ROYAL HASKONING

# Appendix D
# Natural and Built Environment Baseline (Thematic Studies)

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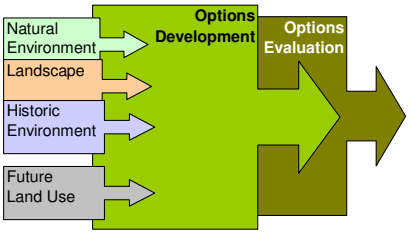
# D1 Introduction

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 area of coast. 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 the overall character of this section of coast, what makes it unique, unlike any other section of the English coastline.

Thematic Basis of Options Development




The description of the coast in this way 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 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.

Graphic illustrations and maps to support this thematic review are included at the end of this Appendix.

# D2 Natural Environment

## D2.1 General

The provision of shoreline management policies fundamentally seeks to provide the most practical sustainable and equitable approach to protecting the environmental, social and economic values of the coastal zone. The environmental values have therefore been described as Nature Conservation, which encompasses all the designated areas within the study area and also the sites and features which are important from an earth heritage perspective. The description of these two facets of the natural environment, is entirely consistent with management of such areas by English Nature. Earth heritage sites are also often important in their own right (for example exposures of fossil beds or type exposures, but equally in that they are intrinsically linked to natural processes which critically underpin the maintenance of ecological values in the coastal zone. The natural environment within the coastal zone traditionally encompassing the area either side of the shoreline management line covered in this Shoreline Management Plan includes terrestrial, intertidal and marine habitats and geology. Within the study area a wide diversity of sites and features are found which reflects the areas physical diversity and co-evolutionary past where human activity has shaped the landscape and local ecology.

## D2.2 Nature Conservation

### D2.2.1 Introduction

All these features are potentially important to nature conservation, although knowledge of the marine habitat is extremely limited compared to that of terrestrial and intertidal habitats owing to its relative inaccessibility.

Geological conservation is concerned with maintaining representative and unique examples of geological features for study, research and teaching purposes, i.e. ensuring that the resource and access to that feature is maintained. However, current thinking in geological and wider nature conservation management is that conservation must fit within the practical limits of working alongside natural processes. 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 acceptable.

Information on the natural environment for this study has been obtained from the original Shoreline Management Plan reports compiled by Babtie and Mouchel in 1996, with updated information from English Nature and the Multi-Agency Geographic Information Centre – MAGIC (www.magic.gov.uk). The original SMPs obtained data from a range of sources including:

(i) Statutory designations and accompanying citations;
(ii) English Nature;

(iii) Cleveland Wildlife Trust;
(iv) Yorkshire Wildlife Trust;
(v) Royal Society for the Protection of Birds;
(vi) Yorkshire Naturalist Union;
(vii) National Trust;
(viii) Environment Agency;
(ix) Cleveland Countryside Unit;

(x) Countryside Commission;
(xi) Flamborough Ornithological Group;
(xii) Joint Nature Conservation Committee;
(xiii) Marine Conservation Society;
(xiv) North York Moors National Park; and
(xv) Scarborough Borough Council.

The remainder of this section outlines the relevant designations and summarises the overall interest of the natural environment within the study area, with particular reference to English Nature's Natural Area Profiles. Detailed descriptions of the physical coastline are contained in the sections of the report dealing with each coastal unit individually.

### D2.2.2 Relevant Designations

Designations applied to ecological and geological features may be of international, national, or regional and local importance. Those relevant to the study area are listed below, with the hierarchical structure of international through to local representing the relative weight or importance placed on each resource.

#### International Designations

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, transposed into UK law by the Conservation (natural Habitats &c.) Regulations 1994 ('the Habitats Regulations') has resulted in the identification of several Special Areas of Conservation (SACs) along the length of the SMP coastline. The Council Directive 79/409/EEC on the conservation of wild birds ('The Birds Directive') is implemented in the UK through the Wildlife and Countryside Act 1981 as amended, and provides for the identification of Special Protection Area (SPAs). A list of SPAs and SACs in the study area is provided along with a description of key interests in Table 2.1 and Table 2.2, and maps of each site along with an overview of the three SMP subcells are provided below.

