Cambois Connection – Onshore Scheme

Environmental Statement Volume 3

Technical Appendix 9.9: Preliminary Ecological Appraisal Report (October 2022)

sse Renewables

CAMBOIS- CABLE LANDFALL PROJECT

Preliminary Ecological Appraisal

Prepared for: **Xodus Group Ltd**

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1.0 Introduction

SLR was commissioned by Xodus Group Ltd in June 2022 to undertake an ecological desk study, initial habitat survey and Preliminary Ecological Appraisal (PEA)[1] of areas that may be affected by construction and operation of the proposed onshore aspects of the 'Cambois Connection' (herein referred to as 'The Project').

The Project is a proposed development, linked to the Berwick Bank Offshore Wind Farm (OWF), which is currently in the development stage. Located in the North Sea, in the outer Firth of Forth, Berwick Bank OWF has the potential to deliver up to 4.1 GW of installed capacity, making it one of the largest offshore opportunities in the world.

Berwick Bank OWF has already secured a grid connection at Branxton, near Torness in East Lothian. However, for a project of this unprecedented scale and nature, a single grid connection may not represent the optimal approach to exporting green energy into the UK energy network.

Berwick Bank OWF has three signed grid connection agreements with the network operator. Two agreements are for connection at the Branxton substation, with a third additional connection at Blyth, Northumberland, the Cambois Connection. The third additional connection agreement (Cambois Connection), was signed in June 2022 following National Grid's Electricity System Operator (ESO) Holistic Network Design (HND) Review and will enable Berwick Bank to reach full generating capacity (4.1GW) by the early 2030s. The Berwick Bank OWF is being consented separately.

This report provides a summary of baseline ecological data and recommendations for the Project within the indicative red line boundary at Cambois (the 'Site'), as shown in drawing number BER-T-DES-0025-01 (see **Appendix 01),** provided on 9th June 2022.

At the time of writing this report there were no final scheme designs available and the indicative red line boundary is representative of the area in which the client will explore to refine the project design, which will include, but not be limited to, the construction of cable landfall, cable corridor, a converter station and works to integrate into the existing grid connection point at Blyth. The contents of this report will inform the identification of constraints and opportunities within the indicative red line boundary and will be used to help establish the scheme design and inform the scope of further ecological assessment required for the project.

1.1 Study Area

The Site is located approximately 1 km north of Blyth and 0.7 km south of Ashington, in southeast Northumberland. For most receptors this report is limited to the area above Mean High Water Springs (MHWS) but also includes intertidal habitats down to Mean Low Water Springs (MLWS) for birds.

The desk study is designed to give an overview of relevant existing ecological data, including data for protected and notable (e.g. rare or invasive), species and designated sites in the vicinity of the Site. The desk study included the area within 10 km for European designated sites and Sites of Special Scientific Interest (SSSI) plus up to 2 km for protected/notable species and for other designated sites. These distances were used to identify designated sites and other receptors which could potentially be subject to indirect effects resulting from the Project.

The initial habitat survey included all habitats within the indicative red line boundary (see **Appendix 01)**, plus an additional 250m buffer, to enable adjacent habitats which could potentially be subject to indirect effects resulting from the Project to be identified. A desk-based assessment of habitats was undertaken using aerial imagery which was confirmed, where possible, during a walkover survey. The walkover survey was limited to habitats which were in viewing range from roads, public rights of way and other areas of publicly accessible land.

[1] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, Second Edition, December 2017.

1.2 Details of the Project

The project design was not confirmed at the time of writing this report. The Site includes a much larger red line boundary than will ultimately be affected by the project.

1.2.1 Site Description

The Site is approximately 710 ha in area, centred on grid reference NZ 29311 84281 and is adjacent to the A189, including land to the east and west of the A189. The land to the west of the A189 consists predominantly of grassland habitats, historically used for arable crop and grazed pastures, with parcels of woodland and scrub habitats. The land to the east of the A189 is dominated by developed land of industrial nature with two active construction sites at the time of survey. A section of the River Blyth and Sleek Burn can be found at the southern area of the Site boundary. To the east is the North Sea coast.

1.2.2 Surrounding Area

The surrounding habitat is varied due to the coastal location of the Site. Immediately adjacent to the northern boundary is the River Wansbeck, lying between the Site and the town of Ashington. The River Blyth is located to the south of Site, to the north of the town of Blyth. The habitat to the west and southwest is dominated by rural grassland, predominantly used for farming, with areas of woodland and scrub habitat. The area to the east of site is formed by the North Sea.

1.3 Purpose of this Report

This report presents the findings of the PEA. The report seeks to:

- establish baseline conditions and identify important ecological and ornithological features present (or those that could be present), as far as is possible at this time;
- identify important ecological features that could be impacted by the project, where possible;
- provide initial suggestions for mitigation, where required, (noting that at this stage all recommendations are preliminary, depending on results of further surveys and final project design);
- to establish requirements for more detailed surveys; and
- to identify potential opportunities for biodiversity enhancements as part of the project as required under the National Planning Policy Framework[2] and local Planning Policy[3] (these suggestions also remain preliminary, depending on results of further surveys or final project design).

1.4 Evidence of Technical Competence and Experience

This PEA report has been authored by Callum Taylor, a Senior Ecologist at SLR Consulting with over four years' experience as a professional ecologist. He is a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) (QualCIEEM). Callum undertook the initial habitat surveys and undertook the desk study detailed within this report.

Niamh Ni Nagy assisted with the quality assurance of mapping data from desk-based review. Niamh is a Graduate Ecologist at SLR with 1 year of experience working in ecological consultancy. She has Student level CIEEM membership, a BSc in Animal and Conservation Biology and has received training in the use of the UKHab classification.

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf
3 For example, Policy ENV2 of the Northumberland Local Plan 2016 – 2036.

Additional technical support and Quality Assurance review has been provided by Duncan Watson. Duncan is a Technical Director at SLR Consulting with over 24 years' professional ecological experience. He is a Chartered Environmentalist (CEnv) and a full member of CIEEM (MCIEEM).

2.0 Methodology

2.1 Baseline Data Collection

2.1.1 Desk Study

Table 2-1 lists the data sources that have been identified and obtained for this PEA. The review of existing ecological reports was limited to projects within the Site boundaries and focussed on reports submitted within the last two years. CIEEM guidance recommends that use of ecological data in excess of 18 months likely requires further survey to confirm the validity of the data[4]. Some of the sources listed below also reported data from sources obtained before this time period, where relevant this has been included to provided contextual information.

Table 2-1
Baseline Data Sources

Source	Summary
Environmental Records Information Centre (ERIC) North East	Data request for designated sites of ecological importance, priority habitats, protected and notable species, of up to 2 km from the red line boundary.
Multi-agency Geographic Information Centre (MAGIC) website and Natural England's Designated Sites Viewer	Up to 10 km -The spatial extent and citations for: • Special Areas of Conservation (SAC) and possible SACs and Impact Risk Zones. • Special Protection Areas (SPA) and potential SPAs and Impact Risk Zones. • Ramsar Sites and proposed Ramsar Sites. • SSSIs and National Nature Reserves (NNR) and Impact Risk Zones. Up to 2 km- the spatial extent for: • Local Nature Reserves (LNR). • Ancient woodland Inventory. The type and spatial extent for: • Priority Habitat Inventory for grasslands, heathlands, wetland, woodland, other habitats. The location for: • Great Crested Newt (GCN) Pond Surveys 2017-2019, location of GCN breeding ponds. • GCN Survey Licence Returns, location of GCN breeding

[4] https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf#:~:text=AGE%20OF%20DATA%20REPORT%20%2F%20SURVEY%20VALIDITY%20Less,12%20monthsLikely%20to%20be%20valid%20in%20most%20cases.

Source	Summary
	ponds. The Location and species for: • Granted European Protected Species Licences.
BritishVolt Project Phoenix Environmental Statement (ES): Main Report (Ridge 2021)[36].	Environmental Statement on the behalf of BritishVolt in relation to an application for a Battery Manufacturing Plant at Northumberland Energy Park Phase 3 (NEP3). The approximate 9 ha site of the proposed development is located on previously developed land that was formerly used for the storage of coal for the former Blyth Power Station.
BritishVolt Project Phoenix Environmental Statement Volume 3: Appendices (Ridge 2021)[39].	Ecological appendices for the above main ES report containing more detailed reports concerning ornithology and biodiversity metric.
Project Phoenix EN20037 Construction Environmental Management Plan (ISG 2021)[38].	Construction Environmental management Plan on the behalf of BritishVolt in relation to the application for a Battery Manufacturing Plant at Northumberland Energy Park Phase 3 (NEP3).
Construction of two ponds at nature reserve site, deposition of arising soil materials at site | Land North East Of Cambois, Wembley Gardens Cambois, Northumberland.	The ecological assessment of the Blyth and East Sleekburn Local Development Orders (LDO) identified the potential for modest levels of increased disturbance to migratory and wintering wading birds, including species which are interest features of the Northumberland Shore SSSI, arising from development permitted through the LDO process. To compensate for this, a scheme has been developed to create suitable feeding and roosting habitat for species such as curlew *Numenius arquata*, redshank *Tringa totanus*, golden plover *Pluvialis apricaria* and lapwing *Vanellus vanellus* on 22 ha of Council-owned farmland at Cambois. A planning application was submitted and approved to permit these works.[5]
Battery Storage Site, West Sleekburn, Bedlington, Preliminary Ecological Appraisal (Quants Environmental 2022[6])	PEA carried out in March 2022 for the purpose of performing an assessment to inform the planning application for a battery storage site at West Sleek Burn.
Battery Storage Site, West Sleekburn, Bedlington, Dusk Emergence Survey (Quants Environmental 2022[7])	As per the recommendations of the above assessment, the report presents the findings of a single bat emergence dusk survey carried out on 9 August 2022.

[5] It is unclear at what stage the works are for this project. Access could not be gained.
[6] https://publicaccess.northumberland.gov.uk/online-applications/files/6D0C92A0464B23AB8EA2BCC4E3ABF34A/pdf/22_01725_FUL-PRELIMINARY_ECOLOGICAL_APPRAISAL-2139815.pdf
[7] https://publicaccess.northumberland.gov.uk/online-applications/files/8498AF369F49E479E5D8EE81CE844057/pdf/22_01725_FUL-BAT_SURVEY-2193986.pdf

2.1.2 Initial Habitat Survey

The field survey comprised two main elements:

- mapping of habitats - habitats mapped were confirmed using UKHab v1.1[8] to capture the presence of Section 41 (of the Natural Environment and Rural Communities (NERC) Act 2006) and Annex 1 (of the EC Habitats Directive) habitat types; and
- noting evidence of, or potential for, protected or notable species, or other important ecological features (such as veteran trees or invasive non-native species), such that specific follow up surveys can be scoped and undertaken thereafter.

Habitat Survey

Most of the area surveyed was not accessible for detailed field survey and was therefore surveyed through interpretation of aerial imagery and limited ground-truthing from public roads and rights of way. Some areas were accessible however and these areas were subject to full survey in the field.

The aerial images used in this process were the most recent commercially available OS Mastermap Aerial Imagery at 25 cm resolutions and are dated April 2020 (supplied by Ordnance Survey). The minimum mapping unit used was 400 m^2 and a minimum length of 20 m for linear features. Where more detailed data were available for trees these were mapped to the highest level possible to highlight potential constraints. Due to the large extent of the survey area, lack of access for field survey and early project stage, habitat boundaries were "snapped" to the nearest OS Mastermap topography vectors. These habitat boundaries should be reviewed during subsequent field surveys, once access is possible (see Section 5.0).

Aerial photograph interpretation and a combination of OS Mastermap Topography and OS Vector Map Local datasets [July 2022] were used to identify the presence of waterbodies and watercourses within 250 m of the Site. This method was used as small watercourses and ponds are often difficult to discern on aerial images; and although it remains fairly crude it is considered appropriate for PEA. The identification of smaller field ditches and ponds should be reviewed during subsequent field surveys, once access is possible (see Section 5.0).

Habitats were mapped to the highest level of the UKHab Primary Habitat Hierarchy possible, including mandatory secondary codes (10 – 41). This was governed by habitat type and levels of access; in most cases it was possible to map to level 3. Boundary fences were not mapped. Additional secondary codes or photographs were recorded where possible; these have been retained in a GIS and are not presented in this report but will be available for any more detailed habitat survey in future.

Open data sources showing priority habitats were found on MAGIC and imported into the UKHab maps to incorporate the detail of higher value habitats which could be classified to at least level 3. These habitats should be reviewed during subsequent field surveys once project design informs the requirements for more detailed surveys.

Aerial photograph interpretation was undertaken in July 2022 and August 2022. It was conducted by SLR's GIS team who mapped the polygons/linear features and assigned the relevant codes. The output was checked by Callum Taylor and SLR Project Ecologist Niamh Ni Nagy.

Field-based ground-truthing was undertaken during 20 July and 17 August 2022. The surveys were undertaken by Callum Taylor.

Protected/Notable Species Survey/Habitat Based Assessments

During the field surveys, additional notes were made in respect of signs of, or habitat suitability for, protected or notable species (for example; identifying trees or structures with potential for use by bats or observations of

[8]UK Habitat (UKHab) Classification (https://ukhab.org/)

owl boxes).

Details of these additional notes have been retained on a GIS database and are not presented in this report. However, pertinent findings that inform the scope of additional survey requirements have been included in Sections 3 and 4.

2.1.3 Limitations

Desk Study

Desk study data are unlikely to be exhaustive, especially in respect of species, and are intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the study area. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the areas that were subject to field survey.

Priority habitats have been mapped using open data sources and assumed to be correct without detailed survey. It is likely that some of these habitats may no longer be present (e.g. areas which are currently construction sites) but with a lack of access, this could not be confirmed. However, where these habitats are currently undergoing construction works, the desk study revealed that the affected habitats would be improved or replaced through appropriate mitigation measures.

Field Survey

The majority of the Site was not accessible for field survey such that aerial photograph interpretation and where possible, limited ground-truthing from publicly accessible areas were used to determine habitat type and protected species habitat suitability. Most notably, this means that signs of protected species could not be sought for those areas which were not accessible and could also mean that Section 41 habitats or other ecologically important features are present but as yet undetected. Nevertheless, it is still considered possible to meet the purpose of this PEA report (as set out in Section 1.3).

The bulk of the field survey was undertaken during late summer (August), and therefore could have missed spring and early summer flowering species that may have died back. Due to the majority of the survey area comprising grassland habitat with common flowering plants, plus other habitats that are readily identified at any time of year, this is not considered to be a significant constraint to the PEA.

