

## **Appendix D**

### **Natural and Built environment Baseline** (Thematic Studies)



## Appendix D

### Natural and Built Environment Baseline

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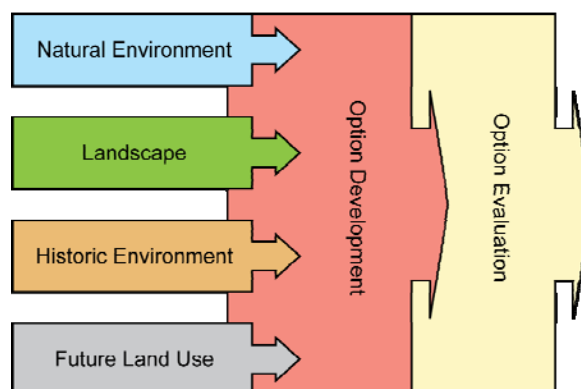


## D1 INTRODUCTION

This appendix provides a thematic review which establishes the key features along the coast, and describes why these features collectively summarise the value of this coastline. The values identified relate to the natural features of the coast, the landscape and character of the area, and the historic structures and spatial features which define its overall character, thus making it unique (see **Figure D1.1**).

In this way, the description of the coast provides the basis for management which has actual regard to the particular character of the area, thereby providing a focus to ensure that a holistic approach is taken which also recognises why this particular section of coast is so important to local stakeholders. Additionally, the likely future land use patterns in the study area have been evaluated based on a consideration of the relevant strategic and land use plan coverage. The provision of this information critically underpins the development of policy options for the coast, and crucially informs a considered approach to options evaluation as shown below. Maps to support this thematic review are included at the end of this appendix.

**Figure D1.1 Thematic basis of option development**



This thematic review has been broken into the following themes in order to better support the policy making decision within the SMP process

- Natural Environment
- Landscape and Character
- Historic Environment
- Current and Future Land Use
- Contaminated Land

However, as discussed in **Section 2** of the main SMP2 document, Directive 2001/42/EC of the European Parliament and of the Council, and the associated Environmental Assessment of Plans and Programmes Regulations 2004, requires that a Strategic Environmental Assessment (SEA) be carried out by certain plans and programmes that are required by legislative, regulatory or administrative provisions. The Directive is intended to ensure that environmental considerations are taken into account alongside other economic and social considerations in the development of relevant plans and programmes. Whilst it has been determined that SMPs are not required by legislative, regulatory or administrative provisions, they do set a framework for future development and have much in common with the kind of plans and programmes for which the

Directive is designed. Therefore, Defra has recommended that environmental appraisal of the SMPs be undertaken in line with the approach of the Directive.

**Appendix E** details the issues and objectives that were brought up through public consultation. These issues and objectives have informed this review as well as the main decision making process. The SEA directive suggests out various receptors that should be included in any SEA. The themes within this review and **Appendix E** address the various receptors as shown below (note: some SEA receptors are covered by more than one theme):

Issues and Objectives	Thematic review	SEA Receptor
Environment	Natural Environment	Biodiversity Fauna and flora Water
	Contaminated land	Soil
	Landscape and character	Landscape Material assets Population
Heritage	Historic environment	Cultural heritage
Commercial	Current and future land use	Population Material assets
Recreational		Population
Hard assets		Material assets

Air, Human Health and Climactic Factors have been scoped out when assessing environmental impacts within this SMP2. Air and human health have been scoped out of the assessment as the SMP is a high level strategic document regarding management of coastal defence and as such impacts regarding human health or air quality are not applicable to this plan. Climatic factors (especially sea level rise) are integral to the development of policy within the SMP. In this way the SMP cannot have impacts upon Climatic Factors, rather the Climatic Factors impact upon the SMP.

## **D2 NATURAL ENVIRONMENT**

### **D2.1 General**

The provision of shoreline management policies fundamentally seeks to provide the most practical, sustainable and equitable approach to managing the environmental, social and economic values of the coastal zone. The environmental values include nature conservation, which encompasses all the designated areas within the study area and the sites and features which are deemed important from an earth heritage perspective. The description of these facets of the natural environment is consistent with management of such areas by Natural England.

The natural environment within the coastal zone traditionally encompasses the area either side of the shoreline management 'line', covered in this Shoreline Management Plan (SMP). Thus terrestrial, intertidal / marine habitats and geology are all relevant. Earth heritage sites may be important in their own right (e.g. exposures of fossil beds or strata types) but equally they may be intrinsically linked to natural processes which critically underpin the maintenance of ecological values in the coastal zone. Within the study area, a wide diversity of sites and features are found, reflecting the physical diversity and co-evolutionary past of the area whereby human activity and nature have shaped the landscape and local ecology.

### **D2.2 Nature Conservation**

#### **D2.2.1 Introduction**

All the features mentioned above are important to nature conservation; however, knowledge of the marine habitat is limited compared to that of terrestrial and intertidal habitats owing to its relative inaccessibility.

Information on the natural environment for this study has been obtained from the original SMP reports compiled by Posford Duvivier (Royal Haskoning) in 1998, with updated information from a range of sources including\*:

- Local authorities;
- Environment Agency;
- English Nature (now Natural England);
- Northumberland Wildlife Trust (NWT);
- Marine Conservation Society (MCS);
- Royal Society for the Protection of Birds (RSPB);
- UK Regionally Important Geological Sites;
- Department for Environment, Food and Rural Affairs (Defra);
- Wildfowl and Wetlands Trust;
- British Geological Survey (BGS);
- National Trust;
- Joint Nature Conservation Committee (JNCC);
- British Trust for Ornithology (BTO);

- The Woodland Trust;
- Countryside Commission (now part of Natural England);
- Forestry Authority;
- National Monuments record; and
- The Advisory Committee on Historic Wrecks.

\* Scottish information sources have not been sought in this SMP review due to the Northumberland SMP2 extending to the Scottish Border only.

The remainder of this section outlines the relevant designations and summarises the overall importance of the natural environment within the study area. Detailed descriptions of the physical coastline are contained in the sections of the report dealing with each coastal unit individually.

Designations applied to ecological features range from having international, national, regional or local importance. Those relevant to the SMP study area are listed below, with the hierarchical structure of international through to local designation representing the relative weight or importance placed on each feature.

## **D2.2.2 International Designations**

The Birds Directive 1979 (Council Directive 79/409/EEC on the Conservation of Wild Birds) aims to protect bird species within the European Union through the conservation of populations of certain birds and the habitats used by these species. The Birds Directive allows for the designation of Special Protection Areas (SPAs) to protect birds that are considered rare or vulnerable within the European Union, in addition to all regularly occurring migratory birds. Sites being considered for SPA designation are referred to as potential SPAs (pSPAs).

In 1992, Council Directive 92/43/EEC was established relating to the conservation of Natural Habitats and Wild Fauna and Flora - the Habitats Directive - within the European Union. One of the means by which this is achieved is through the designation of Special Areas of Conservation (SACs). Sites for SAC designation can have the following status:

- **Candidate SACs (cSACs).** These sites have been submitted to the European Commission; however they have yet to be formally adopted.
- **Possible SACs (pSACs).** These sites have yet to be submitted to the European Commission; however they have been formally advised to the UK Government.
- **Draft SACs (dSACs).** These sites have been formally advised to the UK Government as suitable for SAC selection; however they have yet to be formally approved as sites by the Government for public consultation.

A pending extension to an existing SAC can mean that different parts of the site can have different statuses; however, the site will only appear once on the JNCC list and presented as a SAC.



The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention or Wetlands Conservation) was adopted in Ramsar, Iran in February 1971 and entered into force in December 1975. This legislation aims to promote the wise use of all wetlands in the territory of each country, and international co-operation with other countries to further the wise use of wetlands and their resources. Sites being considered for Ramsar are referred to as proposed Ramsar sites (pRamsar). The Convention was ratified in the UK in 1976 and extends the same protection at a policy level, in respect of new development, as that afforded to sites which have been designated under the EC Birds and Habitats Directives. Collectively, SPA, SAC and Ramsar sites, irrespective of their status, form part of the EU Natura 2000 network. Natura 2000 sites are treated equally under UK legislation.

The Conservation (Natural Habitats &c.) Regulations 1994 (hereafter referred to as the Habitats Regulations) implement both the Habitats and Birds Directives into UK law. Section 48 (1) of the Habitats Regulations states:

*“A competent authority, before deciding to undertake, or give consent, permission or other authorisation for, a plan which:*

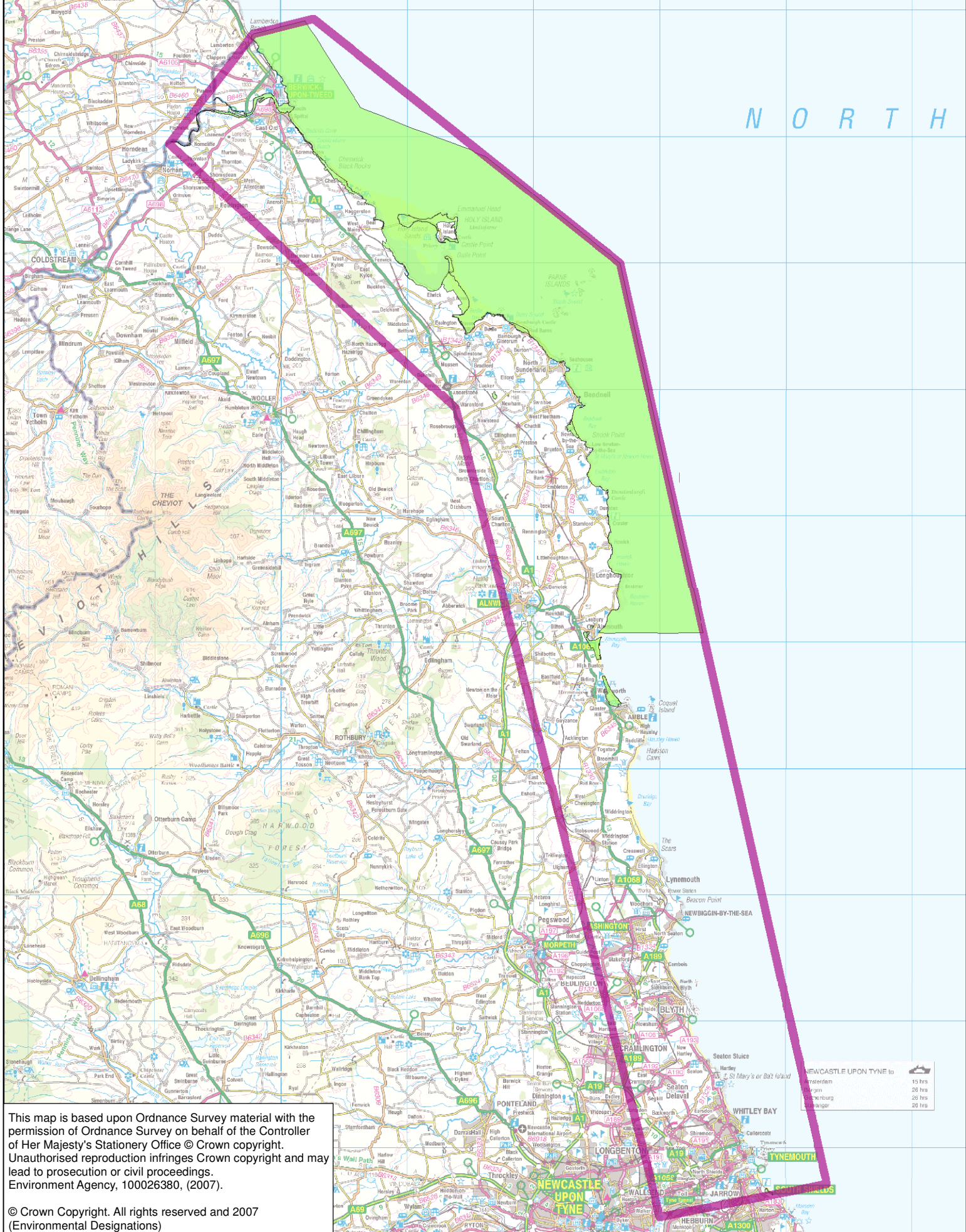
- (a) is likely to have a significant effect on a European site in Great Britain (either alone or in combination with other plans or projects), and*
- (b) not directly connected with or necessary to the management of the site*

*shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives”.*

Any development that has the potential to significantly affect a European site in Great Britain will not be permitted, unless the relevant 'competent authority' has decided, on completion of an 'appropriate assessment', that there are no alternative solutions and that the development must be carried out for imperative reasons of overriding public interest.

### **Special Areas of Conservation (SACs)**

An overview of the SACs identified within the SMP study area are presented in **Figure D2.1**, along with a description of the key conservation features in **Table D2.1**. Detailed SAC boundary areas can be seen in **Supplement A**.



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Key:

- Study area
- SAC designations

**Title:**  
Overview of Special Areas of Conservation

**Project:**  
Northumberland Shoreline Management Plan2

**Client:**  
Northumbrian Coastal Group

**Date:**  
February 2008

**Scale:**  
1 : 375,000

**Figure:**  
D2.1

**Drawn:**  
TC

**Checked:**  
JVG



**Table D2.1 Special Areas of Conservation included in the SMP study area and their key interest features.**

Name	Interest Features	Area (ha)
<b>Tweed Estuary</b>	<p><b><u>Estuaries</u></b></p> <p>The Tweed Estuary is long and narrow and discharges into the North Sea. The estuary is still largely natural and undisturbed, with water quality classified as excellent throughout and supporting a wide range of habitats compared to other estuaries in north east England. There are substantial sandbanks and some areas of rocky shore around the mouth, with large areas of estuarine boulders and cobbles overlying sediment flats and extending into subtidal areas of the channel further upstream. Mud and sandflats can also be found in more sheltered locations along with fringing saltmarsh. The estuary supports a wide range of littoral sediments, including exposed sandy shores and sheltered sand-spit, to muddy gravels. Species and habitat diversity increases with lower exposure to the estuarine wave regime until further upstream where low salinity leads to naturally low infaunal diversity and brackish water species become more dominant. Fish species include the rare anadromous allis shad (<i>Alosa alosa</i>), migratory Atlantic salmon (<i>Salmo salar</i>) and occasional river lamprey (<i>Lampetra fluviatilis</i>) and sea lamprey (<i>Petromyzon marinus</i>) have been recorded.</p> <p><b><u>Mudflats and sandflats not covered by seawater at low tide</u></b></p> <p>The Tweed has a wide variety of intertidal mudflat and sandflat communities. Sandstell Point, at the mouth, is a wide spit of clean mobile sand characterised by mobile infauna (mainly crustaceans such as <i>Eurydice pulchra</i> and <i>Bathyporeia</i> spp. and a few polychaetes) which reflect the exposed conditions. On the more sheltered west-facing shore of this spit, and on Calot Shad on the opposite bank, are more stable conditions which allow for more robust polychaetes (e.g. <i>Scolecopsis squamata</i> and <i>Paraonis fulgens</i>) to occur along with the crustaceans. Both biotopes are highly representative of north east England. More sheltered areas of muddy sand, such as further upstream at Yarrow Slake, are characterised by polychaetes, amphipods, oligochaetes and enchytraeids that are characteristic of brackish tolerant species.</p> <p><b><u>Annex II species present as a qualifying feature, but not a primary reason for site selection</u></b></p> <p>Sea lamprey (<i>Petromyzon marinus</i>)</p> <p>River lamprey (<i>Lampetra fluviatilis</i>)</p>	<b>155.93</b>
<b>Berwickshire and North Northumberland Coast</b>	<p><b><u>Mudflats and sandflats not covered by seawater at low tide</u></b></p> <p>This SAC crosses the Scottish/English border, forming an extensive and diverse stretch of coastline. Stretches of the English coastline include a broad range of intertidal mudflats and sandflats, from wave exposed beaches to sheltered mudflats with rich infaunal communities. Holy Island and Budle Bay, and the open coast flats of Holy Island are the most extensive examples of clean sandflats in north east England. The north east also has the largest narrow-leaved eel grass (<i>Zostera angustifolia</i>) and dwarf eelgrass (<i>Z. noltei</i>) intertidal beds, with a diverse fauna and some large mussel beds (<i>Mytilus edulis</i>). Some areas of the open coast have mobile sediments, forming habitats suitable for sand-eels (<i>Ammodytes</i> spp.), small crustaceans and polychaete worms. Burrowing heart-urchins (<i>Echinocardium cordata</i>) and bivalve molluscs can be found in the more sheltered sediments.</p> <p><b><u>Large shallow inlets and bays</u></b></p> <p>The coastline of north east England, whilst being predominately rocky, displays several characteristic, sediment dominated embayments including Budle Bay, Beadnell Bay and Embleton Bay. Characterised by crustacean/polychaete- and bivalve/polychaete-biotopes, these bays are relatively exposed and uniform in nature. Budle Bay links to a bay to the north forming the most extensive sandflats between the Firth of Forth and the Wash, and some of the richest biotopes in the north east. Beadnell and Embleton Bays form sandy breaks in an otherwise continuous reef habitat and are characterised by large areas of clean sand, often with dense populations of heart-urchins and razor clams (<i>Ensis siliqua</i> and <i>E. arcuatus</i>).</p> <p><b><u>Reefs</u></b></p> <p>The English coastline of this site exhibits moderately wave-exposed reef habitats. These take the form of subtidal rocky reefs and associated littoral reefs, which are the most diverse encountered on the North Sea coast. Their diversity is a result of the varied physical conditions and range of rock types, from wave exposed coastline to sheltered bays, and soft limestone to volcanic rocks. Of particular importance are the Farne Islands which represent some of the few rocky islands with extensive reefs in the North Sea. Species present are characteristic of cold water environments with several at there geographical limit (southern and eastern).</p>	<b>65,045.51</b>

Name	Interest Features	Area (ha)
	<p><b><u>Submerged or partly submerged sea caves</u></b></p> <p>Caves occur throughout this site both in the intertidal and subtidal zones and a variety of hard rock exposures. Depending on their depth and morphology, these caves support a range of distinct communities. Examples of partly submerged caves can be seen north of Berwick and in limestone at Howick, with the Farne Islands and St. Abb's Head exhibiting submerged sea caves, tunnels and arches. Reefs, as mentioned above, can occur in association with these caves in both the intertidal and subtidal zones.</p> <p><b><u>Grey Seal (<i>Halichoerus grypus</i>)</u></b></p> <p>This site is representative of grey seal breeding colonies in the south east of its breeding range in the UK. It supports around 2.5% of the UK annual pup production and is the most south easterly site selected for this species.</p>	
<b>North Northumberland Dunes</b>	<p><b><u>Embryonic shifting dunes</u></b></p> <p>This site represents the embryonic dunes for north east England and whose vegetation is both extensive and varied. The main embryonic dune communities are all represented along the site; however Lyme-grass (<i>Leymus arenarius</i>) communities are particularly well represented, with sand couch (<i>Elytrigia juncea</i>) communities and strandline species also present.</p> <p><b><u>Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')</u></b></p> <p>A number of dune systems in this site are accreting and forming suitable conditions for the development of shifting dunes with <i>A. arenaria</i>. An often important component is Lyme-grass, which is characteristic of this type of habitat. On rocky coasts, climbing dunes can occur like those at Bamburgh. A number of uncommon dune species are associated with the dune systems in this site, some of which are at their UK distribution limit.</p> <p><b><u>Fixed dunes with herbaceous vegetation ('grey dunes') - Priority feature</u></b></p> <p>This site represents the fixed dunes with herbaceous vegetation in the north east. The site is active, with extensive calcareous fixed dunes locally grading into more acidic fixed dune vegetation or dune heath. The site is also representative of the north east variant where bloody cranes-bill (<i>Geranium sanguineum</i>) is prominent, which is the primary reason for this sites selection.</p> <p><b><u>Dunes with <i>Salix repens</i> spp. <i>argentea</i> (<i>Salicoion arenariae</i>)</u></b></p> <p>Calcareous dunes with creeping willow (<i>Salix repens</i> spp. <i>argentea</i>) are represented at Holy Island and Ross Links. Creeping willow dominates the more mature dune slacks and a number of rare plant species are associated with this type of habitat. The mature slacks form part of a well developed successional series and contribute to a wide range of habitats.</p> <p><b><u>Humid dune slacks</u></b></p> <p>This site represents a rare example of well developed dune slack vegetation on the east coast of England, with Holy Island supporting a number of rare species, including coralroot (<i>Corallorhiza trifida</i>), dune helleborine (<i>Epipactis leptochila</i> var. <i>dunensis</i>) and seaside centaury (<i>Centaureum littorale</i>). Active slack is continuing at this site and a range of successional stages are present. Ross Links represents humid dune slacks that contain vegetation typical of base-poor conditions. This site includes 40ha of the full range of slack vegetation types characterised by common sedge (<i>Carex nigra</i>).</p> <p><b><u>Petalwort (<i>Petalophyllum ralfsii</i>)</u></b></p> <p>Petalwort has been recorded on Holy Island and at two locations on the mainland. This site represents petalwort in north east England.</p>	<b>1,147.56</b>

## Special Protected Areas (SPAs)

An overview of the SPAs identified within the SMP study area presented in **Figure D2.2** and are described in detail below. Detailed SPA boundary areas can be seen in **Supplement A**.

### Lindisfarne SPA

This site includes Holy Island and extensive mudflats to the south and Budle Bay. The area is comprised of a variety of coastal habitats including rocky shore, sand dunes, saltmarsh and intertidal sand and mudflats which make up over 95% of the total area. There are also extensive beds of eelgrass which is an important food source for over wintering birds.

Lindisfarne SPA is of European importance for the following reasons:

- The site qualifies under **Article 4.1** of the Birds Directive (79/409/EEC) by supporting populations of European importance of species listed on Annex I of the Directive (**Table D2.2**).
- The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of migratory species (**Table D2.3**).
- The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl over winter, with the area regularly supporting 41,870 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Pink-footed goose (*Anser brachyrhynchus*), golden plover, bar-tailed godwit (*Limosa lapponica*), greylag goose, light-bellied brent goose, wigeon, whooper swan, knot, redshank (*Tringa totanus*), shelduck (*Tadorna tadorna*), eider (*Somateria mollissima*), common scoter (*Melanitta nigra*), ringed plover, lapwing (*Vanellus vanellus*), dunlin (*Calidris alpina alpina*) and grey plover.

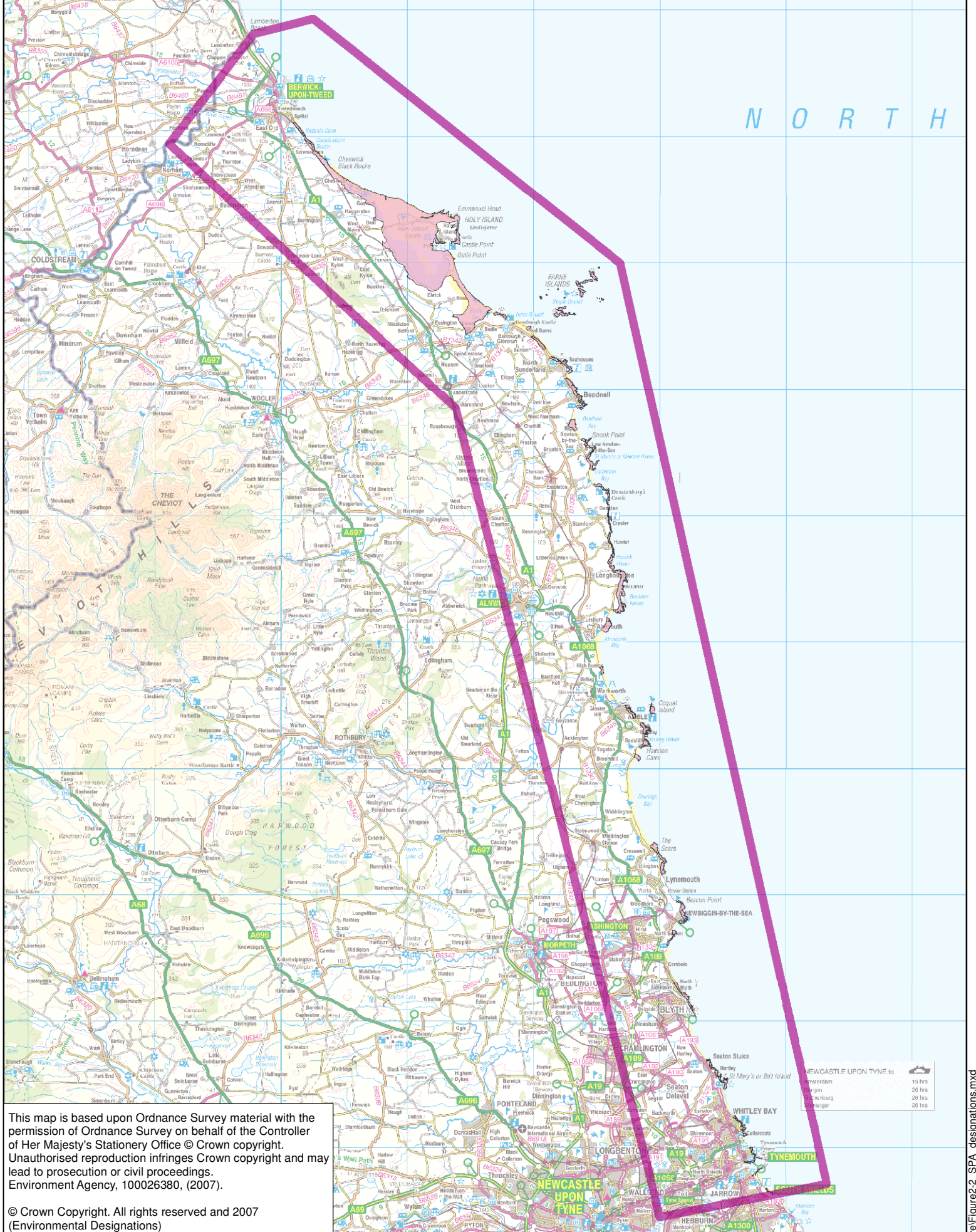
**Table D2.2**      **Annex I species present during the breeding season and over winter in the Lindisfarne SPA.**

Annex I species present during breeding season	Population	Count year
Little tern ( <i>Sterna albifrons</i> )	38 pairs (1.6% GB)	1995
Annex I species present over winter	5yr peak mean	Count years
Bar-tailed godwit ( <i>Limosa lapponica</i> )	2,946 individuals (5.6% GB)	1991/2 - 1995/6
Golden plover ( <i>Pluvialis apricaria</i> )	5,300 individuals (2.1% GB)	1991/2 - 1995/6
Whooper swan ( <i>Cygnus cygnus</i> )	79 individuals (1.4% GB)	1991/2 - 1995/6

**Table D2.3**      **European important migratory species in the Lindisfarne SPA: on passage and over winter.**

Non Annex I migratory species	5 year peak mean	Count Years
On passage		
Ringed plover ( <i>Charadrius hiaticula</i> )	527 individuals (1.1% Europe/North Africa - wintering)	1991/2 - 1995/6
Over winter		
Grey plover ( <i>Pluvialis squatarola</i> )	1,570 individuals (1.0% Eastern Atlantic)	1991/2 - 1995/6
Greylag goose ( <i>Anser anser</i> )	1,416 individuals (1.4% Iceland/UK/Ireland)	1991/2 - 1995/6
Knot ( <i>Calidris canutus</i> )	3,827 individuals (1.1% North eastern Canada/Greenland/ Iceland/North western Europe)	1991/2 - 1995/6
Light-bellied brent goose ( <i>Branta bernicla hrota</i> )	1,844 individuals (36.9% Svalbard/Denmark/UK)	1991/2 - 1995/6
Wigeon ( <i>Anas penelope</i> )	13,375 individuals (1.1% Western Siberia/ North western/ North eastern Europe)	1991/2 - 1995/6





The site is also directly managed by Natural England as a National Nature Reserve. The principal threats from human influences are water quality problems (from sewage discharges and agricultural run-off), wildfowling and recreational disturbance including bait-digging. Colonisation by *Spartina* poses a long-term threat to intertidal habitats. A metalled road to Holy Island across the intertidal area has had localised effects on the areas of saltmarsh, intertidal flats and sand dunes and may be leading to longer-term changes to sediment patterns within the Fenham Flats area of the SPA.

The issue of water quality in input streams and sedimentation/siltation within the site is currently being monitored by the Environment Agency. Natural England monitors and manages recreational and wildfowling use of the site in order to address issues of disturbance. Bait-digging is controlled by a Special Nature Conservation Order (SNCO). Natural England is currently trialling experimental management techniques to control *Spartina*.

#### Northumbria Coast SPA

The Northumbria Coast SPA includes much of the coastline between the Tweed and Tees Estuaries in north-east England. In summer the SPA supports important numbers of breeding little tern, whilst in winter the mixture of rocky and sandy shore supports large numbers of turnstone and purple sandpiper. Disturbance by tourists in the summer can affect the breeding success of little terns, although disturbance can also occur in the winter when numbers of wintering wildfowl and waders are concentrated on the coast. Wardens, employed by the National Trust, protect the little tern colony at Beadnell Bay.

The Northumbria Coast SPA is of European importance for the following reasons:

- The site qualifies under **Article 4.1** of the Birds Directive (79/409/EEC) by supporting populations of European importance of species listed on Annex I of the Directive (**Table D2.4**).
- The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of migratory species (**Table D2.5**).

**Table D2.4 Annex I species present during the breeding season in the Northumbria Coast SPA.**

Annex I species	5 year peak mean	Count years
Little tern	40 pairs (1.7% GB)	1991/2 - 1995/6

**Table D2.5 Non Annex I migratory species in the Northumbria Coast SPA.**

Non Annex I migratory species	5 year peak mean	Count Years
Purple sandpiper ( <i>Calidris maritima</i> )	763 (1.5% of the wintering Eastern Atlantic population)	1991/2 - 1995/6
Turnstone ( <i>Arenaria interpres</i> )	1,456 (2.1% of the wintering Western Palearctic population)	1991/2 - 1995/6

#### Farne Islands SPA

The Farne Islands are located 2 – 6 km off the Northumberland coast and form a group of 15 to 28 low-lying islands. Some of the islands retain cappings of boulder clay or peaty deposits, although vegetation is mainly limited to pioneer communities. The islands provide nesting areas for large numbers of sea birds, especially terns, gulls and auks. These birds feed outside the SPA in the nearby waters and more distantly in the North Sea.

The Farne Islands SPA is of European importance for the following reasons:

- The site qualifies under **Article 4.1** of the Birds Directive (79/409/EEC) by supporting populations of European importance of species listed on Annex I of the Directive (**Table D2.6**).
- The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of migratory species (**Table D2.7**).
- The site qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 seabirds. During the breeding season the area regularly supports 142,490 individual seabirds including: Kittiwake (*Rissa tridactyla*), shag (*Phalacrocorax aristotelis*), cormorant (*Phalacrocorax carbo*), puffin, guillemot, Arctic tern, common tern, roseate tern, and sandwich tern.

**Table D2.6 Annex I species present during the breeding season in the Farne Islands SPA.**

Annex I species	5 year peak mean	Count years
Arctic tern ( <i>Sterna paradisaea</i> )	2,840 pairs (6.5% GB)	1993-1997
Common tern ( <i>Sterna hirundo</i> )	230 pairs (1.9% GB)	1993-1997
Roseate tern ( <i>Sterna dougallii</i> )	3 pairs (5.0% GB)	1993-1997
Sandwich tern ( <i>Sterna sandvicensis</i> )	2,070 pairs (14.8% GB)	1993-1997

**Table D2.7 Non Annex I migratory species in the Farne Islands SPA.**

Non Annex I migratory species	5 year peak mean	Count Year
Guillemot ( <i>Uria aalge</i> )	23,499 pairs (1.0% of the breeding East Atlantic population)	1997
Puffin ( <i>Fratercula arctica</i> )	34,710 pairs (3.9% of the breeding population)	1997

The thin soil cap found on the islands is easily disturbed by rabbits and puffins as well as seals during their breeding season. Management of this cap and the pupping areas for seals is undertaken by the National Trust. Marine activities including inshore fishing and recreation and pleasure craft activities are currently being monitored to assess any potential impact within the SPA. The site is managed by the National Trust as a National Nature Reserve in accordance with a management plan agreed with Natural England. Two islands are open to visitors, though access is controlled and managed.

