i>) (Breeding)</li> <li>• Sandwich tern (<i>Sterna sandvicensis</i>) (Breeding)</li> <li>• Arctic tern (<i>Sterna paradisaea</i>) (Breeding)</li> <li>• Puffin (<i>Fratercula arctica</i>) (Breeding)</li> <li>• Roseate tern (<i>Sterna dougallii</i>) (Breeding)</li> <li>• Seabird assemblage (breeding) including the components: <ul style="list-style-type: none"> <li>○ Cormorant (<i>Phalacrocorax carbo</i>)</li> <li>○ Shag (<i>Gulosus aristotelis</i>)</li> <li>○ Black-headed gull (<i>Chroicocephalus ridibundus</i>)</li> <li>○ Kittiwake (<i>Rissa tridactyla</i>)</li> </ul> </li> </ul> | 0 km (direct overlap)      | Disturbance / displacement<br><br>Accidental pollution |
| Northumbria Coast SPA/Ramsar Site   | <ul style="list-style-type: none"> <li>• Little tern (Breeding)</li> <li>• Turnstone (<i>Arenaria interpres</i>) (Non-breeding)</li> <li>• Purple sandpiper (<i>Calidris maritima</i>) (Non-breeding)</li> <li>• Arctic tern (Breeding)</li> </ul>   | 0.3 km (S)                 | Disturbance / displacement<br><br>Accidental pollution |

## 5.2. Transboundary Effects

84. As part of HRA screening assessment, the potential for transboundary effects was considered. The nature of the Onshore Scheme means that the geographical extent and associated Zones of Influence (ZOIs) are highly limited. Therefore there is no aspect of the Onshore Scheme which could foreseeably have the potential for any form of transboundary effect.

85. Published governmental guidance recognises that the potential for transboundary effects is usually anticipated in the case of generating stations and specifically, large-scale offshore wind developments (DECC, 2015; The Planning Inspectorate, 2022). The Onshore Scheme does not include any generating assets and will not give rise to activities which could foreseeably lead to a transboundary effect in all phases of development. On this basis, transboundary effects were not considered further at HRA Screening Stage One (BBWFL, 2023a) and will not be considered further for the Onshore Scheme in this RIAA.

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## 6. Approach to the Assessment of Effects on Site Integrity

### 6.1. Relevant Guidance Documents

86. The following guidance documents have been utilised in the preparation of this RIAA:

- Department for Environment, Food and Rural Affairs (January 2021) Policy Paper – Changes to the Habitats Regulations 2017 (DEFRA, 2021).
- European Commission (EC) (2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission Notice Brussels C (2021) 6913 final;
- EC (2020) Guidance document on wind energy developments and EU nature legislation. European Commission Notice Brussels C (2020) 7730 final;
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC’;
- EC (2007) Guidance document on Article 6(4) of the ‘Habitats Directive’ 92/43/EE. Clarification on the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission;
- EC (2006) Nature and Biodiversity Cases Ruling of the European Court of Justice;
- The Habitats Regulations Assessment Handbook (Tyldesley and Chapman, 2021);
- Habitats regulations assessments: protecting a European site (Department for Environment, Food and Rural Affairs, 2021);
- Planning Inspectorate, Advice Note Ten: Habitats Regulations Assessment (relevant to NSIP projects but contains useful information relevant to the HRA process in general);
- Natural England Standard: HRA Habitats Regulations Assessment (HRA) (NESTND026) (Natural England, 2021); and
- UK Government Habitats regulations assessments: protecting a European site (UK Government, 2021).

### 6.2. HRA Process

#### 6.2.1. Overview


87. As discussed in section 3, the UK Government in its HRA Guidance (UK Government, 2021) identifies that the HRA process comprises three stages:

- Stage One: HRA Screening for Likely Significant Effects (fulfilled by the HRA Screening Report (BBWFL, 2023a, included as Appendix 1));
- Stage Two: Report to Inform Appropriate Assessment (fulfilled by this RIAA); and
- Stage Three: Derogation.

88. These stages are described below with regards to the Onshore Scheme and the requirements for this RIAA.

#### 6.2.1.1. STAGE ONE: HRA SCREENING FOR LIKELY SIGNIFICANT EFFECTS

89. The purpose of Stage One is to identify European Sites which have potential connectivity with the project and to identify which aspects of the project, in the absence of secondary mitigation have the

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potential to result in pathways for LSE<sup>5</sup> on the qualifying features and conservation objectives of a European Site, either alone or in-combination with other plans or projects. Where a potential pathway for LSE is identified, these sites will be taken forward for further assessment as part of Stage Two. Where LSE cannot be identified for a European Site, it will be ruled out for further assessment.

90. Stage 1 has been undertaken and an HRA Stage One Screening Report (BBWFL, 2023a, included as Appendix 1) was submitted to the Competent Authorities (MD-LOT, MMO and NCC) on 30 March 2023.

#### 6.2.1.2. STAGE TWO: REPORT TO INFORM APPROPRIATE ASSESSMENT (RIAA) – AS FULFILLED BY THIS DOCUMENT

91. This RIAA has been prepared to fulfil the requirements of Stage Two of the process. As part of Stage Two, it is required that each LSE of the Onshore Scheme is considered alone and in-combination with other existing or planned projects and plans within the zone of influence (ZOI) on the integrity of the European Sites screened in for assessment during Stage One which was approximately 10km.

92. The ZOI is defined as the spatial area over which receptors may be affected by biophysical changes as a result of the project and associated activities, a definition which is in accordance with the CIEEM guidance for ecological impact analysis (CIEM, 2019). Whilst it is acknowledged that this definition is specific to and derived from EIA guidance, it is considered appropriate to apply the ZOI to the RIAA .

93. The habitats and species of qualifying interest and the conservation objectives of the European Site should be considered as part of the assessment. This RIAA also summarises the conclusions of the HRA Stage One Screening Report (BBWFL, 2023a) and also details any additional information or changes, since this was published in March 2023, to account for feedback received from stakeholders during consultation.

#### 6.2.1.3. STAGE THREE: DEROGATION

94. If it cannot be concluded that there are no ‘adverse effects on site integrity’ (AEOSI) of a European Site, the site will be taken forward for consideration as part of Stage Three. There are three tests at this stage to be followed in order: 1) consideration of alternative solutions; 2) consideration of Imperative Reasons of Overriding Public Interest (IROPI); and 3) application of compensatory measures. Each test must be passed for each relevant European Site for a derogation to be granted.


### 6.2.2. Assessing Adverse Effects on the Integrity of European Site

95. The European Commission’s guidance on managing Natura 2000 sites (EC, 2018) advises that the purpose of the appropriate assessment is to assess the implications of the plan or project in respect of the site’s Conservation Objectives, either individually or in combination with other plans or projects. The conclusions should enable the Competent Authorities to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus of the appropriate assessment is therefore specifically on the species and/or the habitats for which the European site is designated.

96. The guidance highlights the importance of using the best scientific knowledge whilst carrying out the appropriate assessment to enable the Competent Authorities to conclude with certainty that there will be no adverse effects on the integrity of the site. At the time of deciding to authorise a project there

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<sup>5</sup> A significant effect should be considered likely if it cannot be excluded on the basis of objective information and it might undermine a site’s conservation objectives (UK Government, 2019).