The EC Habitat Regulations apply to both SACS and SPAS and strengthen the protection afforded to sites by the Wildlife and Conservation Act of 1981, as amended, by making illegal *any* damage to breeding sites or nesting places of protected species. Any development within the meaning of the Conservation (Natural Habitats etc.) Regulations 1994 which is likely to affect

an SPA or SAC 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.

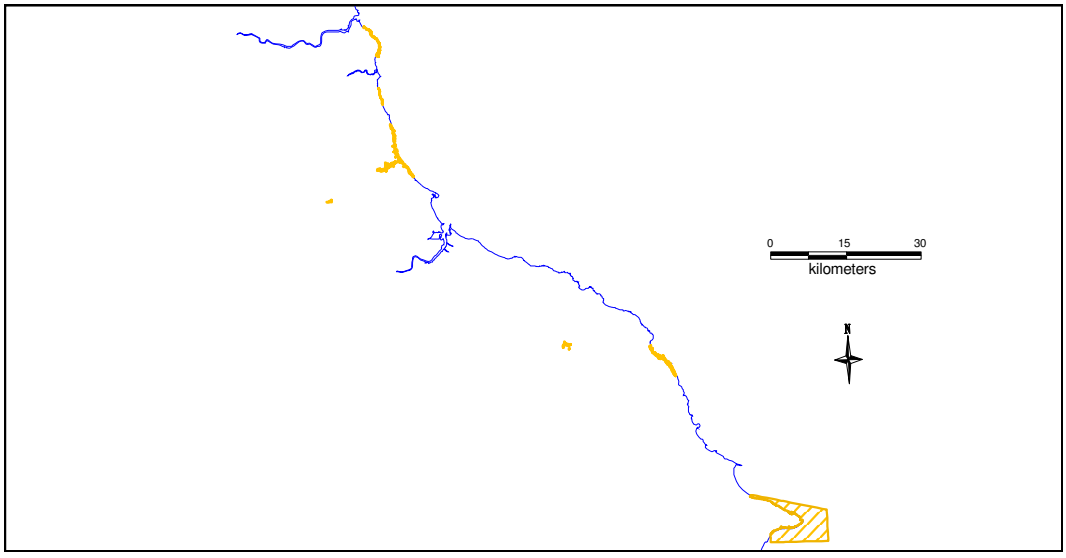



**Figure 2.1 Overview of Special Areas of Conservation in the SMP area**

**(© Crown Copyright)**

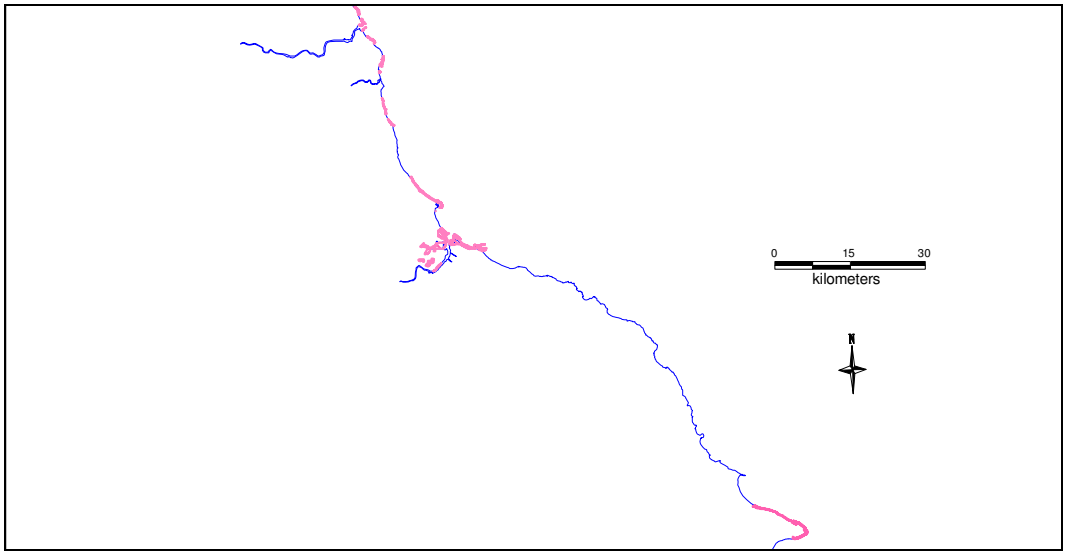



**Figure 2.2 Overview of Special Protection Areas in the SMP area**

**(© Crown Copyright)**

Table 2.1 below provides a list of SACs that lie completely or partially within the study area along with a summary of the interest features for each site.