The late summer timing of the field survey is also suboptimal with regard to locating signs of protected or notable faunal species, due to the density and height of vegetation. It is therefore possible that evidence for species such as otter, badger or water vole may have been missed as a result. The survey also took place too late in the season to record any evidence of breeding birds. Nevertheless, it is considered that sufficient field survey and desk study information are available to undertake the PEA in respect of faunal species. In this regard, it is noted that the PEA is not intended to include detailed survey results for protected or notable faunal species but rather to determine the potential for them to occur and therefore highlight further survey requirements.

2.2 Determining Important Ecological Features

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained below and follows CIEEM guidance[9]. Importance may relate, for example, to protected status, the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

Important habitats are considered here to be those which:

[9] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

- match descriptions of habitats listed on Annex 1 of the Habitats Directive, so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- match descriptions of habitats of principal importance for biodiversity under Section 41 of the NERC Act 2006;
- match Local Wildlife Site Selection Criteria[10];
- match descriptions of habitats with Habitat Action Plans (HAPs) contained within Local Biodiversity Action Plans[11];
- comprise irreplaceable habitats; such as (but not limited to) ancient woodland and veteran trees[12]; and/or
- comprise a significant habitat resource for an important species (see below).

Important species are considered here to be those which are:

- of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive[13]) so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- specially protected under the terms of the Wildlife and Countryside Act 1981 (as amended);
- of principal importance for biodiversity under Section 41 of the NERC Act 2006;
- Red Listed using International Union for the Conservation of Nature (IUCN) criteria[14] (e.g. in one of the UK Species Status Project[15] reviews, in the Bird Species of Conservation Concern Red List[16], or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- listed as Near Threatened or Amber Listed (e.g., in one of the UK Species Status Project reviews or in the Bird Species of Conservation Concern Amber List[16]);
- listed as a Nationally Rare or Nationally Scarce species (e.g., in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
- endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place; and
- listed within Local Biodiversity Action Plans[11].

[10] Local Sites | Northumberland Wildlife Trust (nwt.org.uk)
[11] https://www.nwt.org.uk/sites/default/files/2018-10/Nland_Biodiversity_Action_Plan.pdf
[12] Referenced in Natural England Standing Advice for ancient woodland and veteran trees https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions)
[13] These pieces of legislation are based upon data that remains relevant to the UK, regardless of its non-EU status.
[14] IUCN (2012) IUCN Red List Categories and Criteria. Version 3.1. Second edition. IUCN, Gland.
IUCN (2012) Guidelines for Application of IUCN Red List Criteria at Regional and National Levels. Version 4.0. IUCN, Gland.
IUCN (2016) Guidelines for Appropriate Uses of IUCN Red List Data. Version 3.0. Adopted by the IUCN Red List Committee.
IUCN (2019) Guidelines for Using the IUCN Red List Categories and Criteria. Version 14. Prepared by the Standards and Petitions Subcommittee.
[15] The Species Status project is the successor to the JNCC's Species Status Assessment project, providing up-to-date assessments of the threat status of various taxa using the internationally accepted Red List guidelines (http://jncc.defra.gov.uk/page-1773)
[16] The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and Second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114, 723–747.

3.0 Results

3.1 Designated Sites

There are 11 terrestrial statutory designated sites, excluding Local Nature Reserves (LNR), located within 10 km of the site boundary, including one Ramsar site, one Special Protection Area (SPA) and nine SSSIs, plus five LNRs within 2 km. **Table 3-1** details the sites and their distance and direction from the Site. **Appendix 2** includes a plan provided by ERIC North East, which shows all designated sites within a 2 km buffer. Please note that the plan provided in **Appendix 2** also includes marine sites, but these are excluded from **Table 3-1** because the focus of this report is the terrestrial environment.

Table 3-1 Statutory Designated Sites

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
Northumbria Coast Ramsar[17]	Within/ Adjacent to Site	East	The Northumbria Coast Ramsar site comprises several discrete sections of rocky foreshore between Spittal, in the North of Northumberland, and an area just south of Blackhall Rocks in County Durham. These stretches of coast regularly support internationally important numbers of purple sandpiper *Calidris maritima* and turnstone *Arenaria interpres*. The Ramsar site also includes an area of sandy beach at Low Newton, which supports a nationally important breeding colony of little tern *Sternula albifrons*, and parts of three artificial pier structures which form important roost sites for purple sandpiper.
Northumbria Coast SPA[18]	Within/ Adjacent to Site	East	The Northumbria Coast SPA was classified in 2000, qualifying under Article 4.1 of the EC Birds Directive because it supported 1.7% of the GB population of breeding little tern listed in Annex I of the Directive and under Article 4.2 of the Directive because it supported two regularly occurring migratory species: 2.6% of the biogeographic population of turnstone and 1.6% biogeographic population of purple sandpiper. The Northumbria Coast SPA includes much of the coastline between the Tees and Tweed Estuaries. The site consists of mainly discrete sections of rocky shore with associated boulder and cobble beaches. The SPA also includes parts of three artificial pier structures and a small section of sandy beach.
Northumberland	Within Site	East	The Northumberland Shore includes most of the coastline

[17] https://rsis.ramsar.org/RISapp/files/RISrep/GB1019RIS.pdf
[18] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9006131&SiteName=&countyCode=&responsiblePerson=&unitId=&SeaArea=&IFCAArea=

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
Shore SSSI[19]			between the Scottish border and the Tyne Estuary. This complements the Lindisfarne SSSI, which it abuts, in providing important wintering grounds for shore birds, and it is of international, or national significance for six species, purple sandpiper, turnstone, sanderling *Calidris alba*, golden plover, ringed plover *Charadrius hiaticula* and redshank. The Northumberland Shore consists largely of sandy bays separated by rocky headlands with wave-cut platforms, backed by dunes or soft and hard cliffs. Discrete areas of estuarine intertidal mudflats and saltmarsh are also included.
Cresswell and Newbiggin Shores SSSI[20]	0.03 km	Northeast	This site has been identified as of national importance by the Geological Conservation Review. Cresswell and Newbiggin Shores is important for both Westphalian and Quaternary studies.
Willow Burn Pasture SSSI[21]	2.6 km	West	Willow Burn Pasture is an area of unimproved species-rich neutral grassland established on former ridge and furrow cultivation, and now managed as pasture. There has been some invasion by scrub, and wetter areas support tall herb communities.
Hawthorn Cottage Pasture SSSI[22]	3.25 km	Northwest	Hawthorn Cottage Pasture comprises an unimproved neutral grassland in an area of former ridge and furrow cultivation. It is a valuable example of a habitat which is now scarce in Northumberland and the surviving sites are under increasing threat from further agricultural intensification and urban development. The site includes both an area of dry grassland currently managed as pasture and an adjacent area of marshy grassland.
New Hartley Ponds SSSI[23]	6.3 km	South	The seasonal ponds at New Hartley, with their vegetation cover of amphibious bistort *Polygonum amphibian*, common spike-rush *Eleocharis palustris*, water horsetail *Equisetum fluviatile* and water crowfoot *Ranunculus aquatilis*, are frequented by five species of breeding amphibian. Of particular note is the great crested newt with a population in some years in excess of 500 individuals. The other species are smooth newt *Lissotriton vulgaris* with a population of 500–1000 individuals, small numbers of palmate newt *Lissotriton helveticus* (12) and about 150 individuals each of frog *Rana*

[19] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000134.pdf
[20] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002926.pdf
[21] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004545.pdf
[22] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002908.pdf
[23] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000365.pdf

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
			temporaria and toad *Bufo bufo*. The ponds are also frequented by damselflies with good populations of the blue-tailed damselfly *Ischnura elegans* and the common darter *Sympetrum striolatum*.
Tynemouth to Seaton Sluice SSSI[24]	6.8 km	South	The coast from Tynemouth to Seaton Sluice provides one of the best exposures of Coal Measures strata in Great Britain, showing a continuous lower Westphalian B sequence from the Plessey to the High Main seams. It includes outcrops of numerous coal seams, and several mudstone horizons yielding non-marine bivalve faunas, which together provide a tight stratigraphical control on the sequence. Of particular importance are outcrops of sandstone bodies, which have been interpreted as braided river deposits in marked contrast to the meandering river deposits which dominate the Pennines Coalfields to the south. This implies that the Northumberland Coalfield was formed in a more elevated area relative to the Pennines Coalfield, and was then probably rather further from the sea. The site is thus of considerable importance for interpreting the palaeogeographical structure of Britain during the Middle Carboniferous. This section of the coast supports a significant proportion of the internationally important winter populations of purple sandpiper (over 10%), sanderling (over 10%) and turnstone (over 5%) which occur on the Northumberland coast. In addition, there are locally important numbers of knot *Calidris canutus*, ringed plover and golden plover.
Holywell Pond SSSI[25]	7.7 km	South	Holywell Pond is a subsidence pond, up to 2 m deep in places, overlying old coal workings. It is attractive to wintering and migratory waterfowl, including teal, wigeon, pochard, goldeneye and tufted duck. Of particular note is a large roosting herd of whooper swans numbering up to 180 birds, comprising more than 1% of the British wintering population of this species. Breeding species include little grebe *Tachybaptus ruficollis*, great-crested grebe *Podiceps cristatus*, tufted duck *Aythya fuligula* and yellow wagtail *Motacilla flava*.
Arcot Hall Grassland and Ponds SSSI[26]	7.9 km	Southwest	Arcot Hall Grasslands and Ponds comprises a complex of species-rich grasslands, with heaths, ponds and associated damp habitats. It supports probably the largest area of lowland species-rich unimproved grassland in North East

[24] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001176.pdf
[25] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000949.pdf
[26] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000498.pdf

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
			England. The grassland contains a number of plant species now uncommon in the county. Both this grassland and the heathland are now extremely rare in Northumberland and threatened by agricultural improvement and development. The intricate mosaic of habitats and the occurrence of all stages of ecological succession from open water to woodland are particular features of the site. The site supports a population of the least minor moth *Photedes captiuncula*, a nationally rare species confined to a few localities in Northern England. The assemblage of invertebrates at the site is considered to be of regional importance and includes 33 species of water beetles. The main pond is used by wintering waterfowl and passage migrants.
Cresswell Ponds SSSI[27]	8.3 km	North	These comprise a large pond which is the only permanent brackish water lagoon on the Northumberland Coast and two, smaller, freshwater ponds. The main pond is connected to the sea by a short outfall stream which allows an in-flow of sea water during some high tides. Cresswell Ponds are noted for the occurrence of unusual birds on migration and are used as feeding and roosting areas by wintering waders and wildfowl.
Castle Island LNR	Adjacent	North	No description available.
Wansbeck Riverside Park LNR[28]	0.8 km	Northwest	Sightings of red squirrel *Sciurus vulgaris* and common mammals are possible along the river as well as pipistrelle and Daubenton's bats and a variety of birds including mallard *Anas platyrhynchos*, moorhen *Gallinula chloropus*, heron *Ardea cinerea* and kingfisher *Alcedo atthis*. The area of woodland at Blackclose Dene is listed as Ancient Semi-Natural Woodland and is of significant importance supporting a wealth of birds, mammals and insects. New woodland has been planted on the south side of the river at Stakeford.
Paddock Wood LNR[29]	1.4 km	North	The Woodland Trust planted the wood in 1998. It contains a variety of different trees.

[27] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000606.pdf

[28] https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1421784&SiteName=Wansbeck%20Riverside%20Park&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

[29] https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1460414&SiteName=Paddock%20Wood&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
Ha'penny Woods LNR[30]	1.4 km	Southwest	Oak *Quercus robur*, beech *Fagus sylvatica* and sycamore *Acer pseudoplatanus* dominated woodland with large areas of wildflower. Various birds and mammals recorded including; great spotted woodpecker *Dendrocopos major* and roe deer *Capreolus capreolus*.
Choppington Community Woods LNR[31]	1.8 km	West	A wide variety of native woodland birds and migratory species use the woodland and include long-tailed tit *Aegithalos caudatus*, wren *Troglodytes troglodytes*, blackbird *Turdus merula*, blue tit *Cyanistes caeruleus*, whitethroat, yellowhammer and grasshopper warbler. The semi-improved neutral grassland among the young plantation near the miner's welfare centre supports a wealth of invertebrate including at least 10 butterfly species, several species of spider crab, scorpion flies and a range of moths. Choppington Community Woods is an important site for red squirrel in southeast Northumberland with regular reported sightings of red squirrels. Otter are present on this section of the Willow Burn and roe deer are present on the site.

A further four non-statutory Local Wildlife Sites (LoWS) occur within the 2 km Study Area (**Appendix 2**). Blyth Estuary LoWS and Wansbeck Estuary LoWS are within the Site boundaries. Sleekburn Fen LoWS is approximately 240 m west and Plessey Wood LoWS is approximately 1.6 km southwest. Further details in respect of the reason for importance of these LoWS were not available from ERIC North East.

Designated sites of geological importance are outside the scope of this report and will not be discussed further within this report.

3.2 Habitats

General descriptions for the various habitats encountered within the Site are provided below. All data are stored in a GIS and can be made available upon request.

Refer to Figure 1 for locations of habitats within the Site.

3.2.1 Neutral and Modified Grassland

Grassland is extensive throughout the Site. Historically the land was used for arable purposes but has since been unmanaged or reverted to grassland. Grassland is difficult or impossible to robustly characterise from aerial imagery alone, nevertheless it has been ascertained from ground truthing that modified grassland and other neutral grassland both occur within the Site.

30 https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1082950&SiteName=ha%27&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

31 https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009609&SiteName=Choppington%20Community%20Woods&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

3.2.2 Hedgerows and Scrub

Hedgerows are widespread across the Site though much more common west of the A189. It is considered likely that most hedgerows will meet the criteria of priority habitat hedgerows (h2a,) although this could only be confirmed once full access is obtained.

Small amounts of blackthorn *Prunus spinosa*, bramble *Rubus fruticosus*, hawthorn *Crataegus monogyna* and mixed scrub were also identified, typically at field margins.

3.2.3 Standing Open Water

Ponds and lakes are relatively frequent across the Site and 250 m buffer and are often associated with the drainage and river network. The majority appeared to be of man-made origin, or have been modified, based upon the regular shape of the waterbody. North of Wembley Gardens Road it was proposed that two wading bird ponds (see **Table 2.1** for further details on the project) would be created but it could not be confirmed whether these were present during ground-truthing visits due to lack of visibility across that area from publicly accessible areas. These waterbodies should be considered in further assessments however.