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must be no reasonable scientific doubt remaining as to the absence of adverse effects on the integrity of the site in question.

97. In its ruling in Case C-258/11, the CJEU confirmed that ‘Article 6(3) of the Habitats Directive must be interpreted as meaning that a plan or project not directly connected with or necessary to the management of a site will adversely affect the integrity of that site if it is liable to prevent the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site in the list of SCIs, in accordance with the directive. The precautionary principle should be applied for the purposes of that appraisal’. EC (2018) advises that the logic of such an interpretation would also be relevant to nonpriority habitat types and to habitats of species.
98. EC, (2018) details that the ‘integrity of the site’ can be defined as the coherent sum of the site’s ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated. In *Sweetman, Ireland, Attorney General, Minister for the Environment, Heritage and Local Government v An Bord Pleanála* (C258/11) (*Sweetman 1*) it was determined that the ecological structure and function of a European site would be adversely affected with reference to the site’s overall ecological functions and “the lasting preservation of the constitutive characteristics of the site.”
99. EC, (2018) notes that if the competent authority considers the mitigation measures sufficient to avoid adverse effects on site integrity as identified in the appropriate assessment, they will become an integral part of the specification of the final plan or project or may be listed as a condition for project approval.
100. EC (2020) advises that the decision to approve a project or plan (by the competent authority) can only be taken once certain that the plan or project will not adversely affect the integrity of the site. That is the case where no reasonable scientific doubt remains as to the absence of such effects.
101. EC (2020) reaffirms that the authorisation criterion laid down in the second sentence of Article 6(3) of the Habitats Directive integrates the precautionary principle and makes it possible to effectively prevent protected sites from suffering adverse effects on their integrity as the result of the plans or projects. A less stringent authorisation criterion would not be as effective in ensuring the realisation of the objective of site protection intended under that provision.
102. Therefore, the obligation is to demonstrate the absence of adverse effects rather than their presence, reflecting the precautionary principle. The appropriate assessment must be sufficiently detailed and reasoned to demonstrate the absence of adverse effects, identified in the light of the best scientific knowledge in the field and where no reasonable scientific doubt remains as to the absence of such effects.
103. The measure of significance is made against the Conservation Objectives for which the sites were designated as per the *Waddenzee Judgment*<sup>6</sup>.


### 6.2.3. Approach to Mitigation

104. The Court of Justice of the European Union (CJEU) ruled that mitigation measures could not be taken into account at the screening stage of appropriate assessment in *C-323/17 ‘People Over Wind and Sweetman v Coillte Teoranta’* (April 2018) (*Sweetman 2*). The PINS Advice Note Ten: Habitats

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<sup>6</sup> Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij (C-521/12)




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Regulations Assessment subsequently provided guidance relating to how mitigation should be considered as part of the HRA process (PINS, 2022). PINS interpreted the judgment from the European Court of Justice as stating that mitigation measures that intend to avoid or reduce harmful effects to a European Site cannot be considered at the screening stage. However, embedded mitigation measures which are not specifically designed to avoid or reduce effects on a European Site, but do so incidentally, can be considered. Therefore, there must be a distinction between these two types of mitigation. The Stage 1 HRA Screening Report (BBWFL, 2023a) complied with this judgment and no mitigation measures other than embedded measures were considered. Further information on the mitigation measures considered as part of this Stage 2 RIAA is provided in **section XX below**.

#### 6.2.4. Approach to the Assessment of In-Combination Effects

105. This section outlines the approach to the in-combination assessment of other projects or plans within the terrestrial environment along with the Onshore Scheme.
106. It is a requirement under the Habitats Regulations, that the potential impacts of a project are not only considered alone but are assessed in-combination with other plans and projects.
107. The HRA Screening Stage One (BBWFL, 2023) was used to inform the projects included for consideration of in-combination impacts within this RIAA. Note was also taken of any in-combination advice received as part of the HRA Screening Responses. Additionally, the approach taken for the assessment of in-combination impacts for the RIAA has been informed by the cumulative effects assessment (CEA) carried out for relevant topics in the Onshore Scheme ES. The CEA methodology is described in detail in ES, Volume 2, Chapter 3: EIA Methodology (summarised below).
108. There is no single, agreed approach to the completion of a CEA however, as agreed as part of the Scoping process, the following guidance has been used to help inform the approach to the assessment of in-combination effects:
- Cumulative Effects Assessment (PINS, 2019) provides guidance on the assessment of cumulative effects relevant to Nationally Significant Infrastructure Projects (NSIPs). Whilst the Onshore Scheme is not an NSIP, the well-tested and robust methodology is valuable.
109. The in-combination assessment has considered all other relevant plans, projects and activities where detail to inform the assessment is publicly available three months prior to the Planning Application for the Onshore Scheme (31 July 2023). An overview of the projects or activities which will be considered for in-combination with the Onshore Scheme includes:
- Cambois Connection Marine Scheme;
  - Existing projects in construction;
  - Consented projects, awaiting implementation; and
110. Proposals awaiting determination within the planning process with design information in the public domain Where information is provided to inform Appropriate Assessment below, an in-combination assessment is provided for each relevant European site / feature(s).

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## 6.3. Information Required to Inform the Assessment of AEOSI

### 6.3.1. Impacts Requiring Assessment in this RIAA

111. The impact pathways for which potential LSE on ornithological interests of the Northumberland Marine SPA and Northumbria Coast SPA / Ramsar (Table 5.1) could not be ruled out for the Onshore Scheme are presented in Table 6.1.

**Table 6.1 Potential Impacts on SPA Species of Interest**

| Potential Impact  | Impact Source  |
|---|--|
| Disturbance and/or displacement (construction and decommissioning)                              | <ul style="list-style-type: none"> <li>• Presence of plant equipment and machinery</li> <li>• Noise and light from construction activities (equipment and operatives)</li> </ul>   |
| Accidental pollution <sup>7</sup> (construction, operation and maintenance and decommissioning) | <ul style="list-style-type: none"> <li>• Damage to habitats / direct impacts on species due to spillage or leakages of contaminants (e.g. fuels, drilling oils, other lubricants, from plant equipment and machinery)</li> </ul> |

### 6.3.2. Maximum Design Scenarios


112. The MDS for the assessment relevant to ornithological interests are set out in Table 6.2

113. The 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 the Onshore Scheme ES Volume 2 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.

114. 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.

115. 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

<sup>7</sup> It should be noted that accidental pollution was erroneously omitted from the HRA Screening stage and is subsequently included within this RIAA for further consideration.


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of cable 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.