#### Coquet Island SPA

Coquet Island is a small, flat-topped island, located 1 km off the Northumberland coast, with a plateau extent of ~7 ha. The island is surrounded by low sandstone cliffs and a broad rock platform at low tide, partly the result of former stone quarrying. The peaty soil of the plateau supports short turf grassland although where nutrient input from seabird colonies is greatest; there are dense stands of taller species including nettles (*Urtica* spp.) which provide cover for some of the nesting terns. The island is of importance for a range of breeding seabirds including four species of tern as well as auks and gulls. The seabirds feed outside the SPA in the nearby waters, as well as more distantly in the North Sea.

The Coquet Island SPA is of European importance for the following reasons:

- This site qualifies under **Article 4.1** of the Birds Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive (**Table D2.8**).



**Table D2.8      Annex I species present during the breeding season in the Coquet Island SPA.**

Annex I species	5 year peak mean	Count years
Arctic tern	699 pairs (1.6% GB)	1993-1997
Common tern	726 pairs (6.0% GB)	1993-1997
Roseate tern	81 pairs (48.4% GB)	1993-1997
Sandwich tern	1,636 pairs (11.7% GB)	1993-1997

## Ramsar Sites

An overview of the Ramsar sites identified within the SMP study area are presented in **Figure D2.3** and described in detail below. Detailed Ramsar site boundary areas can be seen in **Supplement A**.

### Lindisfarne Ramsar Site

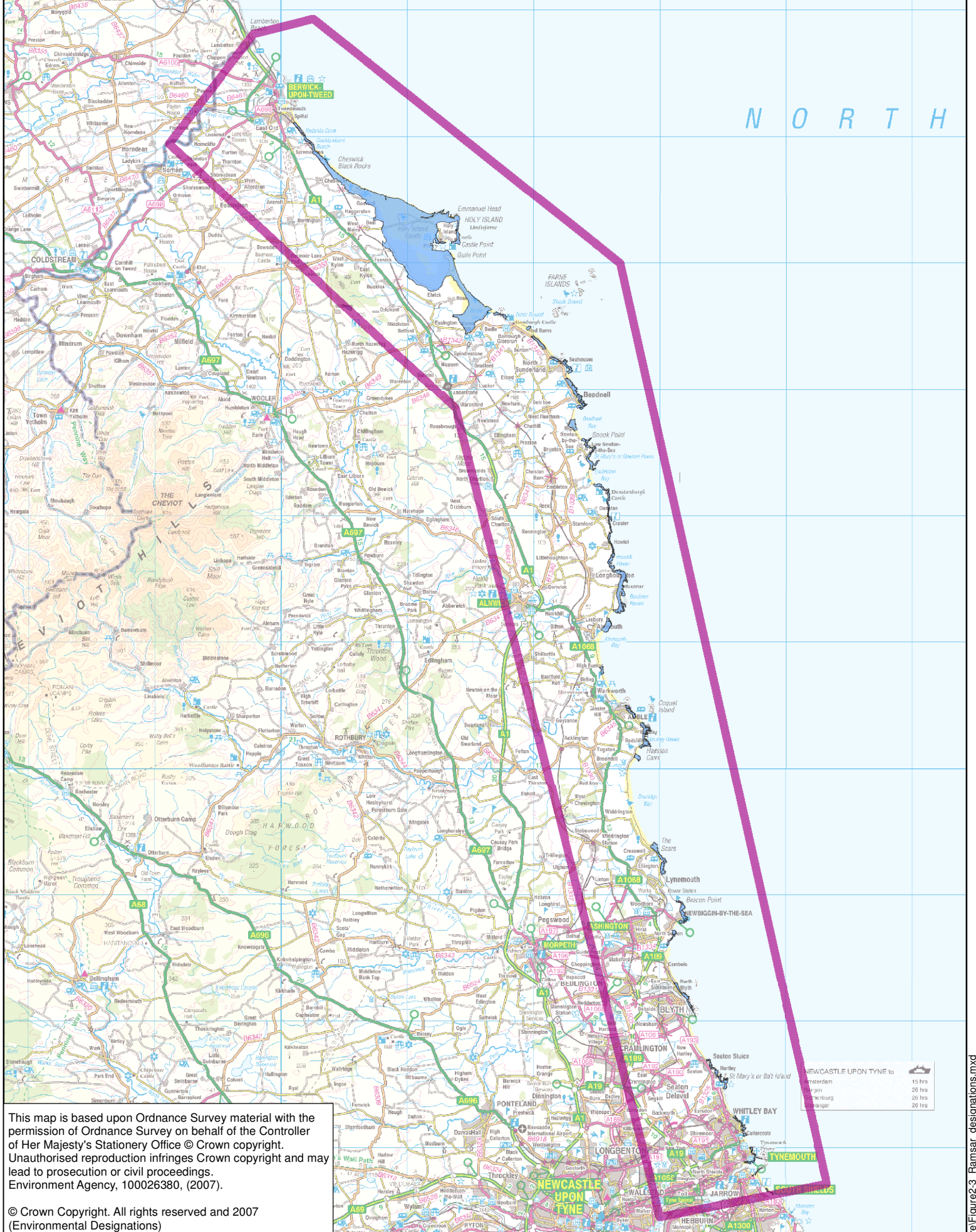
Lindisfarne Ramsar site is comprised of a variety of coastal habitats including rocky shore, sand dunes, saltmarsh and intertidal sand and mudflats, supporting internationally important numbers of wintering waterfowl. An abundance of invertebrates are contained within the intertidal flats which also support important beds of eelgrass. Around Holy Island Sands there is a large area of saltmarsh which is dominated by introduced common cord-grass (*Spartina anglica*) in the lower marshes, and at higher levels by common saltmarsh-grass and thrift. Extensive sand dunes are located on the eastern and northern parts of Holy Island and on the mainland at Ross Links, between Holy Island and Budle Bay. Marram grass dominates the fore-dunes, with older dunes supporting acidic communities including dune heath. The dune slacks are more species rich and are dominated by creeping willow and cross-leaved heath.

Lindisfarne Ramsar site is of international importance under Ramsar criteria 1, 5 and 6, as described below:

- Criterion 1    Extensive intertidal flats in combination with a large area of saltmarsh, and a major sand dune system with well developed dune slacks.
- Criterion 5    Assemblages of international important wintering birds (44,970 waterfowl (5 year peak mean 1998/99 - 2002/03)).
- Criterion 6    Species/populations occurring at levels of international importance, as detailed in **Table D2.9**.

**Table D2.9      Species/populations occurring at levels of international importance in the Lindisfarne Ramsar site.**

Species/populations	5 year peak mean	Count years
<b>Species with peak counts in spring/autumn</b>		
Light-bellied brent goose. Svalbard	2,799 individuals (55.9% of the population)	1998/99 - 2002/03
Eurasian wigeon. NW Europe	10,857 individuals (2.6% of the GB population)	1998/99 - 2002/03
Ringed plover. Europe/ NW Africa	114 individuals (0.3% of the GB population)	1998/99 - 2002/03 - spring
Common redshank.	1,572 individuals (1.3% of the GB population)	1998/99 - 2002/03
<b>Species with peak counts in winter</b>		
Greylag goose. Iceland/ UK, Ireland	750 individuals (0.9% of the GB population)	1995/96 - 1999/2000
Bar-tailed godwit. W Palearctic	3,757 individuals (3.1% of the population)	1998/99 - 2002/03



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<b>Key:</b> Study area Ramsar designations	<b>Title:</b> Overview of Ramsar Sites	<b>Date:</b> February 2008	<b>Scale:</b> 1 : 375,000	
	<b>Project:</b> Northumberland Shoreline Management Plan2	<b>Figure:</b> D2.3	<b>Drawn:</b> TC	<b>Checked:</b> JVG
	<b>Client:</b> Northumbrian Coastal Group			

Species/populations which have been identified subsequent to designation and are being considered under Criterion 6 are detailed in **Table D2.10**. Bird species that occur at levels of national importance are detailed in **Table D2.11**.

**Table D2.10 Species/populations identified subsequent to designation for possible future consideration under Criterion 6 in the Lindisfarne Ramsar site.**

Species/populations	5 year peak mean	Count years
<b>Species with peak counts in spring/autumn</b>		
Pink-footed goose. Greenland, Iceland/ UK	2,531 individuals (1% of the population)	1998/99 - 2002/03

**Table D2.11 Species currently occurring at levels of national importance in the Lindisfarne Ramsar site.**

Species	5 year peak means	Count years
<b>Species with peak counts in spring/autumn</b>		
Common scoter	547 individuals (1% of the GB population)	1998-99 - 2002-03
Golden plover. Iceland and Faroes/ E. Atlantic	3,322 individuals (1.3% of the GB population)	1998-99 - 2002-03
Grey plover. E Atlantic/ W Africa - wintering	1,261 individuals. 2.3% of the GB population)	1998-99 - 2002-03
Ruff ( <i>Philomachus pugnax</i> ). Europe/ W Africa	11 individuals (1.5% of the GB population)	1998-99 - 2002-03
Eurasian curlew ( <i>Numenius arquata</i> ). Europe	1,507 individuals (1% of the GB population)	1998-99 - 2002-03
<b>Species with peak counts in spring/autumn (breeding)</b>		
Common greenshank ( <i>Tringa nebularia</i> ). Europe/ W Africa	10 individuals (1.6% of the GB population)	1998-99 - 2002-03
<b>Species with peak counts in winter</b>		
Slavonian grebe ( <i>Podiceps auritus</i> ). NW Europe	9 individuals (1.2% of the GB population)	1998-99 - 2002-03
Common shelduck. NW Europe	1,455 individuals (1.8% of the GB population)	1998-99 - 2002-03
Common eider. NW Europe	1,241 individuals (1.7% of the GB population)	1998-99 - 2002-03
Red knot ( <i>Calidris canutus islandica</i> ). W and S Africa	3,532 individuals (1.2% of the GB population)	1998-99 - 2002-03
<b>Species with peak counts in winter (wintering)</b>		
Dunlin. W Siberia/ W Europe	8,649 individuals (1.5% of the GB population)	1998-99 - 2002-03

#### Northumbria Coast Ramsar Site

The Northumbria Coast Ramsar site comprises several discrete sections of rocky foreshore between Spittal, in the north, and an area just south of Blackhall Rocks in County Durham, which falls outside the Northumberland SMP. This stretch of coast regularly supports nationally important numbers of purple sandpiper and high concentrations of turnstone. The Ramsar site also includes an area of sandy beach at Low Newton which supports a nationally important breeding colony of little tern, and parts of three artificial pier structures which form important high tide roost sites for purple sandpiper.

The Northumbria Coast Ramsar Site is of international importance under Ramsar Criterion six, with species/populations occurring at levels of international importance (**Table D2.12**). There are also a number of bird species occurring at levels of national importance (**Table D2.13**).

**Table D2.12 Qualifying species/populations occurring at levels of international importance in the Northumbria Coast Ramsar site.**

Species / populations	5 year peak mean	Count years
Little tern	43 pairs (2.2% GB)	2000
Purple sandpiper	291 pairs (1.6% GB)	1998/9-2002/3
Ruddy turnstone ( <i>Arenaria interpres</i> )	978 pairs (1% GB)	1998/9-2002/3

**Table D2.13 Bird species occurring at levels of national importance in the Northumbria Coast Ramsar site.**

Species / populations	5 year peak mean	Count years
Great cormorant ( <i>Phalacrocorax carbo</i> )	248 pairs (2.9% GB)	2000
Black legged kittiwake ( <i>Rissa tridactyla</i> )	4,070 pairs (1.1% GB)	2000
Arctic tern	1,200 pairs (2.2% GB)	2000
European golden glover	2,911 individuals (1.1% GB)	1998/9-2002/3
Common eider	1,361 individuals (1.8% GB)	1998/9-2002/3
Sanderling ( <i>Calidris alba</i> )	419 individuals (2% of GB)	1998/9-2002/3

### D2.2.3 National Designations

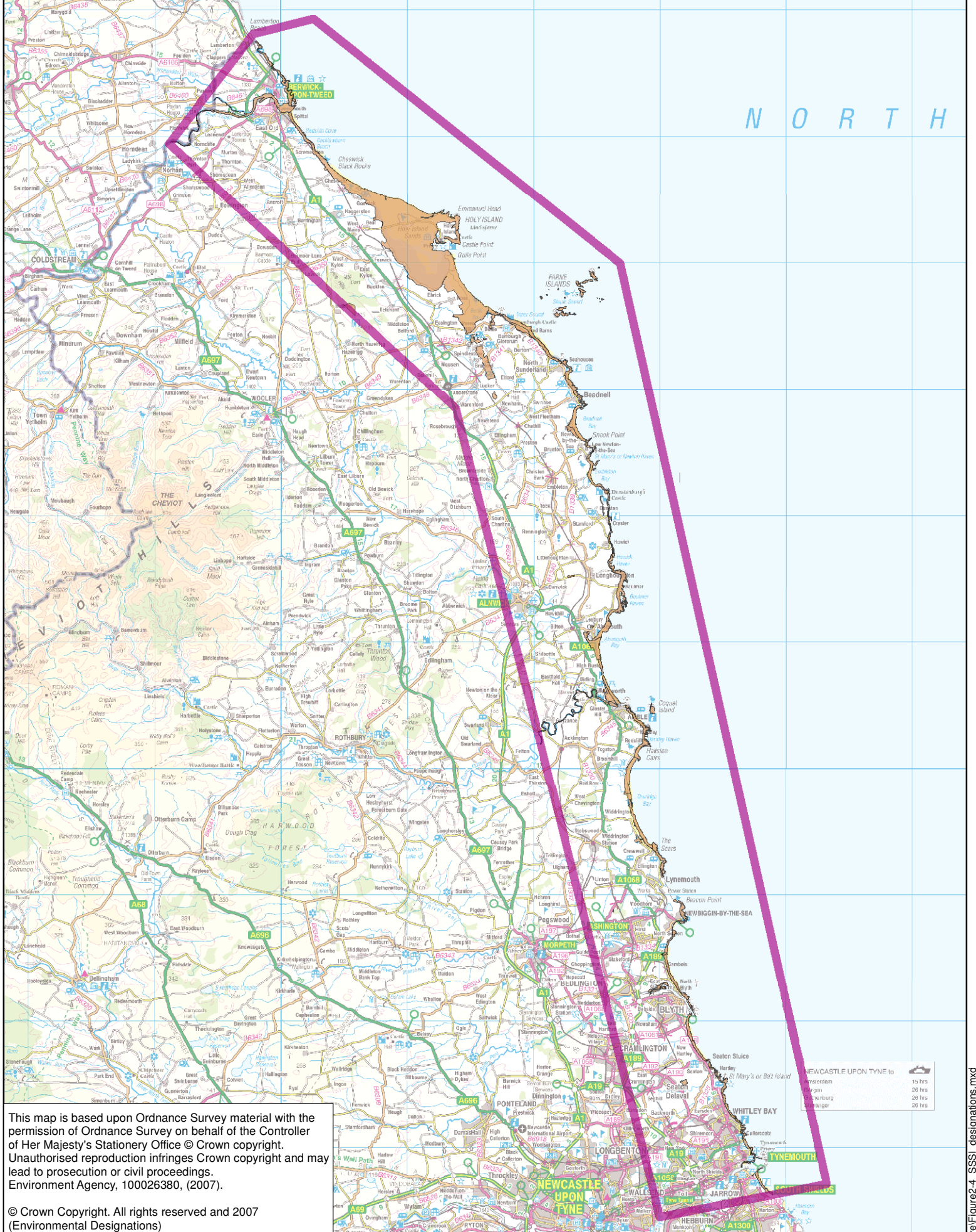
The principal national designations of ecological and/or geological/geomorphological importance are Sites of Special Scientific Interest (SSSIs). SSSIs are designated by Natural England as being “of special interest by reason of... flora, fauna, or geological or physiographical features”, representing areas of national importance to nature conservation in the UK. In the context of the north east coast, it is worth noting that SSSIs are often designated wholly or partly for their geological interest.

All local authorities along the coastline of the study area, including local planning authorities, have a duty under the Wildlife and Countryside Act 1981, as amended, and more recently by the Countryside and Rights of Way Act, 2000 (the "CRoW" Act), to further, and enhance, the nature conservation interests of these sites whilst carrying out their statutory functions

#### Sites of Special Scientific Interest (SSSIs)

An overview of the SSSIs identified within the SMP study area are presented in **Figure D2.4** and **Table D2.14**, with the key nature conservation features described in detail below. Detailed SSSIs boundary areas can be seen in **Supplement A**. It is important to note that many SSSIs in the SMP study area are also designated for their earth heritage value and this aspect is described in **Section D2.3**.





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Key:  
 Study area  
 SSSI designations

Title:  
Overview of Sites of Special Scientific Interest  
Project:  
Northumberland Shoreline Management Plan2  
Client:  
Northumbrian Coastal Group

Date:  
February 2008

Scale:  
1 : 375,000

Figure:  
D2.4

Drawn:  
TC

Checked:  
JVG



**Table D2.14 SSSIs within the SMP study area.**

Name	Area (Ha)	Citation
Northumberland Shore	1925.8	2000134
Tweed Catchment Rivers - England: Lower Tweed and Whiteadder	346.2	2000455
Lindisfarne	3,965.0	1000140
Bamburgh Coast and Hills	56.5	1000091
Bamburgh Dunes	46.9	2000073
The Farne Islands	101.1	1000660
Newton Links	77.9	1002860
Castle Point to Cullernose Point	55.5	1004448
Howick to Seaton Point	185.7	1000124
Alnmouth Saltmarsh and Dunes	104.8	1002309
Warkworth Dunes and Saltmarsh	122.2	1002846
Coquet Island	19.9	1004492
Hadston Links	103.7	1002471
Cresswell Ponds	20.4	1000606
Cresswell and Newbiggin Shores	148.1	1002926
Low Hauxley Shore	61.2	1002895
Tynemouth to Seaton Sluice	87.4	1001176

#### Northumberland Shore

The Northumberland Shore SSSI includes most of the coastline between the Scottish border and the Tyne estuary and 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.

This SSSI complements the Lindisfarne SSSI, which it abuts, in providing important wintering grounds for shore birds, and is of international or national significance for six species including purple sandpiper, turnstone, sanderling, golden plover, ringed plover and redshank. The Northumberland Shore SSSI, as a whole, is used by a wide variety of other shorebirds in winter including up to 400 curlew, 1000 oystercatcher, 2000 dunlin, 600 knot, 150 bar-tailed godwit and 4000 lapwing. Arctic and little terns breed on the shore during the summer. The inter-tidal zone is also favoured all year round as a feeding area for eiders, which are present along the coast in nationally important numbers, and use the mudflats by the Coquet estuary as a feeding ground for their young.

#### Tweed Catchment rivers - England: Lower Tweed and Whiteadder

This site is of national importance for its estuary, intertidal mud and sandflats and riverine floating vegetation communities often dominated by water-crowfoot (*Ranunculus* spp.). Internationally important populations of river lamprey, sea lamprey, Atlantic salmon and common otter (*Lutra lutra*) are also present. The exposed river sediments are nationally important for their invertebrate assemblage and the site holds nationally important populations of wintering goldeneye (*Bucephala clangula*) and mute swans (*Cygnus olor*).

#### Lindisfarne

Lindisfarne SSSI comprises a wide range of coastal habitats, including extensive intertidal sand and mudflats which support internationally important wintering populations of waders and wildfowl, important breeding populations of seabirds and a number of rare plants and invertebrates.

This site contains one of the largest intertidal areas in north east England which supports extensive beds of narrow-leaved and dwarf eelgrass and the green algae *Enteromorpha* spp. These in turn provide feeding grounds for internationally important numbers of the Svalbard population of light-bellied brent geese (regularly over 2,000 birds), wigeon (up to 40,000) and whooper swan. Shelduck, greylag geese and common scoter also occur in nationally significant numbers. The mudflats are also of international importance for wintering bar-tailed godwit, redshank and grey plover, and are nationally important for ringed plover, golden plover, curlew, dunlin and sanderling. Internationally important breeding bird populations little terns, and a small number of roseate terns, as well as common, arctic and, in some years, sandwich terns. This site is also cited for its geological/geomorphological interests, and as such is included in the Geological Conservation Review (GCR).

#### *Bamburgh Coast and Hills*

Exposures of Whin Sill, on Bamburgh Hills, support characteristic flora found only in Northumberland. Maritime and flush communities, along with areas of grassland and scrub, contribute to the vegetational diversity of the site. This site is also cited for its geological interests, and as such is included in the GCR.

#### *Bamburgh Dunes*

The site is a wide coastal sand dune system formed to the north and east of the Whin Sill outcrop on which Bamburgh Castle is built and abuts the Northumberland Shore SSSI along the seaward edge of the sand dunes. The dune system comprises a series of irregular parallel ridges and hummocks with a low-lying marsh and damp hollows supporting dune slack features. At the southern limit, the dune system narrows to a single ridge. This complex of dune features supports a diverse range of plant communities typical of the natural succession of coastal dune systems, although such diversity is uncommon in dune systems along the coast of north east England. The area is also important for its assemblage of invertebrates, including several nationally rare and scarce species.

#### *The Farne Islands*

The Farne Islands SSSI is managed by the National Trust and comprises a group of rocky offshore islands and stacks lying between 2.5 to 7.5 km off the Northumberland coast. The islands are famous as a breeding ground of the grey seal and as a seabird nesting colony with significant numbers of at least 13 species regularly represented. The seal population now numbers ~7,000 animals and is concentrated during the breeding season on certain of the outer islands, particularly the North and South Wamses and Northern Hares.

The islands also provide nest sites for large numbers of kittiwakes, puffin (14,000 pairs), shag and guillemot (6,000 pairs) along with significant numbers of eider (1,700 pairs) recorded nesting mainly on Inner Farne, and this island with the Brownsman carries important colonies of four species of tern (common tern 183 pairs, arctic tern 4,000 pairs, sandwich tern 4,000 pairs and roseate tern 13 pairs). Fulmar, cormorant, razorbill and ringed plover also breed on the islands.

#### *Newton Links*

Newton Links SSSI is one of the best examples of calcareous sand dunes supporting species-rich vegetation on the Northumberland Coast. This site also includes saltmarsh habitat associated with the Long Nanny inlet and an important colony of little terns. The

fore-dunes provide a breeding site for a colony of little terns, arctic terns and ringed plovers.

#### Castle Point to Cullernose Point

Rare plant species found on the Whin Sill are thought to be unique to Northumberland. The cliffs of Dunstanburgh support the largest mainland seabird colony in the county, with up to 700 pairs of kittiwakes breeding annually as well as a small number of fulmars and shags. This site is also cited for its geological interests, and as such is included in the GCR.

#### Howick to Seaton Point

This site is cited mainly for its geological interests, and as such is included in the GCR. Nationally important numbers of golden plover are known to use this section of coast.

#### Alnmouth Saltmarsh and Dunes

Alnmouth Saltmarsh and Dunes SSSI comprises mature saltmarsh and mudflats behind a single sand dune ridge in the Aln estuary. This saltmarsh is the largest between Lindisfarne and the Tees Estuary. The sand dunes extend south in a single ridge from the river mouth, and are of interest for the varied plant communities they exhibit including the transition zone along the saltmarsh interface. Several plant species and associations found at this site are at, or close, to their northern limit in Great Britain.

#### Warkworth Dunes and Saltmarsh

Warkworth Dunes and Saltmarsh SSSI provide fine examples of several characteristic coastal habitats. Situated at the mouth of the River Coquet, the site comprises an ungrazed dune ridge extending into a kilometre-long spit which shelters an area of saltmarsh. The sand dunes are considered to be amongst the richest in the county supporting an exceptional diversity of plants and invertebrates. The saltmarsh is the third largest in the county and is one of only five substantial areas on the coast of north east England. An intrinsic feature of the site is the plant community at the interface between the sand dunes and saltmarsh.

#### Coquet Island

Coquet Island lies approximately one mile off Amble on the Northumberland coast. It consists of a flat grassy plateau measuring some 20 hectares encircled by low sandstone cliffs with a wide rock platform at tide level, which is partly the result of former quarrying. The island is noted for its breeding seabirds. Several species occur at nationally important levels in excess of 1% of the British breeding population. Of particular note are the significant populations of various tern species: common tern; arctic tern; sandwich tern and the largest colony of roseate terns in the UK. Also, some 500 pairs of eider breed here at their most southerly colony on the east coast and there is also a large population of black-headed gulls, some 2,400 pairs.

#### Low Hauxley Shore

Low Hauxley Shore SSSI is important for Quaternary studies and has been cited for its geological interests. It is included in the GCR.

#### Hadston Links

Hadston Links SSSI, situated on the north side of Druridge Bay, is a coastal dune ridge system important for the diverse plant communities associated with a complex of wet and dry dune hollows. Several plants occur here which are uncommon on the Northumberland coast. Fixed dunes support bloody crane's-bill (*Geranium sanguineum*), lesser meadow-rue (*Thalictrum minus*) and burnet rose (*Rosa*



*pimpinellifolia*), and locally purple milk-vetch (*Astragalus danicus*); species which are considered to be characteristic of dune grassland in Northumberland.

#### Cresswell Ponds

Cresswell Ponds SSSI comprise a large pond, which is the only permanent brackish water lagoon on the Northumberland Coast, and two, smaller, freshwater ponds, and have been formed since 1958 as a result of mining subsidence. 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. Variations in beach morphology affect the flow of water in the outfall stream and lead to variations in both water levels and salinity in the lagoon according to prevailing conditions. 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.

#### Cresswell and Newbiggin Shores

This SSSI is important for both Westphalian and Quaternary studies. The site has been cited for its geological interests, and as such is included in the GCR.

#### Tynemouth to Seaton Sluice

The coast from Tynemouth to Seaton Sluice provides one of the best exposures of Coal Measures strata in Great Britain and has been cited mainly for its geological interests. This section of the coast does, however, support 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, ringed plover and golden plover.

### **National Nature Reserves (NNRs)**

In addition to SSSIs, there are two NNRs situated along the Northumberland coast, as described in **Table D2.15**. NNRs represent some of the most important natural and semi-natural ecosystems in Great Britain. They are national designations and as such are statutorily declared under Sections 16 to 29 of the National Parks and Access to the Countryside Act 1949 in England, and more recently by Section 35 of the Wildlife and Countryside Act 1981, as amended. NNRs are managed for their national interest and wildlife.

**Table D2.15 NNRs situated within the SMP study area.**

Name	Area (ha)	Summary
Lindisfarne	3408.34	Lindisfarne is considered to provide one of the best wildlife experiences for visitors; these reserves are termed 'spotlight reserves'. Lindisfarne lies on the north Northumberland coast, between Budle Point and Cheswick Black Rocks and includes Holy Island.
Farne Islands	96.00	The Farne Islands NNR is owned and managed by the National Trust. The reserve is a small archipelago of islands (between 15 and 28, depending on the tide) lying approximately 5 km off the coast of Northumberland and 10 km south-east of Lindisfarne. Like Lindisfarne, The Farne Islands are one of the 'spotlight reserves'.

## **Areas of Outstanding Natural Beauty (AONBs)**

Natural England is responsible for designating AONBs and advising the UK Government and others on how they should be protected and managed. Areas are designated solely for their landscape qualities for the purpose of conserving and enhancing their natural beauty (which includes landform and geology, plants and animals, landscape features and the rich history of human settlement over the centuries). Part IV of the CROW Act provides powers to set up conservation boards for the better management of AONBs, ensuring their future as important national resources. AONBs are comprised of local partnerships which are led by local authorities and include a wide range of key organisations. These partnerships are dedicated to the conservation of these nationally important areas. Staff teams are funded mainly by the local authorities and Natural England, and are based locally to co-ordinate and deliver action on the ground.

The Northumberland Coast AONB was designated in 1958 and covers 39 miles of coast from Berwick to the Coquet estuary. Within this stretch of coastline is some of the most dramatic coastal scenery in the country with a multitude of special features. The area is best known for its sweeping sandy beaches, rolling dunes, high rocky cliffs and isolated islands. Amidst this striking landscape is the evidence of an area steeped in history, covering 7000 years of human activity. A host of conservation sites, as detailed in this document, testify to the great variety of wildlife and habitats found within the AONB, and highlight its importance in nature conservation.

### **D2.2.4 Regionally and locally important classifications**

#### **Natural Areas**

Natural Areas are sub-divisions of England which are characterised by wildlife and natural features. These areas are unique and identified by interactions of the wildlife, landscape, geology, and human impact. Natural Areas represent a consistent ecologically coherent framework on which national targets can be focused to a level that can be used locally. The SMP study area covers four Natural Areas, which can be seen in **Figure D2.5** and are described in detail below. As for SSSIs, the geology/geomorphology aspect of Natural Areas is described in **Section 2.3**.



Title:  
Natural areas

Project:  
Northumberland Shoreline  
Management Plan2

Client:  
Northumbrian Coastal Group

Date: February 2008	Scale: 1 : 400,000
Figure: D2.5	Drawn: TC
Checked: JVG	



### Natural Area Profile 98: Northumberland Coast

This Natural Area covers the stretch of coastline from the Scottish border to the north bank of the River Tyne estuary, supporting a diverse range of marine species and ecosystems as a consequence of its geological diversity and the natural variation in the sediment loading of the water. The area is important, in nature conservation terms, for the variety of its marine communities, and ornithological, geological and sea mammal interest.

Its landward extent is generally the high water mark which excludes the dune areas. These, and the many estuaries which feed into the coastal waters, are covered in greater detail within the Northumberland Coastal Plain Natural Area Profile. The seaward extent of the profile area is approximately equivalent to the 12 mile limit, i.e. the limit of UK territorial waters. Features included within this profile are the intertidal and near-shore environment including offshore islands. The coast is subject to a wide range of exposures, from wave action and tidal streams, with the Farne Islands experiencing some of the strongest flowing tides on the east coast of England. Much of the coast is subject to the full wave fetch of the North Sea from the east or north east. Studies offshore show that currents tend to be wind dependant, with a strong southerly current being the most common in the prevailing south-westerlies.

The tidal sediments are rich invertebrate life and along with the extensive eelgrass beds, support one of the most outstanding bird assemblages in the north east. The estuaries of the Tweed, Aln, Coquet and Blyth are also of important ornithological interest. A combination of geography, varied geology, substrates (developed from high and low energy environments), and a range in water quality and temperatures, has led to the development of rich and diverse marine life. Key species include various internationally designated species of breeding and migratory birds, seals, orca, harbour porpoises, minke whales, salmon, sea trout and 167 recorded species of non-commercial fish, of which seven receive international and national protection.

### Natural Area Profile 1: North Northumberland Coastal Plain

The Northumberland Coastal Plain Natural Area comprises the belt of low-lying land running northwards from the Coquet Valley to the River Tweed, and westwards to the Fell Sandstone moorland edge. Within the Natural Area a number of separate coastal habitats can be identified including coastal cliffs, the offshore islands, dune complexes, intertidal habitats, whin outcrops, native woodlands and wetlands

Key conservation species include sea birds, wintering wildfowl, and freshwater species such as otters, water vole, salmon, sea trout and lamprey. There are internationally important numbers of grey seals that breed on the Farne Islands and a small number of common seals breed at Holy Island.

### Natural Area Profile 5: Northumbria Coal Measures

The Northumbrian Coal Measures Natural Area is widely modified by human activity. However, the scattered and varied remnants of important wildlife habitat, and the increasing recognition of the value of wildlife links. These provide an important nature conservation resource which can be developed further by the appreciation and involvement of local people through habitat creation and educational activity.

The Northumbria Coal Measures Natural Area is characterised by a limited area of semi-natural habitats, due largely to extensive industrialisation, with consequent development and agricultural intensification. There are, however, a variety of habitats to be found including remnants of previously more widespread natural features which indicate the

potential of the area to increase its wildlife assets. Within the Natural Area a number of separate coastal habitats can be identified including woodland, species rich grasslands, open water, wetlands, sand dunes, saline lagoons, intertidal.