3.2.4 Rivers and Streams

The River Wansbeck and the River Blyth are the largest water courses within the area surveyed, with smaller watercourses, Maw Burn and Sleek Burn leading from the River Blyth. The watercourses have not yet been subject to detailed survey.

Numerous small ditches and streams are present throughout the Site. To the southern area of the Site is a small watercourse with reedbeds, which runs parallel to open mosaic habitats.

3.2.5 Fen, Marsh and Swamp

Fen, marsh and swamp has been identified within the survey area within the River Wansbeck and northeast of West Sleekburn. Access was not gained for detailed survey, but it is assumed that these categorisations are likely correct.

3.2.6 Open Mosaic Habitat

A search on MAGIC returned records of the priority habitat Open Mosaic Habitat at three locations across the Site, two in the south eastern area of the Site and one in the north eastern area of the Site. Access was not gained to these three sites, but it is assumed that these categorisations are likely correct. The Britishvolt survey results confirm the presence of open mosaic habitat within their red line boundary. Note that the extent of this may have changed due to the construction activities at the Britishvolt site and may change again following the implementation of proposed mitigation measures there.

3.2.7 Intertidal Mudflats

ERIC returned records of intertidal mudflats within the River Blyth. These areas were not surveyed but have been assumed to be correct.

3.2.8 Coastal Saltmarsh

ERIC returned records of Coastal Saltmarsh within the River Blyth, Sleek Burn and River Wansbeck. These areas were not surveyed but have been assumed to be correct.

3.2.9 Coastal Dunes

ERIC and a search on MAGIC, categorised a linear area of the coast to be defined as the priority habitat coastal

sand dune. While a detailed assessment has not been undertaken of habitats it is likely that this habitat is present with marram *Ammophila arenaria*. Some areas to the northern end of the coastal section of the Site have been inhabited by less sand tolerant indicator species more representative of g3 neutral grassland.

3.2.10 Littoral Sediment

This habitat is focused in the areas associated with the Northumberland coast in the eastern area of survey, with areas stretching along the banks of the River Wansbeck and the River Blyth.

3.2.11 Sparsely Vegetated Land

The coastal area includes man-made coastal defences (mapped as urban, below), but also includes sparsely vegetated areas above high water, comprising sandy beaches and an area identified as the priority habitat maritime cliff and slope.

3.2.12 Urban

Urban areas within the Site mainly comprise coastal defences, roads, railways, industrial sites and small settlements.

3.2.13 Woodland and Forest

Woodland is present in mostly linear parcels within the Site. Access restrictions prevented field survey of most of the woodlands present, to the extent it was not possible to classify beyond UKHab level 3 Broadleaved Mixed and Yew woodland. However, stands of the priority habitat lowland mixed and deciduous woodland were present along the north and south borders of the River Wansbeck and in scattered parcels within the red line boundary, mainly towards the south.

3.2.14 Cropland – Arable and Horticulture

The area surveyed supports cropland comprising cereal crops which would offer little ecological value. This habitat is more common west of the A189. There is potential that field margins which have not been observed contain the priority habitat Arable Field Margins but this cannot be confirmed without further survey, once access is possible.

3.2.15 Section 41 Habitats & Ancient Woodland

The following habitats of Principal Importance (i.e., those included under Section 41 of the NERC Act (2006), many of which are also included on Annex 1 of the Habitats Directive) are confirmed to be present either through identification during habitat survey, in Natural England's Priority Habitat Inventory dataset or data provided by ERIC North East. Due to the ecological importance of priority habitats, a precautionary approach has been implemented here whereby potential priority habitats have been included in the classification even where it has not been possible to confirm their status through detailed survey. Figure 1 identifies the priority habitats within the Site and up to a 250 m buffer including open mosaic habitats but does not include 'Good quality semi-improved grassland' where UKHab Codes could not be defined. **Appendix 3** identifies the locations of priority habitats within the Site and up to 2 km, excluding open mosaic habitat, based on Priority Habitat Inventory dataset. Figure 2 identifies all ponds which have been identified within site and up to a 250m buffer.

The following priority habitats are either present or potentially present within the Site and/or 250 m buffer:

- Lowland mixed deciduous woodland – the largest blocks of woodland are considered likely to include this category[32]. The definition for this habitat type is:

  "*Lowland mixed deciduous woodland includes woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland*".

- Ancient Woodland[33] - There is one block of ancient woodland (Ancient Semi-Natural Woodland ASNW), within the Site, Hospital Wood adjacent to the northern Site boundary along the River Wansbeck. The definition of ancient woodland is as follows:

  "*any area that has been wooded continuously since at least 1600AD. It includes:*

  ancient semi-natural woodland mainly made up of trees and shrubs native to the site, usually arising from natural regeneration;

  plantations on ancient woodland sites - replanted with conifer or broadleaved trees that retain ancient woodland features, such as undisturbed soil, ground flora and fungi"

- Hedgerows – most of the hedgerows within the survey area are likely to meet the Section 41 definition[32] which states:

  "*A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide. Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e., 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country*".

- Reedbeds – areas within a small watercourse in the southern part of the Site are considered to meet the Section 41 description[32].

  "*Reedbeds are wetlands dominated by stands of the common reed Phragmites australis, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them.*"

- Rivers – The River Wansbeck, River Blyth, Sleek Burn and Maw Burn are considered more likely to meet the definition by virtue of supporting protected and/or Section 41 species such as otter, rather than for habitat type/quality *per se*.

  "*This habitat type includes a very wide range of types, encompassing all natural and near-natural running waters in the UK (i.e. with features and processes that resemble those in 'natural' systems). These range from torrential mountain streams to meandering lowland rivers*."

- Open Mosaic Habitat- present at three locations on previously disturbed ground, two in the southeast of the survey area and one in the northeast. The Britishvolt survey results confirm the presence of open mosaic habitat within their red line boundary. The extent of this may have changed

[32] Section 41 Habitat definitions align with the UK Biodiversity Action Plan Priority Habitat Descriptions published in 2008 and updated in 2011, available at https://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf

[33] Natural England and Forestry Commission 'standing advice' for ancient woodland, ancient trees and veteran trees available online at https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

due to the construction activities at the Britishvolt site and may change again following the implementation of proposed mitigation measures there.

"These are generally primary successions, and as such unusual in the British landscape, especially the lowlands. The vegetation can have similarities to early/pioneer communities (particularly grasslands) on more 'natural' substrates but, due to the edaphic conditions, the habitat can often persist (remaining relatively stable) for decades without active management (intervention). Stands of vegetation commonly comprise small patches and may vary over relatively small areas, reflecting small-scale variation in substrate and topography."

- Coastal Saltmarsh – the River Blyth, Sleek Burn and River Wansbeck are considered to contain these habitats.

  "Coastal saltmarshes in the UK (also known as 'merse' in Scotland) comprise the upper, vegetated portions of intertidal mudflats, lying approximately between mean high water neap tides and mean high water spring tides. For the purposes of this action plan, however, the lower limit of saltmarsh is defined as the lower limit of pioneer saltmarsh vegetation (but excluding seagrass Zostera beds) and the upper limit as one metre above the level of highest astronomical tides to take in transitional zones. Saltmarshes are usually restricted to comparatively sheltered locations in five main physiographic situations: in estuaries, in saline lagoons, behind barrier islands, at the heads of sea lochs, and on beach plains. The development of saltmarsh vegetation is dependent on the presence of intertidal mudflats."

- Coastal Sand Dunes- coastal dunes in the east of the Site are considered likely to contain these habitats.

  "Coastal sand dunes develop where there is an adequate supply of sand (sediment within the size range 0.2 to 2.0 mm) in the intertidal zone and where onshore winds are prevalent. The critical factor is the presence of a sufficiently large beach plain whose surface dries out between high tides. The dry sand is then blown landwards and deposited above high water mark, where it is trapped by specialised dune-building grasses which grow up through successive layers of deposited sand."

- Intertidal Mudflats- the River Blyth is considered to contain this habitat in large areas.

  "Mudflats are sedimentary intertidal habitats created by deposition in low energy coastal environments, particularly estuaries and other sheltered areas. Their sediment consists mostly of silts and clays with a high organic content. Towards the mouths of estuaries where salinity and wave energy are higher the proportion of sand increases. Mudflats are intimately linked by physical processes to, and may be dependent on, other coastal habitats such as soft cliffs and saltmarshes. They commonly appear in the natural sequence of habitats between subtidal channels and vegetated saltmarshes. In large estuaries they may be several kilometres wide and commonly form the largest part of the intertidal area of estuaries. However, in many places they have been much reduced by land claim."

- Ponds – many ponds within the Site and surrounding 250 m buffer could meet the Section 41 definition by supporting GCN and/ or other Section 41 or Red Data Book species. The definition of this type of habitat is:

  "*Permanent and seasonal standing water bodies up to 2 ha in extent which meet one or more of the following criteria:*

  - *Habitats of international importance: Ponds that meet criteria under Annex I of the Habitats Directive.*
  - *Species of high conservation importance: Ponds supporting Red Data Book species, UK BAP species, species fully protected under the Wildlife and Countryside Act Schedule 5 and 8,*

Habitats Directive Annex II species, a Nationally Scarce wetland plant species, or three Nationally Scarce aquatic invertebrate species.

- *Exceptional assemblages of key biotic groups: Ponds supporting exceptional populations or numbers of key species. Based on (i) criteria specified in guidelines for the selection of biological SSSIs (currently amphibians and dragonflies only), and (ii) exceptionally rich sites for plants or invertebrates (i.e. supporting ≥30 wetland plant species or ≥50 aquatic macroinvertebrate species).*
- *Ponds of high ecological quality: Ponds classified in the top PSYM category ("high") for ecological quality (i.e., having a PSYM score ≥75%). [PSYM (the Predictive SYstem for Multimetrics) is a method for assessing the biological quality of still waters in England and Wales; plant species and / or invertebrate families are surveyed using a standard method; the PSYM model makes predictions for the site based on environmental data and using a minimally impaired pond dataset; comparison of the prediction and observed data gives a % score for ponds quality].*
- *Other important ponds: Individual ponds or groups of ponds with a limited geographic distribution recognised as important because of their age, rarity of type or landscape context e.g., pingos, duneslack ponds, machair ponds*."

3.3 Species

The following sections are based on a combination of desk study information, field survey data and an assessment of the likely value of the habitats present for each species or group of species. The records should not be seen as definitive; other species may be present, and some may no longer occur.

3.3.1 Plants

The desk study data returned records of 64 species of protected and notable flowering plant species on or within 2 km of Site, see Table 3-2.

Table 3-2 Protected and Notable Plants Recorded within 2km of the Site

Common Name	Scientific Name	Status
Field Garlic	*Allium oleraceum*	IUCN Red List Vulnerable (Great Britain), Scottish Biodiversity List
Pyramidal Orchid	*Anacamptis pyramidalis*	EC CITES - ANNEX B
Corn Chamomile	*Anthemis arvensis*	Farm Environmental Plan, IUCN Red List Endangered (England), IUCN Red List Endangered (Great Britain)
Purple Milk-vetch	*Astragalus danicus*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, IUCN Red List Endangered (England), IUCN Red List Endangered (Great Britain), Scottish Biodiversity List, Tees Valley BAP
Quaking-grass	*Briza media*	IUCN Red List Near Threatened (England)
Box	*Buxus sempervirens*	Farm Environmental Plan, Nationally Rare (excludes), IUCN Redlist Data Deficient (Great Britain)

Common Name	Scientific Name	Status
Heather	*Calluna vulgaris*	IUCN Red List Near Threatened (England)
Harebell	*Campanula rotundifolia*	IUCN Red List Near Threatened (England)
Divided Sedge	*Carex divisa*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, Nationally Scarce (excludes), IUCN Red List Vulnerable (Great Britain)
Star Sedge	*Carex echinata*	IUCN Red List Near Threatened (England)
Flea Sedge	*Carex pulicaris*	IUCN Red List Near Threatened (England)
Bladder-sedge	*Carex vesicaria*	IUCN Red List Vulnerable (England)
Whorl-grass	*Catabrosa aquatica*	IUCN Red List Vulnerable (England)
Cornflower	*Centaurea cyanus*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, Farm Environmental Plan, Scottish Biodiversity List
Seaside Centaury	*Centaurium littorale*	Nationally Scarce (excludes), Schedule 9 (Part 1)of the Wildlife and Countryside Act 1981
Field Mouse-ear	*Cerastium arvense*	IUCN Red List Near Threatened (England)
Chamomile	*Chamaemelum nobile*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)
Good-King-Henry	*Chenopodium bonus-henricus*	IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain), Scottish Biodiversity List
Melancholy Thistle	*Cirsium heterophyllum*	IUCN Red List Near Threatened (England), Schedule 9 (Part 1)of the Wildlife and Countryside Act 1981
Crosswort	*Cruciata laevipes*	IUCN Red List Near Threatened (England)
Common Spotted-orchid	*Dactylorhiza fuchsii*	EC CITES - ANNEX B
Northern Marsh-orchid	*Dactylorhiza purpurella*	EC CITES - ANNEX B
Maiden Pink	*Dianthus deltoides*	Nationally Scarce (excludes), IUCN Red List Vulnerable (England), IUCN Red List Near Threatened (Great Britain)
Needle Spike-rush	*Eleocharis acicularis*	IUCN Red List Near Threatened (England)
Bell Heather	*Erica cinerea*	IUCN Red List Near Threatened (England)
Common Cottongrass	*Eriophorum angustifolium*	IUCN Red List Vulnerable (England)
Sun Spurge	*Euphorbia helioscopia*	EC CITES - ANNEX B, Scottish Biodiversity List
Petty Spurge	*Euphorbia peplus*	EC CITES - ANNEX B
Eyebright	*Euphrasia nemorosa*	IUCN Red List Near Threatened (England)
Wild Strawberry	*Fragaria vesca*	IUCN Red List Near Threatened (England)
Snowdrop	*Galanthus nivalis*	EC CITES - ANNEX B