**Table 6.2 MDS specific to the assessment for ornithological interests**

| Potential Pathway               | Maximum Design Scenario   | Justification   |
|---------------------------------|---|---|
| <b>Construction</b>             |   |   |
| Disturbance and/or displacement | <p><b>Visual and noise disturbance</b> is possible during construction works within approximately 400 m<sup>8</sup> of the beach and the Sleek Burn / Blyth Estuary, where used by SPA/Ramsar qualifying species. Disturbance could take place throughout the construction period of 48 months, but noting that construction works within each zone of the Site will extend for shorter periods, estimated as follows:</p> <ul style="list-style-type: none"> <li>• Site preparation/ enabling works - up to 15 months;</li> <li>• Landfall construction – up to 24 months;</li> <li>• Onshore Cable (HVAC and HVDC) - up to 18 months;</li> <li>• Onshore Converter Station construction - up to 18 months; and</li> <li>• Surface Water Outfall (SWO) installation - up to 9 months.</li> </ul> <p><b>Visual disturbance</b> 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.</p> <p>Maximum <b>construction noise</b> levels are set out in the Onshore Scheme ES Volume 2 Chapter 13: Noise &amp; Vibration. Noise generated by construction activities would be mostly regular in character although impact/percussive piling is possible at the Onshore Converter Station, which would represent irregular noise.</p> | <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 Zones of Infrastructure (refer to Figure 5.1, Volume 4 of the Onshore Scheme ES) may be impacted.</p> <p>The approach to the assessment is in line with relevant guidance</p> |
| Accidental pollution            | <p>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. 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</p>  | <p>The approach to the assessment of air quality and hydrology impacts is in line with relevant guidance (see Onshore Scheme ES Volume 2 Chapter 11 Hydrology and Hydrogeology Chapter 14:</p>  |

<sup>8</sup> 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 Pathway   | Maximum Design Scenario   | Justification  |
|---|---|--|
|   | m of roads expected to experience increases in traffic flows as a result of the Onshore Scheme.   | Air Quality for further details).  |
| <b>Operation and Maintenance</b>  |   |  |
| Accidental pollution  | In the absence of mitigation, planned and unplanned maintenance could result in pollution of water-based resources, although these will be minimised by the adoption of standard pollution prevention measures. 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 converter station maintenance regime will be confirmed within detailed design, however maintenance is thought to be occasional rather than regular. | Information regarding the likely extent of planned and unplanned maintenance works is taken from chapter 5: Project Description. The approach to the assessment of air quality and hydrology impacts is in line with relevant guidance (see Onshore Scheme ES Volume 2 Chapter 11 Hydrology and Hydrogeology Chapter 14: Air Quality for further details). |
| <b>Decommissioning</b>  |   |  |
| 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> . Any final decommissioning methodology would adhere to standard industry practice, rules and regulations at the time of decommissioning. |   |  |

### 6.3.3. Measures Adopted as Part of the Onshore Scheme

116. Measures relevant to ornithological qualifying features of the two sites requiring further assessment as part of this RIAA (Northumberland Marine SPA and Northumbria Coast SPA and Ramsar) are set out in Table 6.3.

**Table 6.3 Measures relevant to ornithological features**

| Mitigation measure             | Justification  |
|--------------------------------|--|
| Landfall construction          | Trenchless techniques, such as horizontal directional drilling (HDD) will be used at the Landfall for the construction of the Onshore Scheme. Works associated with Landfall construction activities will avoid any works in the intertidal environment and will reduce the potential for sediment disturbance.  |
| Converter station construction | 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). |

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| Mitigation measure                                | Justification   |
|---|---|
| Avoidance of sensitive habitats                   | 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.   |
| Construction timing restriction                   | 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).  |
| Construction Environmental Management Plan (CEMP) | 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 Onshore Scheme ES Technical Appendix 5.2 (Volume 3)   |
| Environmental Clerk of Works (ECoW)               | 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.  |
| Pollution Control                                 | Standard industry practice and mitigation measures, comprising relevant Pollution Prevention Guidelines and CIRIA guidance will be followed to reduce any potential risks of ground pollution. Full details are provided in Onshore Scheme ES Volume 2 Chapter 11: Hydrology and Hydrogeology.  |
| Development of a Marine Pollution Response Plan   | 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.   |
| Environmental Management Plan                     | 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. |
| Decommissioning Plan                              | 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.  |

### 6.3.4. Relevant Baseline Information

#### 6.3.4.1. ONSHORE ORNITHOLOGY FIELD SURVEYS

117. In order to adequately assess the baseline conditions for birds, the following field surveys were undertaken.

- **Breeding Birds** - Breeding wader surveys based on methods in Gilbert *et al.* (1998). Other surveys used an adapted version of the Common Birds Census methodology (Gilbert *et al.* 1998 from May to June 2023; and

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- **Wintering birds** - Twice monthly through-the-tide surveys recording waterbird distribution and abundance from October 2022 to March 2023.

118. Details of the specific methods used, and the results of each survey can be found in the Onshore Scheme ES Volume 3, Technical Appendix 9.6: Ornithology – Breeding Bird Survey Report and Volume 3, Technical Appendix 9.7: Ornithology – Wintering Bird Survey Report.

#### 6.3.4.1.1. BREEDING BIRDS

119. The results of breeding bird surveys undertaken in May and June 2023 are presented in detail in the Onshore Scheme ES Volume 3 Technical Appendix 9.6 and a brief summary of key findings is provided below.

120. 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.


121. 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 linnets (*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 Natural Environment and Rural Communities (NERC) Act 2006: skylark; linnets; and reed bunting (*Emberiza schoeniclus*). No qualifying breeding species were observed.

#### 6.3.4.1.2. WINTERING (NON-BREEDING) BIRDS

122. 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 Onshore Scheme ES Technical Appendix 9.7 (Volume 3). A brief summary of key findings is provided below.

123. 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.

124. 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

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Survey (WeBS)<sup>9</sup> 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.

125. 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.
126. 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.
127. Any potential anthropogenic disturbance events (such as dog walkers) 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.


### 6.3.5. Description of Potential Impacts

#### 6.3.5.1. DISTURBANCE AND/OR DISPLACEMENT (CONSTRUCTION AND DECOMMISSIONING)

128. Disturbance and/or displacement of ornithological species or features from a foraging or roosting area may occur during construction of the Onshore Scheme through presence and operation of plant equipment and machinery. These impacts can arise as a result of short-term disturbance to foraging or roosting areas associated with terrestrial habitats.


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<sup>9</sup> 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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129. As stated in Table 6.2 , 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 SPA/Ramsar qualifying species. Disturbance could take place throughout the construction period.
130. Disturbance is possible at the landfall from works at the (onshore) exit pits and onward HVDC cable corridor, where these lie within 400 m of the beach. The precise location of the exit pits is not known at this stage, although it is known that it will be situated to the west of Unity Terrace, landwards of the dunes system. 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 SPA/Ramsar qualifying species in relatively low numbers, i.e.: turnstone (recorded on seven of 12 survey dates with a peak count of six) and purple sandpiper (recorded on four of 12 survey dates with a peak count of three); (see Onshore Scheme ES 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 Onshore Scheme ES Volume 3 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.
131. Disturbance to SPA/Ramsar qualifying species at the Sleek Burn is possible during construction of the SWO and 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 **Error! Reference source not found.** construction works relating to the SWO into the Sleek Burn will be restricted to avoid the winter period (October to March inclusive). Disturbance to SPA/Ramsar qualifying species wintering bird species due to construction of the outfall 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. 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.
132. 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.
133. 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



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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.