Much of the northern section of the coastal boundary is along Druridge Bay, a long sandy bay backed by a single line of dunes. These are subject to differing management. Hadston Links SSSI, managed as part of the Country Park, has a diversity of habitats which represent the different stages of dune development from strandline to dune grassland. Locally, the dunes are subject to grazing, some of which is beneficial in removing rank vegetation and encouraging habitat and species diversity. Intensive grazing and supplementary feeding, however, impoverishes the characteristic dune wildlife, and the introduction of aggressive grasses and ruderal herbs become invasive and replace the natural flora in this unstable environment.

Saline lagoons are a particularly important habitat, both locally and internationally, and are identified as a priority habitat under the UK Biodiversity Action Plan (UKBAP). The SSSI at Cresswell Ponds is the longest established lagoon on the Northumberland coast. Here, a pond feature is maintained by tidal inflow through a breach in the dunes of Druridge Bay. Following the completion of the diverted Cheswick Burn, on the completion of opencast workings, a small lagoon formed at the southern end of the Hadston Links SSSI.

Key conservation species include various plants, including two species of orchid (Young's helleborine and the coralroot orchid), important populations of terrestrial and marine birds, water vole, brown hare, otter, red squirrel and bats.

#### *The Mid North Sea Marine Natural Area*

Marine Natural Areas are areas of sea around England that have been identified using oceanographic processes, bathymetry and biogeographic characteristics, to define broad natural divisions in the marine environment. The Mid North Sea Natural Area extends northwards from the 50 metre isobath at Flamborough Head, to the seaward extension of the England/Scotland border. The inshore boundary is Mean Low Water (MLW) and the offshore boundary is the limit of UK jurisdiction.

This Natural Area occurs within the Boreal biogeographic region. Its wildlife is influenced by water flowing into the North Sea off the coast of Scotland. This cool current brings with it the larvae of species which occur along the west coast of Scotland and the island groups of Orkney and Shetland to the north. The contrast in sea surface temperatures from winter to summer contributes to the diverse and unusual range of species present within the Natural Area. The distributions of a number of species (such as the Devonshire cup coral) reach their northernmost limits here.

Key habitats in this Natural Area include the water column, the seabed substrata and notable biogenic habitats. Plankton blooms also occur within this Natural Area well offshore in March. These blooms spread westwards to cover the whole Natural Area by April. Several species of fish feed directly on this plankton supporting important commercial fisheries (e. g. cod and plaice). Along the rocky sections of the coast in the north and the south of the Natural Area, the clear, unpolluted waters are of high nature conservation importance. However, off Tyne and Wear, pollution, particularly from dumped colliery waste, has long impoverished the environment. One of the most distinct fronts in the North Sea, 'the Flamborough Front', forms the southern boundary to

this Natural Area. These frontal regions represent important physical, chemical and biological boundaries.

Many important species occur within this Natural Area, including important populations of both breeding and migratory marine birds, cetaceans, including various baleen and toothed whale species, grey seals, and various commercially important fish species including cod, haddock, lemon sole, whiting, plaice, monkfish, brill, dabs, gurnard, skates, halibut and sole.

### **Local Biodiversity Action Plans (LBAP)**

The implementation of the Convention on Biological Diversity is being achieved in the UK by the Biodiversity Secretariat who, by means of the methods outlined in the UK BAP, promotes the integration of biodiversity into policies, projects and programmes. The action plans cover both habitats and species, with 391 Species Action Plans (SAPs) and 45 Habitat Protection Plans (HAPs) currently in place in the UK. A large majority of the species and habitats that are protected under EU law have been targeted by UKBAP; however, international concerns are not the only driving force with declining habitats and species in the UK also of great importance. To ensure actions and objectives of national plans for species and habitats are transferred into local actions, Local Biodiversity Action Plans (LBAPs) have been produced. LBAPs have the added value of identifying and protecting habitats and species that may not be covered under UKBAP due to their local, if not national, importance.

The SMP study area is covered by the Northumberland Biodiversity Partnership which is a collection of organisations and individuals that work together to preserve, improve and promote biodiversity in Northumberland. HAPs and their associated SAPs, as identified in the SMP study area, are detailed in below.

#### Saline Lagoons

Saline lagoons are protected under Annex 1 of the EC Habitats Directive and identified as a UK BAP priority habitat. Species action plans exist for otters and coastal birds. There are four saline lagoons in Northumberland covering approximately 12.5ha (0.24% of the UK's total), namely:

- Cresswell Pond;
- Hauxley Nature Reserve;
- Chevington Burn; and
- The Old Water, Amble.

Current issues affecting saline lagoons in the SMP study area include; pollution; erosion; drying-out; rising sea levels; altering of the natural salinity profile and coastal defence works. The target for this habitat is to maintain the current extent of these lagoons by 2010.

#### Coastal Saltmarsh and Mudflat

Coastal Saltmarsh and Mudflat habitat is protected under Annex 1 of the EC Habitats Directive. Saltmarshes and mudflats, in Northumberland, are believed to cover approximately 326 ha and 3,082 ha, representing 0.7% and 1.1% of the national resource respectively. They are found around all the major rivers, with the largest site at Lindisfarne. The estuaries of the Tweed, Aln, Coquet, Wansbeck and Blyth are all designated as SSSIs; whilst the Tweed has also been designated as a SAC and

Lindisfarne as an SPA, SAC and Ramsar site. Species action plans exist for common and grey seals, coastal birds and otters.

These habitats are currently under threat from land reclamation; disruption of coastal processes through coastal development causing erosion and drowning; pollution; invasive species and overgrazing and disturbance from recreational and military activity to birds. Targets set for future conservation include:

- Maintain the current extent of 326 ha of saltmarsh in Northumberland by 2010.
- Maintain the current extent of 3,082 ha of mudflat in Northumberland by 2010.
- To increase the extent of coastal saltmarsh in Northumberland by 2020.

### Coastal Sand Dune

Coastal sand dunes are protected under Annex 1 of the EC Habitats Directive. Sand dunes in Northumberland are typically represented by steep narrow dune systems and cover approximately 1,200 ha. The shape of these dunes is controlled by climatic and geological factors and also by coastal development, such as roads, car parks and golf courses. Spit dunes also occur at estuaries and there is an inland dune at Ross Links.

Northumberland's sand dunes support a range of important grassland communities, including several rare plant species and also diverse invertebrate communities. Species action plans exist for coastal birds and common and grey seals. The following Annex 1 habitats are present within the SMP study area:

- Embryonic shifting dunes.
- Shifting dunes along shoreline with Marram (white dune).
- Fixed dunes with herbaceous vegetation (grey dune).
- Dunes with creeping willow.
- Humid dune slacks.

Coastal sand dune habitats in the study area are under threat from inappropriate management through over or under grazing; erosion from trampling and recreation and also from increased wave action brought about by the deflection of waves by hard sea defences. Coastal development can also stop the natural landward movement of dunes where roads or agriculture occur behind them whilst sand extraction, by aggregate companies, is also having a detrimental effect. Biodiversity of the dunes is being threatened by non-native and native invasive species such as pirri-pirri burr (*Acaena ovalifolia*) and red hot poker (*Kniphofia uvaria*), bracken (*Pteridium aquilinum*), gorse (*Ulex* spp.) and scrub respectively. The target for this habitat action plan is to maintain the current extent of the dunes by 2010.

### Whin Grassland

Whin grassland habitat is protected under Annex 1 of the Habitats Directive and has been identified as a UK BAP priority habitat. This habitat is almost unique to Northumberland and occurs in around 20 sites of varying quality. Since a review of this habitat in 1980 and 1982, a number of sites have shown significant decline. A small number of sites are now managed using environmental stewardships, with others having statutory designations as protection, however the majority of sites are poorly managed.

Quarrying and intensification of agriculture are the greatest threat to this habitat due to the irreversible damage they cause; however grazing, trampling, scrub invasion,

woodland planting, golf course management and fragmentation are all having a detrimental effect. The targets set for this habitat are to maintain the extent of 19 sites by 2010 and also to achieve favourable or recovering condition by appropriate management for sites that are in unfavourable condition. Species action plans exist for lowland farmland birds. Restoration of Whin grassland to offset historical losses by 2015 has also been set.

### Rocky Shore, Reefs and Islands

Rocky shore, reefs and islands are protected under Annex 1 of the EC Habitats Directive and occur within the designated Berwickshire and North Northumberland Coast European Marine Site. The Northumberland rocky reefs are the primary reason for the designation of the European Marine Site (EMS) with the Joint Nature Conservation Committee (JNCC) identifying these reefs as the most diverse known on the North Sea coast. Headlands, sea stacks and sea caves are also present in along the SMP study area; providing habitats for distinct biological communities and also contribute to the designation of the EMS.

The Northumberland coast also contains rare sheltered limestone rocky shores, whilst just offshore biogenic reefs, created by the burrowing worm *Sabellaria spinulosa*, can be found of which three of the UK's 14 site occur in this area. *S. spinulosa* is a keystone habitat structuring species and has considerable influence on the biodiversity living on or in the seabed. The Farne Islands form a rare group of volcanic Whin stone offshore rocky islands, and their remote location makes them a haven for sea birds and grey seals. The extent of these habitats in the SMP study includes:

- 3,679 ha of rocky shore with reefs covering two coasts of the island at Lindisfarne.
- The Farne Islands comprise 15 to 28 islands, depending on tide, and form an inner and outer group. Their distance from the mainland varies from 2.5 km to 7.5 km.
- Blue-grey columnar basalt of the Whin Sill outcrops forms a series of cliffs and steep rock shores from Dunstanburgh Head to Cullernose Point.
- A chain of raised reefs, called the Emblestones, extend from the low shore at Low Newton.
- Coquet Island is surrounded by low sandstone cliffs and a broad rocky platform at low tide.
- The Cresswell and Newbiggin SSSI contains exposures of fluvial sandstone and marine shale at low tide.
- Sheltered limestone rocky shores can be found at: Cocklawburn; Ness End; adjacent to Seahouses golf course and at Coquet Island.
- The sandstone cliffs at Berwick contain sea caves, as do the limestone cliffs at Howick and Lindisfarne. The Farne Islands exhibit submerged sea caves and tunnels and arches occur in the volcanic rock.

Rocky shore, reefs and islands in the study area are under threat from oil spills and aggregate extraction, as well as from fishing (of particular treat to *S. spinulosa* reefs) and the mooring of vessels, both commercial and recreational. Invasive species, such as the Japanese skeleton shrimp (*Caprella mutica*), are also having a detrimental effect on the biogenic reefs. Shoreline management in the placing of hard sea defences and coastal development, as in harbours, affects the natural coastal processes and as such



impacts on these habitats. Species action plans exist for coastal birds and common and grey seals. Future targets include maintaining the extent of rocky shore, reefs and islands in Northumberland and to maintain the condition of these habitats currently in favourable condition by 2010.

### Native Woodland

Native woodland is protected under the EC Habitats Directive and has been identified as a UK BAP priority habitat. It is also protected under UK Policy and Planning Statement Nine (PPS 9) 'biodiversity and geological conservation' stating that local planning authorities should protect this habitat and where possible promote its conservation as part of its development proposals. There is approximately 81,000ha of ancient woodland in Northumberland which is classified as 57% ancient and semi-natural woodland (ASNW) and 43% plantation on ancient woodland sites (PAWS), the latter of which has been altered by man through felling and replanting; however only a small percentage of this is located by the coast.

Factors causing loss or decline of this habitat include the regeneration of non native tree species, such as sycamore (*Acer pseudoplatanus*), beech (*Fagus sylvatica*) and most conifers, and lack of appropriate management, resulting in lack of regeneration and no control over grazing. Invasive species (especially rhododendron) and fragmentation of existing woodlands are also having a detrimental effect. Species action plans are in place for red squirrel, dormouse, black grouse and farmland birds

Targets that have been set for native woodland habitat include: Maintaining the current extent and condition of 56% of ANSW by 2010. By 2015 the target is to achieve favourable condition of 70% of the ANSW and to ensure that 30% of PAWS have been restored or are under gradual restoration. Also, the extent of native broadleaved woodland is to be increased by 1,000 ha through new creation, and by 600 ha through the introduction of native species to plantations when restocking.

### Reedbeds

Reedbed habitat has been identified as a UK BAP priority habitat. The habitat is rare in Northumberland, with one large developing complex at East Chevington. A number of small reedbeds are scattered throughout the county and located in mining subsidence ponds, sand and gravel extraction sites, formal lakes, rivers and ditches. Species actions plans are in place for otter, water vole, bats, coastal birds, farmland birds and upland waders. Reedbed habitat is being threatened by:

- Pollution (including nutrient enrichment (eutrophication), water runoff and mine water, fly tipping, land drainage and abstraction);
- Inappropriate management, causing dying out and subsequent scrub encroachment, and succession to woodland;
- Habitat loss due to development, grazing and agriculture;
- Recreational activities; and
- Lack of data regarding the extent and quality of this habitat.

The target set for the continuation of this habitat is to maintain the current extent of reedbed by 2010.

### Coastal Heathland

Coastal heathland is protected under Annex 1 of the EC Habitats Directive. The habitat is locally extensive in patches on the glacial sand of Ross Links sand dune system,

which forms part of the Lindisfarne SSSI and North Northumberland Dunes SAC. Heather is also present on Goswick and Bamburgh golf courses. Patches of heather also occur on the sandstone rocks between Cocklawburn and Spittal and is associated with maritime cliff communities.

Overgrazing, scrub and bracken encroachment and inappropriate cutting regimes are all threatening this habitat. There are currently no species actions plans in place. The targets that have been set on order to conserve and enhance this habitat include:

- Maintaining the existing extent of the heathland by 2010.
- Offsetting historical losses by restoring 1ha of heathland by 2015.
- Increasing the extent of heathland in Northumberland by 0.5ha by 2020.

#### Maritime Cliff and Slope

Maritime cliff and slope habitat is protected under Annex 1 of the EC Habitats Directive. Nineteen kilometres (19%) of the Northumberland coastline is cliffs, of which 16.5 km is classified as hard cliffs (rocks) and 2.1 km as soft cliff (boulder clay). This represents 0.5% of the national resource. Along the Northumberland Shore SSSI north of Berwick, there are extensive areas of coastal grassland associated with sandstone, with vegetation connected to the geology of the area. From Spittal down to Cockburn beach the grassland is combined with coastal heath, whilst the main site for maritime cliff and slope is from Castle Point to Cullernose Point. Sea defences and urban use have limited the vegetation that can be found in urban areas, resulting in a decline in coverage to small rocks and crevices on the rock face, e.g. Spital Carrs to Seaton Sluice.

Erosion is a significant threat to this habitat occurring through agricultural drains discharging from cliff faces, heavy trampling from recreational pressure, and through increased storm frequency from climate change and sea level rise. Invasive species from agricultural runoff out competing natural cliff top vegetation and over/ under-grazing or cutting regimes are also having a detrimental effect of this habitat. The target set for this habitat is to maintain its current extent by 2010. There are currently no species actions plans in place.

#### Lowland Heathland

There is approximately 25ha of lowland heathland in Northumberland and only a small percentage is adjacent to the coast. Lack of management and habitat fragmentation is having a detrimental effect on this habitat, as well as agricultural improvements such as fertilizer and intensive livestock grazing. Species action plans are in place for farmland birds. Targets set for 2010 are to maintain the existing extent of the habitat and to achieve favourable condition by appropriate management currently in unfavourable condition. Lowland heathland is to be restored to off set historical losses by 2015 and by 2020 the target is to increase the extent of this habitat.

#### Coastal Birds

The Northumberland coast is an important location for many species of birds. Offshore islands, cliffs, estuaries and dune land provide nesting habitat for a range of migratory and resident species some of which are internationally, nationally or regionally important or their populations are at extremities of the range.

During migration estuarine mudflats, rocky outcrops and the open shore provide a vital feeding resource and shelter for a range of wading birds. Also a number of species of

waders and wildfowl, some of whose Northumberland populations have been recognised as nationally or internationally important, over winter in numbers in those same food rich areas, whilst offshore significant numbers of sea duck, divers and grebes also spend the winter.

### Common Seal

The common seal (*Phoca vitulina*) is the most widely distributed member of the scientific family. There are thought to be about 400,000-500,000 individuals in the world which inhabit the waters of the north Atlantic and north Pacific Oceans. Common seals vary in colour from brown, grey or tan, with a uniform pattern of small darker patches. The species is fairly evenly distributed around the coasts of Great Britain and Ireland, except for regions where there are extensive cliffs. It is most commonly seen on the east coast of England, western Scotland and the northern isles.

## **Local Nature Reserves**

Principle local authorities are able to designate Local Nature Reserves (LNRs) under Section 21 of the National Parks and Access to the Countryside Act 1949. Parish and town councils can also designate LNRs; however they must have the power to do so delegated to them by the principle authority. LNRs are almost always owned by the local authority who often pass the management onto County Wildlife Trusts. Protection is usually given by the local authorities Local Plan, and often supplemented by local by-laws. A list of LNRs located within the SMP study area is presented in **Table D2.16**.

**Table D2.16 Local Nature Reserves in the SMP study area**

Name	Area (ha)
Amble Dunes	52.89
Cresswell Dunes	24.67
Seaton Dunes and Common	96.16

## **Heritage Coast**

Heritage Coasts are a non-statutory landscape definition which are defined by agreement between the relevant maritime local authorities and Natural England. Most are part of a National Park or AONB with 33% (1,057 km) of scenic English coastline conserved as Heritage Coasts. The Northumberland Heritage Coast has the same inland boundary as the AONB and where they overlap the AONB has oversight of it. The purposes of Heritage Coasts are:

- To conserve, protect and enhance the natural beauty of the coasts, including their terrestrial, littoral and marine flora and fauna, and their heritage features of archaeological, architectural and historical interest.
- To facilitate and enhance their enjoyment, understanding and appreciation, by the public, by extending the opportunities for educational, sporting, recreational and tourist activities.
- To maintain and improve (where necessary) the environmental health of inshore waters affecting Heritage Coasts, and their beaches through appropriate works and management measures.
- To take account of the needs of agriculture, forestry and fishing, and the economic and social needs of small communities on these coasts, by promoting sustainable forms of social and economic development.

The northern part of the SMP study area has been designated as the North Northumberland Heritage Coast. This is one of the longer stretches of heritage coastline, taking in 40 miles from Amble to the Scottish border. This stretch of coastline is renowned for its long sandy beaches and also for its shortage of visitors. Several beaches are of particular excellence, namely:

- Cocklawburn - for its ancient fossil beds;
- Warkworth - for its large expanse of sand dunes;
- Low Newton - for its rare marine species; and
- Bamburgh - for its coastal sand dunes protected behind a row of reefs.

This heritage coast is also designated for its bird life, both at the RSPB reserve at Coquet Island and at the Farne Islands, whilst Berwick is home to one of the largest colonies of mute swans in Britain.

## **D2.2.5 Other conservation areas and habitats**

Several non-governmental organisations have land holdings in the study area, most of which overlap with statutory and non-statutory designations such as SSSIs or Heritage Coast. These include the RSPB, the National Trust and the Northumberland Wildlife Trust.

### **RSPB Reserves**

The RSPB owns and manages one reserve in the SMP study area at Coquet Island. This reserve was declared in 1978, and in 1983 its boundary was extended to mean low water. Lying just one mile off the coast at Amble, it is a safe haven for over 30,000 pairs of seabirds, some of which travel from Africa to nest on Coquet Island; refer to the Coquet Island SSSI for a more detailed account of bird populations.

### **National Trust**

The National Trust is a key stakeholder within the SMP review process, owning a significant proportion of the coastline much of which is subject to Royal Charter. The National Trust land holdings within the SMP study area are presented in **Table D2.18**.

**Table D2.17 National Trust land holdings within the SMP study area**

Ref Number	Site Name	Area (ha)
10590	Lindisfarne	15
10379	Farne Islands	36
	Beadnell (inc. St. Aidans's Dunes, Beadnell Dunes and Beadnell Lime Kilns)	56
11197 and 11324	Low Newton and Dunstanburgh (inc. Newton Links and Newton Point, Low Newton-by-the-Sea, Embleton Links, Dunstanburgh Castle and Dunstanburgh Heughs)	472
11199	Alnmouth	103
10327	Druridge Bay	37

### **Local Authority Designations**

Local authorities have the power to designate locally important sites of nature conservation for planning purposes. These are normally identified in the local plan and are designated as Sites of Nature Conservation Importance (SNCIs, also known as

Sites of Importance for Nature Conservation (SINC)). A list of all relevant SNCIs is shown in **Table D2.18**.

**Table D2.18 SNCIs within the SMP study area**

Site code	Name	Grid reference	District(s)	Habitat Type	Other designations
BT020	Marshall Meadows Bay to Berwick	NT984567	Berwick	Coastal cliffs, grassland, woodland, geological	SSSI
BT018	Tweed Lower and Tweedmouth	NT990533	Berwick	Estuary, flowing water	Part of SSSI
BT019	Berwick Tapee Lake	NT995537	Berwick	Fen	
BT046	North Sunderland Gut	NU224315	Berwick	Coastland	
BT045	Beadnell Bay - North	NU229275	Berwick	Coastland, geological	AONB / SSSI
AL039	Embleton Quarry	NU232228	Alnwick	Grassland, scrub	
AL040	Embleton and Beadnell Coast	NU243250	Alnwick, Berwick	Coastland, sand dune, grassland, geological	Part of SSSI
AL035	Amble to Alnmouth Coast	NU255080	Alnwick	Sand dune, salt marsh, estuary	Part of SSSI
AL036	Amble and Hauxley Foreshore	NU287030	Alnwick	Geological	Part of SSSI
CM029	Hadston Links	NZ275970	Castle Morpeth	Sand dunes	Part of SSSI
CM031	Cresswell Shore	NZ301928	Castle Morpeth	Geological	
WB010	Spital Carrs	NZ310869	Wansbeck	Fen	SSSI
WB011	Lyne Sands	NZ315893	Wansbeck	Sand dunes	Part of SSSI
WB008	Wansbeck Estuary	NZ299853	Wansbeck	Estuary, sand dunes	SSSI
WB007	Blyth Estuary	NZ298827	Wansbeck, Blyth Valley	Estuary	
BV005	Seaton Sluice Dunes	NZ325780	Blyth Valley	Sand dunes	
BV007	Seaton Burn Estuary	NZ335765	Blyth Valley	Saltmarsh, grassland	
NT007	Curry's Point and Wader Pasture	NZ349751	North Tyneside	Coastline, geological, open water	
NT010	Willington Gut Saltmarsh	NZ312668	North Tyneside	Saltmarsh, grassland	
NT025	Tyne Entrance	NZ364688	North Tyneside	Grassland, scrub	

## D2.3 Earth Heritage

### D2.3.1 Introduction

The Northumberland coastline is of high geological and geomorphological interest. In the south, the cliff exposures between Tynemouth and Lynemouth are an important geological resource in the form of the most complete sequence of Westphalian rocks in the region, including coal seams which have been of great economic importance to the North East. At Sandy Bay, north of Cambois, the overlying glacial material is visible as softer clays, sands and gravels. Further north at Hauxley, extensive Quaternary deposits are visible in the low cliffs including peat deposits. The coastal stretch between Boulmer and Howick is characterised by Carboniferous limestones which form low cliffs and extensive rocky platforms. Coastal exposures of the Whin Sill form the high bluffs of Dunstanburgh, Bamburgh, Lindisfarne the Farne Islands, whilst High Sandstone cliffs characterise the northern most section of the SMP area.

Earth heritage conservation in England involves recognising, protecting and managing sites and landscapes, which have been identified as being important for their fossils, minerals or other geological/geomorphological interest. Conservation of these sites is

the responsibility of Natural England. A major initiative to identify and describe the most important geological sites in Britain began in 1977, with the launching of the Geological Conservation Review (GCR).

The GCR is concerned with maintaining representative and unique examples of geological features for study, research and educational purposes, i.e. ensuring that the resource and access to that feature is preserved. However, current thinking in geological, and wider nature conservation, management is that conservation must fit within the practical limits of working alongside natural processes and their geomorphological form. Therefore, if this means that a resource is subjected to higher risk as a result of working with natural processes, this risk is currently considered preferable than trying to work against natural change.

### D2.3.2 Geological Conservation Review (GCR) Sites

The GCR was designed to identify those sites of national and international importance needed to show all the key scientific elements of the Earth heritage of Britain. These sites display sediments, rocks, fossils, and features of the landscape that make a special contribution to our understanding and appreciation of Earth science and the geological history of Britain, which stretches back hundreds of millions of years. The SMP study area contains the GCR listed sites as shown in **Table D2.19**.

**Table D2.19 GCR sites in the SMP study area.**

Code	Grid Ref	Name	Block	Other designations
2182	NU010512	Spittal Shore	Dinantian of Northern England & North Wales	Part of Lindisfarne SSSI
1915	NU035481	Goswick - Holy Island - Budle Bay	Coastal Geomorphology of England	Part of Lindisfarne SSSI
2326	NU136418	Holy Island	Quaternary of North-East England	Part of Lindisfarne SSSI
1448	NU124416	Holy Island	Carboniferous - Permian Igneous	Part of Lindisfarne SSSI
1449	NU163361	Budle Point to Harkness Rock	Carboniferous - Permian Igneous	Part of Lindisfarne SSSI
1447	NU260187	Castle Point to Cullernose Point	Carboniferous - Permian Igneous	SSSI
343	NU262173	Howick to Seaton Point	Namurian of England & Wales	SSSI
2938	NZ304855	Cresswell and Newbiggin Shores	Westphalian	SSSI
2025	NZ305860	Sandy Bay	Quaternary of North East England	
2169	NU283016	Low Hauxley	Quaternary of North-East England	SSSI
2397	NZ345760	Tynemouth to Seaton Sluice	Westphalian	SSSI

### Description of GCR Blocks

#### Dinantian of Northern England and North Wales (DIN-N-E-WL)

These sites represent the British geological record of earth history from about 354 to 327 Ma (million years ago), as represented by rocks in Northern England and North Wales. This time span encompasses the first part of the Carboniferous Period, which

spans from about 354 to 292 Ma. Rocks that formed during this time constitute the Dinantian Subsystem. Sites were selected according to palaeogeographically defined blocks of which Dinantian of Northern England and North Wales forms one and includes the Northumberland Trough. These areas can be selected specifically for their fossil fauna, which aids in strata correlation and enables the interpretation of the environments in which the animals lived.

One of the finest sections of Dinantian strata in England can be seen on the shore at Spittal, within the Lindisfarne SSSI, where an almost continuous section through the Asbian and Brigantian stages is exposed which has considerable sedimentological, paleogeographic and stratigraphic interest

#### Coastal Geomorphology of England (CST-GME-EG)

Glaciation, geology, sea-level change, sediment supply, wind, wave, tide and human activities all interact to constantly change the shape and appearance of the coastal margin. The Coastal Geomorphology of England GCR block includes coastal landforms and geomorphology as developed in England. Changes to the British coastline are governed by the resistance of the rocky coast, with areas eroding at a faster rate than others. This landscape can change very rapidly as in the impact of storm waves on a sandy beach. Most of the sites for this block are dominated by one type of coastal landform, especially in terms of their associated research significance. However a few have been classified for their complex assemblages of geomorphological forms, and have been classed as Coastal Assemblages. The Goswick-Holy Island-Budle Bay GCR site includes one of the largest sandy beaches on the coastline of England and Wales. The key area for geomorphology for the site is divided into three units:

1. The dunes and the barrier beaches of Cheswick and Goswick Sands;
2. the dunes of the Snook and the cliff-top dunes and cliff-beach system on the north coast of Holy Island; and
3. the dunes and sandy beaches of Ross Links and Budle Bay.

In addition, there are hard-rock cliffs, an emerged ('raised') Holocene beach, saltmarsh and intertidal sandflats and mudflats. The significance of the site lies, first, in the extensive progradation of sandy beaches; secondly, in illustrating the role of different wave energy distributions north and south of Holy Island on beach forms and processes; and thirdly, in the total assemblage and variety of contemporary and older coastal features. It is one of only four locations in England and Wales where barrier-type beaches occur and is the sole example in the North Sea wave climate, which coincides with conditions of coastal emergence rather than submergence. The site is broadly comparable, but at a different stage of development, with sites on the east coast of Scotland.

#### Quaternary of North-East England (QA-NE-E)

The Quaternary period is the most recent major subdivision of the geological record, spanning the late Cainozoic Era. Traditionally split into two intervals of epoch status, the Pleistocene and Holocene of which the Holocene occupies the last 10,000 years of geological time and forms the interglacial period in which we now live. The fundamental characteristic of the Quaternary Period is one of change through time and space in geomorphological processes, floras, faunas and environmental conditions, all modulated by the changing climate. The Quaternary of North East England GCR sites in **Table D2.19** have been classified for their significance to the geomorphological evolution and Quaternary history of North-East England. Britain has a rich diversity of

Quaternary history, exhibiting distinct regional associations, related to for example to a combination of geology, evolution of river systems, mountain glaciation or patterns of sea level rise. Within the regional framework, a network of sites has been identified that represent the main landscape features, distinctive aspects of Quaternary history and the principal research themes. The site networks considered in the north east are those representing:

- The pre-Devensian glacial and interglacial record.
- The Devensian glacial record.
- The Late-glacial record.
- Periglacial landforms and slope deposits.
- Holocene vegetation history.

Low Hauxley Shore SSSI and Sandy Shore are important for Quaternary studies. The interest comprises an extensive layer of woody peat resting on Late Devensian glacial till and overlain by blown sand containing buried soil horizons. These deposits provide evidence for environmental conditions and changes on the coast of north east England during the last 5000 years. In particular, they indicate retreat of the coastline and different episodes of sand dune development.

#### Carboniferous - Permian Igneous C-P-IG)

These sites encompass the British volcanic rocks and associated intrusions that were emplaced north of the Variscan Front during the Carboniferous and Permian periods (from about 354 to 251 Ma). Great Britain was, at this time, part of the super-continent of Pangaea, which was drifting slowly northwards through tropical latitudes, developing various geological features from semi-arid flood plains to deserts. The products of the volcanoes were mainly basaltic but during Early Carboniferous time in central Scotland, the interruption of magmas allowed a wide range of more-evolved composites to form. These sites are of national and international importance and illustrate the variety and distribution of the rocks, and can be attributed to various suites in their full geological context. There are six GCR Networks for this GCR block which are based upon petrological affinity, age and geographical location. Sites can fall within more than one network; however can be assigned a network based on their dominant features. The network that falls within the study are is: Dinantian rocks of Northumberland, Solway and Tweed basins.

#### Namurian of England and Wales (NAM-E-WL)

The sites selected for this block represent the British geological record of Earth history from about 327 to 310 Ma as represented by rocks in England and Wales. The period covers the middle part of the Carboniferous Period, which itself spans from about 354 to 292 Ma. The underlying rocks were laid down during the Dinantian time (Lower Carboniferous Period), with the overlying rocks being laid down during the Westphalian Epoch (Upper Carboniferous Period). As a result the British Namurian strata includes rocks either side of the Lower-Upper Carboniferous boundary. Sites in this GCR block were selected according to their palaeogeographically defined GCR networks in relation to their Upper Carboniferous stratigraphy. Fossils are also important for this block (see Dinantian of Northern England and North Wales).

The best exposure of Namurian in Northumberland can be seen in the Howick to Seaton Point SSSI. The area is of particular value as it shows the true relationship between the Yoredale-type sedimentation and the overlying arenaceous 'Millstone Grit' sediments.



### Westphalian (WPH)

These sites represent the British geological record of Earth history from about 310 to 300 Ma and encompasses the Late Carboniferous Period (this Period spans from about 354 to 292 Ma), with underlying rocks formed during the Namuria time. The term 'Upper Carboniferous' has been taken to include all of the Namurian, Westphalian, and Stephanian series; now all eight stages of the Late Carboniferous Series, the Chokierian, Alportian, Kinderscoutian, Marsdenian, Yeadonian, Langsettian, Duckmantian and Bolsovian stages form the Westphalian Series. Namurian rocks in Britain can be roughly equated to the informal term Millstone Grit, overlain by Coal Measures and underlain by the Dinantian Carboniferous Limestone. Sites were selected according to palaeogeography defined GCR networks. Fossils are also important for this block (see Dinantian of Northern England and North Wales).