Common Name	Scientific Name	Status
Dyer's Greenweed	*Genista tinctoria*	IUCN Red List Vulnerable (England)
Bloody Crane's-bill	*Geranium sanguineum*	IUCN Red List Near Threatened (England)
Wood Crane's-bill	*Geranium sylvaticum*	IUCN Red List Near Threatened (England), Schedule 9 (Part 1)of the Wildlife and Countryside Act 1981
Corn Marigold	*Glebionis segetum*	Farm Environmental Plan, IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)
Hawkweed	*Hieracium piligerum*	RedList_ENG_post2001-CR
Sea-buckthorn	*Hippophae rhamnoides*	Farm Environmental Plan, Nationally Scarce (excludes)
Bluebell	*Hyacinthoides non-scripta*	WACA-Sch8
Marsh Pennywort	*Hydrocotyle vulgaris*	IUCN Red List Near Threatened (England)
Field Scabious	*Knautia arvensis*	IUCN Red List Near Threatened (England)
Bitter-vetch	*Lathyrus linifolius*	IUCN Red List Near Threatened (England)
Field Pepperwort	*Lepidium campestre*	IUCN Red List Near Threatened (England), Scottish Biodiversity List
Fly Honeysuckle	*Lonicera xylosteum*	Nationally Rare (excludes)
Ragged-Robin	*Lychnis flos-cuculi*	IUCN Red List Near Threatened (England)
Welsh Poppy	*Meconopsis cambrica*	Nationally Scarce (excludes)
Cat-mint	*Nepeta cataria*	IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)
Wood-sorrel	*Oxalis acetosella*	IUCN Red List Near Threatened (England)
Tormentil	*Potentilla erecta*	IUCN Red List Near Threatened (England)
Marsh Cinquefoil	*Potentilla palustris*	IUCN Red List Near Threatened (England)
Oxlip	*Primula elatior*	Nationally Scarce (excludes), IUCN Red List Near Threatened (Great Britain)
Lesser Spearwort	*Ranunculus flammula*	IUCN Red List Vulnerable (England)
Mountain Currant	*Ribes alpinum*	Farm Environmental Plan, Nationally Scarce (excludes)
Bramble	*Rubus rotundifolius*	Nationally Rare (excludes)
Knotted Pearlwort	*Sagina nodosa*	IUCN Red List Vulnerable (England)
Yellow Glasswort	*Salicornia fragilis*	Nationally Scarce (excludes)
Shiny Glasswort	*Salicornia nitens*	Nationally Scarce (excludes), IUCN Redlist Data Deficient (Great Britain)
Creeping Willow	*Salix repens*	Farm Environmental Plan, IUCN Red List Near Threatened (England)
Sanicle	*Sanicula europaea*	IUCN Red List Near Threatened (England)
Marsh Ragwort	*Senecio aquaticus*	IUCN Red List Near Threatened (England)

Common Name	Scientific Name	Status
Devil's-bit Scabious	*Succisa pratensis*	IUCN Red List Near Threatened (England)
Marsh Arrowgrass	*Triglochin palustre*	IUCN Red List Near Threatened (England)
Common Valerian	*Valeriana officinalis*	IUCN Red List Near Threatened (England)
Heath Dog-violet	*Viola canina*	IUCN Red List Vulnerable (England), IUCN Red List Near Threatened (Great Britain)
Dwarf Eelgrass	*Zostera noltei*	Nationally Scarce (excludes), IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)

The majority of the habitats where these plants would be expected to be found would be those of higher quality such as dune, woodland, wetland and open mosaic priority habitats.

3.3.2 Invertebrates

Records of 52 species of protected or notable invertebrates within 2 km of the application Site were returned in the data search.

Most recently, surveys in 2019 conducted for the Britishvolt recorded high numbers of grayling *Hipparchia semele* within their site boundaries in 2019, associated with ephemeral and short perennial vegetation and grassland, in the southeast part of the Site, as well as identifying potential for other notable invertebrates such as wall brown *Lasiommata megera* and dingy skipper *Erynnis tages* with suitable habitat in the area and records returned from ERIC, however, no sightings were recorded. It is likely that these species are also present in areas of similar habitat elsewhere within the Site.

Other protected and notable invertebrate species are most likely to be associated with priority habitats such as grasslands, dunes, open mosaic, mature woodland and wetland.

3.3.3 Amphibians

GCN is protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act (as amended) and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), it is also a Section 41 species.

ERIC North East returned recent records for smooth newt *Lissotriton vulgaris*, common frog *Rana temporaria*, and common toad *Bufo bufo* within the 2 km Study Area. Historical records of GCN exist, the most recent from 2006. However, surveys carried out east of the A189 between 2013 and 2020[39] returned no records of GCN. Whilst this suggests likely absence east of the A189, the presence of GCN within potentially suitable ponds across the Site, or within 250 m of the Site, cannotbe ruled out. The locations of ponds within 250 m of the Site can be seen in Figure 2.

No ponds were accessible during the ground truthing survey and therefore would require further survey to determine their suitability for GCN.

Rough grassland, scrub, hedgerow, wetland and woodland habitats are suitable for use by this species group and are present across the Site.

3.3.4 Reptiles

Two species of reptile were identified in records from ERIC North East for the 2 km Study Area. These include:

- Slow worm *Anguis fragilis*; and
- Common lizard *Zootoca vivipara*.

However, the most recent record returned was of the slow worm in 2010, approximately 1.7 km southeast of the Site.

BritishVolt[39] reported historical surveys undertaken in 2007 by White Young Green, which recorded a single common lizard but no records have been identified since, with systematic surveys carried out by EcoNorth in 2013 returning no reptiles, other than anecdotal evidence of an incidental sighting of common lizard at the disused railway.

The above species are protected from intentional killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed on Section 41 of the NERC Act (2006).

Habitats that may be suitable for use by reptiles occur across the Site and include rough grassland, field margins, hedgerows, scrub, woodland edges, watercourse edges, dunes and wetlands, although the large arable fields within the Site are not likely to support reptile species.

3.3.5 Birds

The desk study data provided by ERIC North East included records for a wide range of legally protected or otherwise notable bird species within the 2 km Study Area. These include 58 species that are protected through inclusion on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), 14 Section 41 species, 29 species listed under Annex 1 of the EU Birds Directive, 43 species red listed as 'Birds of Conservation Concern'[34] and 67 species amber listed as 'Birds of Conservation Concern'[35]. Many of these records relate to birds recorded within nearby statutory and non-statutory designated sites. It is noted that most of the Schedule 1 species are unlikely to breed within the 2 km Study Area and most of the records of Schedule 1 species are likely to relate to wintering birds or birds on passage.

Other relevant data sources were reviewed (see Table 2-1), notably bird surveys undertaken for the Britishvolt project in 2020 and 2021 and included records for a wide range of legally protected or otherwise notable bird species within the Site. These are discussed further below.

Breeding Birds

Of the records provided by ERIC North East there are records of four Schedule 1 species, which could potentially breed within the Site, based on habitat suitability and known distribution and range. These are little ringed plover *Charadrius dubius*, barn owl *Tyto alba*, kingfisher *Alcedo atthis* and peregrine *Falco peregrinus*. There are also records for a number of other red and amber list species which could potentially breed.

Breeding bird surveys undertaken at the Britishvolt site in 2020 and 2021[39] identified one Schedule 1 species breeding within the site, little ringed plover. There were also records of other breeding wader species including curlew, lapwing and ringed plover plus a range of red and amber list passerine species, including the locally rare willow tit *Poecile montanus*.

There are no records of breeding little tern (a qualifying species for the Northumbria Coast SPA and Ramsar) within 2 km of the Site and the closest known colony is located several miles to the north of the Site at the Long Nanny, between Low Newton and Beadnell.

[34] Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and Second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114, 723–747.
[35] *NB – Some species will have more than one designation.

Non-Breeding Birds

Non-breeding bird survey was undertaken for the Britishvolt site plus a 500 m buffer in the winter of 2020-21[36]. The surveys recorded a number of waterbird species, including several of the species forming part of the notified interest of the Northumberland Shore SSSI, including golden plover, ringed plover, turnstone and redshank. A further seven wader species were also recorded. Barn owl and peregrine were both also recorded.

The intertidal habitats within the Site are considered likely to support all of the wintering birds listed as qualifying or notified features for the Northumbria Coast SPA and Ramsar and the Northumberland Shore SSSI. It is also possible that some of these species may use suitable habitats within the inland parts of the site (e.g. wet fields or large areas of open mosaic habitats).

3.3.6 Mammals

Bats

ERIC North East returned records for the following species within the 2km Study Area:

- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *P. pygmaeus*;
- Nathusius' pipistrelle *P. nathusii;*
- *Pipistrellus* sp.;
- Daubenton's bat *Myotis daubentonii*;
- *Myotis sp*.;
- Natterer's bat *Myotis nattereri*;
- Whiskered bat *Myotis mystacinus;*
- Whiskered/Brandts bat *Myotis brandtii;*
- Noctule *Nyctalus noctula*;
- *Nyctalus* sp.; and
- Bat sp.

While the majority of these species are relatively common and/or widespread, Nathusius' pipistrelle and Brandt's bat are rare species, while Natterer's and whiskered bat[37] are uncommon. These species have been recorded at scattered locations around the 2 km Study Area, with the commoner species, common and soprano pipistrelle, recorded within the red line boundary.

Surveys for the BritishVolt application in 2020[39] found the presence of common pipistrelle, soprano pipistrelle, pipistrelle species and *Myotis* species. Surveys in 2022[7] at West Sleekburn found the presence of noctule and common pipistrelle.

MAGIC identified six European Protected Species Licences (EPSL) for bats within the 2 km Study Area, all of which were for common pipistrelle and none of which were within the Site itself.

All bat species in the UK are protected through inclusion in Schedule 5 of the Wildlife and Countryside Act (as amended) and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Noctule, common pipistrelle, soprano pipistrelle, brown long-eared bat and barbastelle are also Section 41

[36] BritishVolt Project Phoenix Environmental Statement Volume 3: Appendices (Ridge 2021).
[37] https://neenp.org.uk/wp-content/uploads/2017/03/Bats.pdf

Species.

The Site includes numerous habitats that are suitable for use by commuting and foraging bats, such as hedgerows, woodland edges, watercourses and wetlands, although the large arable fields in the west of the Site are unlikely to be of great value to commuting and foraging bats. Potential roost locations within the Site include mature trees within hedgerows and woodlands, as well as numerous buildings. Note that bat roost potential has not been assessed for individual trees or buildings due to the lack of access.

Badger

ERIC North East returned 20 records of Badger (*Meles meles*) within 2 km of the Site. The majority of the records were of dead individuals found on the roadside.

Britishvolt did not find any field signs for badger within their site.

Badger receives protection under the Protection of Badgers Act 1992. Badger was not recorded in the Site during the ground-truthing surveys, although large parts of the Site were not accessible. Woodland and hedgerows within the Site are potentially suitable for sett digging, and the grassland fields for foraging.

Otter

Otter is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended), it is also a Section 41 species.

ERIC North East returned 40 records of otter and surveys completed in 2019[39] by Britishvolt found suspected field signs in the wider area near settling ponds. The majority of records returned are from the River Wansbeck and River Blyth.

In addition to the rivers and streams, otter may utilise the ditch and pond network present in the area, particularly during the amphibian breeding season when frog, toad and newt prey would be abundant.

Water Vole

Water vole is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), it is also a Section 41 species.

ERIC North East returned only one record of water vole north of the Site which may be within the northern Site boundary in the River Wansbeck (the precision of the record does not enable distinction).

Several water courses and ponds within the Site may be suitable for use by this species, although this can't be confirmed without access for survey.

Red Squirrel

Red squirrel is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), it is also a Section 41 species.

ERIC North East returned over 500 records of red squirrel within the 2 km area of search with at least 20 records intersecting with the Site boundary, albeit the precision of the locations cannot be ascertained.

The Site supports habitats suitable for red squirrel with dense woodlands present in scattered, mostly linear, parcels across the Site.

Other Mammals

Two other Section 41 mammal species are noted to occur within the 2 km Study Area, based on the desk study data: hedgehog *Erinaceus europaeus* and brown hare *Lepus europaeus.* The Site includes numerous habitats that are suitable for use by hedgehog such as hedgerows, woodland edges, scrub and gardens. Suitable habitat for brown hare is also present across the Site, including grassland for foraging and woodland and hedgerows for

cover.

3.3.7 Invasive Non-Native Species

ERIC North East returned records of the non-native American mink *Mustela vison* and grey squirrel *Sciurus carolinensis* within the 2 km Study Area and in the wider landscape which are included in Schedule 9 Part 1 of the Wildlife & Countryside Act 1981 (as amended). The most recent records are over seven years old for American mink and over five years old for grey squirrel, although both are likely to still be present in the area.

The following invasive non-native plant species records were returned from ERIC North East for the 2 km Study Area:

- Hollyberry Cotoneaster *Cotoneaster bullatus*;
- Wall Cotoneaster *Cotoneaster horizontalis*;
- Himalayan Cotoneaster *Cotoneaster simonsii*;
- New Zealand Pigmyweed *Crassula helmsii*;
- Japanese Knotweed *Fallopia japonica*;
- Giant Hogweed *Heracleum mantegazzianum*;
- Indian Balsam *Impatiens glandulifera*;
- Rhododendron *Rhododendron ponticum*; and
- Japanese Rose *Rosa rugosa*.

These species above are all included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), which could result in an offence if they are caused to grow or spread.

Additionally, pirri-pirri burr *Aceana novae-zelandiae* was found to be widespread throughout open mosaic habitat during surveys undertaken for the BritishVolt EIA, as well as Japanese rose, cotoneaster species, New Zealand pygmy weed, Indian Balsam, buddleja *Buddleja davidii*, lady's mantle *Alchemilla mollis* and sea buckthorn *Hipphophae rhamnoides*[38,39,40]. It should be noted that pirri-pirri burr, buddleja, lady's mantle and sea buckthorn are considered invasive as they can become widespread and do not naturally occur in this location. However, they are not Schedule 9 species.

The records indicate that several invasive non-native plant species could be present within the Site.

[38] BritishVolt Project Phoenix-Advanced Works, Construction Environmental Management Plan (2021)
[39] BritishVolt Project Phoenix Environmental Statement Volume 3: Appendices (Ridge 2021).

[40] BritishVolt Project Phoenix Environmental Statement: Main Report (Ridge 2021).

4.0 Confirmation of Important Ecological Features and Requirements for Further Survey

4.1 Important Ecological Features and Further Survey Requirements

This section provides additional detail in respect of important ecological features (IEFs) that may be affected by the proposed development and outlines the scope of additional ecological surveys that may be necessary to inform the EIA process. IEFs that could be affected will depend on the project design and the precise scope of additional survey work required will also depend on the location and extent of proposed infrastructure and should be reviewed once further information on the project design is available. Readers should also bear in mind that the recommendations here are made based upon the best available data collected to date but may be subject to update and amendment as required, as additional ecological field survey data is gathered.