134. The maximum predicted noise levels during construction of the HVAC cables are provided in the Onshore Scheme ES Volume 2 Chapter 13: Tables 13-23. 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.
135. The Onshore Scheme ES Volume 2 Chapter 13: Tables 13-24 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.
136. Predicted construction noise levels at a range of residential receptors located in proximity to the converter station are provided in the Onshore Scheme ES Volume 2 Chapter 13: Table 13-28. These are based on worst-case average noise levels, which would occur during the groundworks phase (Table 13-26, Onshore Scheme ES Volume 2 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 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.
137. The Sleek Burn is subject to relatively low levels of existing disturbance (less than 20 disturbance events were recorded during the surveys – see Onshore Scheme ES Volume 3 Technical Appendix 9.7) and in the absence of mitigation, birds 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.
138. The majority of bird species demonstrate a low to moderate sensitivity (Goodship and Furness, 2022; Atterbury *et al.*, 2021) to disturbance and/or displacement as a result of construction activities. The Onshore Scheme is located within an area of extensive development and activity, with works of a similar nature to those proposed by the Onshore Scheme completed for the North Sea Link Interconnector Cable, Blyth Demonstrator wind farm and the Northumberland Energy Park (Phases 1) carried out without significant impacts arising from onshore works.

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**6.3.5.2. ACCIDENTAL POLLUTION (CONSTRUCTION, O&M AND DECOMMISSIONING)**

139. During construction and decommissioning of the Onshore Scheme, works have the potential to impact the SPA/Ramsar qualifying species through pollution via both air quality (the production of construction dust) and water-based pollution.
140. Several sections of the HVDC and HVAC cable routes may involve or require crossing ‘Ordinary Watercourses’ or drainage ditches, as shown in the Onshore Scheme ES Figure 11.5 (Volume 4). Along short sections of the routes, the HVDC and HVAC cables pass through land within a tidal floodplain, or land considered to be in the surface water floodplain (risk associated with the ‘Ordinary Watercourses’ which are not fluvially dominated) which discharge into designated sites.
141. Following the implementation of a Construction Environmental Management Plan (CEMP) with regards to pollution control measures and industry standard guidance for construction surface water management, the likelihood of a pollution incident following from the installation of the Landfall, HVDC/HVAC cable routes or construction of the Onshore Converter Station is considered to be very low.
142. In the low probability event that a small pollution spill or sedimentation release was to occur, these would discharge offsite via the local surface water network and therefore via Cow Gut, Maw Burn or other smaller drainage ditches into Sleek Burn or North Sea.
143. The likelihood of turbid water and sedimentation is considered very low due to the presence of in-situ embedded mitigation and controls throughout the construction phase of the HVDC/HVAC cables and Converter Station. Any pollution which may arise through the construction process would be minor, predominantly HDD drill fluid or fuel leaks from vehicles. Relevant pollution prevention guidance would be adopted at all times to reduce the likelihood of accidents and reduce the magnitude of impacts so far as practicable. Response to spillages is however reliant on mobilisation of appropriately trained site personnel to control and retain the affected area. The Incident Response Plan within the CEMP would require site personnel to be trained in spill control and management.
144. Watercourses on the Site are dominated by rainfall and are therefore not continuously in flow. In the low probability event that a pollution entered a surface watercourse (i.e., following a rainfall event), any pollutant would become diluted by both surface and tidal waters. The volume of a pollution incident would be small and likely untraceable in the estuary which serves the local designated sites.
145. With regards to air quality, construction activities would be undertaken in accordance with good practice techniques, that are proportional to the outcomes of the construction dust assessment (section 14.11 of the Onshore Scheme ES Volume 2 Chapter 14 Air Quality). These are outlined in the Onshore Scheme ES Volume 3, Technical Appendix 14.3: Air Quality Mitigation Measures. A Dust Management Plan would be developed and implemented as part of a CEMP (which will contain standard dust suppression measures as tertiary mitigation) An Outline CEMP has been provided as part of this application (Onshore Scheme ES Volume 3 Technical Appendix 5.2).
146. During the operational phase of the Onshore Scheme, it is proposed that all run off from the Converter Station Site will discharge into the Sleek Burn via the SWO within the HVAC Zone. A Surface Water Drainage Strategy (Onshore Scheme ES Appendix 11.2, Volume 3) will be implemented for the Onshore Converter Station prior to works commencing and will be in place throughout the operational lifespan of the Onshore Converter Station. The surface water drainage is sized to prevent flooding on

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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 Onshore Scheme.


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

### 6.3.6. Plans and Projects for the In-Combination Assessments

148. The plans and projects set out in Table 6-4 have been considered within the in-combination assessment for European sites designated for ornithological features, noting that these differ between SPAs according to variation in connectivity (which in turn is dependent on location, breeding season foraging ranges, and distribution and movements in the non-breeding periods).


149. The plans and projects included in this in-combination assessment have been derived in part, from the CEA longlist presented in Onshore Scheme ES Volume 3, Appendix 3.1. Each plan or project has been considered on a case-by-case basis for inclusion based upon data confidence, effect pathways and the spatial/temporal scales involved.

150. Assessment of in-combination effects follows each SPA project alone assessment.


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**Table 6-4 List of Other Projects with Potential for In-Combination Effects on Ornithological Features**


| Project   | Status      | Distance from Onshore Scheme   | Description of Project  | Dates of Construction (if Applicable) | Dates of Operation (if Applicable) | Overlap with the Onshore Scheme   | SPAs Considered for In-Combination Assessment with the Onshore Scheme |                           |
|---|-------------|--------------------------------|---|---------------------------------------|------------------------------------|---|---|---------------------------|
|   |             |                                |   |                                       |                                    |   | Northumbria Coast SPA/  | Northumberland Marine SPA |
| Cambois Connection Marine Scheme  | In planning | 0 km (direct physical 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.<br><br>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.<br><br>Potential for construction and operational overlap with the Onshore Scheme.                 | ✓   | ✓                         |

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| Project  | Status    | Distance from Onshore Scheme | Description of Project  | Dates of Construction (if Applicable) | Dates of Operation (if Applicable) | Overlap with the Onshore Scheme   | SPAs Considered for In-Combination Assessment with the Onshore Scheme |                           |
|--|-----------|------------------------------|---|---------------------------------------|------------------------------------|---|---|---------------------------|
|  |           |                              |   |                                       |                                    |   | Northumbria Coast SPA/  | Northumberland Marine SPA |
| 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. Ecological information relied on in preparation of Ecological Impact Assessment not publicly 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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| Project  | Status    | Distance from Onshore Scheme | Description of Project   | Dates of Construction (if Applicable) | Dates of Operation (if Applicable) | Overlap with the Onshore Scheme  | SPAs Considered for In-Combination Assessment with the Onshore Scheme |                           |
|--|-----------|------------------------------|--|---------------------------------------|------------------------------------|--|---|---------------------------|
|  |           |                              |  |                                       |                                    |  | Northumbria Coast SPA/  | Northumberland Marine SPA |
| 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 however no potential to have in-combination effect on either designated site so not considered further. | ✓   | ✓                         |
| Land to north of Spring Ville East Sleekburn                               | Consented | c.0.1 km                     | Proposed residential development for 48 dwellings with associated access and an area of public open space. Limited | Under Construction                    | Unknown                            | No spatial overlap, although could affect similar receptors due  | x   | x                         |