## **D2.3.3 Geological Interest of Natural Areas**

### **Natural Area Profile 98: Northumberland Coast**

Characterised by hard rock cliffs, submerged and intertidal rocky reefs, caves and gullies, there are extensive areas of intertidal soft sediments and several island groups. In the north of the natural area, the hard rock and small estuaries afford clearer sea conditions than the south, where the eroding boulder clay cap and large estuaries, such as the Tyne, give the inshore waters a much higher sediment loading. The sand beaches, sand banks and extensive mud deposits are well developed around Lindisfarne where an extended dune system provides sheltered, low energy conditions supporting extensive tidal mudflats. The lengths of the hard coast are characterised by wave cut platforms, inter-tidal and sub-tidal reefs and sea caves.

### **Natural Area Profile 1: North Northumberland Coastal Plain**

The area is overlain by glacial till and, more locally, blown sand or peaty deposits. The Natural Area is characterised by a diverse coastline encompassing the high sandstone cliffs north of Berwick, the low-lying whinstone and limestone cliffs south of Bamburgh, and the extensive dune complexes found from Lindisfarne to Amble. The coastal plain displays a complex of Glacial Landforms. Boulder clay generally characterises the coastal hinterland, though in places sand and gravels were deposited beneath, or washed out of, the glacial ice-sheets. These deposits usually extend in a north south direction as eskers (mounds or sinuous ridges), the most famous being the Bradford Kame. Such features have occasionally been worked for minerals. At Embleton Bog, an extensive post glacial peat deposit is present.

### **Natural Area Profile 5: Northumbria Coal Measures**

The now narrow coastal fringe in south Northumberland is perhaps the most extensive single feature, with cliffs showing coal measure geology, sand dunes supporting specialist plant life, and a varied shore-line of rock outcrops and sandy bays. See below for a detailed description of the Northumberland Coal Measures.

### **The Mid North Sea Marine Natural Area**

The benthic habitats of the Mid North Sea Natural Area are defined primarily by the seabed substrata. Within the Natural Area, the offshore seabed is composed predominantly of sand with some gravelly sand and muddy sand patches. Closer

inshore, the sediment has a higher proportion of mud. This gives rise to extensive areas of muddy sand, gravelly muddy sand and muddy sandy gravel, particularly towards the Farne Islands. The nearshore seabed is composed of an assortment of mixed sediments, with more muddy sandy gravel and fewer areas of sands. Where gravelly sediments are consolidated and stable, an associated rich fauna more characteristic of rocky areas can develop. In the nearshore zone there are also occasional and sometimes extensive exposures of bedrock and boulder reefs. Along the Northumberland coast limestone reefs extend into the sub-littoral as bedrock platforms. Around the Farne Islands, igneous rock extends into the deeper water forming discrete bedrock outcrops. As a result of this mosaic of sediment types there are a variety of habitats found on the seabed of this region.

#### **D2.3.4 Features of Significant Geological/Geomorphological Interest**

##### **Whin Sill**

The Whin Sill, originally intruded as fluid magma, is a bed of quartz dolerite underlying parts of Northern England and outcropping locally in striking land-form features, particularly within the Bamburgh Coast and Hills SSSI. Exposures on the Bamburgh Hills support a characteristic flora found only in Northumberland. Exposures on the Bamburgh Coast show the extremely complicated relationships that may develop between the sills and country rocks to best advantage. This includes the enclosure of a variety of large sedimentary blocks and rafts that suggest the Sill may be intruding at a pre-existing fault. Rock exposures between Castle Point and Cullernose Point demonstrate clearly the development of a number of rock types within the Whin Sill as well as other features characteristic of sill intrusion such as incorporated blocks of sediment and columnar jointing. As the first described 'sill' this is the world type (reference) area for all sills.

##### **Flandrian**

The Flandrian stage is the name given by geologists and archaeologists in the British Isles to the first, and so far only, stage of the Holocene epoch (the present geological period), covering the period from around 12,000 years ago when the last ice age ended to the present day. The only raised beach of Flandrian age known on the English east coast can be found within the Lindisfarne SSSI on Holy Island and provides geomorphological and stratigraphic evidence for sea-level changes. Underlying deposits, including organic remains, provide a dateable stratigraphic record which, with morphological evidence, provides a key link in comparing relative sea-level changes on the east coast of Britain during the Flandrian.

##### **Northumberland Coal Measures**

The Tynemouth to Seaton Sluice SSSI 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. The site is of considerable importance for interpreting the palaeogeographical structure of Britain during the Middle Carboniferous.

Cresswell and Newbiggin Shores SSSI exhibit the best exposure of Middle Carboniferous strata belonging to the Upper *similis-pulchra* Biozone. It includes a thick sequence from the High Main Seam to the Vanderbeckei Marine Band, and is the highest part of the coalfield to be well exposed. It includes an interesting mixture of fluvial sandstones and marine shales, indicating that the tectonic subsidence of the area was greater than the input of sediment. This exposure has not been the subject of such detailed sedimentological analysis as the Tynemouth-Seaton Sluice SSSI section, and the fluvial sediment in particular should yield valuable information on the palaeogeography of the area at this time.

## D3 LANDSCAPE AND CHARACTER

### D3.1 General

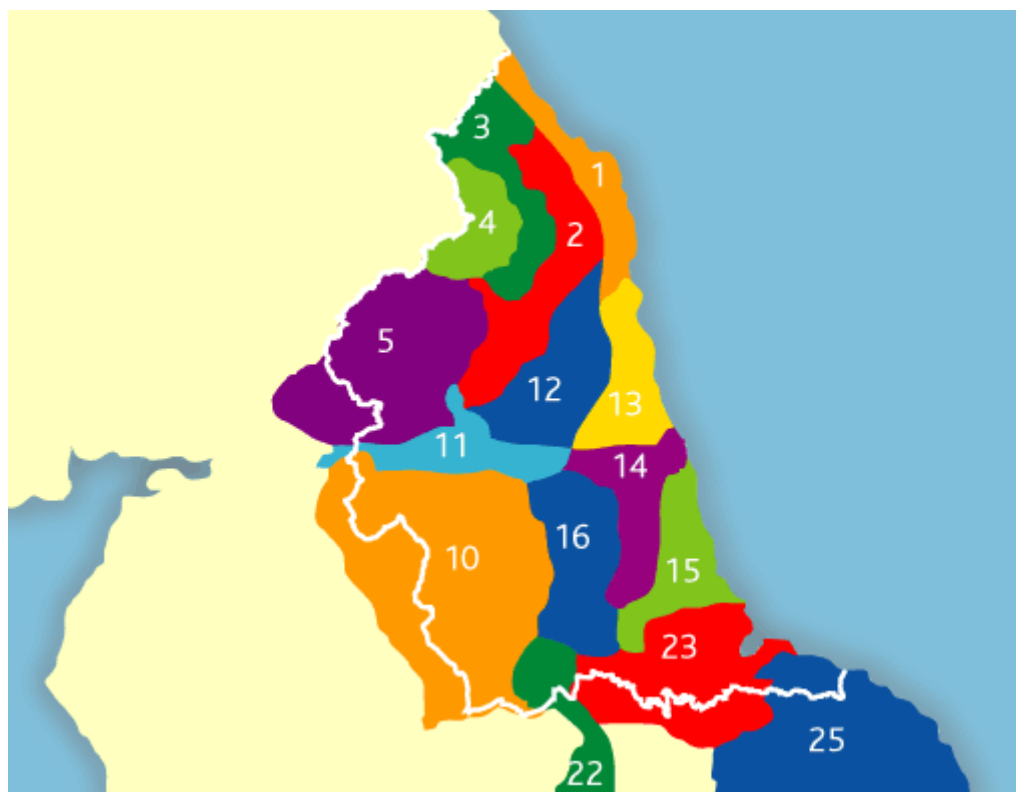
Landscape Character Assessment (LCA) is a technique which is used to understand what gives the landscape its character. The term landscape encompasses countryside and urban areas as well as mountain ranges or designated landscapes. The assessment uses both natural (e.g. fauna and flora, geology, climate and landform) and cultural (e.g. historic settlements, current land use and patterns of field enclosure) elements. The tool has been published by the Countryside Agency and Scottish Natural Heritage in order to assist in decision-making for landscape conservation, management and enhancement.

In 1996 the former Countryside Commission and English Nature (now Natural England), with support from English Heritage, produced The Character of England Map. This map combines Natural England's Natural Areas and the former Countryside Commission's Countryside Character Areas into a map of 159 Joint Character Areas (JCAs) for the whole of England.

### D3.2 Landscape and Visual Features

Natural England's joint landscape character areas for the north east are presented in **Figure D3.1**, with an overview of the areas included in the SMP study area described below.

**Figure D3.1** Landscape character areas in the north east of England (Source: [www.countryside.gov.uk](http://www.countryside.gov.uk)).



### **D3.2.1 Area 1 - North Northumberland Coastal Plan**

The key characteristics of the North Northumberland Coastal Plain are:

- Narrow, low lying, windswept coastal plain with wide views east towards the sea and west to the Cheviots. Particularly striking lateral coastal views.
- Intensively farmed landscape of predominantly open mixed arable land with limited trees and woodland, and permanent pasture/semi-natural grassland typical of the valleys and coastal fringes.
- Diverse coastal scenery, with a 'hard' coast of spectacular high cliffs, off-shore islands, and rocky headlands to the north, contrasting with a 'soft' coast of wide sweeping sandy bays backed by sand dunes and intertidal flats backed by saltmarsh to the south. Patches of coastal grazing marsh still remain.
- Rivers Aln, Coquet and Tweed, and numerous smaller watercourses, meander across the coastal plain to the sea.
- Coastal plain and offshore islands provide rich wildlife habitats, particularly for migratory and breeding sea birds.
- Distinctive historic heritage reflects importance of ecclesiastical influences and the strategic defence of the coast and English/Scottish border. Features include prominent medieval castles, fortifications and structures from both world wars and religious buildings.
- Whin Sill intrusions produce dramatic landscape features, including the coastal cliffs at Bamburgh and the Farne Islands. Inland outcrops and escarpments form distinctive local landmarks and support rare semi-natural whinstone grasslands.
- Dispersed pattern of isolated farmsteads, small nucleated villages, fishing villages and small coastal resort towns.
- Long history of mineral extraction, including whinstone quarrying, and opencast coal- mining to the south-west of Berwick-upon-Tweed.

### **D3.2.2 Area 13 – South East Northumberland Coastal Plain**

The key characteristics of the South East Northumberland Coastal Plain are:

- Widespread urban and industrial development, extending north from the urban edge of Newcastle across the coastal plain, with mining towns and villages, merging into rural landscape towards the north.
- Large scale open cast coal mining sites, and restored sites, including deep mine spoil heaps, a prominent feature.
- Sweeping sandy beaches and rocky headlands remain within largely developed coast.
- Large open fields of arable crops, with scattered large country houses, and establishments such as hospitals, in open countryside, and extensive urban fringe effect near settlements.
- Prominent blocks of mixed and coniferous woodland on reclaimed colliery sites, with broadleaved woods on steeper valley sides, and within parkland estates.
- Frequent areas of open water and wetland in areas of mining subsidence, and as features within restored landscapes.

### D3.2.3 Area 14: Tyne and Wear Lowlands

The key characteristics of the Tyne and Wear Lowlands are:

- An undulating landform incised by the rivers Tyne and Wear and their tributaries.
- Dominated by widespread urban and industrial development, and a dense network of major road and rail links.
- A landscape of considerable recent change with a long history of coal mining, now revealed only by locally prominent open cast extraction areas and spoil heaps, and recently restored sites.
- Large open fields of arable crops, with urban fringe effect of pony grazing and other miscellaneous activities around settlements.
- Irregular woodland cover, generally sparse, but with well wooded steep valley sides, estates with mixed woodland and parkland trees, and plantations on restored spoil heaps.
- Historic riverside cities of Newcastle-upon-Tyne, strategically located at a bridging point of the River Tyne.

## **D4 HISTORIC ENVIRONMENT**

### **D4.1 General**

Heritage features are those features which provide a tangible link between the past and the present form of the natural and built environment. Heritage features are critical to providing an understanding of the manner in which the coast has evolved in response to human activity and also the way in which coastal form has determined patterns of development. Marine heritage features provide an insight into the maritime history of the coast and can account for patterns of settlement in times when the foreshore was further seaward than its current location. The protection and management of heritage features is therefore essential to maintain the social and historical value of the coast. Coastal erosion poses two kinds of threats to the historic environment:

- Erosion of coast itself caused by the action of the sea leading to the destruction or truncation of assets
- Damage to assets caused by various mitigation strategies

At present, the provision of Government policy on archaeological remains is set out in Planning and Policy Guidance 16: Archaeology and Planning. This provides a clear focus, ensuring that heritage features are protected in all initiatives relating to land use and planning. Heritage features are also important in defining the identity of areas and attracting visitors to features of national or regional interest. The North East Rapid Coastal Zone Assessment (NERCZA) was completed in December 2008 (ARS 2008) and has been used to inform this section of the Thematic Review.

### **D4.2 Terrestrial**

The heritage features along the Northumberland coast portray a long, and often bloody, legacy. This is especially true for the north as a result of the ongoing border disputes between England and Scotland, which has resulted in the construction of numerous castles. The history of the area dates back to the Neolithic times, whilst many of the scheduled monuments have a religious theme due to the areas close association with early Christianity in England. The history to the south of the study illustrates its industrial heritage, which is mainly linked to fishing and coal mining. A complete list of all artefacts, buildings and structures of archaeological interest, within 100m of the Northumberland coastline, can be seen in **Supplement B**.

#### **D4.2.1 Scheduled Ancient Monuments (SAMs)**

In the United Kingdom, a Scheduled Ancient Monument is a 'nationally important' archaeological site or historic building, given protection against unauthorised change. The protection given to scheduled monuments is separate from the Town and Country Planning system, which covers listed buildings and conservation areas. Scheduled Ancient Monuments are defined in the Ancient Monuments and Archaeological Areas Act 1979 and the National Heritage Act 1983 (England only).

A monument which has been scheduled is protected against disturbance or unlicensed metal detecting. The Secretary of State must be informed about any work which might affect a monument above or below ground, and English Heritage gives advice to the Government on each application. In assessing each application the Secretary of State



will try to ensure that damage done to protected sites is kept to a minimum. A list of all SAMs within 1 km of the Northumberland coastline is presented in **Table D4.1** and described below.

**Table D4.1 List of all scheduled monuments within 1 km of the Northumberland coastline**

Monument No	Name	Parish
28534	Spades Mire linear earthwork and section of rig and furrow.	Berwick-upon-Tweed
32762	Medieval church and graveyard 330m north west of Berwick Castle.	Berwick-upon-Tweed
28533	Enclosure castle, two 16 <sup>th</sup> Century gun turrets and an early 17 <sup>th</sup> Century house.	Berwick-upon-Tweed
28532	The medieval and post-medieval fortifications at Berwick-upon-Tweed.	Berwick-upon-Tweed
ND9	Berwick Bridge.	Berwick-upon-Tweed
ND350	Chester Crane camp.	Berwick-upon-Tweed
ND341	Springhill Roman camp.	Berwick-upon-Tweed
24655	Early medieval farmstead at Green Shiel, Holy Island.	Holy Island
24601	'The palace' medieval house and Tudor supply base, Holy Island village.	Holy Island
23235	Lindisfarne Priory pre-Conquest monastery and post-Conquest Benedictine cell.	Holy Island
ND555	Lime kilns.	Holy Island
24609	Boundary cross 170m south west of Herring House.	Holy Island
24600	The fort on the Heugh and underlying midden.	Holy Island
24610	Medieval chapel and associated building on St. Cuthbert's Isle.	Holy Island
24614	Monastic grange at Fenham.	Kyloe
24642	Pre-Conquest monastic cell and post-conquest monastic settlement on Inner Farne.	North Sunderland
ND116	Dovecote 140m north east of Leper' Hospital.	Bamburgh
24637	Round barrow 520m west north west of Quarry Cottage.	Bamburgh
24624	Spindleston Heughs defended settlement.	Easington
24626	Medieval moated site and 18 <sup>th</sup> Century dovecote, 600m east of Outchester.	Easington
25048	Benthall round cairn.	Beadnell
25055	St. Ebba's chapel and monastic site.	Beadnell
23231	Dunstanburgh Castle: Romano-British settlement, 14 <sup>th</sup> Century enclosure castle and harbour, and world war II pillbox and foxhole.	Craster
24597	Craster defended settlement.	Craster
25174	Defended settlement, 600m south east of Red Stead.	Longhoughton
24599	Lesbury Bridge.	Lesbury
ND31	The Norse Camp	Alnmouth
24595	Warkworth bridge and defensive gateway.	Warkworth
24611	St. Mary Magdalene's medieval chapel and associated earthworks, 90m north of Mauldin.	Warkworth
24613	Monastic cell and medieval tower on Coquet Island.	Hauxley
24620	Low Chibburn medieval Preceptory, 16 <sup>th</sup> Century house and world war II pillbox.	Widdrington
24608	Cresswell tower house.	Cresswell
32768	Dovecote at Cresswell home farm.	Cresswell
32802	Coastal artillery battery on Blyth Links.	Blyth Valley
25165	Tynemouth iron age and Romano-British settlements, monasteries, site of lighthouse, cross, motte, enclosure and artillery castles and later coastal defences.	North Tyneside

*Spades Mire linear earthwork and section of rig and furrow (No: 28534)*

The substantial linear boundary feature known as Spades Mire has been identified as an early attempt to define the territory associated with the early settlement of Berwick-upon-Tweed. It survives as an earthwork and as a buried feature visible on aerial photographs and consists of a ditch flanked by a single internal bank. Limited excavation has shown that it was in use by the 13<sup>th</sup> Century but without further excavation it is difficult to determine whether this represents the reuse of an earlier feature. The boundary enclosed an area larger than that contained by the later stone walls of the Edwardian period and considerably larger than that defined by the Elizabethan artillery defences. Its function was, however, broadly similar to these later circuits, namely to isolate the promontory, already afforded natural defence on three sides, upon which the early settlement of Berwick-upon-Tweed stood.

Spades Mire is well preserved and retains significant archaeological and environmental deposits. As the earliest defensive feature known at Berwick-upon-Tweed it is of considerable importance for study of the origins of the town and it will add greatly to our understanding of its development, which it is known from documentary evidence was a place of considerable importance.

*Medieval church and graveyard 330m north west of Berwick Castle (No: 32762)*

The medieval church at Castle Terrace is in fair condition and its associated graveyard is very well-preserved, with little post-medieval disturbance. The church is known to be one of Berwick-upon-Tweed's lost inter-mural churches and will provide important information about its construction, use and adaptation. In addition, it will provide an insight into the early medieval town of Berwick as it fluctuated between English and Scottish control. The excellent condition of the associated graveyard provides a rare opportunity for study of the topography of a medieval graveyard, with the burials themselves providing important information on burial practice. Study of the skeletal remains will provide a major insight into the medieval population of the town. The ornately carved grave slabs reflect the status of some individuals, and they form an unusual and important collection of medieval carved grave slabs in their own right.

*Enclosure castle, two 16<sup>th</sup> Century gun turrets and an early 17<sup>th</sup> Century house (No: 28533)*

The fortifications of the 16<sup>th</sup> Century reflect the considerable technical improvements which led to artillery pieces becoming more mobile and accurate combined with specialist roles and greater velocity. Provision was made within existing walls and towers for weapons of heavy calibre to be deployed. In the early forts and towers of Henry VIII, firepower was arranged systematically in tiers, in what were elaborate, centrally planned gun towers for all-round defence.

Fortified houses were residences belonging to some of the richest and most powerful members of society, and their design reflects a combination of domestic and military elements. In some instances, the fortifications may be cosmetic additions to an otherwise indefensible high status dwelling, giving a military aspect while remaining practically indefensible. Their buildings normally included a hall used as a communal space for domestic and administrative purposes, kitchens, services and storage areas; whilst in later houses the owners had separate living apartments, which often received particular architectural emphasis.

*The medieval and post-medieval fortifications at Berwick-upon-Tweed (No: 28532)*

Berwick-upon-Tweed is one of the most valuable fortified towns of western Europe. Taken together with Berwick Castle, and the earlier linear earthwork known as Spades Mire, the defences provide a continuous sequence spanning more than 700 years. They provide one of the most complete overviews available anywhere for the understanding of the development of military architecture.

*Berwick Bridge (No: ND9)*

Berwick Bridge, known as the Old Bridge, was erected between 1610 and 1634. One of the larger and more important early road bridges in Britain, it was part of the Edinburgh-London trunk road until 1928 when the Royal Tweed Bridge was built. There are 15 semi-circular arches increasing in height towards the Berwick end, with the longest span reaching 75ft.

*Chester Crane camp (No: ND350)*

These are the remains of an earthwork enclosure stand at Canny Shiel. It may be an Iron Age promontory fort but the remains are very substantial when compared to other prehistoric sites in this area. The name Canny Shiel, that is shieling, suggests a medieval association.

*Springhill Roman camp (No: ND341)*

This is a small rectangular enclosure. It was once thought to be a Roman fort and a small piece of Roman pottery was found there; however, it is now believed to be a small village of the Roman period.

*Early medieval farmstead at Green Shiel, Holy Island (No: 24655)*

The settlement at Green Shiel is a rare example of an early medieval farmstead in Northumberland, and lies on the north shore of Holy Island. Stone foundations of at least five rectangular buildings have been uncovered by archaeologists and animal bone has been found in all the buildings, with some complete cattle skeletons have been found. It is possible that some of the buildings were used as barns or animal shelters. Other objects found include a spearhead, fragments of bone combs, iron knives and Anglo-Saxon coins; these date the site to the 9<sup>th</sup> Century AD. There are no other known examples of stone built farmsteads of this period in the region and as such it is of particular importance. The integrity of the site has not been damaged by later occupation, and excavation has significantly increased knowledge and understanding. Whilst archaeological remains within the buildings have been excavated, all the buildings remain intact, as do the surrounding areas and significant archaeological deposits are expected to survive.

*'The palace' medieval house and Tudor supply base, Holy Island village (No: 24601)*

This monument includes the remains of a group of medieval buildings within an enclosure known locally as 'The Palace'. It is situated immediately outside Lindisfarne Priory and on the eastern edge of Holy Island village a traces of a number of ranges of buildings can be seen standing within the walled enclosure. There are historic records from the 15<sup>th</sup> Century that a house called Harbottle Place probably stood at this site and in the Tudor period it was converted into a military supply base. A survey of 1548 called the buildings the 'Queen's storehouse' and states that there was "...also another house in the towne called the Pallace, which is the newe brewhouse and bakehouse". By 1596 the brewing vats were out of use and the buildings were abandoned and fell into ruin.

Work carried out here in 2000 exposed remains of a Tudor victualling yard, including a large masonry brewhouse with the settings for a mash tun and a fermenting tun. There was also evidence of a cellar, storehouse, possible malthouse and courtyard.

*Lindisfarne Priory pre-Conquest monastery and post-conquest Benedictine cell (No: 23235)*

Except for a number of eighth century carved stones no remains of the pre-Conquest church and monastery have yet been found at Lindisfarne. Knowledge of the site comes chiefly from contemporary records and the existence of the 7<sup>th</sup> Century Lindisfarne Gospels and *Liber Vitae*, which were both inscribed there. The remains of the early monastery are preserved beneath the later buildings and, in addition to the pre-Conquest church, will include a wide range of religious and domestic structures. The upstanding remains and current layout of Lindisfarne Priory are entirely post-Conquest in origin. The earliest building is the priory church which was begun at the end of the 11<sup>th</sup> Century and extended eastward in c.1140. Apart from a number of Gothic windows, it is entirely of Romanesque construction and owes much of its design and detail to Durham Cathedral.

*Lime kilns (No: ND555)*

Built in 1860 by a firm from Dundee, this monument comprises of six lime kilns, of which the kiln structure is one of the largest in Northumberland. A wagonway and a jetty west of Lindisfarne Castle were also built and by 1861, around one in five men on Holy Island were working on the lime kiln in some way; however, the kilns had closed down by 1896.

*Boundary cross 170m couth west of Herring House (No: 24609)*

The monument includes the remains of a medieval boundary cross situated on an artificially scarped platform on Heugh Hill. It has been suggested that it marks the boundary of the monastic precinct of Lindisfarne Priory.

*The fort on the Heugh and underlying midden (No: 24600)*

The fort on the Heugh is a good example of a late 17<sup>th</sup> Century fortification. It functioned with the contemporary fortification of Old Beblowe (Lindisfarne Castle) to control the island harbour. It was not subjected to rebuilding and redesign at a later date, and as such provides an important insight into the technology of 17<sup>th</sup> Century defence works.

*Medieval chapel and associated building on St. Cuthbert's Isle (No: 24610)*

The chapel and its western annexe are stone built. Immediately around the chapel and annexe is a slight earthwork bank and beyond, to the north, east and south, is a gently sloping semicircular platform defined by a ditch. The chapel, annexe and building to the south east were surveyed and partly excavated by Sir William Crossman in 1888.

The post-Norman Conquest medieval chapel and its associated buildings on St Cuthbert's Isle survive well and will retain significant archaeological deposits. The site has been identified as one of the earliest ecclesiastical foundations in the north east of England and was an important part of the spiritual life of the Christian community on Lindisfarne. It will contribute to the study of the development of Christianity in this area.

*Monastic grange at Fenham (No: 24614)*

The monument includes the remains of a manor house surrounded by a moat and a surrounding wall and a series of enclosures where service and agricultural buildings once stood, as well as crofts and tofts, fields and part of the mill race of Fenham Mill. The monastic grange at Fenham is in good condition and is one of very few granges in

Northumberland where the location is known with certainty. It was associated with the priory at Holy Island and, as such it is very well documented.

*Pre-Conquest monastic cell and post-conquest monastic settlement on Inner Farne (No: 24642)*

The visible remains include four medieval standing buildings, a well and field system surviving on the island. The buildings include St Cuthbert's Chapel, St Mary's Chapel, Prior Castell's tower and a hospitium or guest house. St Cuthbert lived here in the 7<sup>th</sup> Century and later returned here to die. Bede, writing in about AD705, records that Cuthbert built a cell, landing place and guest house, and grew barley on the island. A small Benedictine monastery was established here in 1255 and existed until the dissolution of the monasteries in 1536. The pre-Conquest settlement on Inner Farne is in good condition and contains significant archaeological deposits, including an associated field system that should aid in the understanding of economy of the Island in medieval times.

*Dovecote 140m north east of Leper' Hospital (No: ND116)*

The site used to be occupied by a hospital for lepers founded before 1256, and dedicated to St Mary Magdalene. It was abolished in 1326, and although no remains can be seen today, place-name evidence, from a 17<sup>th</sup> Century survey and an 18<sup>th</sup> Century map, show that it was located in this area.

*Round barrow 520m west north west of Quarry Cottage (No: 24637)*

The monument includes the remains of a substantial mound containing the remains of a burial of Bronze Age date, and is situated in a field of rough pasture c.800m inland from the coast. A rubbing post of 19<sup>th</sup> Century date is situated on the mound.

*Spindlestone Heughs defended settlement (No: 24624)*

This site dates back to the Iron Age, and includes a defended settlement typical of this period. The settlement was defended by ditches and ramparts, and by the natural cliffs formed by Spindlestone Heughs. The term hillfort is used to describe this kind of settlement. The ditches and ramparts are still visible as earthworks, as are two stone round houses situated inside a larger enclosure. A chapel, identified by the Ordnance Survey, to the east of the defended settlement can no longer be identified on the ground.

*Medieval moated site and 18th Century dovecote, 600m east of Outchester (No: 24626)*

A pentagon-shaped earthwork is all that remains of a medieval moated farmstead, just east of Outchester. A broad ditch surrounded the site and in 1961 a small excavation was conducted to discover whether the earthwork was the site of the missing village of Outchester. This proved inconclusive but confirmed a medieval date. Within the moated site is a ruined 18<sup>th</sup> Century dovecote, which is comprised of a tapering tower standing four storeys high with a conical roof. The dovecote is a Grade II listed Building and is included in the scheduling.

*Benthall round cairn (No: 25048)*

Two stone-lined graves containing bones and a Bronze Aged pottery vessel were found at this location in 1934, during the construction of a small hut. The visible remains comprise a cist, or stone coffin, situated on the edge of an amorphous mound of boulders, pebbles and sand, situated to the north of Beadnell harbour. In the Bronze Age, burials were often placed in mounds of earth or stone such as this.

*St. Ebba's chapel and monastic site (No: 25055)*

This site is on the rocky headland of Ebb's Nook where the remains of a 13<sup>th</sup> Century small stone chapel can be seen set in a series of earthworks. Immediately to the east of the chapel is a rectangular stony mound which may be the remains of an earlier chapel and these two structures form the southern side of a walled enclosure. This site has long been associated with St Ebba, the stepdaughter of the king of Northumbria, Aethelfrith, though there is no proof of this.

*Dunstanburgh Castle: Romano-British settlement, 14th Century enclosure castle and harbour, and world war II pillbox and foxhole (No: 23231)*

Dunstanburgh Castle is a 14<sup>th</sup> Century enclosure castle standing on an isolated promontory overlooking the North Sea. The walls and gatehouse were built between 1313 and 1316, and in 1382-3 an inner ward was created behind the keep by a range of buildings placed around a courtyard. These buildings included accommodation for guests and men-at-arms as well as a kitchen and bakehouse. The northern side has been damaged by the sea as long ago as 1543, but the other sides are still upstanding. A number of towers are built in the curtain wall; Lilburn Tower and Egyncleugh Tower were built in the early 14th century, whereas Constable Tower was built later that century. Inside the enclosure are the remains of the castle's home farm.

In 1314, a ditch was dug from the harbour to Embleton Bay, north of the castle. This ditch made the castle and the area lying between it and the harbour into an island, and access was via a drawbridge across the ditch. The area enclosed by the ditch is crossed, predominantly from east to west, by the earthwork remains of post-medieval ridge and furrow beneath which, in 1949, building foundations of possible medieval date were found. A World War II pillbox and foxhole lie north of where the ditch and harbour joined. The castle is owned by The National Trust and in the guardianship of English Heritage.

*Craster defended settlement (No: 24597)*

This settlement, built on Craster Heugh, dates back to the Iron Age, and forms a naturally defensive position as a result of the surrounding cliffs. On the sides where there are no cliffs, up to three ramparts and a ditch have been built. The entrance lies through the south-east side. Although no longer visible above ground, the remains of buildings originally located in the settlement will be preserved beneath the present ground surface.

*Defended settlement, 600m south east of Red Stead (No: 25174)*

Dating back to the Iron Age, this site is situated on a slight rise at the southern end of a wide spur. The enclosure is roughly circular with a single rampart, and the existence of an encircling ditch was discovered in the early 19<sup>th</sup> Century. It is thought that the ditch did not continue around all sides of the enclosure as good natural defence is afforded on the south side where steep slopes fall away to a stream.

*Lesbury Bridge (No: 24599)*

This monument includes the above and below ground remains of Lesbury Bridge, a multi-span bridge dating from the 15<sup>th</sup> or early 16<sup>th</sup> Century. The bridge is comprised of sandstone blocks and spans the River Aln at the west end of Lesbury village, on the old road from Lesbury to Warkworth. Lesbury Bridge was doubled in width in 1844, with the new eastern section copying the details of the original medieval structure. Little documentary evidence has been traced for the early history of the bridge, but it is believed to have always been associated with the adjacent mill site which has been occupied since at least the late 18<sup>th</sup> Century, and was demolished in 1964.

*The Norse Camp (No: ND31)*

A Norse settlement dating from c. 700AD.

*Warkworth Bridge and defensive gateway (No: 24595)*

The bridge at Warkworth was built in the last quarter of the 14<sup>th</sup> Century and spans the River Coquet. It has been closed to vehicular traffic since the 1960s but is still open to pedestrians, and the bridge and defensive tower are Listed Grade II. The bridge has two arches and a gatehouse at the south end, and the central bridge support is hexagonal in shape. Until 1830 a pillar, or cross, with the coat of arms of the Percy family stood on the bridge. This is one of only two fortified medieval bridges in Britain; the other is in Monmouth.