The IEFs identified to date that may be affected by the proposed development are identified in Table 4-1. A precautionary approach has been taken in respect of identification of IEFs at locations where detailed field survey has not been undertaken. Since the following Level 3 habitats may include Priority Habitats, they have been taken forward as IEFs within this PEA:

- w1 – broadleaved, mixed and yew woodland
- g3 – neutral grassland
- h2 – hedgerow;
- h3 – dense scrub
- f2 – fen, marsh and swamp;
- r1 and r2 – standing open water, rivers and streams; and
- s3 – supralittoral sediment.
- t2 – littoral sediment
- u1– Urban

Table 4-1 identifies where further survey may be necessary in order to robustly evaluate potential ecological impacts of the project as part of the EIA (subject to the project design), where no such information is needed, and where potential impacts have been scoped out. The scope proposed below will also be subject to continual iterative refinement, as data is gathered and/ or in response to the provision of additional design information.

Table 4-1
Important Ecological Features that may be Affected and Potential Requirements for Further Survey (Subject to the Project Design)

Important Ecological Feature	Reason for Importance	Further Survey Required
Northumbria Coast RamsarNorthumbria Coast SPA Northumberland Shore SSSI	Statutory Designated Sites	Located within the Site and may be affected by works on any landfall (and potentially other works, if likely to affect inland areas used by wintering wader populations). Wintering bird surveys are recommended (further details are provided below), to inform an assessment of whether bird populations associated with these designated sites are likely to be affected.

Important Ecological Feature	Reason for Importance	Further Survey Required
Willow Burn Pasture SSSI Hawthorn Cottage Pasture SSSI New Hartley Ponds SSSI Holywell Pond SSSI Arcot Hall Grassland and Ponds SSSI Cresswell Ponds SSSI Castle Island LNR Wansbeck Riverside Park LNR Paddock Wood LNR Ha'penny Woods LNR Choppington Community Woods LNR	Statutory Designated Sites	Based on the distance from site, over 800 m, and a lack of downstream hydrological connections it is unlikely that these sites would be impacted. These sites have therefore been scoped out of further assessment.
LoWS within c.100m of the Site, including: Blyth Estuary LoWS Wansbeck Estuary LoWS Sleekburn Fen LoWS	LoWS	Depending on the proposed design and whether these sites could be directly or indirectly affected, a range of surveys may be required (further details are provided below).
All other LoWS listed at in Section 3	LoWS	Remaining LoWS are all located >250 m from the Site and are not hydrologically linked to it. No direct or indirect impacts are anticipated as a result of lack of potential impact pathways. It is therefore proposed to scope these sites out of further assessment.
Habitats	Section 41 Habitats (see Section 3.2.14), plus areas that may meet Annex 1 definitions.	Field-based habitat survey of all areas within 100 m of proposed development areas is recommended, once the proposed development areas have been identified and access is obtained. All areas should be classified to UKHab level 4 (where applicable), plus mandatory codes (10 – 41) as a minimum. Section 41 habitats should be assessed to UKHab level 5 (where applicable), plus mandatory codes (10 – 41). Mapping should be undertaken based upon a 25 m^2 minimum mapping unit (MMU). In addition to the habitat survey, all areas should also be subject to Condition Assessment[41] to enable later biodiversity loss/gain calculations to be made. Hedgerow assessment should be undertaken at any locations which may be breached, in order to ascertain if hedgerows meet the definition of "Important Hedgerow" under the wildlife and landscape criteria of the Hedgerow Regulations 1992. This assessment should be targeted,

[41] Undertaken in accordance with Defra Biodiversity Metric 3.1.

Important Ecological Feature	Reason for Importance	Further Survey Required
		informed by a review undertaken during the habitat survey where species rich (more than five woody species noted) hedgerows should be identified, and detailed scrutinising of desk study data to determine if the hedge is likely to support important species defined in the Regulations. Habitat surveys should ideally be undertaken during the period May to September (inclusive), although survey of some habitats may be possible outside this period.
Plant species	Protected or notable species	Field-based habitat survey of all areas within 100 m of proposed development areas is recommended, once the proposed development areas have been identified and access is obtained. Protected or notable plant species should be recorded as seen during this survey. Detailed survey of areas that are known or suspected to support protected or notable plant species, and that may be significantly impacted, may be required subject to the project design and findings of the field-based habitat survey. Such surveys would comprise searching discrete areas of suitable habitat specifically looking for rare species, during the appropriate season (dependent on likely species). Invasive non-native plant species should be recorded during the habitat survey.
Invertebrates	Protected or notable species	Surveys for certain protected or notable invertebrate species may be required, depending on the project design. Assessment of impacts to this species group should initially take place via a precautionary habitat-based assessment, focussing on a) areas where permanent habitat loss is likely and b) areas that are known or suspected (based on the habitats present) to support potentially important populations of rare/notable species. The requirement for further survey will depend on the project design and the findings of the initial habitat-based assessment.
GCN and common toad	Protected or notable species	Despite the lack of recent records, as all existing survey data are over two years old, any ponds within 250 m of proposed development areas should be subject to Habitat Suitability Index (HSI) survey[42] and, if suitable, presence/absence survey following standard methods[43]

[42] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10(4), 143-155.
[43] Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. (2014). 'Analytical and

Important Ecological Feature	Reason for Importance	Further Survey Required
		All ponds that support GCN and that are within 250 m of permanent or 100 m of temporary habitat loss should also be subject to population size class assessment. Presence/ absence surveys using eDNA should be undertaken between mid-April and the end of June and population size class surveys, if required, should be undertaken between mid-March and mid-June.
Reptiles	Protected or notable species	The habitat survey completed to date has indicated that potentially suitable reptile habitat in the form of coastal sand dunes, hedgerows, scrub, woodland and grassland (except for modified grassland) occurs at many locations within the Site. More detailed habitat suitability assessment should be undertaken at the above locations once proposed development areas are known, with presence/ absence survey undertaken at areas of moderate or highly suitable habitat where permanent habitat loss and/ or significant impacts to populations are possible. Presence/ absence survey should be undertaken between April and September following standard methods[44]. Surveys for reptiles in areas that would only be subject to relatively small-scale temporary loss are not considered necessary provided Reasonable Avoidance Measures are employed during construction.
Breeding Birds	Protected or notable species	Breeding bird surveys may be required, depending on the project design, if areas in which significant effects on protected or notable bird species are possible. Given the nature of the project most effects on breeding bird species will be temporary in nature (e.g. disturbance or temporary habitat loss), although permanent effects are likely at the converter station location and even temporary effects may be significant if Schedule 1 species or important populations of other notable species could be affected Bird Survey Guidelines published online in 2021[45] adopt a default position that a minimum of six survey visits should be carried out during the breeding season, unless a robust justification can be made as to why fewer visits are required. These methods should form the default

methodological development for improved surveillance of the Great Crested Newt', in Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA.
Langton, T., Beckett, C. and Foster, J. (2001). 'Great Crested Newt Conservation Handbook', (Halesworth: Froglife).
[44] Froglife (1999). Froglife Advice Sheet 10: reptile survey. Froglife, London.
[45] https://birdsurveyguidelines.org/ [last accessed 15 March 2022]

Important Ecological Feature	Reason for Importance	Further Survey Required
		survey methodology here, if surveys are required. Survey, if needed, should also be designed to meet any specific requirements for target species, for example, all potentially suitable trees and potentially suitable structures within the Site (where accessible) should be inspected at least once for evidence of the presence of barn owl following standard methods[46].
Non-Breeding Birds	Protected or notable species	Although there are previous survey data for the Britishvolt site from 2020-21, their surveys only covered a small proportion of the Site and may not cover areas affected by the proposed development. Surveys of wintering birds using inter-tidal areas at the proposed landfall are therefore recommended. Surveys should include a 500 m buffer either side of the proposed landfall location (to allow for an assessment of potential disturbance effects) and should also include any inland areas that are potentially suitable for wintering waders and wildfowl and may be affected by the proposed development. Surveys should take place twice per month, from October to March inclusive, as per recent discussions with Natural England regarding the project[47]. On each survey date all waterbirds using intertidal areas should be recorded through-the-tide, i.e. during six, approximately hourly counts undertaken throughout the tidal cycle, either starting at low tide and finishing at high tide or vice versa.
Bats	Protected or notable species	If required, surveys should be undertaken in accordance with published good practice guidelines[48] unless otherwise stated. Depending on the project design, bat activity survey may be required at hedgerows, woodlands and/or riparian areas which may be removed, illuminated or breached. If required, survey would involve a combination of manual transect surveys and static recording, in accordance with the published guidelines. Survey should take place throughout the bat active season (May to September) with the frequency of survey to be determined once proposed development areas are known and a more detailed habitat-based assessment has been undertaken. Preliminary roost assessment to determine if trees or structures have potential roost features (PRF) should be

[46] Gilbert, G, Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods: A Manual of Key Techniques*. RSPB, Sandy.
[47] Consultation between Xodus and Natural England dated 18 August 2022.
[48] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).
The Bat Conservation Trust, London.

Important Ecological Feature	Reason for Importance	Further Survey Required
		undertaken at trees likely to be affected by the proposed development once project designs and access are available. Trees or structures with PRF which could potentially be lost or damaged or disturbed by the project (excluding those able to be avoided via use of HDD) should then be subject to more detailed survey; either an at-height/ internal PRF inspection (where safe to do so) and/or dusk emergence and/or dawn re-entry surveys during the active season (May – September) to better determine roost potential and gather evidence of roosting bats (if present). The level of survey effort required would depend on the level of bat roost potential identified by the preliminary roost assessment. Dusk emergence and/or dawn re-entry surveys should use full spectrum bat detectors and potentially also thermal imaging or infra-red cameras. Deviations from this may be necessary due to structural safety issues or difficult sight lines, in which case tree or structure-specific alternative methods should be used.
Badger	Protected or notable species	Survey of all potentially suitable areas for badgers within at least 30 m of proposed development areas is recommended. This could potentially be undertaken in conjunction with the habitat survey, once access is obtained. Survey should follow standard methods[49] and include a search for the presence of active badger setts and signs.
Otter	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas, once known and once access is obtained. In line with standard good practice, survey should include the area 250 m up and downstream. Survey methods should be informed by current references[50] and surveys could take place in conjunction with surveys for water vole (below).
Water Vole	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas, once known and once access is obtained. In line with standard good practice, survey should include the area 200 m up and downstream. If required, surveys should be undertaken in accordance

[49] Scottish Natural Heritage (SNH) (2003). 'Best Practice Guidance - Badger Surveys', Inverness Badger Survey 2003, Commissioned Report No. 096.
[50] Chanin, P. (2003). 'Ecology of the European Otter', in Conserving Natura 2000 Rivers, Ecology Series No. 10, (Peterborough: English Nature).
Chanin, P. (2003). 'Monitoring the Otter', in Conserving Natura 2000 Rivers, Monitoring Series No 10, (Peterborough: English Nature).

Important Ecological Feature	Reason for Importance	Further Survey Required
		with standard methods[51], which require up to two visits, two months apart, between April and October.
Red Squirrel	Protected or notable species	Depending on the project design, surveys may be required for any potentially suitable woodlands, which may be impacted by the survey through the felling of trees, including where this causes a severance in woodland. If required, surveys should follow current best practice guidance[52, 53].
Other Section 41 Mammal Species: hedgehog and brown hare.	Protected or notable species	Detailed surveys are not considered necessary given that most habitat loss will only be temporary in nature and will only affect a relatively small proportion of most of the habitats affected. Instead, habitat-based assessment should be undertaken for these species and used as a basis for impact assessment.

4.2 Potential Requirements for Mitigation or Compensation Measures

A brief outline of possible mitigation/ compensation requirements that have so far been identified is described below. It is limited to mitigation/ compensation that is likely to be required based on current data but does not include things which would be entirely dependent on the results of further surveys and project design, e.g. mitigation for loss of tree bat roosts. Final mitigation/compensation proposals should be subject to detailed, species and location-specific refinement, once all necessary data have been obtained, with full details provided in an Outline Ecological Management Plan (OEMP) (or equivalent) submitted alongside the ES as part of the planning application. At this stage it is envisaged that general points are likely to include:

- compensation for any loss of Section 41 habitats; to include reinstatement and/ or planting/ creation of equivalent habitat type, quality and extent, as appropriate;
- mitigation/compensation for temporary loss of other habitat – to include reinstatement and other measures as described above;
- mitigation to minimise impacts to important species, if required, through careful alignment, scheduling and/or deterrence and/ or exclusion measures, with translocation as necessary (under licence, if appropriate). Details will depend on the results of further surveys and the detailed design; and
- "dead hedge" blocking of any hedgerow breaches during construction and/or whilst replacement hedges establish afterward, to minimise barrier effects to bats and other mobile species, and to enable continued use as a foraging/sheltering resource by reptiles and breeding birds.

4.3 Potential Opportunities for Biodiversity Enhancements

Detailed development plans are not available at this time and a number of recommended surveys have not yet been undertaken. Therefore, the options listed below to provide nature conservation enhancements and

[51] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). 'The Water Vole Mitigation Handbook', The Mammal Society Mitigation Guidance Series, Fiona Mathews and Paul Chanin (eds.), (London: The Mammal Society).
[52] Standing advice for planning consultations - Red Squirrels | NatureScot
[53] https://treesforlife.org.uk/docs/079_360__practicaltechniquesforsurveyingandmonitoringsquirrels_1446049986.pdf

biodiversity net gain (BNG), as required under relevant planning policy, are necessarily generic at this stage. The list below is not exhaustive and may change depending on the detailed design of the project, the results of further survey work and land ownership constraints. Full details should be provided in an OEMP (or equivalent) submitted alongside the ES as part of the planning application.

- Planting new species-rich hedgerows, or gap-planting existing hedgerows, with a specific focus on providing habitat for notable species which may be present in the relevant areas;
- Pond and wetland creation and maintenance for potential use by amphibians, reptiles, otter and water vole;
- New woodland creation and maintenance, to link and/or fortify the existing habitat network;
- Creation and maintenance of sheltered wildflower meadows and glades, including dry stony areas for use by invertebrates and nesting/foraging bird species;
- Creation and maintenance of open mosaic habitat for use by invertebrates and bird species;
- Creation of reptile and amphibian refugia at field boundaries;
- Installation of bird and bat boxes at appropriate trees/woodland;
- Installation of artificial holts and/or water vole platforms adjacent to watercourses;
- Ecological improvements to water courses, where practical; and
- Conducting biodiversity improvement works to existing woodland, where possible.