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| Project            | Status | Distance from Onshore Scheme | Description of Project            | Dates of Construction (if Applicable) | Dates of Operation (if Applicable) | Overlap with the Onshore Scheme   | SPAs Considered for In-Combination Assessment with the Onshore Scheme |                           |
|--------------------|--------|------------------------------|-----------------------------------|---------------------------------------|------------------------------------|---|---|---------------------------|
|                    |        |                              |                                   |                                       |                                    |   | Northumbria Coast SPA/  | Northumberland Marine SPA |
| (21/03723/<br>FUL) |        |                              | ecological information available. |                                       |                                    | to close proximity.<br>Potential for construction and operational overlap with the Onshore Scheme however no potential to have in-combination effect on either designated site so not considered further. |   |                           |

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## 7. Assessment of AEOSI

### 7.1. Northumberland Marine SPA

#### 7.1.1. European Site Information and Conservation Objectives

151. The Northumberland Marine SPA directly overlaps the Onshore Scheme at the landfall, and also overlaps the Site boundary to the south of the Site, along the Sleek Burn, as shown in Figure 2.
152. The Northumberland Marine SPA provides additional protection to key foraging and maintenance (preening, sleeping, resting) areas for seabirds and terns in waters adjacent to key breeding colonies located along the Northumberland Coast. This includes marine extensions to existing SPAs at the Farne Islands, Coquet Island, Lindisfarne and Northumbria Coast (Long Nanny, Beadnell Bay) (Natural England, 2014) and the inclusion of additional features identified by a review of seabird populations of those SPAs (Natural England, 2015).
153. The northern and southern extents of the coastal boundary of the Northumberland Marine SPA were determined by modelled usage of Sandwich terns foraging from the Farne Islands SPA and Coquet Island SPA respectively (Natural England, 2015). The southern boundary extends to just south of the Blyth Estuary (Natural England, 2015). The seaward extents were determined by, from north to south, the modelled foraging distributions of: Sandwich tern and Arctic terns at the Farne Islands SPA; Arctic terns at Northumbria Coast SPA and Arctic, roseate and Sandwich terns at Coquet Island SPA (Natural England, 2015).
154. The site qualifies under Article 4.1 by supporting five Annex I breeding seabirds and under Article 4.2 by supporting two regularly occurring migratory species. The site also supports in excess of 20,000 non-breeding waterbirds including four additional named components. The potential for LSE has been identified in relation to two features (Table 7.1), with the effect pathways associated with LSE for each of these detailed in Table 6.1 and set out in the assessment below.
155. Based on evidence presented in the Northumberland Marine pSPA Department Brief (Natural England, 2015) the two tern species that are most likely to be present in the boundary of the Onshore Scheme include the roseate and Sandwich terns. The evidence presented in the Northumberland Marine pSPA Department Brief (Natural England, 2015) indicates that Cambois beach is located at the southernmost extent of the foraging range for both roseate and Sandwich tern, suggesting the numbers of both roseate and Sandwich terns using the area are likely to be lower than areas further north closer to the breeding colony. Usage maps for roseate tern (Natural England, 2015) indicate that usage in Cambois Bay is 0.66 – 1.24 compared to usage levels further north that range from 3.86 to 20.75 around Coquet Island (Alnmouth Bay to the north of Coquet Island and Druridge Bay to the south of Coquet Island). Usage maps for Sandwich tern (Natural England, 2015) suggest highest usage levels at Coquet Island (13.37 – 22.08). Usage levels decrease consistently with distance from Coquet Island, dropping to 0.11-0.38 in Cambois Bay.
156. Although both common tern and Arctic tern both breed on Coquet Island, modelled usage indicates that the most southern extent of the foraging areas used by both species is the southern end of Druridge Bay which is a couple of miles north of Cambois (Natural England, 2015).
157. The only little tern colonies supported by the Northumberland Marine SPA are located at Lindisfarne and Newton Links/Long Nanny. Given both colonies are well beyond the 5 km foraging range for little tern (Woodward *et al.*, 2019) it is highly unlikely little terns would use the Cambois beach area and Cambois dunes and links for foraging or roosting during the breeding season.



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158. Only five puffin were recorded during the over-wintering bird surveys at the Cambois Beach survey area, which were observed out on sea as puffin are sea faring species during the winter months. Puffin is highly unlikely to be present in the Site as no suitable breeding nor foraging habitat for this species as puffin forage on the open sea. Other species which form part of the qualifying seabird assemblage (namely, cormorant, shag, black headed gull and kittiwake) are also sea faring species and unlikely to be present within the Site. Guillemot were also recorded both at Cambois beach and along the Sleek Burn (albeit in low numbers), guillemot is highly unlikely to be present in the Site as no suitable breeding nor foraging habitat for this species as puffin forage on the open sea

159. The conservation objectives of this SPA are:

- *To ensure that the integrity of the site is maintained or restored as appropriate; and*
- *To ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining*
  - *The extent and distribution of the habitats of the qualifying features;*
  - *The structure and function of the habitats of the qualifying features;*
  - *The supporting processes on which the habitats of the qualifying features rely;*
  - *The population of each of the qualifying features; and*
  - *The distribution of the qualifying features within the site.*

**Table 7.1 Details on the qualifying features of the Northumberland Marine SPA**

| QUALIFYING FEATURE   | SEASON   | SITE CONDITION | CITATION SIZE       | POTENTIAL LSE   |
|----------------------|----------|----------------|---------------------|---|
| <b>Sandwich tern</b> | Breeding | Not available  | 4,324 individuals   | Yes   |
| <b>Roseate tern</b>  | Breeding | Not available  | 160 individuals     | Yes   |
| <b>Common tern</b>   | Breeding | Not available  | 2,572 individuals   | No - common tern is highly unlikely to be present in the Site as no suitable breeding nor foraging habitat for this species. Therefore, no potential pathway for impact to occur. |
| <b>Arctic tern</b>   | Breeding | Not available  | 9,564 individuals   | No – arctic tern is highly unlikely to be present in the Site as no suitable breeding nor foraging habitat for this species. Therefore, no potential pathway for impact to occur. |
| <b>Little tern</b>   | Breeding | Not available  | 90 individuals      | No - little tern is not recorded as being present in the Site as no suitable breeding habitat nor foraging for this species. Therefore, no potential pathway for impact to occur. |
| <b>Puffin</b>        | Breeding | Not available  | 108,484 individuals | No - puffin is highly unlikely to be present in the Site as no suitable breeding nor foraging habitat for this species as puffin forage on the open sea. Therefore, no            |

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| QUALIFYING FEATURE        | SEASON   | SITE CONDITION | CITATION SIZE      | POPULATION | POTENTIAL LSE   |
|---------------------------|----------|----------------|--------------------|------------|---|
|                           |          |                |                    |            | potential pathway for impact to occur.  |
| <b>Guillemot</b>          | Breeding | Not available  | 65,751 individuals |            | No - guillemot is highly unlikely to be present in the Site as not suitable breeding nor foraging habitat for this species, as guillemot forage on the open sea. Therefore, no potential pathway for impact to occur. |
| <b>Seabird Assemblage</b> | Breeding | Not available  | 19,549 individuals |            | No - seabirds are highly unlikely to be present in the Site as no suitable breeding nor foraging habitat for these species. Therefore, no potential pathway for impact to occur.                                      |
| <b>Cormorant*</b>         | Breeding | Not available  | 460 individuals    |            |   |
| <b>Shag*</b>              | Breeding | Not available  | 1,677 individuals  |            |   |
| <b>Black-headed gull*</b> | Breeding | Not available  | 8,745 individuals  |            |   |
| <b>Kittiwake*</b>         | Breeding | Not available  | 8,667 individuals  |            |   |

\*Named components of the assemblage only.