*St. Mary Magdalene's medieval chapel and associated earthworks, 90m north of Mauldin (No: 24611)*

The Chapel of St. Mary Magdalene was established by Robert fitz Roger, who died in 1214, and given by him to the prior and convent of Durham. The chapel is well documented through the medieval period and was still in existence in 1536. It stands on the highest point of the field, north of Maudlin Farm and around the chapel are several low earthwork features. An area to the north of the chapel was excavated in 1977, but the remains were destroyed before they could be properly restored; however, domestic buildings were uncovered, including the remains of a hall, solar and a latrine. The chapel survives as a low-lying, rectangular earthwork.

*Monastic cell and medieval tower on Coquet Island (No: 24613)*

This monument includes the site of a pre-Conquest monastic cell founded c. AD684, and a pre-AD1125 Benedictine foundation. The cell is comprised of a domestic range, with a vaulted undercroft and a chapel attached to the east. It survives as an east-west range of medieval stone buildings, probably 15<sup>th</sup> Century in date, which are incorporated into 19<sup>th</sup> Century buildings associated with a lighthouse, whilst to the south west stand the remains of a medieval tower which has been incorporated in the lighthouse tower itself. The medieval parts of the building can only be differentiated externally from the 19<sup>th</sup> Century work as the latter are now whitewashed.

*Low Chibburn medieval Preceptory, 16<sup>th</sup> Century house and world war II pillbox (No: 24620)*

This is the site of a small farm owned by the Knights Templar. It was first recorded in 1313 and it was abolished in 1540, and all its lands were taken over by the king. Today, there are two main buildings remaining: the chapel and the house, which form two sides of a courtyard. The east and south, and parts of the north, walls of the chapel still stand, along with traces of a piscina and an aumbry, and the house, probably 16<sup>th</sup> Century, is almost complete. Ordnance Survey maps pre-dating the opencast mining, depict a moat encircling the site, which was destroyed during the mining operations between the 1950s and the 1970s.

In the north wall of the chapel is a horizontal embrasure surviving from a World War II pillbox. It has a timber lintel surrounded by brick, and is beneath the decayed timber lintel of an older opening. The preceptory buildings have been repaired and restored by Northumberland County Council.

*Cresswell tower house (No: 24608)*



Cresswell Tower is a medieval tower house dating from the 15<sup>th</sup> Century and was formerly the seat of the Cresswell family. A large 18<sup>th</sup> Century house was built onto the north end of the tower, and demolished in the mid-19<sup>th</sup> Century. Cresswell Hall replaced this dwelling in 1821-5, lying some distance further west, and was in turn demolished in 1937. Cresswell tower is now an isolated structure, set within woodland on the edge of a caravan park. The only trace of the former mansion is its roof groove on the north wall of the tower. The tower has been conserved recently to prevent further decay.

*Dovecote at Cresswell home farm (No: 32768)*

The dovecote is part of a small group of buildings, including an engine house and a threshing barn, which are attached to the rear of the north range of the farm. The top third of the dovecote has a series of three pigeon openings on each face, above an alighting band, upon which pigeons could perch, and which has 60 stone nesting boxes inside. There is a 1 m<sup>2</sup> stone chimney in the south-east corner, which rises through the dovecote, almost to roof height. This chimney acted as a flue from the former engine house attached to the east side of the dovecote. Its location within the dovecote is deliberate, with the aim of providing a heat source throughout the year, thus enabling the doves to breed successfully during the winter and provide a reliable source of winter food.

*Coastal artillery battery on Blyth Links (No: 32802)*

The World War I Battery at Blyth is well preserved and retains the full range of features characteristic of this type of coastal battery. As well as evidence for its original layout, including the surrounding defensive enclosures, which include the gun emplacements, operational buildings and ancillary buildings. The survival of the associated searchlight emplacements enhances the importance of the monument. This battery has been identified as one of only 28 examples of its type in England which have survived in a complete state. The fact that it was reused during World War II, when some alterations were made and a new Battery Observation post was constructed, adds to the importance of the monument as a whole. Blyth Battery is a highly visible reminder of the measures taken to protect the coast of England during the 20<sup>th</sup> Century.

*Tynemouth iron age and Romano-British settlements, monasteries, site of lighthouse, cross, motte, enclosure and artillery castles and later coastal defences (No: 25165)*

This monument includes the remains of an Iron Age and Romano-British settlement, a pre-Conquest and a post-Conquest monastery, a ninth century wayside cross, a possible Norman motte, an enclosure castle, an artillery castle and 19<sup>th</sup> and 20<sup>th</sup> Century coastal defences. They occupy a prominent headland with steep cliffs on three sides and form an important strategic position at the mouth of the River Tyne where, from the earliest times, it could command the mouth of the river.

Excavations in 1963 found evidence a large pre-Roman round house, Roman pottery and a later Romano-British period house. Part of a Roman altar and a statue base were discovered, built into the later monastic foundations at Tynemouth in 1783. Both are thought to have been brought to Tynemouth from the Roman fort at Wallsend and were removed to the Society of Antiquaries, London.

A monastery is thought to have been established at Tynemouth by the mid 7<sup>th</sup> Century AD, when it is believed that the body of St. Oswin was interred here, but was later sacked by the Danes. Fragments of Anglo-Saxon crosses have been discovered in, or just outside, the priory which further support the early activity on the site. It is thought

that this church was still standing when it was replaced by a post-Conquest monastery at the end of the 11<sup>th</sup> Century.

The monks' cemetery is situated to the south east of the priory church. It was reused and extended over the ruins of the church in the post-medieval period, and contains some 700 grave stones, mainly from the years between 1715 and 1856. The development of a local form of grave stone can be seen in the use of table tombs supported on four legs.

#### **D4.2.2 Listed Buildings**

English Heritage examine cases made when a building is recommended for listing, but the decision on whether to list is taken by the Secretary of State for Culture, Media and Sport. The Secretary of State may also take the advice of other experts before making the final decision. When buildings are listed they are placed on statutory lists of buildings of 'special architectural or historic interest' under the Planning (Listed Buildings and Conservation Areas) Act 1990).

Listing identifies only those buildings which are of national 'special interest'. The main criteria used by English Heritage are:

- Architectural interest: buildings which are nationally important for the interest of their architectural design, decoration and craftsmanship; also important examples of particular building types and techniques.
- Historic interest: this includes buildings which illustrate important aspects of the nation's social, economic, cultural or military history.
- Close historical association with nationally important buildings or events.
- Group value, especially where buildings are part of an important architectural or historic group or are a fine example of planning (such as squares, terraces and model villages)

The statutory consequences of listing as defined by English Heritage are:

- Listing is not a preservation order, it is an identification stage where buildings are marked as having exceptional architectural or historic interest, before the planning process that may decide a building's future.
- Listed buildings can be altered, extended and even demolished within government planning guidance once the case has been made. There are many examples of post-war buildings accommodating successful adaptation and heritage-led regeneration. Five post-war listed buildings have been demolished.

Listing marks and celebrates a building's special architectural and historic interest, and also brings it under the consideration of the planning system so that some thought will be taken about its future.

- Grade I buildings are of exceptional interest, sometimes considered to be internationally important. Just 2.5% of listed buildings are Grade I.
- Grade II\* buildings are particularly important buildings of more than special interest. 5.5% of listed buildings are Grade II\*.

- Grade II buildings are nationally important and of special interest. 92% of all listed buildings are in this class and it is the most likely grade of listing for a home owner.

English Heritage provided the information below which details isolated Listed Buildings (i.e. away from towns and villages and/or Conservation Zones) lying within 1 km of, and where applicable less than 5 m above, Mean High Water (MHW). Note that the Unique Identifying Number (UID) is the definitive reference number for that structure. With one exception (Blythe coal staithes) these are Grade II, which are structures of special interest warranting every effort to protect them

**Table 4.2 Listed Buildings for which height above MHW is not available on English Heritage GIS**

UID	Structure	Grid reference	Policy Unit
237884	limekiln	403418, 648106	3.1 – Scremerston Cliffs
237905	Boundary markers	403704, 647543	3.1 – Scremerston Cliffs
237875	Cheswick Shiel – fisherman's house	404770, 646335	3.1 – Scremerston Cliffs
409598	Navigation Beacons, Ross Links	412996, 640518	4.4 – Ross Low
237749	Snook House stable and tower	410073, 643606	5.1 – North Coast Holy Island
237844, 45, 46, 47	Armstrong Cottages	418822, 634645	6.1 – Bamburgh and St Aiden's Dunes
410382	Monks House – Brock Burn House and cottage	420376, 633545	6.1 – Bamburgh and St Aiden's Dunes

**Table 4.3 Listed Buildings for which height above MHW is determinable and less than 5 m unless otherwise stated**

UID	Structure	Grid reference	Policy Unit
237002,003, 004 (5 -10m HWM)	The Bathing house etc	426157,617539	10.3 - Howick
236893	Pant on roadside	424925, 610784	13.2 - Alnmouth golf links
236894	Lifeboat station	425090, 610753	13.2 - Alnmouth golf links
236892	Barn/guano storage shed	424725, 609454	13.9 - Buston links
236891	Mortuary chapel	424577, 609963	13.8 - Church Hill
238231, 230	Druridge Farm cottages	427510, 596006	17.4 - Druridge Bay South
238233, 232 (5-10m HWM)	Hemscott Hill farm and buildings	428016, 595021	17.4 - Druridge Bay South
235891	Blyth coal staithes (Grade II*)	430624, 582980	22.1 - Blyth Harbour

#### **D4.2.3 Registered Battlefields**

The English Heritage Register of Historic Battlefields identifies forty-three important English battlefields. Its purpose is to offer them protection and to promote a better understanding of their significance. Each Register entry is based on the available evidence and includes a map of the battlefield area showing the position of the armies and features which were part of the original battleground. These maps are intended to

be the starting point for battlefield conservation and interpretation by identifying the most visually sensitive areas.

Halidon Hill, two miles to the north west of Berwick-upon-Tweed is registered for the Battle of Halidon Hill, which was fought on July 19<sup>th</sup> 1333 during the second Scottish War of Independence. Halidon Hill was Edward III's first battle and the only one that he fought in England. At Halidon Hill he witnessed the strength of the defensive combination of archers and dismounted men-at-arms already used to great effect by Edward Balliol the previous year at the Battle of Dupplin Moor in Scotland. In terms of the development of English tactics Halidon Hill is therefore of great importance: Edward would later use the same defensive combination to confound the French at the Battles of Crécy and Poitiers.

The battlefield, which in 1333 was uncultivated scrub and marsh, now shows a patchwork of fields characteristic of Parliamentary enclosure in around 1800, at which time the land was drained and improved. The east side of the battlefield is part of the Northumberland Heritage Coast.

#### **D4.2.4 Registered Parks and Gardens**

Historic parks and gardens are a fragile and finite resource. They can easily be damaged beyond repair or lost forever. In order to recognise the existence of those sites which are of particular historic importance, English Heritage is enabled by Section 8C of the Historic Buildings and Ancient Monuments Act 1953 (inserted by section 33 of, and paragraph 10 of Section 4, to the National Heritage Act 1983) to compile the Register of Parks and Gardens of special historic interest in England.

##### **Lindisfarne Castle**

Lindisfarne Castle is currently owned and managed by the National Trust. Following the dissolution of the monasteries by Henry VIII, the Castle was built in the 1550's using stones from a demolished priory. It was converted into a private house in 1903 by Edwin Lutyens. The small rooms are full of intimate decoration and design, with windows looking down upon the charming walled garden planned by Gertrude Jekyll. The property also has several extremely well-preserved 19th-century limekilns.

##### **Seaton Delaval**

The Seaton Delaval Registered Park runs 3 km from Seaton Sluice to Seaton Delaval and encompasses the village of New Hartley and Seaton Delaval Hall. Seaton Delaval Hall was completed in 1728 is recognised as one of Sir John Vanburgh's finest works.

##### **Howick Hall**

Howick Hall is a Grade II listed building in the village of Howick, and is the ancestral seat of the Earls Grey. The gardens at Howick are primarily the work of Charles, 5th Earl Grey, his wife Mabel, and their daughter Lady Mary Howick between 1920 and 2001. They established and maintained an informal and natural style of gardening first advocated by William Robinson in the late 19th Century, which completely replaced the more formal Victorian planting of their ancestors. All that is left of the old garden are some of the mature trees; all else was swept away.

The present gardens are best known for their spring bulbs and the woodland garden; there are also summer borders, a rockery specialising in summer plants, new woodland walks through the arboretum, and a wild bog garden around a pond at its peak in late

summer. Howick Hall Gardens has been rated by the BBC Gardener's World Magazine as one of the top five coastal gardens in the country.

#### **D4.2.5 Heritage Coast**

The North Northumberland Heritage Coast has been described in **Section D2.4.4** previously.

#### **D4.2.6 North East Rapid Coastal Zone Assessment**

Within the NERCZA, several features of heritage interest were identified as being at high risk from coastal erosion. These are detailed in **Table D4.4** below:

**Table D4.4 Heritage interest features detailed at high risk (NERCZA 2008)**

<b>Management Area</b>	<b>Feature</b>
MA03	Multivallate Iron Age forts at Scremerston situated on cliff edges that are being eroded
MA04	Multivallate Iron Age forts at Fenham situated on cliff edges that are being eroded
MA04	Ross Links Bronze Age cremation site at risk from dune erosion
MA08	Beadnell Lime Kilns have been partially eroded by the sea. They are situated in Beadnell Harbour
MA08	Deserted Medieval villages at Beadnell
MA08	Benthall Iron Age Farmstead
MA08	Benthall Cairn SAM
MA09	Deserted Medieval villages at Low Newton by the Sea
MA09	Bronze Age sites at Low Newton by the Sea
MA12	Howick Burn Mesolithic occupation site at risk due to eroding cliff face
MA12	Bronze Age sites at Howick Burn
MA12	Flint scatter sites at Howick Burn
MA13	Oyster beds at Alnmouth being actively eroded by the river
MA13	Bronze Age sites at Amble Quarry
MA13	Flint scatter sites at Lyne Hill
MA15	Amble hulks at risk from SLR. NERCZA states that it is unlikely that resources will be made available to protect these remains from the effects of rising sea level
MA17	Bronze Age sites at Low Hauxley
MA17	Flint scatter sites at Low Hauxley
MA17	Peat deposits at Low Hauxley are being eroded, RCZA states that the importance of the situation cannot be overstressed
MA17	The foreshore north of Cresswell is known for the exposure of intertidal peats and faunal remains. Erosion of dunes is leading to the exposure of peat heads and ancient forest
MA20	Flint scatter sites at Newbiggin Point
MA20	Flint scatter sites at Element Head and Sandle Holes
MA23	WWII searchlight battery at Blyth Links

### **D4.3 Marine**

Marine heritage features are those which have been identified as being of heritage value, lying below the high water mark.. There are no marine heritage features along the SMP study area.

## D5 CURRENT AND FUTURE LAND USE

### D5.1 General

This section provides an account of the urban environment in terms of existing land uses and patterns of development. The relevant regional strategies and local land use plans are used to provide a structured basis for this description. At the current time the planning system is being reformed, and the majority of land use plans are either under review or being replaced, due to the introduction of Regional Spatial Strategies and Local Development Frameworks. The study area has therefore been broken down by local authority boundaries with an initial description offered from a regional perspective. Given that the use of land is determined by the statutory planning process, statutory plans have been the main focus of this study. Finally the emerging suite of land use plans for the area is used to provide and account for anticipated future land use in the area.

The Regional Planning Guidance for the North East (RPG1) and the Northumberland County and National Park Joint Structure Plan (2005) have been used for the basis of this assessment. Planning documents for each of the district councils within the SMP study area are detailed in **Table D5.1**.

**Table D5.1 Relevant planning documents for district councils within the SMP study area**

District Council	Planning Documents
Berwick upon Tweed Borough Council	Berwick Upon Tweed Borough Local Plan – 1999. Emerging Berwick Upon Tweed Local Development Framework documents.
Alnwick District Council	Alnwick District Wide Local Plan – 1997. Emerging Alnwick Local Development Framework documents
Castle Morpeth Borough Council	Castle Morpeth Local Plan – 2006. Emerging Castle Morpeth Local Development Framework documents.
Wansbeck District Council	Wansbeck District Local Plan – 2007.
Blyth Valley Borough Council	Blyth Valley Local Plan – 1999. Emerging Blyth Valley Local Development Framework documents.
North Tyneside District Council	North Tyneside Unitary Development Plan – 2002.

### D5.2 Overview

The majority of urban form in the SMP study area is within 30 km of the coastline. In the south lies the major conurbation of Newcastle, with the coastline running north being characterised by rural areas and smaller towns and villages. The major areas of urban form running from north to south are:

- Berwick-upon-Tweed;
- Seahouses;
- Amble;
- Newbiggin-by-the-Sea;
- Blyth;
- North Tyneside.

The urban function of the study area is dominated by residential uses, but also includes major areas of port and tourism development. The region has been severely affected by

changes in the national and international economy and shifting employment patterns, however residual areas of shipbuilding, heavy engineering, chemical engineering and mining can also be found along the coast.

Large areas of the coast, particularly in the south of the study area, contain pockets of severe social deprivation and qualify for various levels of European Assisted Area Status.

Tourism development occurs throughout the area but is specifically concentrated to the north, towards Lindisfarne and Bamburgh, where the coast is generally more rural and there are important historical and natural attractions.

### D5.3 Features

#### Berwick-upon-Tweed Borough Council

Berwick's coastline is of international importance to nature conservation, particularly in relation to bird life, and because of its significance as the birthplace of Christianity in England. It is also designated as a Heritage Coast and, to the south, an Area of Outstanding Natural Beauty. The town of Berwick-upon-Tweed lies adjacent to the coast, at the estuary of the River Tweed, and is situated at the northern most part of the Borough. Berwick-upon-Tweed is a commercial port importing and exporting grain, fertilisers, timber, aggregates and stone. It is the only commercial port between Edinburgh and Blyth and is consequently of strategic importance. The entrance to the Tweed Dock from the river was widened in the mid 1990's, enabling the harbour to accommodate ships with a capacity of up to 3,000 tonnes.

The four principal coastal settlements, in the Borough, are Bamburgh, Holy Island, Beadnell and Seahouses. The prosperity of these settlements is of considerable importance to their immediate surroundings, and their decline would have a significant impact on the population and economy of the surrounding rural areas.

The Borough's proposed core strategy identifies the need to protect, conserve and enhance the areas landscape and coastline, its towns, villages, environment quality and biodiversity. The strategy also identifies the need to develop tourism facilities and services on the coast and to balance the exploitation of naturally occurring sources of renewable energy, such as shore wind development, with the capacity for the landscape and environment to accommodate the structures and services that would be required.

The town of Berwick-upon-Tweed has been identified as the focus of new development, with Seahouses, Wooler and Belford accommodating new development which will maintain and enhance their communities and surrounding rural hinterland. Sustainable visitor economy will continue to be developed through by identifying locations for strategic tourism facilities, including marina and inshore water based recreation, the interpretation of the marine environment of the Northumberland coast and a gateway to the Northumberland National park.

#### Alnwick District Council

The Alnwick coast is predominantly rural with the exception of the larger settlement of Amble in the south and a few smaller towns/villages of Warkworth, Longhoughton and Embleton. The district recognises the importance of the natural environment which includes the Northumbria Coast SPA and the Northumberland Coast AONB. This



natural heritage plays a key role in shaping the sense of place in the district, and is a vital component of the local residences quality of life whilst also being a major factor in visitors' perception of the district. In addition to the natural heritage, the district also has an important and attractive built environment.

The AONB is a major tourism attraction to the area; however, the extra private traffic and variety of sports and recreational activities can pose threats to the fabric of the landscape. If not managed properly, this could affect the experience that most visitors come to enjoy.

The council has identified the importance for social and economic regeneration to provide scope for new business development in Amble. The Royal Air Force site at Boulmer, which employs around 800 people, is under threat from closure which could have wide economic, social and environmental implications. The council would initiate an area action plan to form part of the LDF should this occur. However, since the writing of the proposed core strategy, the Ministry of Defence has announced that Boulmer's Air Surveillance and Control System (ASACS) will remain at the base, and that it will no longer be scaled back.

The expected growth in houses, coupled with the growing demand for second, holiday and retirement homes means a continued pressure on development for housing. This is especially true at Amble and other settlements in coastal parts of the district.

The economy of Alnwick is primarily based on agriculture, and to a lesser extent deep coal mining and fishing. Industry has significantly declined in the district; however there is still a significant fishing operation at Amble with an excess of 30 vessels employing around 100 people. The harbour is now the second largest on the north-east coast after Eyemouth in terms of vessel numbers. As such, fishing is an integral part of the local community and vital to the continued prosperity of the town. Fishing in other areas of the coastline is limited to small numbers of boats operating out of Boulmer, Craster and Newton.

A number of key strategic routes criss-cross the district providing local transport needs. This includes the east coast main line, which largely follows the coastal plain on the east side of the district. The regional transport corridor is reasonably good, however, villages on or near these heavily used roads, including the heavily used B class coastal route (B1339), suffer significantly from the effects of traffic flows and speeding traffic.

#### Castle Morpeth Borough Council

The Borough of Castle Morpeth has a varied landscape, stretching in a crescent shape from the Tyne at Heddon on the Wall to the coast at Druridge Bay. Almost half of the Borough's population is concentrated into the settlements of Morpeth and Ponteland, with Morpeth being the administrative centre and largest town. East and northeast of Morpeth the Borough adjoins the industrial area of southeast Northumberland. Lynemouth is the largest of the coastal settlements and is located just north of the Alcan Aluminium Smelter and Blyth power station.

The coastal zone of Castle Morpeth is comprised mainly of Druridge Bay, which stretches from Amble, in the north to Cresswell in the south. The Bay is of high nature conservation value, with wildlife habitats of international and national importance, including sand dunes and saline lagoons. Within the hinterland of the Bay there are important historic features at Cresswell Tower and Chibburn Preceptory. The coastal

area of Druridge Bay is included within the Northumberland Heritage Coast has been identified as an area of high landscape value. The area was formally referred to as the Coalfield Area due to its industrial heritage, but has since undergone regeneration that will continue within the Coastal Villages Regeneration Area (including Ellington, Lynemouth, Hadston, Widdrington Station and Pegswood).

The Borough's draft core strategy identifies Morpeth and the Coastal Villages Regeneration Area as the focus of major development. Proposals for development are to be considered against the need to protect and enhance the landscape character and environment of the Borough. These two areas have also been identified as the preferred areas for employment leisure and tourism development, with 25-40ha and 45-65ha allocated to Morpeth and the Coastal Villages respectively. The proposals for development will be considered against the need to protect and enhance the landscape character and environment of the Borough. Cresswell will also be investigated as a potential Conservation Area.

#### Wansbeck District Council

The district of Wansbeck has a long mining history with at one time 15 collieries operating at the same time. This industry caused the development of many of the settlements that we see today, however a decline in mining has led to an out-migration and major population decline. Recently, the population has stabilised with Ashington being the main settlement and service centre with a population of over 28,000. There are four other secondary centres with Newbiggin-by-the-Sea being the only one situated by the coast.

There is a high demand for housing in the district, with a particular need for affordable housing. Problems with the housing market are now found in several locations, including the coastal settlements of Newbiggin-by-the-Sea and East Ashington.

The general policy for the coastal zone (GP8) aims to protect and, where possible, improve this environment. Development in the coastal zone will only be permitted if:

- a coastal location is essential and no suitable alternative site exists; and
- development would not cause harm to coastal systems and habitats.

The policy recognises the coastline as an environmental asset and as a valuable recreational and landscape resource, and as such identifies the need to take into account the fragility of the environment in the planning process. Where the coastal zone has been damaged the opportunity will be sought for enhancement schemes. The policy also recognises the need to take into account the effects developments can have on natural processes, and to avoid developments that can alter processes such as erosion and sediment transport, thus impacting on coastal defences and important habitats.

Land at Cambois has been designated as a zone of economic opportunity for development by businesses requiring large sites in non-estate locations (Policy EMP3). Major environmental improvements will be sought throughout Cambois to enhance the area for local residents and create new areas for recreation and wildlife, as well as improving the aesthetics of the area for prospective investors. Reclamation and landscaping of the former Blyth power station and Coal Stocking Yards will also be sought to remove dereliction and provide an attractive setting for future employment, including possible port related development.

Land incorporating the existing aluminium smelter and associated power station, near Lynemouth, has also been identified as a major employment zone (Policy EMP4). Further development would be supported; however land not covered by the classification would not be brought into employment use by the designation.

The continued operation and development of the Port of Blyth will continue to be supported, with the land at Battleship Wharf also designated as a port related employment zone (EMP5). The port is important for the south-east Northumberland economy and whilst the main operations are carried out on the Blyth Valley side of the Blyth Estuary, Battleship Wharf, on the Wansbeck side of the estuary, is the focus for future development and expansion.

Improvements are to be sought that will improve the network of recreational footpaths, cycle routes and bridleways in the District by preparing a Rights of Way Improvements Plan (Policy REC11). This will allow greater, and easier, access to the countryside and coast.

Developments in the area which improves tourism and cultural interest will be encouraged and supported, with the focus, in relation to coastal developments, for improvement being (Policy REC12):

- The improvement of existing recreational assets including country parks and coast; and
- public realm improvements in towns such as Newbiggin by the Sea.

Renewable energy schemes will be encouraged and supported as long as suitable mitigation measures are adhered to (Policy CF5). There are nine wind turbines erected on the East Pier at Blyth Harbour. These are to be replaced by seven new turbines, six situated on the East Pier and adjacent foreshore, and one 'landmark' turbine on Battleship Wharf. The new wind farm is to be called the Wansbeck Blyth Harbour Wind Farm.

#### *Blyth Valley Borough Council*

The town of Blyth is the largest settlement in the Borough, and is situated on the Blyth estuary. The town has a population of 35,818 and is a traditional market town, historically associated with coal mining and shipbuilding industries. The priority is to regenerate the historical and social fabric of the town, whose main driver will be the mixed-use regeneration of the estuary. Blyth is to be promoted as a location for tourism, building on the town's historical, architectural and natural assets. Work has already begun on a number of projects, including the improvement and promotion of the Blyth Links coastal area for informal recreation and tourism (Policy SS1).

Future development in the Borough will need to satisfy sustainability criteria, specifically in relation to travel, the environment and negative impacts caused by development. New development should help to build communities and reflect the principles of modern sustainable development (Policy SS3).

The Blyth Estuary Initiative, through the south east Northumberland and North Tyneside Regeneration initiative (SENNTri), aims to unlock the potential of this sub-region and transform the area by opening up the Blyth waterfront to both investment and the wider community; de-allocating employment land where supply exceeds demand; enhance

public transport links; and establish a number of housing led development schemes on key waterfront sites in Blyth. The Blyth Development Plan document will allocate the Blyth Estuary as a brownfield mixed use development (incorporating housing, employment and leisure uses) (Policy REG 3).

The coastline, dunes and wartime structures in Blyth, create a sense of local distinctiveness which complements the plans outlined in the Blyth estuary master plan. The regeneration of the estuary provides the opportunity to build on the existing attractions and facilities, with the potential to bring in more visitors. The North East Tourism Strategy recognises the coastal areas and market towns, such as Blyth, as one of the region's key assets. As such 'Blue Skies', the Northumberland cultural and tourism strategy, specifically identifies the need to 'promote, develop and enhance access to south east Northumberland's coast, countryside and attractions' (Policy REG 6).

#### *North Tyneside Metropolitan District Council*

North Tyneside is one of five metropolitan districts within the County of Tyne and Wear and is situated at the mouth of the River Tyne. The main coastal settlements in North Tyneside are North Shields and Whitley Bay. The Tyne is a commercial river with shipbuilding, offshore fabrication, and fishing and port related industries, and supports regular passenger services to northern Europe. The coastline is a popular tourist area as a result of the attractive sandy beaches.

Tourism provides a higher than average proportion of employment in the District with the coast, River Tyne and countryside providing the main attractions. In the coastal zone, more than 20% of employment is provided by this sector. Improvements to the North Shields Fish Quay have greatly increased its attraction, whilst the increase in the growth of passenger services has improved the facilities at the Tyne Commission Quay. For these reasons, the economic and employment benefits of tourism are encouraged and supported, as long as environmental and conservation objectives are not compromised (Policy LE2), including the following coastal developments:

- Coastal parts of Whitley Bay, Cullercoats and Tynemouth; and
- further action in the area of North Shields Fish Quay and Riverside to enhance its attractiveness as a tourist destination;

The fishing industry at North Shields has diminished significantly over the years, however due to its importance to local heritage and tourist attraction; it has been identified as worth protection and support. Additionally, under resurrection of the industry, North Shields is likely to attract the largest concentration of regional activity in the future. Therefore, the areas required for fish landing, marketing, processing and transport is to be protected, with the development of training and other facilities required for the successful continuation of the industry encouraged, under the management of the North Shields Fish Quay Development Company.

River and port-related development provide major employment uses, particularly marine construction and repair, offshore fabrication and supply, and maritime trade in goods and passengers, as well as for the fish related industry, as mentioned previously. Furthermore, adequate lengths of frontage are required for laying-up facilities, with some mineral and waste disposal also requiring access to water-borne transport. The Unitary Development Plan will ensure the continued operation and development of the Port of Tyne (Policy LE1/8).

The coast, including the river estuary, is mostly backed by urban areas; however the coastal strip has generally been maintained in an open state. It is also predominately in public ownership. The natural qualities and man-made features generate conflicting interests, which need to be resolved. It is of international and national nature conservation importance and contains sites of historic and archaeological interest. Attractions support a significant tourist industry with indoor as well as outdoor activities. In order to ensure the protection of both natural and man made features, the area between the coastal road and mean low water must be protected from most types of development (Policy E26).

North Tyneside has extensive areas of coast and river estuary with considerable existing and potential resources for land and water-based recreation. There is a need to ensure that development of these resources takes due account of likely impact on the natural environment and local amenity, and that a satisfactory relationship can be established with river-based commercial activity (Policy R2). In addition, the District has a range of facilities and attractions that have added features of environmental, educational and tourist value, including North Tyneside's coastline. The Local Planning Authority will give particular attention to protecting the qualities and assets of these areas, and promoting their enjoyment (Policy R2/6). Enhancement schemes to make these assets more attractive and accessible will also be implemented. The current creation of a 'Waterside Trail' for walkers, cyclists and the disabled along the length of North Tyneside's coastline is designed in keeping with this strategy (Policy R3).

#### **D5.4 Future Land Use/Planning Targets set by Local Authority Development Plans**

The timing of this plan coincides with the review and replacement of existing land use plans by local authorities, and as such it is difficult to ascertain what the future land use policies will be. With the exception of Wansbeck District Council, which produced an up to date local plan in 2007, and North Tyneside Metropolitan District Council, which produced a Unitary Development Plan in 2002, the coastal local authorities described above are at various stages of developing their respective Local Development Frameworks (LDFs). Local Development Schemes have been produced by all of these authorities, which set out the timeline by which each stage of the LDF will be completed; however, at the writing of this plan each authority has submitted draft preferred options for their core strategies, which are awaiting review. Future land use matters are addressed in these draft documents, however it is not possible to determine site specific measures at this stage.

The draft core strategies and preferred options do, however, illustrate key land use developments that the local authorities wish to concentrate on, and therefore give an indication of future land use requirements. The plans and draft strategies provide a clear focus on regeneration and sustainable development, through the development of affordable housing and the enhancement of tourism facilities and activities, whilst also protecting the landscape and important features of nature conservation.

## D6 CONTAMINATED LAND

### D6.1 Introduction

In April 2000, Part IIA Environmental Protection Act 1990 was introduced in the UK. Part IIA enacts a regime to secure the identification and remediation of contaminated land, and allows the authorities responsible for implementing and enforcing the regime to identify and secure the remediation of contaminated land.