The Environment Act 2021 requires that developers in England must demonstrate a net biodiversity gain of at least 10% to obtain planning consent. Although submission of a detailed BNG assessment may not be mandatory by the time of submission, provision of BNG and submission of a detailed BNG assessment using a metric are recommended to demonstrate that existing policy requirements to provide biodiversity enhancements will be met.

5.0 Conclusions and Recommendations

This report comprises a PEA of the areas that may be affected by construction and operation of the onshore aspects for the proposed Cable Landfall Project at Cambois. At the time of writing, scheme designs are not yet available and the PEA relates to an indicative red line boundary (the Site) that is representative of the area in which the client will refine the project design including, but not be limited to, the construction of cable landfall, cable corridor and substation. This PEA is informed by desk study and limited field survey undertaken in summer 2022. Limitations to the desk study and field survey are described within the report but are not considered to significantly affect the conclusions of the PEA.

IEFs that are, or could be, present within the Site have been determined and described. IEFs that could be affected by the project, and therefore where further survey is required, will depend on the project design but an initial summary of IEFs that could be affected and possible further survey requirements is provided in Table 5-1, with further details provided in Section 4.1

Table 5-1
Summary of Important Ecological Features and Potential Further Survey Requirements (Subject to the Project Design)

Important Ecological Feature	Reason for Importance	Further Survey or Desk-based Assessment Required
Northumbria Coast Ramsar	Statutory and	These sites either lie within or immediately adjacent to

Important Ecological Feature	Reason for Importance	Further Survey or Desk-based Assessment Required
Northumbria Coast SPA Northumberland Shore SSSI	Non-statutory Designated Sites	the Site. Habitat survey of areas within 100m of the onshore infrastructure options is recommended (see below). Wintering bird surveys are also recommended (see below).
Blyth Estuary LoWS Wansbeck Estuary LoWS Sleekburn Fen LoWS	Statutory and Non-statutory Designated Sites	Depending on the proposed design and whether these sites could be directly or indirectly affected, a range of surveys may be required.
Habitats	Section 41 Habitats, plus areas that may meet Annex 1 definitions	Field-based habitat survey, using the UKHab classification, of areas within 100m of proposed development areas is recommended. Hedgerow assessment is recommended at any species-rich hedgerows which may be breached.
Plant species	Protected or notable species	Protected or notable plant species should be recorded as seen during the recommended habitat survey (see above). Invasive non-native plant species should be recorded during the habitat survey.
Invertebrates	Protected or notable species	Initially surveys will take place via a precautionary habitat-based assessment. The requirement for further survey will depend on the project design and the findings of the initial habitat-based assessment.
GCN and common toad	Protected or notable species	Any ponds within 250m of proposed development areas should be subject to Habitat Suitability Index (HSI) survey and, if suitable, presence/absence survey and potentially population size class assessment.
Reptiles	Protected or notable species	Assessment of habitats for their suitability for common reptile species, followed by presence/ absence survey undertaken where permanent loss of suitable habitat or significant impacts to populations may occur.
Breeding Birds	Protected or notable species	Breeding bird surveys may be required, depending on the project design, if areas in which significant effects on protected or notable bird species are possible.
Non-Breeding Birds	Protected or notable species	Surveys of wintering birds using inter-tidal areas at the proposed landfall are recommended.
Bats	Protected or notable species	Surveys are proposed for roosting bats are likely to be required for any trees and structures likely to be directly affected by the Project. Depending on the project design, bat activity survey

Important Ecological Feature	Reason for Importance	Further Survey or Desk-based Assessment Required
		may be required at hedgerows, woodlands and/or riparian areas which may be removed, illuminated or breached.
Badger	Protected or notable species	Survey of all potentially suitable areas for badgers within at least 30m of proposed development areas is recommended.
Otter	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas.
Water Vole	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas.
Red Squirrel	Protected or notable species	Depending on the project design, surveys may be required for any potentially suitable woodlands, which may be impacted by the survey through the felling of trees.
Other Section 41 Mammal Species: hedgehog, brown hare, and harvest mouse.	Protected or notable species	Habitat based assessment will be undertaken for these species and used as a basis for impact assessment. Detailed surveys are not considered necessary.

A brief outline of possible mitigation/ compensation requirements that have so far been identified is described within Section 4.2 of the report. Final mitigation/ compensation proposals should be subject to detailed, species and location-specific refinement, once all necessary data has been obtained, with full details provided in an OEMP (or equivalent) submitted alongside the ES as part of the planning application.

Possible options for providing biodiversity enhancements are also suggested and described in section 4.3. The list of enhancements is likely to change depending on the detailed design of the project, the results of further survey work and land ownership constraints, in addition to the likely requirement to provide BNG gain, in accordance with the Defra Metric 3.1. Full details should be provided in an OEMP (or equivalent) submitted alongside the ES as part of the planning application.

FIGURE 1

UK Habitat Classification Map

427000 427500 428000 428500 429000 429500 430000 430500 431000 431500

586000 585500 585000 584500 584000 583500 583000

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Page 5 Page 6 Page 7

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Stakeford West Sleekburn Moor House Bomarsund Cambois East Sleekburn Mount Pleasant Farm North Blyth The Rockers

0 100 200 300 400 500

Metres

N

LEGEND

Site Boundary
Site Boundary 250 m Buffer

UK Habitat - Linear Feature
h3 - Dense Scrub
h2 - Hedgerow
r2 - River and Stream
f2 - Fen Marsh and Swamp
w1 - Broadleaved Mixed and Yew Woodland

UK Habitat - Area Feature

Cropland - Arable and Horticulture
c1 - Arable and Horticulture

Wetland - Fen Marsh and Swamp
f2 - Fen Marsh and Swamp

Grassland - Neutral Grassland
g3 - Neutral Grassland

Grassland - Modified Grassland
g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
h3 - Dense Scrub

Sparsely Vegetated Land - Supralittoral Rock
s2a - Maritime Cliff and Slopes

Sparsely Vegetated Land - Supralittoral Sediment
s3 - Supralittoral Sediment

Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1 - Broadleaved Mixed and Yew Woodland
w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland
w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment
t2 - Littoral Sediment
t2a - Coastal Saltmarsh
t2d - Intertidal Mudflats

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CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.1

Scale 1:15,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

63808.00001.0002.2 Baseline Habitat V2

LEGEND

🟥 Site Boundary
▭ Site Boundary 250 m Buffer

UK Habitat - Linear Feature
- h2 - Hedgerow
- r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture
- 🟧 c1 - Arable and Horticulture

Wetland - Fen Marsh and Swamp
- 🟪 f2 - Fen Marsh and Swamp

Grassland - Neutral Grassland
- 🟩 g3 - Neutral Grassland

Grassland - Modified Grassland
- 🟩 g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
- 🟪 h3 - Dense Scrub

Urban - Built-up Areas and Gardens
- ▨ u1 - Built-up Area and Garden

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- 🟩 w1 - Broadleaved Mixed and Yew Woodland
- 🟩 w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland
- 🟩 w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
- 🟦 r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
- 🟦 r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment
- 🟫 t2 - Littoral Sediment

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CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.2

Scale 1:5,000 @ A3

Date OCTOBER 2022

428500 429000 429500 430000

585500

585000

63808.00001.0002.2 Baseline Habitat V2

N

Path
Track
Path (um)
Cycle Track
A189
WB
Layby
WEMBLEY GARDENS

0 100 200 300 400 500
Metres

LEGEND

Site Boundary
Site Boundary 250 m Buffer

UK Habitat - Linear Feature
- h3 - Dense Scrub
- h2 - Hedgerow
- r2 - River and Stream
- w1 - Broadleaved Mixed and Yew Woodland

UK Habitat - Area Feature

Cropland - Arable and Horticulture
- c1 - Arable and Horticulture

Wetland - Fen Marsh and Swamp
- f2 - Fen Marsh and Swamp

Grassland - Neutral Grassland
- g3 - Neutral Grassland

Grassland - Modified Grassland
- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
- h3 - Dense Scrub

Urban - Built-up Areas and Gardens
- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland
- w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment
- t2 - Littoral Sediment
- t2a - Coastal Saltmarsh

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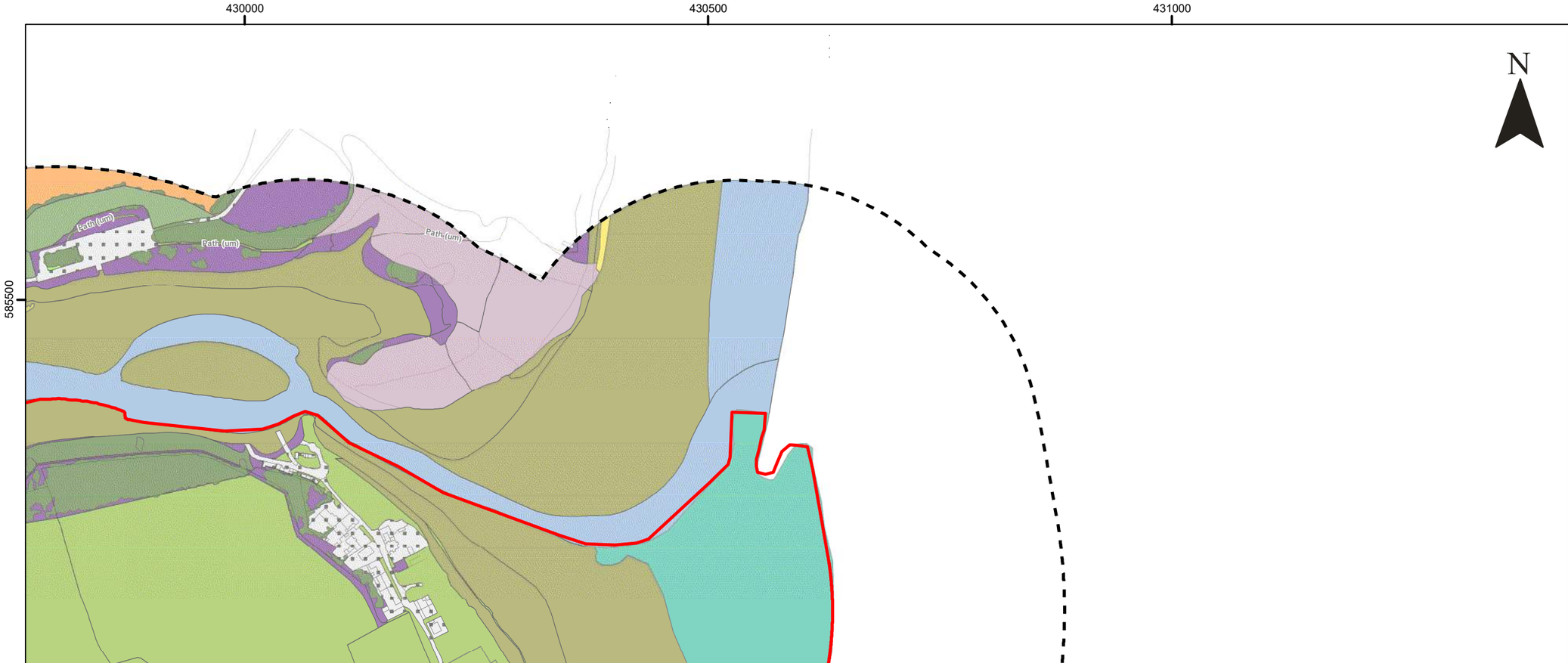
PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.3

Scale 1:5,000 @ A3

Date OCTOBER 2022



LEGEND

Site Boundary

Site Boundary 250 m Buffer

UK Habitat - Linear Feature

r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

c1 - Arable and Horticulture

Grassland - Neutral Grassland

g3 - Neutral Grassland

Grassland - Modified Grassland

g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

h3 - Dense Scrub

Sparsely Vegetated Land - Supralittoral Rock

s2a - Maritime Cliff and Slopes

Sparsely Vegetated Land - Supralittoral Sediment

s3 - Supralittoral Sediment

Urban - Built-up Areas and Gardens

u1 - Built-up Area and Garden

u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

w1 - Broadleaved Mixed and Yew Woodland

w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland

w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals

r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

t2 - Littoral Sediment

t2a - Coastal Saltmarsh

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.4

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

427500 428000 428500

584500

584000

63808.00001.0002.2 Baseline Habitat V2

N

LEGEND

Site Boundary
Site Boundary 250 m Buffer

UK Habitat - Linear Feature
h2 - Hedgerow
r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture
c1 - Arable and Horticulture

Grassland - Neutral Grassland
g3 - Neutral Grassland

Grassland - Modified Grassland
g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
h3 - Dense Scrub

Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1 - Broadleaved Mixed and Yew Woodland
w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland
w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment
t2 - Littoral Sediment
t2a - Coastal Saltmarsh
t2d - Intertidal Mudflats

0 100 200 300 400 500
Metres

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.5

Scale 1:5,000 @ A3

Date OCTOBER 2022

428500 429000 429500 430000

584500 584000

LEGEND

Site Boundary
Site Boundary 250 m Buffer
UK Habitat - Linear Feature
h2 - Hedgerow
r2 - River and Stream
UK Habitat - Area Feature
Cropland - Arable and Horticulture
c1 - Arable and Horticulture
Grassland - Neutral Grassland
g3 - Neutral Grassland
Grassland - Modified Grassland
g4 - Modified Grassland
Heathland and Shrub - Dense Scrub
h3 - Dense Scrub
Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1a - Open Mosaic Habitats on Previously Developed Land
Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1 - Broadleaved Mixed and Yew Woodland
w1f - Lowland Mixed Deciduous Woodland
Woodland and Forest - Coniferous Woodland
w2 - Coniferous Woodland
Rivers and Lakes - Standing Open Water and Canals
r1 - Standing Open Water and Canal
Rivers and Lakes - Rivers and Streams
r2 - Rivers and Streams
Marine Inlets and Transitional Waters - Littoral Sediment
t2 - Littoral Sediment
t2a - Coastal Saltmarsh
t2d - Intertidal Mudflats

N

0 100 200 300 400 500
Metres

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.6

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

430000
430500
431000
584500
584000
N
Track
Path (um)
Path
WATERFIELD ROAD
WILSON AVENUE
WEST BROOKE STREET
0
100
200
300
400
500
Metres

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- h2 - Hedgerow
- r2 - River and Stream
- f2 - Fen Marsh and Swamp

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- c1 - Arable and Horticulture

Grassland - Neutral Grassland

- g3 - Neutral Grassland

Grassland - Modified Grassland

- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

- h3 - Dense Scrub

Sparsely Vegetated Land - Supralittoral Sediment

- s3 - Supralittoral Sediment

Urban - Built-up Areas and Gardens

- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Rivers and Lakes - Standing Open Water and Canals

- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- t2 - Littoral Sediment

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.7

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

427500
428000
428500
583500
583000
582500

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- h2 - Hedgerow
- r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- c1 - Arable and Horticulture

Grassland - Neutral Grassland

- g3 - Neutral Grassland

Grassland - Modified Grassland

- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

- h3 - Dense Scrub

Urban - Built-up Areas and Gardens

- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Rivers and Lakes - Rivers and Streams

- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- t2 - Littoral Sediment
- t2a - Coastal Saltmarsh
- t2d - Intertidal Mudflats

0 100 200 300 400 500

Metres

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UK HABITAT CLASSIFICATION MAP

FIGURE 1.8

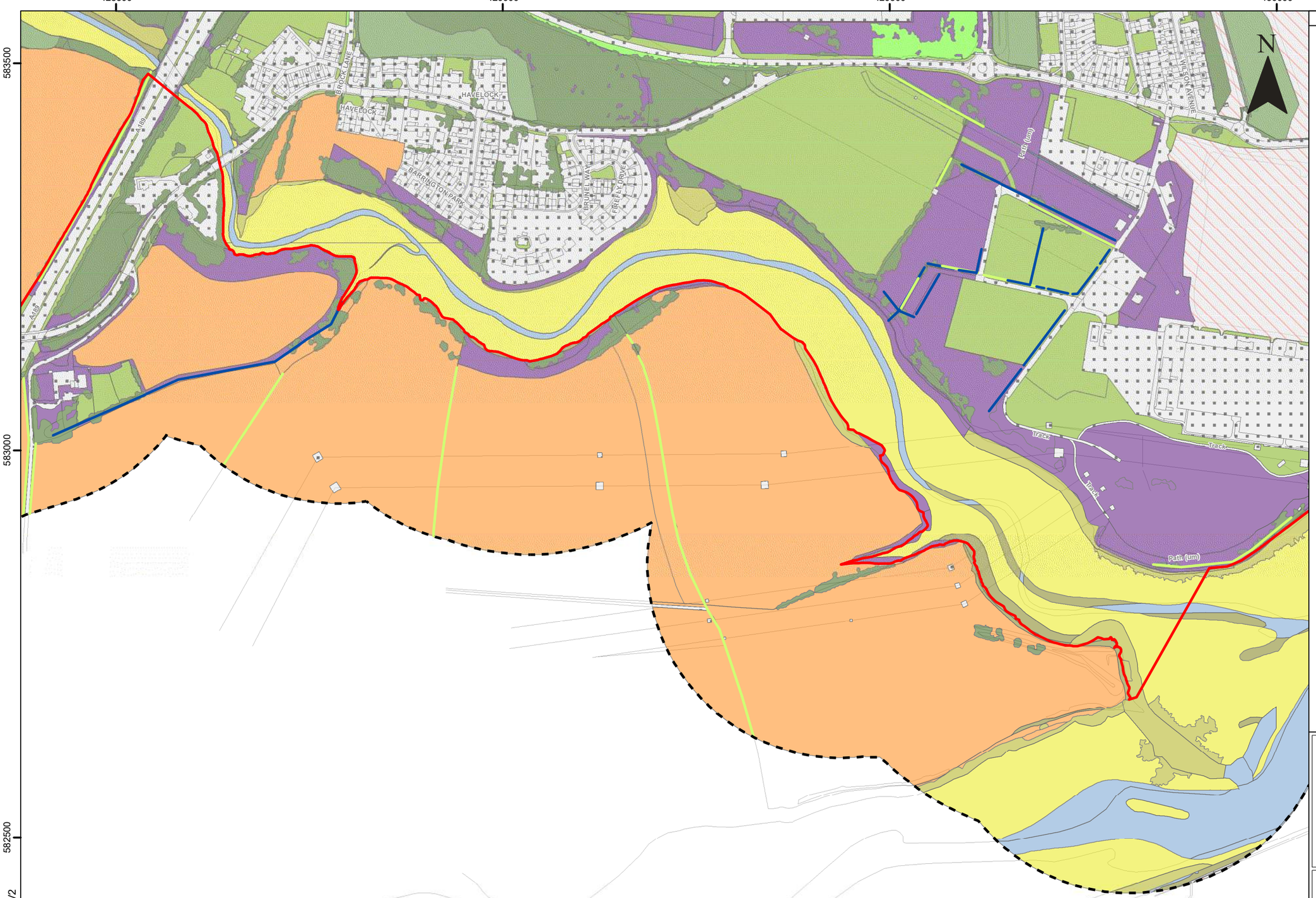
Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

428500 429000 429500 430000

583500 583000 582500



0 100 200 300 400 500

Metres

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- h2 - Hedgerow
- r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- c1 - Arable and Horticulture

Grassland - Neutral Grassland

- g3 - Neutral Grassland

Grassland - Modified Grassland

- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

- h3 - Dense Scrub

Urban - Built-up Areas and Gardens

- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland

- w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals

- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- t2 - Littoral Sediment
- t2a - Coastal Saltmarsh
- t2d - Intertidal Mudflats

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

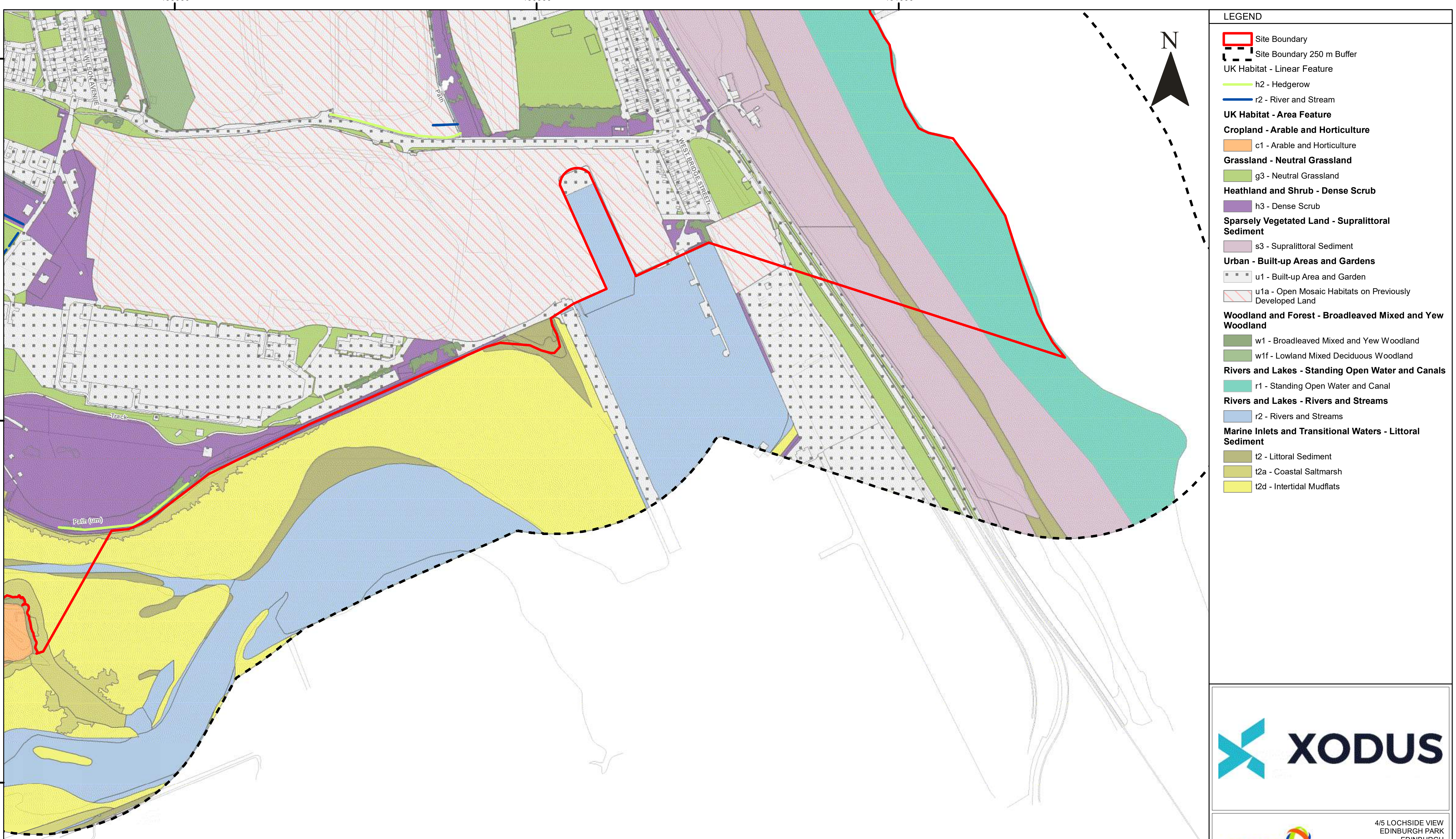
UK HABITAT CLASSIFICATION MAP

FIGURE 1.9

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2



430000
430500
431000
583500
583000
582500
Path
WEST BRIDGE STREET
Track
Path (um)
N
LEGEND
Site Boundary
Site Boundary 250 m Buffer
UK Habitat - Linear Feature
h2 - Hedgerow
r2 - River and Stream
UK Habitat - Area Feature
Cropland - Arable and Horticulture
c1 - Arable and Horticulture
Grassland - Neutral Grassland
g3 - Neutral Grassland
Heathland and Shrub - Dense Scrub
h3 - Dense Scrub
Sparsely Vegetated Land - Supralittoral Sediment
s3 - Supralittoral Sediment
Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1a - Open Mosaic Habitats on Previously Developed Land
Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1 - Broadleaved Mixed and Yew Woodland
w1f - Lowland Mixed Deciduous Woodland
Rivers and Lakes - Standing Open Water and Canals
r1 - Standing Open Water and Canal
Rivers and Lakes - Rivers and Streams
r2 - Rivers and Streams
Marine Inlets and Transitional Waters - Littoral Sediment
t2 - Littoral Sediment
t2a - Coastal Saltmarsh
t2d - Intertidal Mudflats
0
100
200
300
400
500
Metres

XODUS

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.10

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

FIGURE 2

Ponds Map

427000 428000 429000 430000 431000

586000 585000 584000 583000

N

LEGEND

Site Boundary

Site Boundary 250 m Buffer

0 0.5 1

Kilometres

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.1

Scale	Date
1:15,000 @ A3	SEPTEMBER 2022

63808.00001.00006.0 Baseline Habitat Ponds

427800 427900 428000 428100 428200

585200

585100

585000

r1

r1

0 50 100

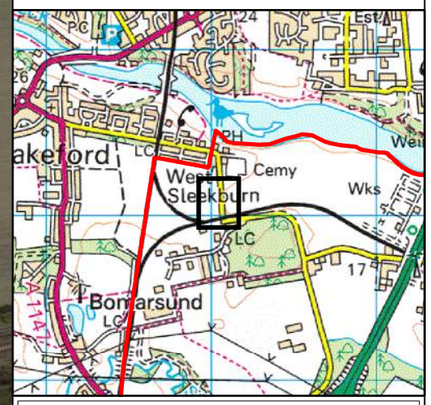
Metres

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.2

Scale 1:1,500 @ A3

Date SEPTEMBER 2022

63808.00001.0006.0 Baseline Habitat Ponds

429600 429700 429800 429900 430000

585100

585000

584900

84800

63808.00001.0006.0 Baseline Habitat Ponds

r1 r1 r1 r1

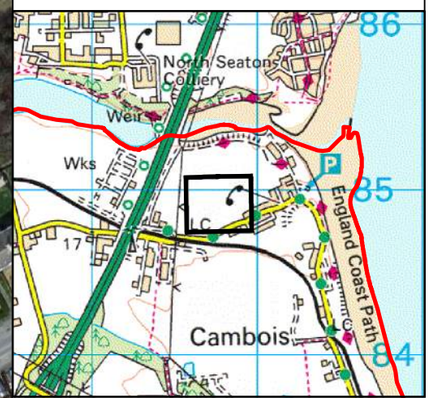
N

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



0 50 100

Metres

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.3

Scale 1:1,500 @ A3

Date SEPTEMBER 2022

428800 428900 429000 429100 429200 429300 429400 429500 429600 429700 429800 429900 430000 430100

584500 584400 584300 584200 584100 584000 583900 583800 583700

r1 r1 r1

N

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal

0 50 100

Metres

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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.4

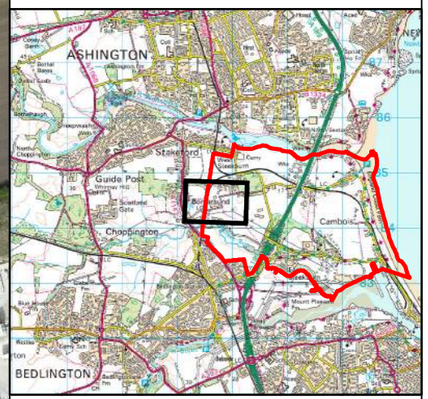
Scale 1:4,000 @ A3

Date SEPTEMBER 2022

63808.00001.0006.0 Baseline Habitat Ponds

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer
- r1 - Standing Open Water and Canal



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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.5

Scale 1:4,500 @ A3

Date SEPTEMBER 2022

427800 427900 428000 428100 428200

583900

583800

583700

63808.00001.0006.0 Baseline Habitat Ponds

r1

r1

N

0 50 100

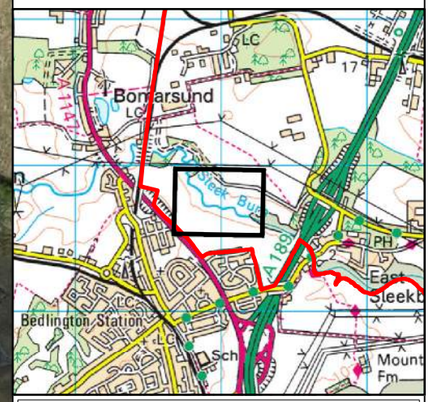
Metres

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



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PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.6

Scale 1:1,700 @ A3

Date SEPTEMBER 2022

429500 429600 429700 429800 429900

583500

583400

583300

r1

r1

0 50 100

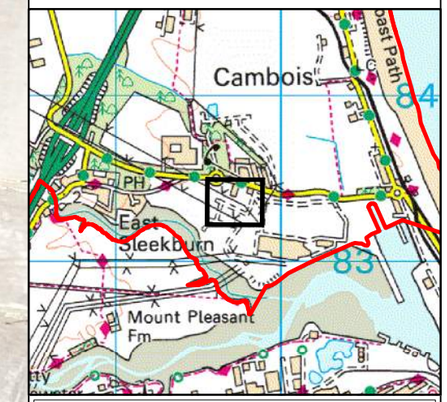
Metres

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



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UK HABITAT CLASSIFICATION PONDS