### 7.1.2. Assessment of Effects on Sandwich Tern

160. Although Sandwich tern might be present in the survey area, this would be while resting only. The species forages offshore and the breeding colony is 14 km north (Coquet Island).


#### 7.1.2.1. PROJECT ALONE EFFECTS

##### 7.1.2.1.1. DISTURBANCE AND DISPLACEMENT (CONSTRUCTION AND DECOMMISSIONING)

161. The main sources of potential disturbance include the presence of equipment and machinery, equipment operatives and use of the equipment (noise and light) from construction at the Landfall and SWO in proximity to the SPA. 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 scoped out from further assessment. 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.

162. Sandwich terns are considered to be highly sensitive to disturbance, in particular at breeding colonies where colonies have been deserted as a results of human disturbance (Goodship and Furness, 2022) although responses can vary with evidence of habituation to human disturbance at the Farne Islands. Away from colonies, Sandwich terns seem to be at low risk of disturbance when foraging at sea, based on evidence of disturbance from boats and select quiet coastal locations to rest, especially post breeding (Goodship and Furness, 2022).

163. As stated in Table 6.2, 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 throughout the construction period. Sandwich tern were not recorded in the landfall area during surveys. In addition, there is no potential for visual disturbance at the Landfall because there is no direct line of sight between construction works west of


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the road and birds using the beach and trenchless techniques have been committed to at the Landfall. 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. At the Sleek Burn, given there were no records of sandwich tern during the surveys they are not likely to be significantly affected by disturbance. Furthermore, it should be noted 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).

164. Although sandwich tern could be present in the area, they are only likely to be present in low numbers. Sandwich tern do not breed within the sections of the SPA close to the Site (based on desk study data and lack of suitable habitat) and are more likely to be foraging offshore during the breeding season and therefore are unlikely to be affected by onshore activities. Furthermore, given the distance from the breeding colony (approximately 14 km from Coquet Island), should sandwich tern be disturbed whilst onshore (resting), this is unlikely to have an adverse effect in terms of resulting in desertion of the breeding colony.
165. It can therefore be concluded that there is no potential for construction or decommissioning related disturbance or displacement to lead to an adverse effect on the Northumberland Marine SPA sandwich tern population and therefore there is no adverse effect on the integrity of the Northumberland Marine SPA.

7.1.2.1.2. ACCIDENTAL POLLUTION (CONSTRUCTION, O&M AND DECOMMISSIONING)

166. During construction, works have the potential to indirectly impact the SPA through pollution via both air quality (the production of construction dust) and water-based pollution. It is also noted that the SWO into the Sleek Burn will be situated directly adjacent to the SPA.
167. The Onshore Scheme ES Volume 2 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.
168. The Air Quality chapter (Onshore Scheme ES Volume 2 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.
169. During the operational phase of the Onshore Scheme, it is proposed that all run off from the Converter Station Site will discharge into the Sleek Burn via the SWO within the HVAC Zone. A Surface Water Drainage Strategy (Appendix 11.2, Onshore Scheme ES Volume 3) will be implemented for the Onshore Converter Station prior to works commencing and will be in place throughout the operational lifespan of the Onshore 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 Onshore Scheme.
170. Operational discharge from the SWO into the Sleek Burn could result in changes in water quality, thus impacting species that utilise these habitats. 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 prior to discharge.
171. Given the numbers of sandwich terns likely to be using the area is low, and that the likelihood of a pollution incident occurring is very low and would be highly localised, the potential effects of a pollution incident on sandwich terns will be negligible.
172. It can therefore be concluded that there is no potential for accidental pollution during construction, O&M or decommissioning to lead to an adverse effect on the Northumberland Marine SPA sandwich

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tern population and therefore there is no adverse effect on the integrity of the Northumberland Marine SPA.

### 7.1.3. Assessment of Effects on Roseate Tern

#### 7.1.3.1. PROJECT ALONE EFFECTS

##### 7.1.3.1.1. DISTURBANCE AND DISPLACEMENT (CONSTRUCTION AND DECOMMISSIONING)

173. The main sources of potential disturbance include the presence of equipment and machinery, equipment operatives and use of the equipment (noise and light) from construction at the Landfall and SWO in proximity to the SPA. 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 scoped out from further assessment. 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.

174. Roseate terns are considered to be highly sensitive to disturbance, in particular at breeding colonies (Goodship and Furness, 2022)


175. As stated in Table 6.2, 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 throughout the construction period. In addition, 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 and trenchless techniques have been committed to at the Landfall. 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. At the Sleek Burn, given there were no records of roseate tern during the surveys therefore roseate tern are not likely to be significantly affected by disturbance. Furthermore, it should be noted 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).

176. Although roseate tern could be present in the area, they are only likely to be present in low numbers. Roseate tern species do not breed within the sections of the SPA close to the Site (based on desk study data and lack of suitable habitat) and are more likely to be foraging offshore during the breeding season and therefore are unlikely to be affected by onshore activities.

177. It can therefore be concluded that there is no potential for construction or decommissioning related disturbance or displacement to lead to an adverse effect on the Northumberland Marine SPA roseate tern population and therefore there is no adverse effect on the integrity of the Northumberland Marine SPA.

##### 7.1.3.1.2. ACCIDENTAL POLLUTION (CONSTRUCTION, O&M AND DECOMMISSIONING)


178. During construction of the HVAC cables, works have the potential to impact the SPA through pollution via both air quality (the production of construction dust) and water-based pollution. It is also noted that the surface water outfall into the Sleek Burn will be situated directly adjacent to the SPA.

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179. The Onshore Scheme ES Volume 2 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.
180. The Onshore Scheme ES Volume 2 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.
181. Given the numbers of roseate terns likely to be using the area is low, and that the likelihood of a pollution incident occurring is very low and would be highly localised, the potential effects of a pollution incident on roseate terns will be negligible.
182. It can therefore be concluded that there is no potential for accidental pollution during construction or decommissioning to lead to an adverse effect on the Northumberland Marine SPA roseate tern population and therefore there is no adverse effect on the integrity of the Northumberland Marine SPA.
183. During the operational phase of the Onshore Scheme, it is proposed that all run off from the Converter Station Site will discharge into the Sleek Burn via the SWO within the HVAC Zone. A Surface Water Drainage Strategy (Appendix 11.2, Onshore Scheme ES Volume 3) will be implemented for the Onshore Converter Station prior to works commencing and will be in place throughout the operational lifespan of the Onshore 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 Onshore Scheme.
184. Operational discharge from the SWO into the Sleek Burn could result in changes in water quality, thus impacting species that utilise these habitats. 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 prior to discharge.

#### 7.1.4. In-Combination Effects

185. As outlined in Table 6-4, there are five projects with the potential for in-combination effects of the Northumberland Marine SPA.
186. The Marine Scheme ES (Volume 2 Chapter 10: Offshore and Intertidal Ornithology) concluded that the potential for disturbance to birds using intertidal habitats at the landfall, including qualifying species for the Northumberland Marine SPA, 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. 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 species there.
187. The NCC consultation response (dated 21 June 2021) to the EIA for the battery manufacturing plant (Ridge, 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 20<sup>th</sup> July 2021) refers to the findings of the HRA under number 'Notes to Applicant' which states that Natural England concur with the assessment conclusions providing that all mitigation measures are secured. 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 as detailed in the NCC consultation response discussed above.