The Part IIA contaminated land regime provides a specific regulatory framework in respect of contaminated land, which has been introduced to compliment existing pollution management regimes. It is implemented by primary legislation, (Part IIA Environmental Protection Act 1990), and secondary legislation (Contaminated Land (England) Regulations 2000, in England). The legislation is underpinned by guidance issued by the Secretary of State for the Environment (DETR circular 02/2000) which provides a detailed framework for the identification, remediation and apportionment of liability for the remediation of contaminated land.

To aid in local authorities compliance with Part IIA, Landmark Information Group, working with Ordnance Survey, compiled a database of Historical Land Use and Potentially Contaminative Industries, based on the guidelines set out in the Environmental Protection Act 1990 and the Environment Act 1995, for England, Wales and industrialised Scotland. The database was completed in 1988 and identifies key “sources”, as defined within Section 57 of the Environment Act 1995, to establish the presence of “significant pollution linkages” within their specific area.

For the identification of potentially contaminated land within the Northumberland SMP study area, information from this dataset was available for Berwick-upon-Tweed, Alnwick and Wansbeck Councils. Historical potentially contaminated land uses within 1 km of the coastline have been identified and are presented in **Supplement C**, with a summary by Council area described below.

Information on the location of landfills within North Tyneside Metropolitan District Council's area was supplied by the Council's environmental health department. Again, information has been identified within 1 km of the coastline and presented in **Supplement C**, with a summary described below. No information on contaminated land was available for Castle Morpeth and Blyth Valley Borough Councils.

### D6.2 Features

#### *Berwick-upon-Tweed Borough Council*

Within 1 km of the coastline, historical potentially contaminated land use exhibits a marked concentration around the towns of Berwick-upon-Tweed and Spittal. Industrial land use in this area dates back to the mid 19<sup>th</sup> Century, with the more modern sites located around the Tweed Estuary. Historic land uses around the towns are varied, being comprised mostly of manufacturing and storage sites, and which have the potential to be primary sources of contaminated land. Berwick itself has a number of

military land use sites, spread over a hundred year period, illustrating the military past of the area.

The rural nature of the centre of the Borough is clearly illustrated by the lack of historical potentially contaminated land uses, with the exception of Holy Island where there are historical sites of cement, lime and plaster manufacture and past and recent military land use. It is possible that there is significant contamination of the dune and foreshore between Beachcomber and Holy Island Causeway by World War II military ordnance as this area was used extensively as a target area during the late 1930s and 1940s.

Quarry sites can be found all along this stretch of coastline, with the majority of sites to the north of the Borough being described as 'general quarry' sites, whilst to the south coal and ignite mines dominate. This high level of quarrying has resulted in many sites being used for the manufacture of cement, lime and plaster products in the past, especially in the south of the Borough.

#### Alnwick District Council

Historical potentially contaminated land uses exhibit an approximately even distribution adjacent to the Alnwick coastline, increasing in density and variety around the Aln and Coquet Estuaries. General quarry sites make up the majority of sites to the north of the District, with a few military sites near Longhoughton and Alnmouth. Of particular note in the District is the large military site at Boulmer, which forms the RAF base.

Both the Aln and Coquet Estuaries are associated with varied historic land uses, similar to that of Berwick and Spittal; however, significant numbers of sites are located around the Coquet Estuary, at Amble, only. Historic potentially contaminated land uses around Amble are relatively recent, commencing mostly from 1938 towards present day. This land use is comprised mainly of transport related industries and factory use, with two sites used for weapons and ammunition manufacture.

#### Wansbeck District Council

Large, isolated areas of historical potentially contaminated land use are associated to the north and south of the Wansbeck coastline, commencing with Lynemouth power station, and associated foundries, to the north of the District. A number of small sites are associated with the settlements of Newbiggin-by-the-Sea and North Seaton, being comprised of mainly of refuse and small industries, and electricity production and factories, respectively.

To the south of the District, large potentially contaminated land uses are located predominantly at Cambois and Blyth Harbour. Land use at Cambois is nearly entirely taken up with electricity production and distribution; whilst Blyth Harbour is mostly used for cargo handling and transportation.

#### North Tyneside Metropolitan District Council

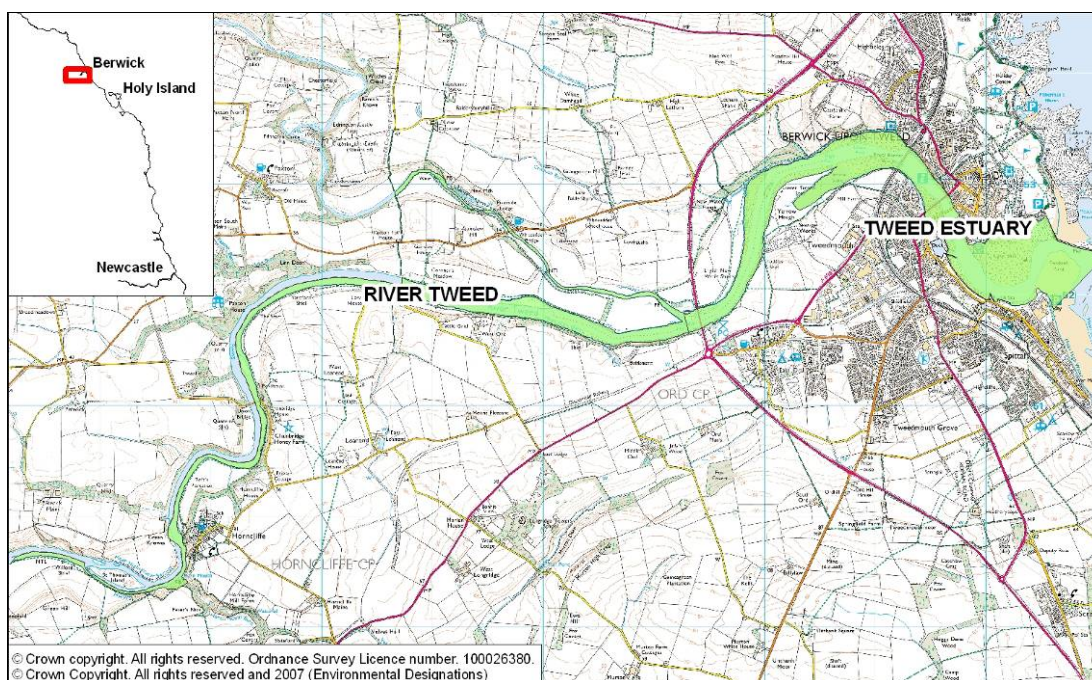
Data supplied by North Tyneside Council gives the presence of landfills only. Seven landfills were identified within 1 km of the Districts coastline. Of these, three are managed by the Environment Agency and four by the Council. No information as to the contents of the landfill was available.



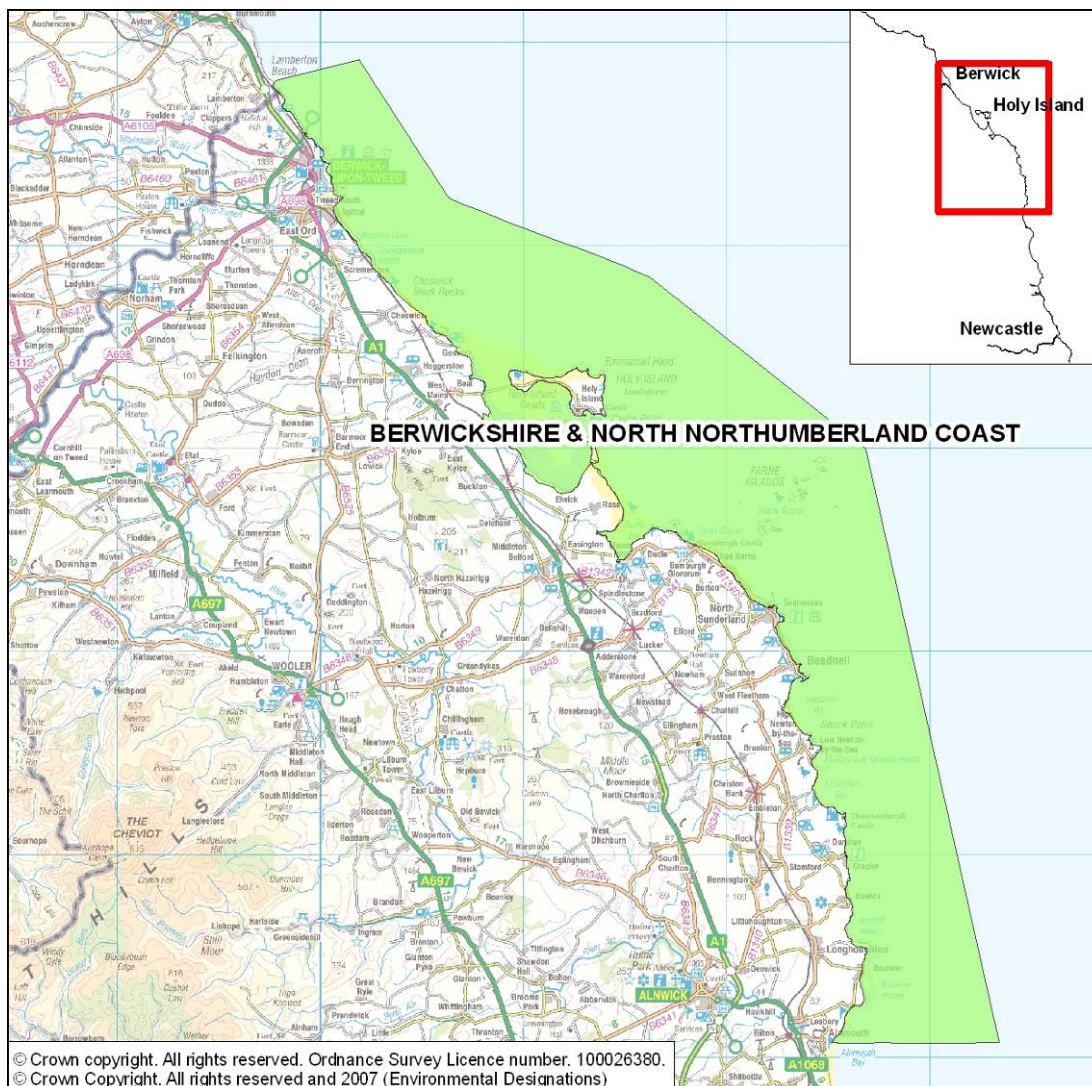
## **SUPPLEMENT A**

### **Designated Areas Boundary Maps**

## SPECIAL AREAS OF CONSERVATION

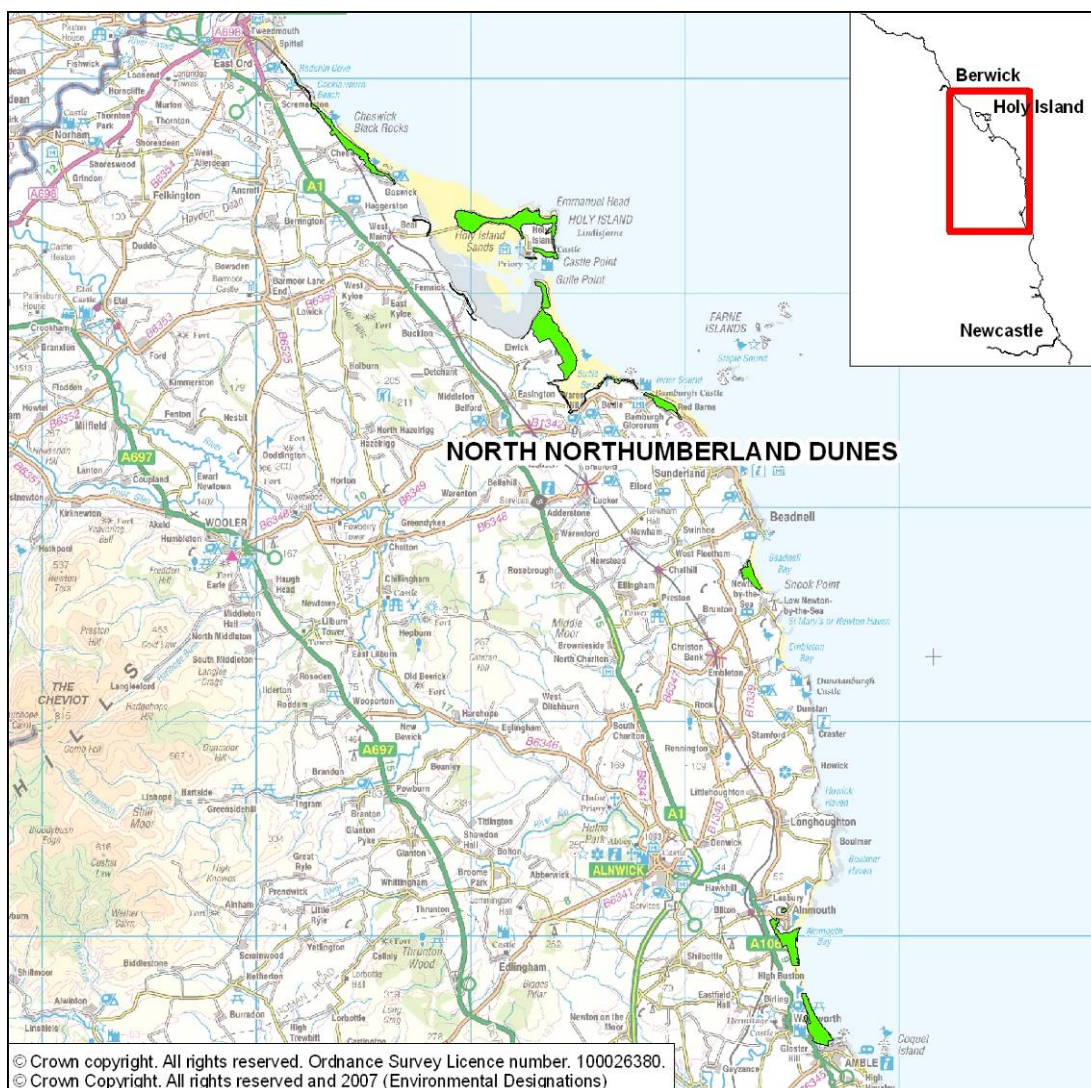


**Tweed Estuary SAC**



### Berwickshire and North Northumberland Coast SAC





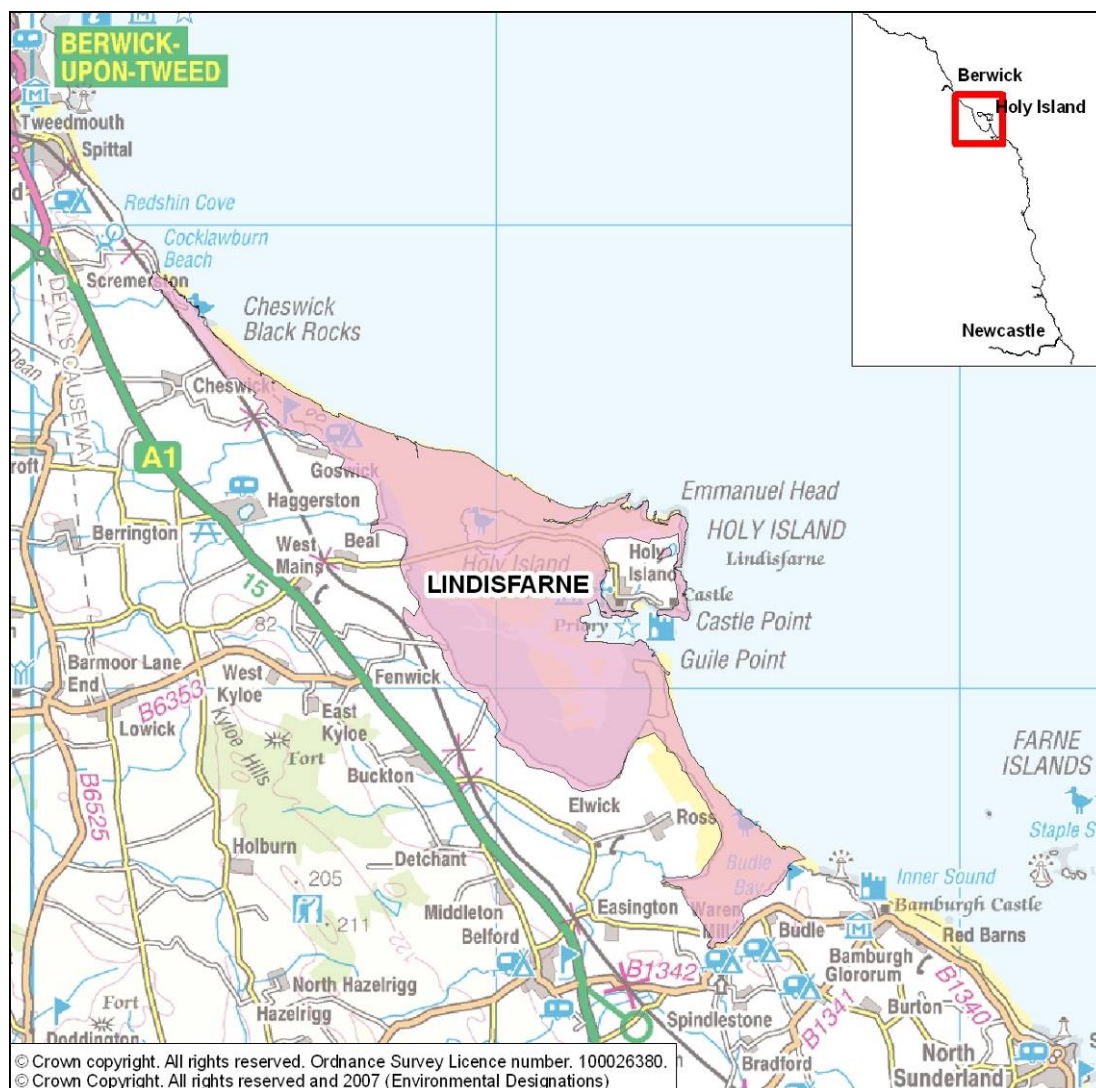
### North Northumberland Dunes SAC

## SPECIAL PROTECTION AREAS

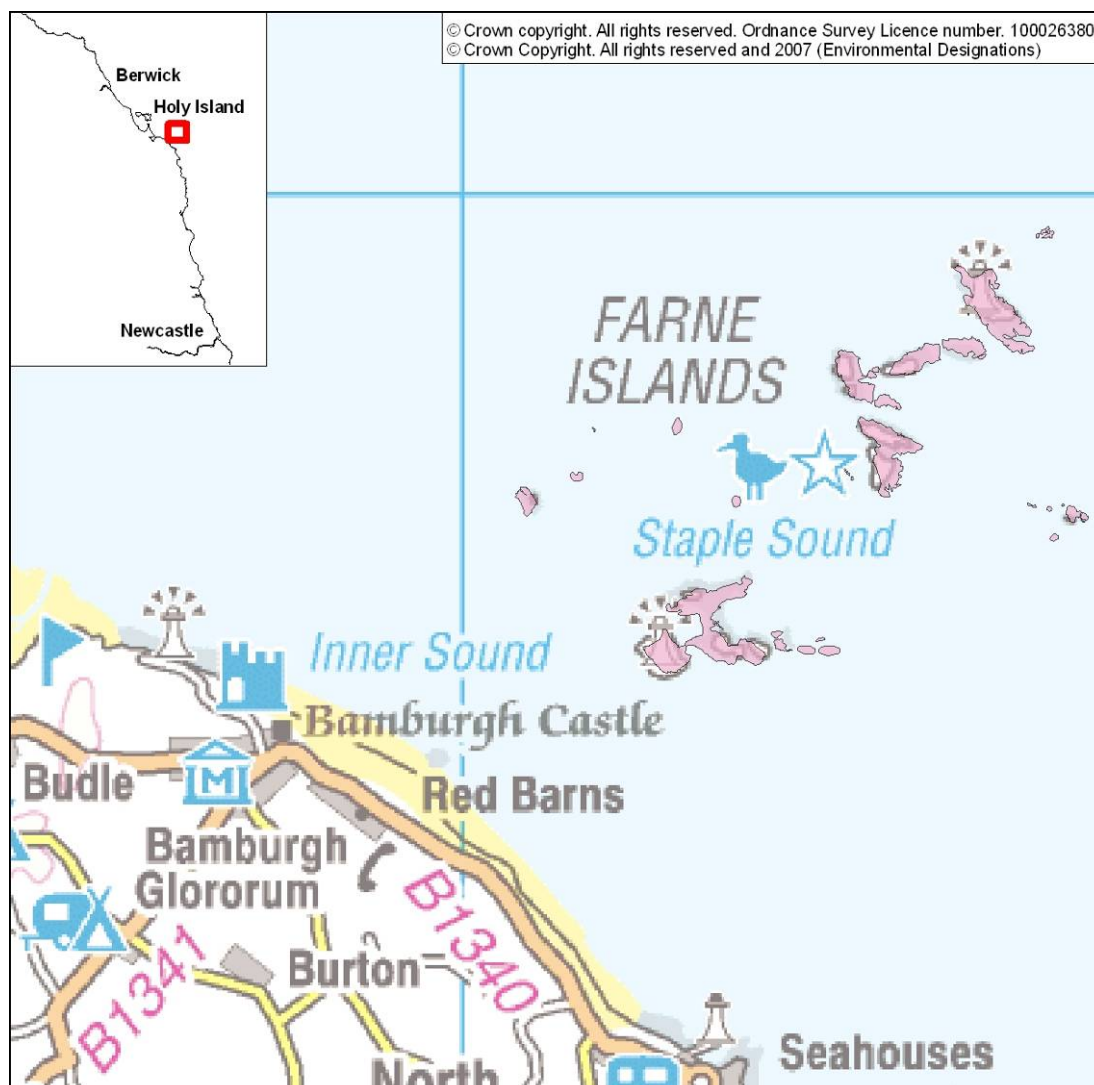


Northumbrian Coast SPA

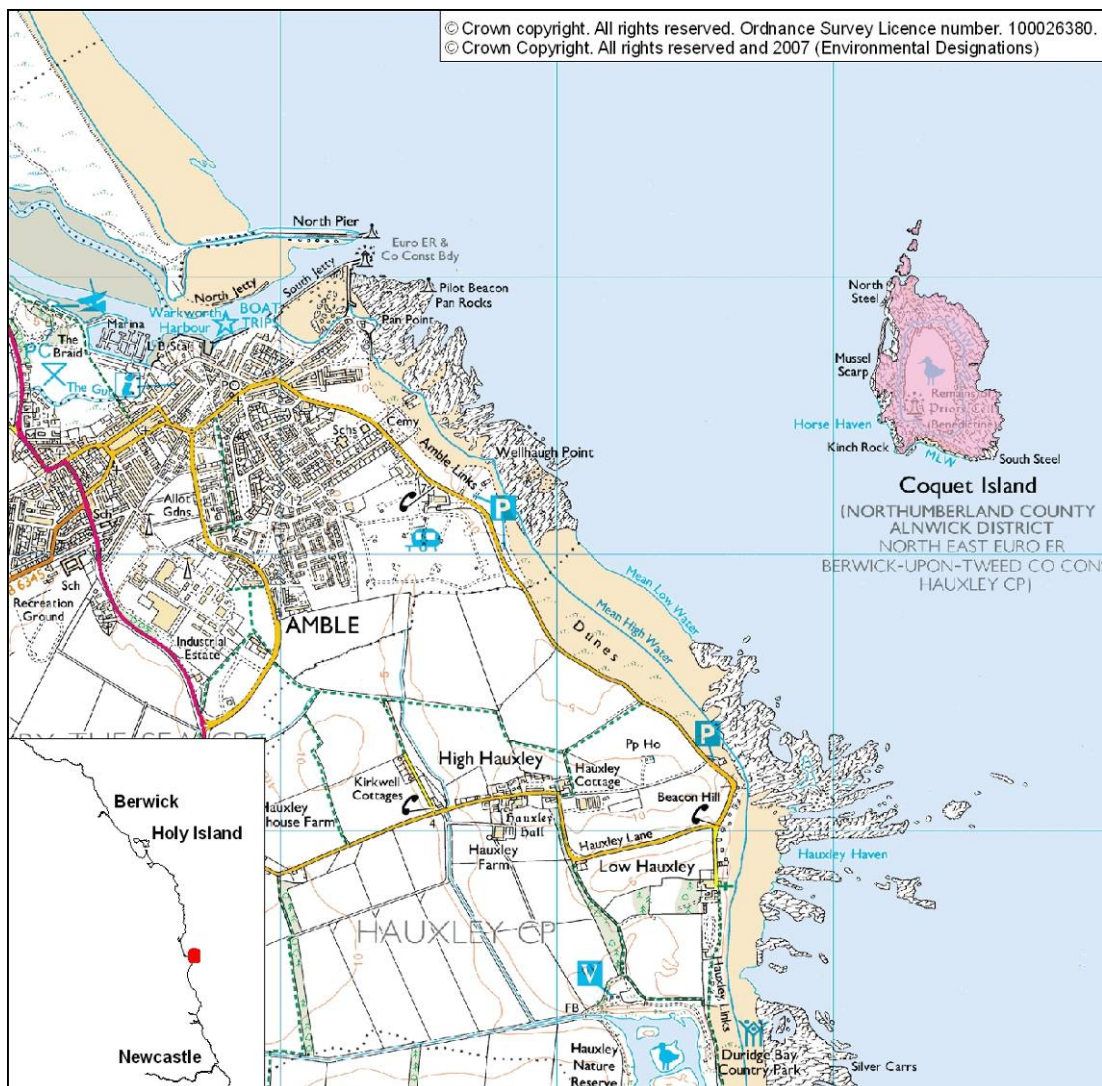




## Lindisfarne SPA



**Farne Islands SPA**



### Coquet Island SPA



## RAMSAR SITES



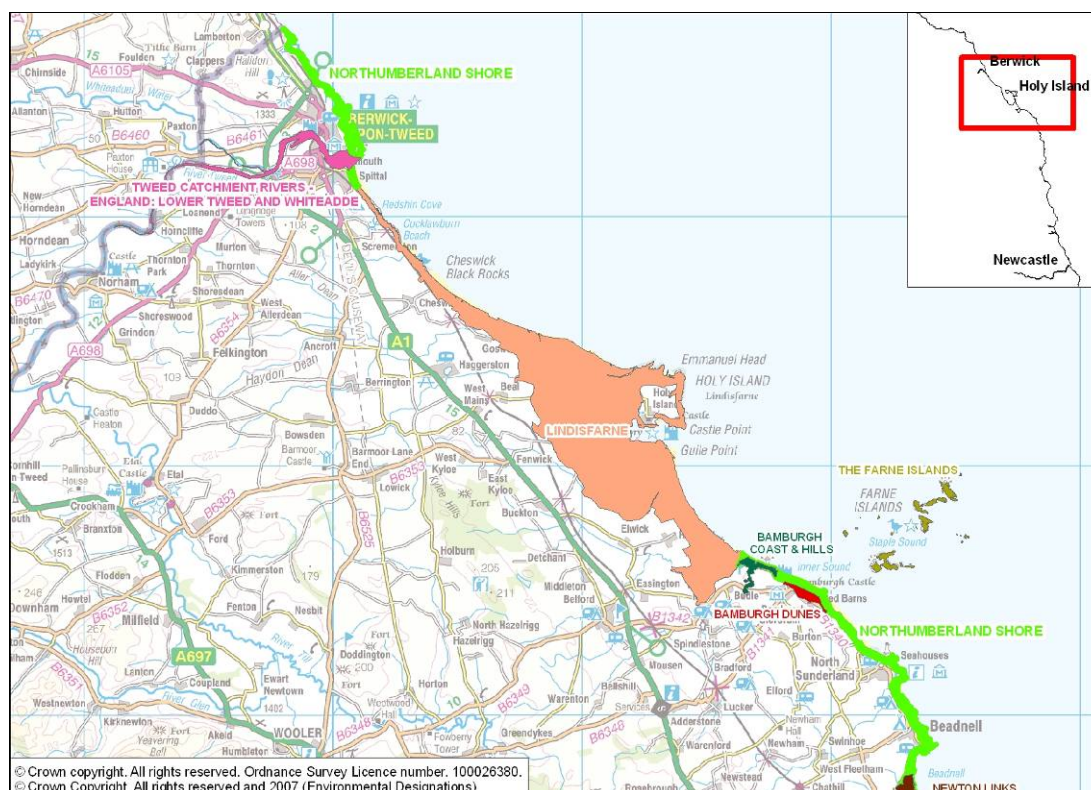
Northumbrian Coast Ramsar site



**Lindisfarne Ramsar site**



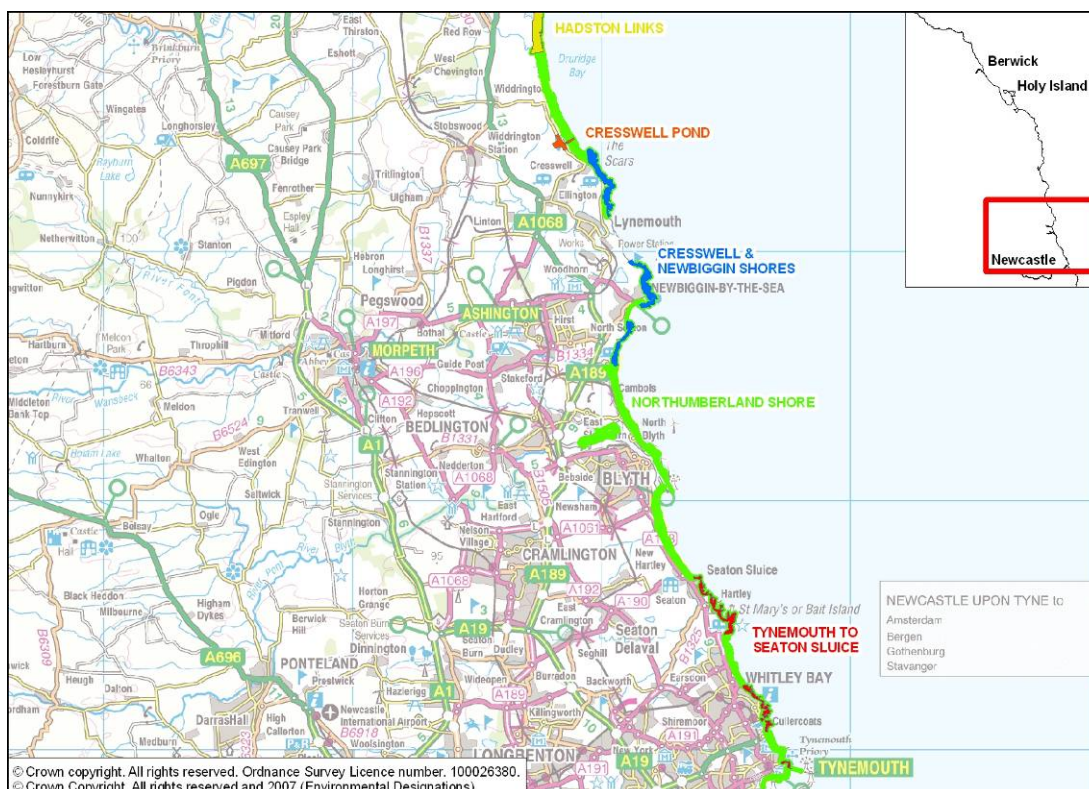
## SITES OF SPECIAL SCIENTIFIC INTEREST



### North Section



### Mid Section



## South Section

## **SUPPLEMENT B**

### **Historic Assets within 100m of the Northumberland Coastline**

Site Name/Description	EASTING	NORTHING
Cliff Cottage tunnel	398170	656670
Cliff Cottage tunnel	398170	656670
Needle's Eye, crop mark enclosure	399000	655500
Medieval church and graveyard 330m north west of Berwick Castle	399150	653630
Spades Mire linear earthwork and section of rig and furrow	400240	653590
Soil marks of a possible rectangular earthwork	398560	653580
Toll House	399400	653580
Gallows Knowe	399380	653510
Circular redoubt on post-medieval fortifications at Berwick	400390	653480
Castle Hills Maternity Home, Paxton Road	398700	653470
Bust in medallion set in garden wall west of Castle Hills Maternity Home	398640	653470
Berwick-upon-Tweed Railway Station	399420	653410
Enclosure castle, two 16th century gun turrets and an early 17th century house	399390	653400
Site of Percy's Tower	399490	653360
Cistercian nunnery of St Leonard	399500	653360
Covered Way	400150	653320
No 11 (Eagle House) Railway Street	399510	653310
No 48 Tweed Street	399510	653300
No's 73 and 75 (The Free Trade Inn) Castlegate	399555	653290
Royal Border Bridge	399280	653250
Post-medieval features, Castlegate	399530	653240
Medieval rubbish pits, 26-30 Tweed Street	399520	653234
No 12 Tweed Street	399540	653190
No 23 Castlegate	399590	653170
Traditional site of 14th century gallows	399150	653160
No 19 Castlegate Red Lion	399600	653150
No's 4 to 8 (even) Castlegate	399640	653145
Hospital of St Mary the Virgin	399650	653140
No's 15 and 17 Castlegate (Victoria House)	399605	653140
Church of St Mary	399650	653140
Conduit Head, Castlegate	399647	653133
No's 11 and 13 Castlegate	399615	653130
No's 7 and 9 Castlegate	399620	653120
No's 3 and 5 Castlegate	399630	653110
No 1 Castlegate	399640	653100
Stocks	399669	653086
No's 114, 116, 116A, 118 and 122 Marygate	399720	653065
Medieval deposits at 119-125 Marygate	399700	653030
No's 101 to 109 (odd) Marygate	399740	653010
The medieval and post-medieval fortifications at Berwick upon Tweed	399500	653000
Reputed Austin Friary at Berwick	399000	653000
Human Remains	399700	653000
Underground passageway	399700	653000
Lady Jerningham monument in gardens, Bank Hill	399642	652987