FIGURE 2.7

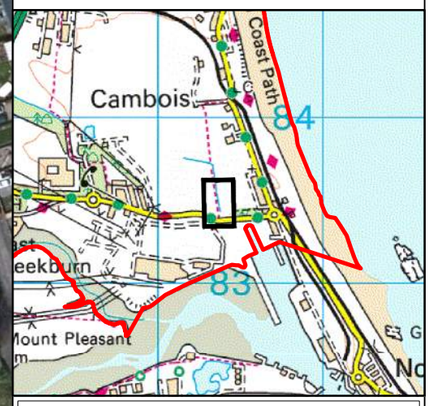
Scale 1:1,500 @ A3

Date SEPTEMBER 2022

63808.00001.0006.0 Baseline Habitat Ponds

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer
- r1 - Standing Open Water and Canal



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UK HABITAT CLASSIFICATION PONDS

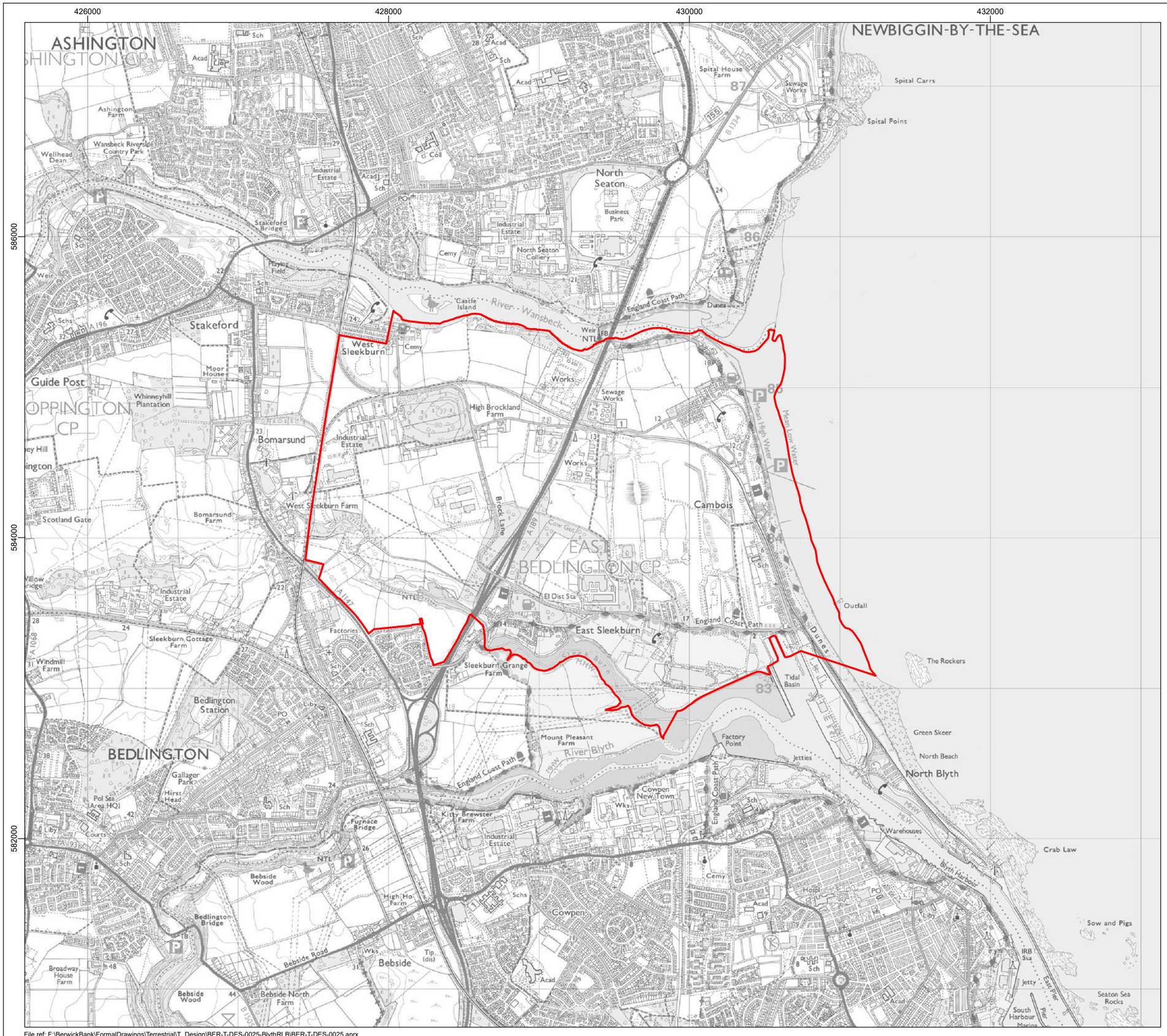
FIGURE 2.8

Scale: 1:1,500 @ A3

Date: SEPTEMBER 2022

APPENDIX 1

Red Line Boundary



File ref: F:\BerwickBank\Formal\Drawings\Terrestrial\T_Design\BER-T-DES-0025-BlythRLB\BER-T-DES-0025.aprx

Legend

Blyth Site Boundary

0 0.5 1 km

N

Project Name

BERWICK BANK WIND FARM

Drawing Title

BLYTH SITE BOUNDARY

Rev	Date	Details	Status	Drwn	Rqst	Chkd	Appd
R1	09/06/22	First Issue	APPROVED FOR USE	RB	KE		
R2	-	-	-	-	-	-	-
R3	-	-	-	-	-	-	-
R4	-	-	-	-	-	-	-

Drawing Number

BER-T-DES-0025-01

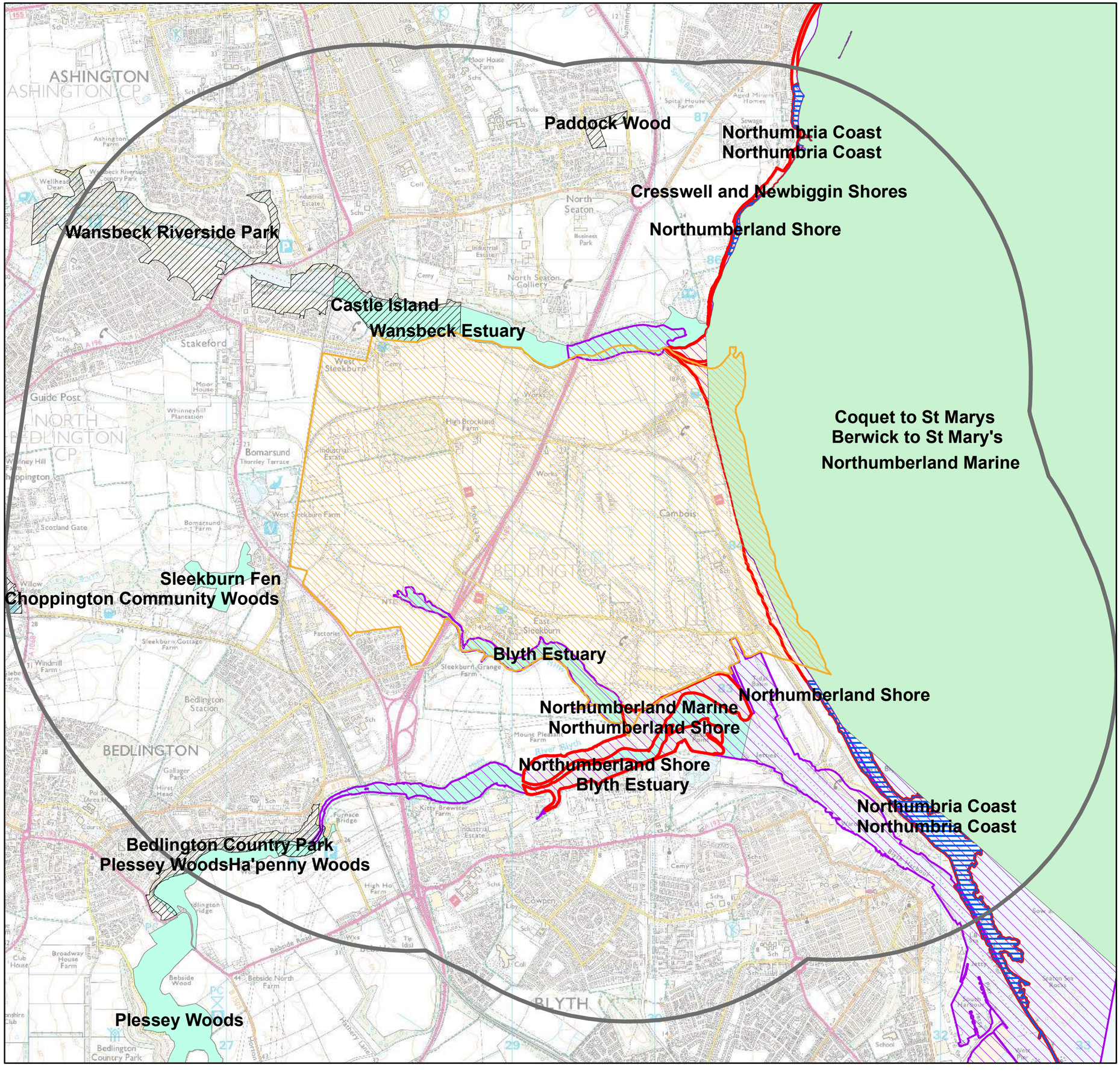
Scale	Plot Size	Datum	Projection
1:25,000	A3	OSGB36	BNG

sse Renewables

Berwick Bank Wind Farm

APPENDIX 2

Designated Sites Plan



ECOLOGICAL DATA SEARCH - STATUTORY & NON STATUTORY SITES

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PLOT PRODUCED: 17 June 2022

- Site Boundary
- 2000m Search Area
- Local Nature Reserve
- Marine Conservation Zone
- Ramsar
- SSSI
- Special Protection Area
- Northumberland Local Wildlife Sites

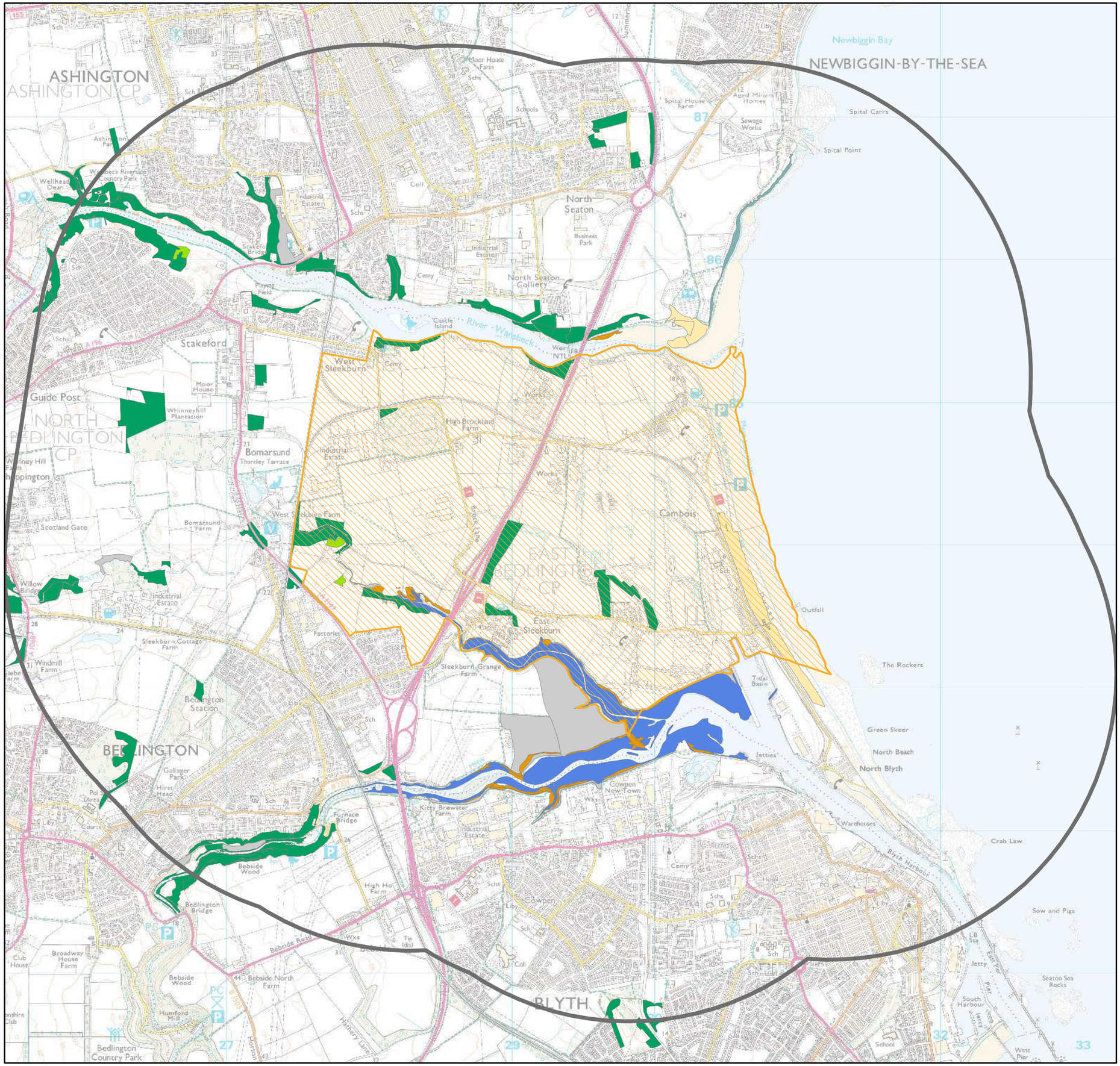
Produced by

Environmental Records Information Centre North East

Great North Museum: Hancock
Barras Bridge
Newcastle upon Tyne
Tyne & Wear
NE2 4PT

APPENDIX 3

Priority Habitats Plan



ECOLOGICAL DATA SEARCH - PRIORITY HABITATS

CAMBOIS

SLR

PLOT PRODUCED: 17 June 2022

- Site Boundary
- 2000m Search Area
- **Coastal saltmarsh**
- **Coastal sand dunes**
- **Deciduous woodland**
- **Good quality semi-improved grassland**
- **Maritime cliff and slope**
- **Mudflats**
- **No main habitat but additional habitats**

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