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188. 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.
189. 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 5<sup>th</sup> May 2022) states that without appropriate mitigation the proposed development would ‘have an adverse effect on the integrity of the Northumberland Marine SPA’. The NCC Ecologist consultation response dated 10<sup>th</sup> 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.
190. As detailed above, any effects from the Onshore Scheme alone on the Northumberland Marine SPA sandwich tern and roseate tern populations resulting disturbance/displacement during construction and decommissioning and accidental pollution during construction, O&M and decommissioning will be small and highly localised. As such, there is considered to be no potential for these effect pathways to add to impacts at the population-level that might result from other effects pathways associated with the Onshore Scheme or from the effects due to other plans and projects listed above and therefore there is no adverse effect on the integrity of the Northumberland Marine SPA from the Onshore Scheme in combination with other plans and projects.


#### 7.1.5. Site Conclusion

191. It is concluded that there is no potential for an adverse effect on the qualifying features of the Northumberland Marine SPA due to the effects from the Onshore Scheme alone or in-combination with other plans and projects. Consequently, it is concluded that there is **no potential for an Adverse Effects on Integrity of the Northumberland Marine SPA**.

## 7.2. Northumbria Coast SPA/Ramsar

### 7.2.1. European Site Information and Conservation Objectives

192. A small section of the Northumbria Coast SPA lies approximately 0.3 km to the south of the Landfall location, extending along the seaward stretch of the coastal spur occupied by the Port of Blyth (Figure 2).
193. The Northumbria Coast SPA is a marine site which covers several discrete sections rocky shoreline with associated boulder and cobble beaches located along the coast between the Tees Estuary in the south, and the Tweed Estuary in the north.
194. The rocky shores and the strand line support high densities of invertebrates which are important food for waterfowl. Purple sandpiper are almost entirely restricted to the rocky shore where they feed on a variety of marine invertebrates but their main food preference is for mussels, winkles and dog whelks (Feare 1996). Turnstones feed on seaweed covered rocks congregating at high tide to roost on the mainland shore or continue to feed on the washed up seaweed on the strandline.
195. With regards to the tern species, the main breeding colony for both little tern and Arctic tern is the colony at Newton Links/Long Nanny (Beadnell Bay) (Natural England, 2015) which lies approximately 35 miles north of Cambois on the Northumberland coast near Bamburgh. Terns forage in Beadnell Bay and the surrounding coastal waters (Bridge *et al.* 2014). Given the more northerly location of this colony for both little tern and Arctic tern (compared to Coquet Island) it can be concluded that neither species from this colony will be present at the Site or the section of Northumbria Coast SPA located to the south of Cambois Bay.

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196. The site qualifies under Article 4.1 by supporting two Annex I breeding seabirds and under Article 4.2 by supporting two regularly occurring migratory wader species. The potential for LSE has been identified in relation to two species (Table 7.2), with the effect pathways associated with LSE for each of these detailed in Table 6.1 and set out in the assessment below.

197. The conservation objectives of this SPA are:

- *To ensure that the integrity of the site is maintained or restored as appropriate; and*
- *To ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining*
  - *The extent and distribution of the habitats of the qualifying features;*
  - *The structure and function of the habitats of the qualifying features;*
  - *The supporting processes on which the habitats of the qualifying features rely;*
  - *The population of each of the qualifying features; and*
  - *The distribution of the qualifying features within the site.*


**Table 7.2 Details on the qualifying features of the Northumbria Coast SPA**

| Qualifying Feature      | Season       | Site Condition | Citation Population Size | Potential LSE  |
|-------------------------|--------------|----------------|--------------------------|--|
| <b>Purple sandpiper</b> | Non-breeding | Not available  | 787 individuals          | Yes  |
| <b>Turnstone</b>        | Non-breeding | Not available  | 1,739 individual         | Yes  |
| <b>Little tern</b>      | Breeding     | Not available  | 80 individuals           | No - little tern is not recorded as being present in the Site as no suitable breeding habitat nor foraging for this species. Therefore, no potential pathway for impact to occur |
| <b>Arctic tern</b>      | Breeding     | Not available  | 3,098 individuals        | No - Arctic tern is not recorded as being present in the Site as no suitable breeding habitat nor foraging for this species. Therefore, no potential pathway for impact to occur |

### 7.2.2. Assessment of Effects on Purple Sandpiper

198. Purple sandpiper is a small shorebird which forages on rocky shores, especially around piers, groynes and breakwaters (Wildlife Trust, 2023). The Northumbria Coast SPA includes parts of three artificial pier structures. The man-made structures such as the piers at River Tyne South Pier and Seaham Harbour pier are used as high tide roosts. The tops of the piers and the sides are used by birds throughout the tidal cycle. The inter-tidal rock platform is an important resource used by wintering purple sandpiper. Purple sandpiper are almost entirely restricted to the rocky shore where they feed on a variety of marine invertebrates but their main food preference is for mussels, winkles and dog whelks (Feare 1996).

199. The closet section of the Northumbria Coast SPA is located 0.3 km south of the Onshore Scheme Landfall. This section of the SPA extends along the seaward stretch of the coastal spur occupied by the Port of Blyth. It is likely that purple sandpiper could be present on areas of rock associated with sections of breakwater and harbour wall structures in this area.

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### 7.2.2.1. PROJECT ALONE EFFECTS

#### 7.2.2.1.1. DISTURBANCE AND DISPLACEMENT (CONSTRUCTION AND DECOMMISSIONING)

200. Although there is potential for purple sandpiper foraging in rocky sections of the coastline near the Onshore Scheme, the species is rated as having low sensitivity to disturbance (Goodship and Furness 2022).

201. As stated in Table 6.2, visual and noise disturbance is possible at the landfall from works at the (onshore) exit pits and onward HVDC cable corridor, where these lie within 400 m of the beach. The precise location of the exit pits is not known at this stage, although it is known that it will be situated to the west of Unity Terrace, landwards of the dune system. 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 and trenchless techniques have been committed to at the Landfall. Noise disturbance is possible, but the beach is only used infrequently by purple sandpiper (recorded on four of 12 survey dates with a peak count of three); (see Onshore Scheme ES 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 Onshore Scheme ES Volume 3). 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. At the Sleek Burn, given there were no records of purple sandpiper during the surveys they are not likely to be significantly affected by disturbance.

202. It can therefore be concluded that there is no potential for construction or decommissioning related disturbance or displacement to lead to an adverse effect on the Northumbria Coast SPA purple sandpiper population and therefore there is no adverse effect on the integrity of the Northumbria Coast SPA.

#### 7.2.2.1.2. ACCIDENTAL POLLUTION (CONSTRUCTION, O&M AND DECOMMISSIONING)

203. 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.


204. During construction, works have the potential to impact the SPA through pollution via both air quality (the production of construction dust) and water-based pollution. It is also noted that the surface water outfall into the Sleek Burn will be situated directly adjacent to the SPA.