Site Name/Description	EASTING	NORTHING
Old Grammar School, Golden Square	399730	652985
No 91 Marygate	399770	652980
Golden Square tannery	399730	652980
Roman coin from Mill Farm	398900	652980
No's 81 to 85 (odd) Marygate	399790	652970
United Presbyterian Church, Bank Hill	399680	652960
No's 77A and 79 Marygate	399790	652960
No 8 Bank Hill (Corporation Academy)	399690	652950
No 63 Marygate	399820	652950
No's 65 and 67 Marygate	399810	652950
No's 2 and 4 West Street	399820	652950
No's 6 to 12 (even) West Street	399810	652940
No 3 West Street	399830	652930
No's 18 to 22 (even) West Street	399800	652920
Golden Square medieval deposits	399720	652920
Presbyterian Chapel, Golden Square	399720	652920
Eastern Lane, cobbled road	399870	652910
No's 24 and 26 West Street	399800	652910
No's 28 and 30 West Street	399790	652910
Golden Square Manse	399700	652910
Air Raid Shelter	399750	652910
No's 13 to 19 (odd) West Street	399810	652900
No's 32 to 36 (even) West Street	399790	652900
Ice House	399690	652890
Medieval pits at Eastern Lane	399829	652880
Medieval stone wall at Eastern Lane	399820	652880
No's 16 and 18 Eastern Lane	399832	652871
No's 33 and 35 West Street	399800	652870
St Edward's Hospital	399700	652850
The Bridge End Inn	399770	652849
Timber Yard	399736	652844
Granary	399815	652843
Chapel of Ravensdale	399730	652840
No 2 Love Lane	399750	652840
Presbyterian Chapel	399250	652840
Grain Store, Bridge Terrace	399710	652830
No 64 West Street	399760	652830
No 66 Bridge Street	399770	652820
No 3 Love Lane	399730	652820
No's 2 to 12 (even) Bridge End	399730	652810
No 62 Bridge Street	399770	652810
No 64 Bridge Street	399770	652810
No's 2 and 3 Bridge Terrace	399720	652810
No 40 Eastern Lane	399780	652810
No's 59 and 61 Bridge Street	399755	652800

Site Name/Description	EASTING	NORTHING
No 1 Bridge Terrace	399725	652800
Dominican Friary (site of)	399700	652800
No's 54 to 60 (even) Bridge Street	399795	652797
No's 55 and 57 Bridge Street	399770	652795
Hospital of Domus Dei or Maison Dieu	399740	652790
No's 3 and 7 Bridge End plus No 1 Quay Walls and railings	399740	652790
No's 48 to 52 (even) Bridge Street	399810	652790
Sally Port	399775	652790
Sally Port	399775	652790
No's 30 to 36 (even) Hide Hill	399900	652790
Former Presbyterian Chapel	399280	652790
No's 45 to 53 (odd) Bridge Street	399780	652785
Royal Tweed Bridge	399500	652780
No's 40 to 46 (even) Bridge Street	399820	652780
No's 41 and 43 Bridge Street	399790	652780
No 2 Quay Walls	399750	652780
Harbour Office	399731	652777
No 30 Bridge Street	399840	652770
No's 32 to 36 (even) Bridge Street	399840	652770
Old Hen and Chickens	399810	652770
No's 16 and 18 Bridge Street (north side)	399860	652760
No 24 Bridge Street (north side)	399860	652760
No 26 Bridge Street	399850	652760
No's 25 and 25a Bridge Street	399830	652760
No's 27 to 33 (odd) Bridge Street	399820	652760
No's 44 and 46 and 48 Hide Hill	399900	652760
No 3 Quay Walls	399765	652760
The Granary, Dewar's Lane	399810	652750
No's 12 and 14 Bridge Street (north side)	399870	652750
No 17 Bridge Street	399850	652750
No.4 Quay Walls	399771	652749
No's 50 to 54 (even) Hide Hill	399900	652745
No's 2 to 6 (even) Bridge Street (north side)	399900	652740
No 7 Bridge Street	399870	652740
No 11A Bridge Street	399860	652740
No's 13 and 15 Bridge Street	399850	652740
No.5 Quay Walls	399775	652738
Stone causeway or jetty	399550	652730
No's 1 to 5 (odd) Bridge Street	399880	652730
No's 9 and 11 Bridge Street	399860	652730
No's 6 and 7 Quay Walls	399780	652730
Pier	400550	652720
Pier	400550	652720
No 8 Quay Walls	399790	652710
No 8A Quay Walls	399800	652710



Site Name/Description	EASTING	NORTHING
No's 4 and 6 (The Queen's Head Hotel) Sandgate	399880	652710
Berwick Bridge	399500	652700
Wooden Bridge	399500	652700
No 9 Quay Walls	399810	652700
No 10 Sandgate	399860	652700
Church of St Nicholas	400300	652700
No 5 Ness Street	400070	652690
No's 1A and 3 Sandgate, former Corn Exchange	399915	652686
Blacksmiths Shop	399410	652680
Berwick quayside	399800	652680
No's 10 to 13 (consec) Quay Walls	399830	652680
No 11 Sandgate	399890	652680
No's 2 to 12 (even) Ness Street	400060	652680
No 1 (Ness Gate Hotel) Palace Street East	400040	652680
19th century granary	399860	652680
Playhouse Cinema	399860	652680
The Steam Boat Tavern Public House	399845	652671
No 13 Sandgate	399890	652670
No 14 Ness Street	400080	652670
No's 16 to 20 (even) Ness Street	400090	652670
Pier Maltings No's 9-18 Pier Road	400270	652670
The Leith and Berwick Tavern Public House	399852	652667
The Ship Tavern Public House	399858	652661
Bronze Age cist found in 1927	399340	652660
No 15 (The Hen and Chickens Hotel) Sandgate	399890	652660
Roadblock with concrete blocks	400360	652660
Quayside Granary	399807	652656
Gate piers at No 4 Main Street, Tweedmouth	399424	652654
The London and Berwick Tavern	399886	652652
Coal Yard	399845	652651
No 4 Main Street	399410	652650
No 15 (Gate House) Quay Walls	399870	652650
No's 19 and 21 Sandgate	399870	652650
No 5 Palace Street East	400050	652650
Garden wall and spiral volutes at front of No 5 (Grammar School) Palace Street East	400015	652650
No 36 Foul Ford	399920	652645
Carmelite Friary at Berwick	399990	652640
No 6 (Clifford House) Main Street, Tweedmouth	399420	652640
No's 16 and 17 Quay Walls	399880	652640
Palace Street East	399990	652638
Saw Pit	399859	652632
No 4 (Avenue House) Palace Street East	399987	652627
No 13 (Cleadow) Palace Street	399905	652625
No 11 Weddell's Lane	399976	652623

Site Name/Description	EASTING	NORTHING
No 57 West Street	399776	652623
The Custom House No 18 Quay Walls	399882	652622
Smithy	399846	652621
No 3 The Avenue	400040	652620
No's 19 Quay Walls	399883	652612
No 6 Palace Street	399980	652610
No 5 The Avenue (Flagstaff House)	400060	652610
No 14 Palace Street	399890	652605
No.20 Quay Walls	399884	652605
Power station	399800	652600
No's 8 and 10 Palace Green	399950	652600
No's 25 and 27 Palace Street	399920	652600
No 14 Palace Green	399940	652595
No's 21, 22 and 23 Quay Walls	399881	652593
No 20 Main Street, Tweedmouth	399440	652590
No 2 Palace Green	399970	652590
No 4 Palace Green	399960	652590
Medieval and post-medieval deposits at Palace Green	400016	652582
Berwick Scout Hall and gates attached to dwarf wall and gates, Palace Green	399950	652580
No 18 (Glen Alva) Palace Green	399930	652580
Medieval structures found at Palace Green	400040	652580
No's 20 and 22 Palace Green	399925	652575
The Governor's House	399980	652560
The Old Guardhouse	399880	652540
No 46 Main Street, Tweedmouth	399447	652534
No's 48 to 52 (even) Main Street, Tweedmouth	399440	652520
No 9 (Bower Villa) Palace Green	399978	652519
No 2 Wellington Terrace	399912	652517
No's 56 to 62 (even) Main Street, Tweedmouth	399450	652515
No.3 Wellington Terrace	399931	652512
No's 1, 2 and 3 Wellington Terrace	399910	652510
No's 64 and 66 Main Street, Tweedmouth	399460	652510
No 3 Palace Green	399990	652510
No's 68 and 70 (Post Office) Main Street, Tweedmouth	399460	652500
The Palace	399900	652500
Roman quern stone found at Berwick in 1855	399970	652490
No's 72 to 80 (even) Main Street, Tweedmouth	399460	652485
No 84 Main Street, Tweedmouth	399462	652475
Hiveacres	397978	652385
Lighthouse	401090	652380
The Old Brewery	399440	652300
Tweed Dock, Tweedmouth	399600	652300
Church of St Bartholomew	399560	652280
No's 2 and 2A Brewery Bank	399420	652270
Tower House, Mount Road, Tweedmouth	399640	652170

Site Name/Description	EASTING	NORTHING
Tweedmouth Tower	399680	652110
Pillbox	400500	652000
Pillbox	400550	651980
Square Pillbox	400350	651950
Chemical works	400500	651900
Trench	400610	651900
Fishing Shiel, Sandstell Road, Spittal	400418	651882
Three round sandbagged defence posts	400600	651800
Presbyterian Church	400330	651770
Possible Site of Tweedmouth Castle	397600	651700
Sandbagged defence post on sea front	400650	651650
Spittal School and surrounding walls and railings, Main Street	400537	651590
Wilson Terrace, Main Street, Spittal No's 202-206	400723	651217
Scremerston Old Level	401200	650800
Human remains at Huds Head	401290	650740
Scremerston limekiln	402095	649655
Scremerston Water Mill	402300	649500
Saltpan How	402510	649010
Scremerston Saltpan How limekiln	402500	648900
Cocklaw Dunes Nature Reserve, limekiln	403420	648105
Scremerston limekiln 2	403200	648100
Gun emplacement	403176	648092
Far Skerr, disused quarry	403450	647950
Cheswick Black Rocks pillbox	403600	647800
Pair of boundary stones c.300 yards east of railway	403710	647540
Bronze Age cairn	403900	647000
Cheswick Sands pillbox and tower	405100	646500
Cheswick Sands, shipwreck	405250	646390
Cheswick Shiel	404770	646340
Site of anti-tank blocks.	405200	646300
Remains of Sir Edmund Ironside's 'crust'	405200	646000
Goswick, deserted medieval village	405800	645100
Salmon Inn	405997	645089
Middle Shiel	407354	644514
Goswick Links pillbox (site of)	407420	643950
Stone circle formed by flat fired stones	409720	643810
Waggonway	413100	643800
Waggonway	413100	643800
Waggonway	413100	643800
Nessend Quarry, lithic scatter	413000	643800
The Links, wagonway	412300	643800
Nessend, kiln/explosives magazine?	413100	643800
Early medieval farmstead at Green Shiel, Holy Island	412180	643630
Stable and tower at Snook House	410074	643604
Longbridge End, saltworkings(?)	407300	643600

Site Name/Description	EASTING	NORTHING
Green Shiel, structure	412000	643500
Crag End, Beal Point, pill boxes	407900	643300
Crag End, Beal Point, shipwreck	408000	643300
Crag End, Beal Point, navigation cairn?	408000	643300
Kelp pits	412000	643300
Settlement - not confirmed	412300	643200
Kennedy Limeworks	412200	643100
Beal Sands shipwreck	408300	643000
Bronze Age spear point	412000	643000
Royal Observer Corps Monitoring Post	407590	642880
Ford on the Holy Island causeway	408488	642829
Well at the east end of the Holy Island causeway	407953	642737
Flint pebble scraper	412800	642700
Anti-tank blocks	408000	642700
East Mains	407652	642612
The Cages, fishtraps?	408300	642600
Cross slab grave cover from Holy Island	412180	642310
The Basin, wagonway	412200	642100
Churchyard of St Columb	412550	642050
Links View	412730	642013
Seaburn House	412736	642012
School	412480	642010
The Iron Rails	412730	642000
The Farne House and attached cottage	412660	642000
Historical artifacts	413000	642000
Lime kiln	412000	642000
Lime kiln	412000	642000
Northumberland Arms	412700	641990
Glen House/Elm House, Marygate	412665	641977
Monastic boundary(?)	412490	641970
Monastic boundary(?)	412490	641970
Monastic boundary(?)	412490	641970
North View	412590	641970
Sally's Gift Shop	412640	641970
Falkland House	412630	641970
Neolithic whetstone adze	412760	641950
St Oswalds	412800	641950
Marygate possible Early Neolithic structure and medieval buildings	412550	641950
Farne View	412678	641949
'The Palace' medieval house and Tudor supply base, Holy Island village	412750	641940
Anglo-Saxon pits and ditch at The Winery	412500	641940
Probable medieval building at The Winery	412500	641940
Medieval building at The Winery	412500	641940
Prehistoric or Anglo-Saxon pit by Village Hall	412580	641940
Medieval wall at The Village Hall	412590	641940

Site Name/Description	EASTING	NORTHING
Lindisfarne Castle walled garden	413620	641930
House	412680	641930
Medieval midden and cobbled surface at St Cuthbert's Square	412680	641930
House	412690	641920
Bamburgh View Cottages	412670	641920
Timber buildings at The Winery	412560	641910
Cobble surface at The Winery	412560	641910
Medieval pits off Crossgate Lane	412590	641910
Boundary stones	413500	641900
Tripping Chare, jetty	412200	641900
Gully features at The Winery	412560	641900
Medieval post-holes at The Winery	412560	641900
Cottage, Fenkle Street	412652	641896
Prehistoric or early medieval post-holes at The Winery	412570	641890
Medieval enclosure at The Winery	412570	641890
The Old Post Office	412620	641880
Medieval and early post-medieval features at Fiddlers Green	412520	641880
Village cross	412590	641860
Coin hoard	412490	641860
Ridge and furrow	413650	641850
Settlement - not confirmed	412560	641830
Lindisfarne Priory Museum site	412570	641820
Jenny Bell's Well midden	412447	641776
Cross base c.5 yards east of Church of St Mary	412588	641774
Church of St Mary	412560	641770
Jenny Bell's Well	412460	641760
Lindisfarne Castle	413630	641750
Sutton(?) memorial c.25 yards south east of Church of St Mary	412540	641750
Mesolithic flint blade from Castle Rock, Holy Island	413625	641730
Lifeboat House	412482	641728
Lindisfarne Priory pre-Conquest monastery and post-Conquest Benedictine cell	412610	641720
Holy Island Limekilns	413830	641720
The Ouse, cobbles	412800	641700
Anglo-Saxon strap	413550	641700
Footbridge across the Beal Cas	408102	641700
Cocklestone jetty	413470	641680
Medieval lookout	412640	641670
Post Medieval earthwork	412730	641670
Chapel of the Lamp	412600	641660
War Memorial	412636	641657
Fort on The Heugh	412950	641650
Boundary cross 170m south west of Herring House	412710	641650
Medieval chapel and associated building on St Cuthbert's Isle	412320	641600
Medieval chapel and associated building on St Cuthbert's Isle	412320	641600
Steel End, possible prehistoric deposit	413000	641600

Site Name/Description	EASTING	NORTHING
Fenham, causeway?	408300	641300
Kentstone coal workings	408320	641170
Granary Point, pill box?	408600	641100
Hall	412000	641000
Lime kiln	412000	641000
Fenham Farmhouse	408440	640830
Well at Fenham close to Fenham Flats	408553	640768
Mill Inn on the shoreline at Fenham	408822	640765
Neolithic axe-head	408750	640730
Monastic Grange at Fenham	408670	640730
Chapel at Fenham	408600	640700
Mill lead into the mill pond at Fenham Flats	408645	640673
Fenham Mill	408850	640660
Mill on the shoreline at Fenham	408857	640654
Mill pond at Fenham	408801	640639
Navigation beacons at north end of Ross Links	412990	640520
Navigation beacons at north end of Ross Links	412990	640520
Fenham Flats, stone structure	408900	640400
Lifeboat Station	413564	639642
Lifeboat Station	413466	639615
Ford and footbridge at Fenham Lowmoor	409576	639527
Ford and footbridge at Fenham Lowmoor	409682	639358
Longstone lighthouse	424600	638950
Jack's Waste, blow out with old land surface	412800	638600
Jack's Waste, blow out with old land surface	412800	638600
Well on coast	410563	638485
Well on the edge of Holy Island mud flats	410571	638470
Forfarshire Steamer	423770	638440
Well at Cathangings Letch	411048	638242
Well on the edge of Holy Island mud flats	411039	638241
Well at Whiteleas Letch	411463	638061
Cottage and beacon on Brownsman, Farne Islands	423680	637900
Elwick possible circular enclosure	411800	637600
Flint flake from Staple Island	423740	637490
Cottage Lighthouse	423780	637460
Ross Links shipwreck	414900	637200
Ross Links pillbox	414800	637020
Ross Links pillbox	414840	636940
Pillbox	414500	636700
Ross Links	414500	636500
Ross Links	414500	636500
North court and graveyard	421800	636100
Budle Bay flints (in sea)	415000	636000
Fire Trench	416400	636000
St Cuthbert's Well	421780	635990

Site Name/Description	EASTING	NORTHING
Prior Castell's Tower	421780	635990
Tower Court	421780	635990
Chapel of St Cuthbert	421800	635990
Benedictine Cell	421800	635980
East Court and graveyard	421790	635980
Old waggonway close to Budle Point	416381	635978
St Mary's Chapel	421802	635977
Hospitium	421830	635970
Garden and medieval field system	421790	635970
Well	421840	635950
Flint flake from Inner Farne	421750	635940
Monastic Settlement on Farne Island	421800	635920
Mineral Well (iron) on Bamburgh Moor	417467	635881
Club house on Bamburgh Moor	417214	635858
Quarry southeast of Budle Point	416722	635818
Slag	416000	635800
Lighthouse and Keeper's Cottage	421780	635800
Medieval cross base (site of)	421780	635790
Newtown gun emplacement	416110	635775
Newtown concrete structure	416065	635755
Fish trap	415700	635750
Spring on the southern shore of Budle Bay	416003	635663
Budle Bay stone bank	415600	635600
Stone/flints	415700	635600
Anti-tank pillbox	417800	635600
Concrete pillbox	417720	635540
Boathouse on the shoreline of Bamburgh Moor	415543	635521
D-shaped concrete pillbox	417820	635480
D-shaped concrete pillbox	417820	635410
Fire Trench	417800	635400
Lozenge pillbox	417900	635400
Further trench/dugout in Bamburgh Links area	417800	635400
Budle limekiln	415370	635340
The Pinfold	417855	635311
Budle Bay slipway?	415300	635300
Windpump and tanks at Kiln Point on the south shore of Budle Bay	415475	635240
Castle Windmill, Bamburgh	418200	635200
Bamburgh Castle	418300	635100
Bamburgh Castle, flints	418400	635000
19th/20th Century iron wheel	415200	635000
Spindle Stone	415320	634920
Bowl Hole	418690	634840
Budle Crag/Spindlestone, mesolithic material	415300	634800
No's 1-6 Armstrong Cottages	419000	634550
No's 10 and 11 Armstrong Cottages	419070	634550

Site Name/Description	EASTING	NORTHING
No's 12, 13 and 14 Armstrong Cottages	419080	634520
No's 15 and 16 Armstrong Cottages	419060	634480
Waren Mill	414500	634400
Waren Mill	414700	634400
Bridge over Waren Burn	414640	634360
Waren House	414820	634220
Prefabricated pillbox	419800	634200
Greenhill Rocks pillbox	419800	634100
Greenhill Links pillbox	420100	633800
Monks House	420380	633540
Coal shaft	421110	632410
The Powder House north-east of Seahouses Point	422491	632173
Limekilns at Seahouses Harbour	421980	632140
Seahouses War Memorial	421941	632075
Post-medieval coal workings	422350	631790
Circular enclosure	422300	631700
Pillbox	422830	631650
Remaining line of concrete blocks, Beadnell Bay	422406	631193
Remaining line of concrete blocks, Beadnell Bay	422406	631193
Remaining line of concrete blocks, Beadnell Bay	422406	631193
Ford across the stream, north of Annstead Dunes	422292	631105
Possible trench earthworks	422390	630990
Annstead House, Cottage and attached outbuildings	422530	630570
Triangulation post at Annstead Dunes	422669	630406
Mixed artifacts covering several time periods	423040	629910
Lime Kiln	423110	629739
Dell Point pillbox	423500	629300
Dell Point windmill?	423500	629200
Benthall round cairn	423710	628910
Bronze Age cist	423600	628900
Rectangular sandstone structure	423700	628900
The Yewglen shipwreck	424100	628800
Beadnell Point limekiln	424010	628740
Iron Age hillfort	423800	628700
St Ebba's Chapel and monastic site	423960	628700
The Mistley shipwreck	423900	628600
Beadnell Harbour limekilns	423742	628579
Beadnell Harbour	423705	628552
Beadnell Bay pillbox	423000	627600
Concrete pillbox	423640	626070
Stone huts on Snook Point	424100	625900
Newton Snook field bank	424100	625860
Well	423877	625543
Well	423880	625542
Well	423873	625476



Site Name/Description	EASTING	NORTHING
Well	423875	625473
Shipwreck at Football Hole	424180	625450
Possible round cairn	424400	625000
Enclosure wall with attached outbuildings at Watch House	424050	624886
Coastguard Cottage (former Watch House), Low Newton	424040	624880
Watch House	424052	624877
Well	423916	624852
Nos 1, 2 and garage adjacent to Ship Inn, Newton Seahouses Square	424117	624548
Ship Inn and Nos 4, 5 and 6 Newton Seahouses Square	424103	624517
Privy row to rear of Ship Inn and Nos 4, 5 and 6 Newton Seahouse Square	424091	624510
Heather and Raven Cottages, Newton Seahouses Square	424128	624509
Well	424035	624488
Chuck Bank pillbox	424400	624000
French Trawler Fleet shipwreck(s)	424000	624000
The Ballycotton shipwreck	425000	624000
Anti-tank cubes	424310	623240
Possible shipwreck at Embleton Bay	424320	623050
Pillbox	424280	622950
Dunstanstead pillbox	424640	622420
Dunstanburgh pillbox	425220	622350
Pillbox	425260	622310
Pillbox	425500	622000
Iron Age sword hilt guard from Dunstanburgh Castle	425690	621900
Dunstanburgh Castle	425820	621650
Farmstead near Dunstanburgh Castle	425650	621630
Farmstead near Dunstanburgh Castle	425650	621630
Cushat Knock pillbox and foxhole	425700	621500
Nova Scotia shipwreck site	425800	621300
Craster Harbour whinstone quarry	425830	619960
Tron Scars, Howick, reptile footprints	426000	618000
The Mindle shipwreck	426000	618000
Submarine wreck	426100	617800
Wall and steps to east of the Bathing House	426156	617538
Howick submerged forest 1	426243	617519
The Bathing House	426160	617510
Outbuilding south-west of the Bathing House	426158	617496
Sea Houses, enclosure	426100	617400
Sea Houses, possible quarry	426200	617300
Tadorne shipwreck	426300	616600
Howick Haven Mesolithic settlement and Bronze Age burials	425800	616400
Howick submerged forest 2	425920	616360
Bronze Age cist	425810	616170
Sugar Sands pillbox	426100	615800
Garden wall to west of Boulmer Hall	426424	614420
Ten anti-tank cubes	426600	614200

Site Name/Description	EASTING	NORTHING
Flint	426750	613020
Seaton House, deserted medieval village	426400	612700
Unusual concrete pillbox	425810	612100
Foxton Hall ridge and furrow and rectilinear cropmark enclosure	425600	612000
Foxton Hall pillbox	425800	611900
Foxton Hall, deserted medieval village	425700	611700
Marden, deserted medieval village	425600	611400
Old Battery overlooking Alnmouth Links	425130	611080
Timbers on Alnmouth beach	425488	611029
Lesbury, field system	423000	611000
Wreck of the Annie Walker	426000	611000
The Duchess' Bridge, over River Aln	424370	610830
Pant on north side of road to lifeboat station	424930	610780
Lifeboat Station	425090	610750
Lifeboat Station	425090	610750
Cast iron wheels	425300	610600
Nos 1-8 consecutive, Lovaine Terrace	424540	610570
Marine House Private Hotel, Marine Road	424720	610570
Church of St John the Baptist, Northumberland Street (east side)	424660	610560
Nos 6, 7 and 8 (including 52 Northumberland Street) with attached wall, Prospect Place (north side)	424660	610540
K6 telephone kiosk, Northumberland Street	424640	610525
The Old Watch Tower and attached walls, in grounds of The Grange, Northumberland Street (west side, off)	424556	610514
No 18 (Seafield) Northumberland Street (west side)	424640	610510
No 55 (Seabank) Northumberland Street (east side)	424665	610505
Mesolithic flint site	424700	610500
Alnmouth	424700	610500
Alnmouth	424700	610500
Pan Leasows, probable saltmaking site	424100	610500
No 56 (The Galleon) Northumberland Street (east side)	424665	610495
No 17 (Aln House) Northumberland Street (west side)	424645	610495
Granary	424591	610491
High Ford, Alnmouth	424150	610480
No 57 (The Aln) Northumberland Street (east side)	424670	610480
No 14 Northumberland Street (west side)	424650	610475
Old harbour wall, Garden Terrace (west end off)	424550	610470
Old harbour wall, Garden Terrace (west end off)	424550	610470
Pant adjacent to Driftwood Lodge, Peases' Lane (south side)	424690	610450
No 60 (Driftwood Lodge) Northumberland Street (east side)	424680	610430
The Schooner Hotel, Northumberland Street (west side)	424660	610430
Nos 7 and 7A Northumberland Street (west side)	424670	610410
The Hindmarsh Hall, Northumberland Street (east side)	424700	610375
Victoria Place (Nos 1-4 consecutive) and attached wall to north west	424700	610360
Alnmouth sea wall	424500	610200
Memorial cross	424600	610120

Site Name/Description	EASTING	NORTHING
Low Ford, Alnmouth	424470	610120
St Waleric's	424500	610000
Church Hill sea wall	424500	610000
Mortuary chapel, Church Hill	424580	609960
Alnmouth pillbox and gun emplacement	424600	609910
Alnmouth Old Church, deserted medieval village	424600	609900
Guano storage shed	424720	609460
Birling Carrs flint findspot	425700	608000
Birling Carrs quarrying	425200	607900
Pillbox	425300	607800
Hanseat shipwreck	425700	606800
Birling Links beacon	426050	605520
Pillboxes	426300	605500
Lozenge-shaped pillbox	426000	605000
Warkworth Harbour	427000	604900
Bronze Age cist burial and barrows found at Amble	427300	604860
Boundary marker in lane at rear of No. 6 The Coastguard Houses	427237	604828
Boundary marker 20 metres west of No. 1 The Coastguard Houses	427188	604807
Waggonway	426700	604800
Boundary marker 20 metres south-east of Cliff Cottage	427200	604800
Coal Staiths	426830	604780
Coal Staiths	426830	604780
Site of the Radcliffe Brickworks	426653	604725
Sawmill	426580	604710
Walls and gate to War Memorial garden	426659	604629
Clock Tower War Memorial	426658	604615
Radcliffe War Memorial 15 metres west of Clock Tower	426646	604601
Betty's Well	429450	604580
Saltworks	427490	604560
Gas Works	426760	604560
Main block of Co-operative Society premises	426568	604557
Coquet Island lighthouse	429300	604540
Monastic cell and medieval tower on Coquet Island	429290	604510
Monastic cell and medieval tower on Coquet Island	429290	604510
Garden Walls and explosives store to south of lighthouse buildings	429307	604502
Coquet Island, Anglo-Saxon slab	429300	604500
Coquet Island, War Department marker stones	429427	604473
East Cemetery entrance screen and chapel spire	427393	604441
Amble Quarry	427670	604300
Lord Mayor's Camp, Amble	427330	604270
Human bones on Hauxley Beach	428400	603400
Burials at Low Hauxley	428750	603110
Concrete pillbox on beach below dunes	428700	603100
Concrete rectangular pillbox	428600	603100
Life boat station	428588	602818

Site Name/Description	EASTING	NORTHING
Zig Zag Trench	428610	602500
Rectangular Pillbox	428640	602400
Circular Pillbox	428690	602180
Mesolithic submarine site	428600	602100
Bondicarr	428376	601938
Possible waggonway or railway from Radcliffe Colliery	428470	601860
Circular pillbox	428370	601820
Low Hauxley Bronze Age cairns and mesolithic artefacts	428400	601800
Low Hauxley rock depressions	428500	601800
Zig zag trench	428320	601790
Circular pillbox	428280	601720
Low Hauxley Shore, site of special scientific interest	428300	601600
Large square pillbox	428100	601420
Three pillboxes	428000	601100
Hadston Carrs searchlight base	428000	601000
Hadston Carrs look out post	427700	600700
Togstone Links, flint	427500	600300
Beach Defence Light	427700	600200
Hadston Links anti-tank defence	427400	599800
Link House buildings	426967	599548
Pillbox	427200	599500
Flint implement	427200	599000
Pillbox	427200	599000
Nissen Hut	427220	598300
Zig Zag Trench	427200	598300
Nissen Hut	427220	598280
Chibburn Links anti-tank trap	427400	597700
Anti tank ditch, Druridge	427438	597011
Anti tank ditch, Druridge	427438	597011
Anti tank ditch, Druridge	427438	597011
Anti tank ditch, Druridge	427438	597011
Pillbox, Druridge Bay	427628	596779
Lozenge pillbox	427500	596700
Pillbox	427600	596700
Lozenge pillbox	427700	596600
World War II trench, Druridge	427600	596500
Pillbox	427840	596220
Anti tank scaffolding, Druridge	427770	596180
Anti tank scaffolding, Druridge	427770	596180
Anti-tank gun, Druridge Farm	427480	596040
Farm Buildings and attached yard walls to the north east of Druridge Farmhouse	427510	596006
Bombing Range Direction Arrow	427850	596000
L-shaped pillbox	427850	596000
Gun emplacement, Druridge	427730	595990
Pillbox, Druridge	427820	595980