205. The Onshore Scheme ES Volume 2 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.

206. The Onshore Scheme ES Volume 2 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.

207. During the operational phase of the Onshore Scheme, it is proposed that all run off from the Converter Station Site will discharge into the Sleek Burn via the SWO within the HVAC Zone. A Surface Water Drainage Strategy (Appendix 11.2, Onshore Scheme ES Volume 3) will be implemented for the Onshore Converter Station prior to works commencing and will be in place throughout the operational lifespan of the Onshore 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 Onshore Scheme.



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

209. Given the numbers of purple sandpiper likely to be using the area is low, and that the likelihood of a pollution incident occurring is very low and would be highly localised, the potential effects of a pollution incident on purple sandpiper will be negligible.

210. It can therefore be concluded that there is no potential for accidental pollution during construction or decommissioning to lead to an adverse effect on the Northumbria Coast SPA purple sandpiper population and therefore there is no adverse effect on the integrity of the Northumbria Coast SPA.

### 7.2.3. Assessment of Effects on Turnstone

211. Like purple sandpiper, turnstones are also commonly found along rocky shores and the strandline of sandy beaches. These areas of the coast support high densities of invertebrates which are important food for waterfowl. Turnstones feed on seaweed covered rocks congregating at high tide to roost on the mainland shore or continue to feed on the washed-up seaweed on the strandline.

212. The closet section of the Northumbria Coast SPA is located 1 km south of the Onshore Scheme Landfall. This section of the SPA extends along the seaward stretch of the coastal spur occupied by the Port of Blyth. It is likely that turnstone could be present on areas of rock associated with sections of breakwater and harbour wall structures in this area.


#### 7.2.3.1. PROJECT ALONE EFFECTS

##### 7.2.3.1.1. DISTURBANCE AND DISPLACEMENT (CONSTRUCTION AND DECOMMISSIONING)

213. Although there is potential for turnstone foraging in rocky sections of the coastline near the Onshore Scheme, the species is rated as having low sensitivity to disturbance (Goodship and Furness 2022).

214. As stated in Table 6.2, visual and noise disturbance is possible at the landfall from works at the (onshore) exit pits and onward HVDC cable corridor, where these lie within 400 m of the beach. The precise location of the exit pits is not known at this stage, although it is known that it will be situated to the west of Unity Terrace, landwards of the dune system. 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 and trenchless techniques have been committed to at the Landfall. Noise disturbance is possible, but the beach is only used infrequently by turnstone (recorded on seven of 12 survey dates with a peak count of six) (see Onshore Scheme ES 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. 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.

215. It can therefore be concluded that there is no potential for construction or decommissioning related disturbance or displacement to lead to an adverse effect on the Northumbria Coast SPA turnstone population and therefore there is no adverse effect on the integrity of the Northumbria Coast SPA.


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#### 7.2.3.1.2. ACCIDENTAL POLLUTION (CONSTRUCTION, O&M AND DECOMMISSIONING)

216. 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.
217. During construction, works have the potential to impact the SPA through pollution via both air quality (the production of construction dust) and water-based pollution. It is also noted that the surface water outfall into the Sleek Burn will be situated directly adjacent to the SPA.
218. The Onshore Scheme ES Volume 2 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.
219. The Onshore Scheme ES Volume 2 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.
220. During the operational phase of the Onshore Scheme, it is proposed that all run off from the Converter Station Site will discharge into the Sleek Burn via the SWO within the HVAC Zone. A Surface Water Drainage Strategy (Onshore Scheme ES Volume 3 Appendix 11.2) will be implemented for the Onshore Converter Station prior to works commencing and will be in place throughout the operational lifespan of the Onshore 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 Onshore Scheme.
221. Operational discharge from the SWO into the Sleek Burn could result in changes in water quality, thus impacting species that utilise these habitats. 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 prior to discharge.
222. Given the numbers of turnstone likely to be using the area is low, and that the likelihood of a pollution incident occurring is very low and would be highly localised, the potential effects of a pollution incident on turnstone will be negligible.
223. It can therefore be concluded that there is no potential for accidental pollution during construction or decommissioning to lead to an adverse effect on the Northumberland Marine SPA turnstone population and therefore there is no adverse effect on the integrity of the Northumbria Coast SPA.

#### 7.2.4. In-Combination Effects

224. As outlined in Table 6-4, there are five projects with the potential for in-combination effects of the Northumbria Coast SPA.
225. 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 species for the Northumbria Coast SPA, 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. The Marine Scheme is located over 1km from the Sleek Burn and is therefore not likely to result in cumulative disturbance effects to qualifying species there.
226. The NCC consultation response (dated 21 June 2021) to the EIA for the battery manufacturing plant (Ridge, 2021) confirmed that a HRA had been conducted and concluded that the proposed


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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 20<sup>th</sup> July 2021) refers to the findings of the HRA under number ‘Notes to Applicant’ which states that Natural England concur with the assessment conclusions providing that all mitigation measures are secured. 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 as detailed in the NCC consultation response discussed above.

227. 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.
228. 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 5<sup>th</sup> May 2022) states that without appropriate mitigation the proposed development would ‘have an adverse effect on the integrity of the Northumbria Coast SPA’. The NCC Ecologist consultation response dated 10<sup>th</sup> 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.
229. As detailed above, any effects from the Onshore Scheme alone on the Northumbria Coast SPA purple sandpiper and turnstone populations resulting from disturbance/displacement during construction and decommissioning and accidental pollution during construction, O&M and decommissioning will be small and highly localised. As such, there is considered to be no potential for these effect pathways to add to impacts at the population-level that might result from other effects pathways associated with the Onshore Scheme or from the effects due to other plans and projects listed above and therefore there is no adverse effect on the integrity of the Northumberland Marine SPA from the Onshore Scheme in combination with other plans and projects.


#### 7.2.5. Site Conclusion

230. It is concluded that there is no potential for an adverse effect on the qualifying features of the Northumbria Coast SPA due to the effects from the Onshore Scheme alone or in-combination with other plans and projects. Consequently, it is concluded that there is **no potential for an Adverse Effects on Integrity of the Northumbria Coast SPA.**

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## 8. Conclusions of the RIAA

231. HRA Screening identified two SPAs and associated qualifying features where LSE could not be ruled out, these sites were taken forward for assessment.
232. For Northumberland Marine SPA the pathways for assessment included disturbance/displacement during construction and decommissioning and accidental pollution during construction, O&M, and decommissioning. A project alone and in-combination assessment was undertaken which concluded that there is no potential for an adverse effect on the qualifying features of the Northumberland Marine SPA due to the effects from the Onshore Scheme alone or in-combination with other plans and projects. Consequently, it is concluded that there is no potential for an Adverse Effects on Integrity of the Northumberland Marine SPA.
233. For Northumbria Coast SPA/Ramsar Site the pathways for assessment included disturbance/displacement during construction and decommissioning and accidental pollution during construction, O&M and decommissioning. A project alone and in-combination assessment was undertaken which concluded that there is no potential for an adverse effect on the qualifying features of the Northumbria Coast SPA due to the effects from the Onshore Scheme alone or in-combination with other plans and projects. Consequently, it is concluded that there is no potential for an Adverse Effects on Integrity of the Northumbria Coast SPA/Ramsar Site.

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