Site Name/Description	EASTING	NORTHING
Druridge Farmhouse	427503	595978
Druridge, deserted medieval village	427400	595900
Nissen Hut	427880	595900
Gun emplacement, Druridge	427730	595900
Nissen Hut	427760	595890
Pillbox, Druridge Bay	427912	595886
Minefield, Druridge	427850	595700
Drystone structure	427900	595600
Low Dog Kennel	428165	595488
Pillbox	428050	595480
Anti tank ditch, Druridge	427920	595450
Anti tank ditch, Druridge	427920	595450
Anti tank ditch, Druridge	427920	595450
Anti tank ditch, Druridge	427920	595450
Pillbox	428000	595420
Hemscott Battery, Druridge Bay	428079	595335
Pillbox	428200	595320
Pillbox	428180	595300
Pillbox	428200	595150
Nissen Hut	428150	595100
Hemscott Hill Farm	427990	595020
Cartshed, shelter sheds and pigsties to the north-west of Hemscott Hill farmhouse	427987	595018
Trench in sand dunes	428200	595000
Pen? In corner of field	427896	594980
Pillbox	428280	594980
Hemscotthill Links pill box	428151	594928
Farmstead south of Hemscott Hill	428101	594909
Druridge Bay pillbox	428300	594800
Druridge Bay animal bones	428500	594800
Rectangular pillbox disguised as cottage	428300	594600
Lozenge Pillbox	428480	594320
Blakemoor Links, peat and tree stumps	428800	594200
Flints from Weyman collection	428300	594200
Flints from Weyman collection	428300	594200
Blakemoor House	428380	594030
The Coble Inn, Cresswell	429492	593489
Well on the village green, Cresswell	429375	593446
The Cresswell Arms Inn	429552	593442
Spoil	429304	593429
Boundary wall to east of Cresswell Tower	429374	593363
Cresswell tower house	429364	593355
Stone Plinth south-west of Cresswell	429630	593070
Flint implement	429900	593050
Cresswell Military Camp	429780	593030

Site Name/Description	EASTING	NORTHING
Curvilinear cropmark south-east of Cresswell	429650	593010
Pile 1	430041	592808
Quarry	430157	592731
Pile 2	430095	592727
Well	430159	592713
Cresswell Point submerged forest	430000	592000
Enclosures on Cresswell Links	430087	591499
Old walls	430159	591063
Footbridge across the River Lyne	430152	590775
Lyne Hill, Lynemouth, mesolithic site	430800	590300
Lyne Hill, Lynemouth, mesolithic site	430800	590300
Lynemouth Power Station	430600	590100
Sluice	430568	590007
Blueholes Cottage	430733	589552
Pillbox	431090	589550
Pillbox	431130	589540
Rectangular HMG emplacement	431400	589500
Rectangular gunhouse	431400	589500
Newbiggin midden	431700	589300
Newbiggin, mesolithic artifacts	431300	589200
Newbiggin, mesolithic artifacts	431300	589200
Newbiggin, mesolithic artifacts	431300	589200
Newbiggin, mesolithic artifacts	431300	589200
Pillbox	431650	589080
Pillbox	431600	588520
Pillbox	431600	588520
Nissen Hut	431580	588520
Peat exposures and tree stumps at Newbiggin-by-the-sea	431500	588500
Pillbox	431680	588340
Mary's Well	431875	588273
Newbiggin Point, mesolithic site	432100	588100
Newbiggin Point, mesolithic site	432100	588100
Newbiggin Point pillbox	431950	588100
Newbiggin Point pillbox	431900	588100
Methodist Chapel	431430	588082
Newbiggin	431250	588050
Well at Newbiggin	431055	588041
The Pant, Newbiggin	431614	588033
Church of St Bartholomew	431780	588020
Grave Slab outside east wall of porch of Church of St Bartholomew	431782	588016
Lipton headstone 8 metres south east of porch of Church of St Bartholomew	431792	588009
Redford headstone 10 metres south of porch of Church of St Bartholomew	431777	588001
Prehistoric finds from Newbiggin Moor	431000	588000
The Cable House	431311	587985
The Coble Inn	431258	587970

Site Name/Description	EASTING	NORTHING
Well at Newbiggin	430950	587849
Newbiggin Railway Station	430870	587770
Village pond	430917	587744
Newbiggin by the Sea Garden of Remembrance and Archway	430930	587730
Well	431047	587717
Building	430911	587391
Medieval pier at Newbiggin	431000	587000
Medieval hospital at Newbiggin	430930	586950
Bronze Age cist from Spital Quarry	431010	586870
Spital Point pillboxes	431090	586840
Spital Point pillboxes	431090	586840
North Seaton Quarries	430716	586575
Well	427511	585958
Stake Fords across the Wansbeck	427202	585911
Standing stone	430400	585900
Sleekburn Viaduct	427750	585840
Black Close Colliery	428100	585800
Artillery firing range	430300	585750
Lime kiln by the Wansbeck	428325	585676
The Ship Inn	430067	585577
Building	430019	585539
North Seaton Quarry	429244	585504
Smithy	429242	585456
Well east of Marchey's House	427928	585429
Camboise Ford	429830	585420
Cambois Ferry	430109	585393
Lime kiln	429067	585376
St Peters Church	428160	585370
Cranes	429437	585326
Ridley Arms Inn	430152	585255
A number of trenches at top of a low sand dune	430310	585140
Nissen Hut	430290	585100
Well	430279	585028
Well at Cambois	430232	584964
Guidepost at Cambois	430239	584960
Site of Cambois Colliery brickworks	430370	584710
Trenches in sand dunes	430500	584470
Trench in sand dune	430580	584290
Pillbox	430610	583880
Pillbox	430610	583820
Cambois War Memorial	430590	583690
Hemmel Hill	430722	583594
Link House	430589	583408
Circular cropmark feature	429980	583370
Blyth A and B power station	430000	583200

Site Name/Description	EASTING	NORTHING
Coal staithes at Blyth Power Station	430550	583060
Coal staithes at Blyth Power Station	430550	583060
Coaling Berths	431000	583000
Bogiechique Well	430910	582934
Well	429531	582892
Lifeboat House	431192	582812
Lifeboat House	431192	582812
Well	430994	582749
Sluice	430953	582704
Blyth Harbour	430500	582700
Blyth Harbour	430500	582700
Ford	430840	582640
Ford across the Blyth	430834	582633
Duplicate record. See 11780.	429840	582630
Crane by the river	430983	582592
Alkali Works, Blyth	430190	582580
Waggonway	429950	582570
Well southwest of Mount Pleasant	428943	582552
The Brown Bear Inn	431019	582546
High Pans	431074	582505
Salt pans, Blyth	431000	582500
Stob Mill, Buck's Hill	430820	582450
Sunny Side	431149	582445
Bronze Age spear head and rapier, skulls, animal bones found in River Blyth	431080	582350
Bedlington waggonway tunnel	428070	582350
Staith	428190	582340
Sandstone revetting wall, near Kitty Brewster Bridge	428220	582340
Waggonway	428160	582320
Wagonway	428150	582320
Timber jetties	428350	582320
Hardstanding by River Blyth at Bedlington	428390	582320
Wagonway	428440	582300
Cowpen Square	430930	582300
Old staith at Bedlington	427980	582300
Old Quay in River Blyth	429198	582296
Bebside Viaduct	427950	582280
Boat House	429185	582276
Salt pan, Cowpen Square	430950	582270
Lime Kiln	431020	582240
Ship Building Yard	431030	582230
Aynewick	430950	582220
Old Coal Shaft	427917	582216
Spring near Kitty Brewster's Farm	428263	582192
Crofton Mill	431000	582190
Waggonway	430940	582190



Site Name/Description	EASTING	NORTHING
Waggonway	430940	582190
Ship Building Yard	431100	582170
Smithy	431010	582140
Kitty Brewster Farm Prisoner of War Camp	428380	582090
Timber Yard	431150	582080
Sandy Well	431737	582062
Navigational marker?	431723	582062
Ship Building Yard and Wharf	431000	582000
Slipway	431360	582000
Fishery at Blume	431000	582000
Cowpen Dry Docks, No. 1, 2, 3, 4	431290	581950
Cowpen Dry Docks, No. 1, 2, 3, 4	431290	581950
Cowpen Dry Docks, No. 1, 2, 3, 4	431290	581950
Cowpen Dry Docks, No. 1, 2, 3, 4	431290	581950
Cowpen Dry Docks, No. 1, 2, 3, 4	431290	581950
Timber Yard	431350	581930
Ship Building Yard, Cowpen Quay	431410	581920
Coaling Quay, Cowpen	431510	581890
Saw Mill	431300	581890
Cowpen Quay	431320	581870
Blyth and Tyne Railway	431550	581850
Tramway at North Blyth	431775	581826
Tramway at North Blyth	431775	581826
Tramway at North Blyth	431775	581826
North Blyth	431946	581810
Dry Dock	431570	581800
Ship Building Yard	431590	581750
Coal Staiths	431730	581740
Coal Staiths	431700	581740
North Pier, North Dyke, Eastern Breakwater	432000	581720
North Pier, North Dyke, Eastern Breakwater	432000	581720
North Pier, North Dyke, Eastern Breakwater	432000	581720
Salt Pans, Blyth	431660	581680
Blyth Ferry	431950	581640
Boathouse Tavern, Bridge Street	431720	581620
Low Yard, Ship Building Yard	431880	581620
Dunn Cow Inn	431670	581620
Brewery	431670	581620
Harbour Commissioner's Offices, Bridge Street	431770	581590
Kings Head Hotel, Bridge Street	431810	581570
Smithy	431910	581570
Mooring posts by the River Blyth	431997	581561
Mooring posts by the River Blyth	431997	581561
Mooring posts by the River Blyth	431997	581561
Police Station, Bridge Street	431800	581550

Site Name/Description	EASTING	NORTHING
Freehold Street, site of camp(?)	431750	581540
Pilot's Watch House, Blyth	431860	581540
Ballast Quay	432030	581510
Customs House, Blyth	431880	581510
Blyth Chapel	431820	581500
Watts and English headstones, 8m south of St Cuthbert's Church Hall, Plessey Road (south side)	431828	581494
Straugham tomb, 6m west of St Cuthbert's Church Hall, Plessey Road (south side)	431806	581493
Church of St Cuthbert, Plessey Road (south side)	431770	581470
Ropery	431860	581460
Brewery	431920	581460
Presbyterian Meeting Place	431880	581400
Crane on the North Pier, Blyth	432267	581358
Rope and Chain Manufactory	431819	581351
Nos 5-10 (consecutive) Bath Terrace	431960	581350
High Light, lighthouse	431980	581345
No 11 Bath Terrace	431980	581320
No 12 Bath Terrace	431990	581310
No 13 Bath Terrace	431990	581300
Lighthouse	432030	581260
Beacons	432210	581180
Beacons	432210	581180
Beacons	432210	581180
No's 4 and 6 Wensleydale Terrace (east side)	431900	580810
Front garden walls to No's 4 and 6 Wensleydale Terrace	431890	580810
Sheepfold	431960	580586
Pillbox	432200	580520
Concrete building with observation post	432200	580520
Rectangular pillbox within the port	432300	580500
Claypole Field Brickworks	431900	580490
Western Breakwater	432490	580440
Rectangular pillbox covering road exit from beach	432150	579950
Pillbox	431980	579940
Roadblock with concrete blocks	431970	579930
Pillbox	432070	579920
Pillbox	432050	579780
Bronze Age axe head	432080	579730
Pillbox	432070	579720
Engine house for Defence Electric Light installation	432010	579660
Defence Electric Light emplacements	432054	579659
Defence Electric Light emplacements	432054	579659
Pillbox	432080	579650
Pillbox	432060	579600
Barrage Balloon Mooring	432070	579580
Links House, Brewery	431930	579540

Site Name/Description	EASTING	NORTHING
Half Moon Inn	431870	579540
Link House	431940	579540
Pillbox	431960	579530
Roadblock with concrete blocks	431960	579510
Gate pier at entrance to Link House Farm	431951	579508
Pillbox	432200	579400
Blyth Coast Defence Battery	432080	579300
Plessey Waggonway	423000	579000
Blyth submerged forest	432000	579000
Site of Meggie's Burn Ford	432081	578864
Site of footbridge across Meggie's Burn	431976	578809
Group of twenty anti-tank blocks	432340	578800
Possible anti-tank gun emplacement	432340	578800
Pillbox	432210	578790
Site of Meggie's Burn Cottage	432204	578783
Circular pillbox in dunes	432220	578770
Nissen Hut	432220	578760
Well north of Gloucester Lodge	432276	578648
Circular pillbox in dunes	432350	578640
Sheepfold by Gloucester Lodge	432295	578552
Circular pillbox	432320	578510
Nissen Hut	432260	578470
Possible pillbox site	432540	578460
Group of twenty four anti-tank blocks	432540	578460
Emergency coast battery site	432350	578440
Nineteen concrete anti-tank blocks	432670	578210
Two concrete anti-tank blocks	432820	577780
Scattered remains of a pillbox on the beach	432820	577780
Eight anti-tank blocks on sand	433060	577580
Boiling Well	432920	577420
Round pillbox in dunes on beach front	433200	577400
The Astley Arms	432966	577295
Eight anti-tank blocks	433310	577170
Road, from Blyth to Seaton Sluice	433000	577000
Trench behind houses	433100	577000
Seaton Sluice pier	433649	576954
Infantry post	433550	576920
Crane on Seaton Sluice pier	433656	576914
Sand pit	433300	576900
Sandbag pillbox	433500	576900
Pillbox	433550	576900
Infantry Post	433520	576900
Delaval battery	433800	576870
Watch house on Rocky Island	433836	576862
Waggonway/railway to New Hartley Harbour	433940	576820

Site Name/Description	EASTING	NORTHING
Salt Pans, Seaton Sluice	433900	576800
Salt Pans, Seaton Sluice	433900	576800
Seaton Sluice limekiln	433900	576800
Seaton Sluice Harbour	433700	576800
Sandy Island pillbox	433600	576800
Round earthen defence post	433900	576800
Roadblock	433600	576800
Remains of sluice gate at west end of the cut	433765	576795
Turntable mechanism 20m west of the King's Arms Hotel	433789	576782
King's Arms Hotel with coach house to east	433811	576777
Retaining walls below road to east of King's Arms Hotel	433783	576764
Footbridge across the Seaton Burn	433496	576726
Two lamp standards, at junction with Links Road and 80m to east, Collywell Bay Road	433697	576715
Two lamp standards, at junction with Links Road and 80m to east, Collywell Bay Road	433697	576715
Seaton Sluice, village	433600	576700
Garden wall to north of No.10 Collywell Bay Road	433758	576688
The Octagon, Seaton Sluice	433765	576680
Lamp standard on north of junction with Albert Road	433865	576607
Hartley Bottle Works, Seaton Sluice	433650	576600
Lime kiln on cliffs, Seaton Sluice	433900	576576
Ironworks	433850	576500
Colly Well	433960	576370
Round defence post	434200	576300
Site of the Whin Pit, Old Hartley Colliery	433788	576241
Crag Point, earthwork	434300	576200
Hartley Village round post	434300	576200
Site of Centenary Chapel, Hartley	434045	575995
Hartley Village Anti tank block	434100	575900
Round defence post and searchlight	434200	575900
Robert's Battery	434159	575866
Robert's Battery	434159	575866
Robert's Battery	434159	575866
Delaval Arms, Hartley	434136	575804
Site of New Connexion Chapel, Hartley	434217	575784
Site of Primitive Methodist Chapel, Hartley	434279	575771
Smithy	434110	575770
Hartley	434200	575700
Machine gun emplacement	434200	575700
Large concrete blocks each side of road, part of a roadblock	434200	575700
Hexagonal pillbox	434300	575700
Abutments of first Bebside Viaduct	427940	527940

## **SUPPLEMENT C**

### **Historic Potentially Contaminated Land within 1 km of the Northumberland Coastline**

**Historic potentially contaminated land uses within 1 km of the Northumberland coastline, as identified by the Historical Land Use and Potentially Contaminative Industries Database for Berwick-upon-Tweed, Alnwick and Wansbeck Councils.** \* A description of the land uses can be found at the end of this supplement.

Location	Land Use*	Date
<b>Berwick-upon-Tweed Borough Council</b>		
Marshall Meadows	Hospitals	1957
Marshall Bay	Heap, unknown Constituents	1957
Folly Farm	General Quarrying	1899
Magdalene Fields	Military Land	1899
Magdalene Fields	Military Land (2 sites)	1957
Berwick-upon-Tweed	Weapons & ammunition [manufacture and storage]	1899
Berwick-upon-Tweed	General Quarrying	1899
Berwick-upon-Tweed	Hospitals	1938
Berwick-upon-Tweed	Hospitals (2 sites)	1957
Berwick-upon-Tweed	Cemetery or Graveyard	1938
Berwick-upon-Tweed	Military Land	1862
Berwick-upon-Tweed	Military Land (2 sites)	1899
Berwick-upon-Tweed	Military Land (4 sites)	1938
Berwick-upon-Tweed	Military Land (2 sites)	1957
Berwick-upon-Tweed	Road Haulage	1957
Berwick-upon-Tweed	Brewing and Malting	1862
Berwick-upon-Tweed	Brewing and Malting	1957
Berwick-upon-Tweed	Transport support and Cargo Handling	1957
Berwick-upon-Tweed	Metal Casting/ Foundries (2 sites)	1926
Tweedmouth	Coal Storage and Depot	1957
Tweedmouth	Brewing and Malting	1899
Tweedmouth	Cemetery or Graveyard	1866
Tweedmouth	Road Haulage (3 sites)	1866
Tweedmouth	Sawmilling, planing & impregnation [i.e. treatment of timber] (2 sites)	1866
Tweedmouth	Machinery: engines, building and general industrial [manufacture]	1938
Tweedmouth	Leather Tanning and Dressing	1866
Tweedmouth	Factory Use - Works not specified (2 sites)	1957
Tweedmouth	General Quarrying	1899
Spittal	Transport Support and Cargo Handling	1957
Spittal	Weapons & ammunition [manufacture and storage]	1957
Spittal	Chemical Manufacturing General	1866
Spittal	Chemical Manufacturing General	1957
Spittal	Gas Manufacture and Distribution	1925
Spittal	Oil, petroleum & gas refining & storage (3 sites)	1957
Spittal	Metal Casting/ Foundries	1866
Spittal	Metal Casting/ Foundries	1957
Spittal	Quarrying of sand & clay, operation of sand & gravel pits	1866
Spittal	General Quarrying	1866
Spittal	General Quarrying	1899
Spittal	General Quarrying	1925
Spittal	Cemetery or Graveyard	1957
Spittal	Hospitals	1938
Heatherytops	Quarrying of sand & clay, operation of sand & gravel pits	1925
<b>Berwick</b>		
Redhouse	Mining of Coal and Ignite (2 sites)	1899

Location	Land Use*	Date
Borewell	Airshafts (2 sites)	1866
Borewell	Airshafts (2 sites)	1957
Cargie's Plantation	General Quarrying	1866
Cargie's Plantation	Clay bricks & tiles [manufacture]	1866
Sea House	Cement, lime & plaster products [manufacture]	1866
Saltpan How	General Quarrying	1866
Saltpan How	Cement, lime & plaster products [manufacture]	1866
Near Skerr	Quarrying of sand & clay, operation of sand & gravel pits	1866
Far Skerr	Cement, lime & plaster products [manufacture]	1899
Cheswick Black Rocks	General Quarrying	1899
Goswick Links	Weapons & ammunition [manufacture and storage]	1925
Goswick Links	Military Land	1925
Longbridge End	Military Land	1899
Holy Island	Cement, lime & plaster products [manufacture] (4 sites)	1866
Holy Island	General Quarrying	1899
Holy Island	Weapons & ammunition [manufacture and storage]	1925
Warren House	Quarrying of sand & clay, operation of sand & gravel pits	1925
South Hill	General Quarrying	1899
South Hill	Cement, lime & plaster products [manufacture]	1865
East Hill	General Quarrying	1925
Brada Quarry	General Quarrying	1957
Kiln Point	Cement, lime & plaster products [manufacture]	1865
Kittling Hill	General Quarrying	1957
Bamburgh	General Quarrying	1957
Bamburgh	Cemetery or Graveyard (2 sites)	1865
Bamburgh	Weapons & ammunition [manufacture and storage]	1957
Bamburgh	Sewage	1957
Redbarnes	Gas manufacture & distribution	1925
Redbarnes	General Quarrying	1899
Fowberry Quarry	General Quarrying (2 sites)	1957
North Sunderland	Mining of coal & lignite (2 sites)	1865
North Sunderland	Sewage	1957
North Sunderland	Mining & quarrying general	1899
North Sunderland	Cemetery or Graveyard	1865
North Sunderland	Cemetery or Graveyard	1957
North Sunderland	Cement, lime & plaster products [manufacture]	1865
North Sunderland	Chemical manufacturing general	1899
North Sunderland	Military Land	1899
Beadnell	Cement, lime & plaster products [manufacture] (2 sites)	1866
Beadnell	Weapons & ammunition [manufacture and storage]	1925
Beadnell	Cemetery or Graveyard	1957
Beadnell	Quarrying of sand & clay, operation of sand & gravel pits	1866
Beadnell	Mining of coal & lignite	1899
Beadnell	General Quarrying (2 sites)	1866
<b>Alnwick District Council</b>		
High Newton	General Quarrying	1866
High Newton	General Quarrying	1957
<b>Alnwick District Council</b>		
Low Newton	General Quarrying	1866
Low Newton	Weapons & ammunition [manufacture and storage]	1957

Location	Land Use*	Date
Embleton	General Quarrying (2 sites)	1867
Embleton	General Quarrying	1899
Embleton	General Quarrying	1978
Greymare Rock	Military Land	1899
Dunstanburgh	General Quarrying	1899
Craster	General Quarrying (2 sites)	1867
Craster	General Quarrying (5 sites)	1899
Craster	General Quarrying	1925
Craster	General Quarrying	1926
Craster	General Quarrying	1957
Craster	Weapons & ammunition [manufacture and storage]	1926
Longhoughton	Military Land	1926
Longhoughton	Military Land	1976
Alnmouth	Cemetery or Graveyard	1976
Alnmouth	Military Land	1866
Alnmouth	Sewage	1977
Alnmouth	Oil, petroleum & gas refining & storage	1957
Alnmouth	Quarrying of sand & clay, operation of sand & gravel pits	1866
Alnmouth	Transport support & cargo handling	1899
Alnmouth	Sawmilling, planing & impregnation [i.e. treatment of timber]	1899
Alnmouth	Military Land	1899
Birling Links	Military Land	1899
Warkworth	Factory or works - use not specified (2 sites)	1991
Warkworth	General Quarrying	1926
Warkworth	Cemetery or Graveyard	1991
Amble	Weapons & ammunition [manufacture and storage]	1938
Amble	Weapons & ammunition [manufacture and storage]	1957
Amble	Transport support & cargo handling (3 sites)	1957
Amble	Transport support & cargo handling	1991
Amble	Transport manufacturing and repair	1938
Amble	Factory or works - use not specified	1957
Amble	Factory or works - use not specified	1991
Amble	Sawmilling, planing & impregnation [i.e. treatment of timber]	1938
Amble	Gas manufacture & distribution	1957
Amble	Cemetery or Graveyard (2 sites)	1991
Amble	Sewage	1991
Amble	Chemical manufacturing general	1898
Amble	Hospitals	1938
High Hauxley	Military Land (2 sites)	1938
High Hauxley	Sewage	1938
<b>Wansbeck District Council</b>		
Lynemouth	Electricity production & distribution [inc large transformers] (2 sites)	1992
Lynemouth	Metal casting/foundries	1992
Lynemouth	Sewage	1992
Beacon Point	Hospitals	1938
Beacon Point	General Quarrying (2 sites)	1898
<b>Wansbeck District Council</b>		
Beacon Point	General Quarrying	1992
Newbiggin-by-the-Sea	Outfalls	1992
Newbiggin-by-the-Sea	Heap, unknown constituents	1992



Location	Land Use*	Date
Newbiggin-by-the-Sea	Electricity production & distribution [inc large transformers]	1992
Newbiggin-by-the-Sea	Refuse disposal	1950
Newbiggin-by-the-Sea	Cemetery or Graveyard	1865
Newbiggin-by-the-Sea	Leather tanning & dressing	1865
Newbiggin-by-the-Sea	Mining of coal & lignite	1924
Newbiggin-by-the-Sea	Brewing & malting	1865
Spital Home Farm	Electricity production & distribution [inc large transformers]	1992
Spital Point	Outfalls (2 sites)	1992
North Seaton	Sewage	1992
North Seaton	Electricity production & distribution [inc large transformers] (2 sites)	1992
North Seaton	Electricity production & distribution [inc large transformers]	1993
North Seaton	Heap, unknown constituents	1924
North Seaton	Factory or works - use not specified (2 sites)	1992
North Seaton	Factory or works - use not specified	1993
North Seaton	Cement, lime & plaster products [manufacture]	1865
Cambois	Metal casting/foundries	1993
Cambois	Mining of coal & lignite	1898
Cambois	Outfalls	1993
Cambois	Electricity production & distribution [inc large transformers]	1993
Cambois	Road haulage	1993
Cambois	Railways	1949
Cambois	Sewage	1993
Cambois	Factory or works - use not specified	1924
Blyth Harbour	Transport support & cargo handling	1949
Blyth Harbour	Transport support & cargo handling	1949
Blyth Harbour	Transport support & cargo handling	1993
Blyth Harbour	Food processing - major	1993
Blyth Harbour	Railways	1898
Blyth Harbour	Coal storage and depot	1898
Blyth Harbour	Road Haulage	1993
Blyth Harbour	Military Land	1898
Blyth Harbour	Weapons & ammunition [manufacture and storage]	1898

**Landfill areas within 1 km of the North Tyneside Coastline, as identified by North Tyneside Metropolitan Borough Council.**

Category	Location	Input Rate/ Area
Environment Agency Landfill	Whitley Bay	Small (<25,000 tonnes/year)
	Whitley Bay	Undefined
	North Shields	Medium (< 75,000 tonnes/year)
North Tyneside Council Landfill	Marden Quarry	19,783 m <sup>2</sup>
	Beaconsfield	45,512 m <sup>2</sup>
	Blyth and Tyne	17,712 m <sup>2</sup>
	Northumberland Park	70,264 m <sup>2</sup>

## Description of the land uses used in the Historical Land Use and Potentially Contaminative Industries Database

<u>Description</u>	<u>Remarks</u>
Air shafts	Air shafts
Animal by-products (i.e. gelatine, soap, glue etc)	Animal by-products (i.e. animal parts) e.g. soaps, candles and bone works
Animal slaughtering and basic processing of meat (other than poultry)	Animal slaughtering and basic processing
Batteries, accumulators and primary cells [manufacture]	Batteries, accumulators, primary cells, electric motors, generators and transformers
Brewing and malting	Brewing and malting
Cement, lime and plaster products [manufacture]	Concrete, cement, lime and plaster products, also includes lime kilns
Cemetery or graveyard	Cemetery, modern burial grounds and grave yards
Chemical manufacturing general	Manufacture of cosmetics, manure, fertilisers and pesticides, detergents, oil, organic-based pharmaceuticals, glues, gelatines, recording tapes, photographic film
Clay bricks and tiles [manufacture]	Manufacture of clay bricks, breeze blocks and tiles, including associated activities e.g. brick fields, also solitary kilns (other than lime kilns)
Coal storage and depot	Coal storage/depot
Constructional steelwork, metal structures and products and building materials [manufacture]	Constructional steelwork, metal structures and products and building materials
Distribution, telecoms, medical, navigation, metering and lighting equipment [manufacture]	Manufacturing of distribution, telecoms, medical, navigation, metering and lighting
Disturbed ground	Disturbed ground greater than 200m in one dimension
Domestic appliances [manufacture]	Manufacturing of domestic appliances
Dyes and pigments [manufacture]	Dye and pigments
Electricity production and distribution (including large transformers)	Electricity generation and distribution, including large transfer stations
Factory or works — use not specified	Factory and works — use not specified
Food processing — major	Major food processing, includes dairies
Former marsh	Feature is only shown when land has subsequently been built on
Fuel: retail sale of automotive fuel	Sale of automotive fuel
Gas manufacture and distribution	Gas processing/manufacture and oil refining
General quarrying	Quarrying of all stone (including limestone, gypsum, chalk and slate) and ores, includes all open-cast mining and slant workings also slate/slab works, flint works, stone yards
Glass and glass products excluding flat glass [manufacture]	Flat glass and glass products manufacture
Heap, unknown constituents	Must be associated with relevant extraction industry including spoil and slag
Heavy product manufacture — rolling and drawing of iron, steel and ferroalloys	Heavy product manufacture, rolling and drawing of iron, steel and ferroalloys includes major tube works
Hospitals	All hospitals including sanatoriums but not lunatic asylums

<b>Description</b>	<b>Remarks</b>
Insulated wire and cable [manufacture]	Insulated wire and cable for electrical/telephonic purposes
Laundries and dry cleaning	Laundries and dry cleaning
Leather tanning and dressing	Tannery, leather goods and skinners
Machinery: engines, building and general industrial [manufacture]	Manufacturing of engines, building and general industrial machinery, including nuts and bolts, gas fittings, wire rope and ordnance accessories
Metal casting/foundries	Furnaces and metal processing/casting/forges/ smelting including ferro and aluminum alloys, manganese works etc
Metals: treatment and coating including electroplating	Electro-plating, galvanising and anodizing
Military land	All military establishments including firing ranges (if not specified as civilian)
Mineral products non-metallic (including abrasives and asbestos) [miscellaneous manufacture]	Abrasives, asbestos etc
Mineral railway	Mineral railways
Mining and quarrying general	Areas of mining and single or groups of shafts other than coal and not specified including levels, or adits, etc
Mining of coal and lignite	Coal mining, the manufacturing of coke or charcoal included, are associated surface activities in area, also individual coal mine shafts
Motor vehicles: maintenance and repair e.g.	Garages Repair and sale of i) cars and bikes, ii) parts, iii) services
Natural and man-made textile manufacture and products	Natural and man-made textile manufacture and products including hemp rope
Office machinery and computers [manufacture]	Computers, office machinery, business/industrial electrical goods
Oil, petroleum, gas, refining and storage	Major oil and petrol storage and all gasometers which are not in gas works
Outfalls	Outfalls including warm water, industrial effluent and sewage unless directly attached to other sewerage feature e.g. end of sewer pipe
Paints, varnishes, printing inks, mastics and sealants [manufacture]	Paints, varnishes, printing inks, mastics, sealants and creosote
Paper packaging products [manufacture]	Pulp, paper and cardboard manufacture
Pipelines	Above ground pipelines other than sewerage
Plastic goods, all general manufacture, including building, packaging and tubing	All plastic goods, including building, packages, tubing etc and the manufacture of tar, bitumen and asphalt
Printing of newspapers	Printing of newspapers
Printing: miscellaneous excluding newspapers	Printing other than news print
Pulp, commodity grade paper and paperboard manufacture	Paper, card, etc products e.g. Packaging
Quarrying of sand and clay, operation of sand and gravel pits	Extraction of alluvial sediments (sand, stone, clay, peat, marl and gravel)
Railways	Railway tracks — up to 4 tracks wide
Recycling of metal waste and scrap metal	Recycling of metal waste including scrap yards and car breakers
Refuse disposal	Refuse and waste disposal including incinerators and sanitary depot

<b><u>Description</u></b>	<b><u>Remarks</u></b>
Road haulage	Transport depot — road haulage, corporation
Rubber natural products manufacture	Natural and synthetic rubber products including tyres and rubber products
Sawmilling, planing and impregnation (i.e. Treatment of timber)	Sawmilling, planning and impregnation (i.e. treatment of timber), wood products, telegraph works, timber yard e.g. veneer
Sewage	Sewerage, septic-tanks, includes all filter beds
Spirit distilling and compounding	Spirit distilling and compounding
Tableware and other ceramics [manufacture]	Tableware and other ceramics
Technical and environmental testing and analysis	Various technical and environmental testing and analysis
Transport manufacturing and repair	Manufacturing and repair including i) ships, ii) aerospace, iii) rail engines and rolling stock
Transport support and cargo handling	Boat building, wharf and quays, cargo/transport handling facilities
Transport: air and space, cargo and handling and transport support	Air and space transport
Transport: light manufacture	Manufacture of cars, lorries, buses, motorcycles, bicycles
Weapons and ammunition [manufacture and storage]	Civilian manufacture and storage of weapons, ammunition, explosives and rockets