**Table 2.1 SACs in the SMP study area and their interest features**

| Name | Description of interests | Area (ha) |
|---|---|---|
| DURHAM COAST | **Vegetated sea cliffs**<br>Durham Coast is the only example of vegetated sea cliffs on magnesian limestone exposures in the UK. These cliffs extend along the North Sea coast for over 20 km from South Shields southwards to Blackhall Rocks. Their vegetation is unique in the British Isles and consists of a complex mosaic of paramaritime, mesotrophic and calcicolous grasslands, tall-herb fen, seepage flushes and wind-pruned scrub.<br>The communities present on the sea cliffs are largely maintained by natural processes including exposure to sea spray, erosion and slippage of the soft magnesian limestone bedrock and overlying glacial drifts, as well as localised flushing by calcareous water | 389.84 |
| CASTLE EDEN DENE | ***Taxus baccata* (yew) woods of the British Isles**<br>Castle Eden Dene in north-east England represents the most extensive northerly native occurrence of yew *Taxus baccata* woods in the UK. Extensive yew groves are found in association with ash-elm *Fraxinus-Ulmus* woodland and it is the only site selected for yew woodland on magnesian limestone in north-east England. | 189 |
| BEAST CLIFF-WHITBY (ROBIN HOOD'S BAY) | **Vegetated cliffs of the Atlantic and Baltic coast**<br>Beast Cliff – Whitby is an east coast complex of hard and soft cliffs. The combination of geology, topography and plant communities found on the site are unique and it is one of the best examples of vegetated sea cliffs on the north-east coast of England. The underlying geology varies from base-rich to base-poor, and this variation is reflected in a characteristic and diverse flora across the site. Vertical hard cliffs support maritime crevice and ledge vegetation, and the more gently sloping parts of Beast Cliff itself are covered by scrub and woodland. Sandstone boulders support a luxuriant growth of mosses and ferns and pools on the cliff shelf support wetland plants and scrub. Due to the frequent land slippage occurring on the site, the woodland is constantly changing and being rejuvenated with mainly young trees forming secondary woodland. North of Beast Cliff to Ravenscar the vegetation is more open and reflects alternating strata of rich and poor base-status. Areas of calcareous clays support typical calcareous grassland and wet flush plant communities, whereas heathland species occur on more acidic sandstone outcrops. From Ravenscar north to Robin Hood's Bay the cliffs are composed either partly or entirely of soft boulder clay. This clay is continually being eroded by wave action and slippage, and supports pioneer plant communities typical of this changing habitat. | 265.48 |
| FLAMBOROUGH HEAD | **Reefs**<br>Flamborough Head has been selected for the presence of species associated with chalk and for the site's location at the southern limit of distribution of several northern species. It lies close to the biogeographic boundary between two North Sea waterbodies and encompasses a large area of hard and soft chalk on the east coast of England. The site covers around 14% of UK and 9% of European coastal chalk exposure, represents the most northern outcrop of chalk in the UK, and includes bedrock and boulder reefs which extend further into deeper water than at other subtidal chalk sites in the UK, giving one of the most extensive areas of sublittoral chalk in Europe. The reefs and cliffs on the north side of the headland are very hard, resulting in, for example, the presence of many overhangs and vertical faces, a feature uncommon in sublittoral chalk. The sublittoral and littoral reef habitats at Flamborough are considered to be the most diverse in the UK.<br>**Vegetated cliffs of the Atlantic and Baltic coast**<br>Flamborough is an east coast representative of hard chalk cliffs, which occur more | 6316.01 |

| | | |
|---|---|---|
| | frequently on the south coast of England. The vegetation of east coast cliff sites is typically less influenced by salt deposition and there are few such areas with predominantly limestone vegetation. Flamborough Head is an exception and is therefore important for the conservation of calcareous cliff vegetation. Maritime vegetation is local and occurs where topography increases salt spray deposition. Elsewhere the chalk substrate supports calcareous grassland communities. Towards the eastern end of the site the chalk is masked by drift deposits, which support mesotrophic and acidic grassland communities.<br>**Sea caves**<br>There are larger numbers and a wider range of cave habitats at Flamborough than at any other chalk site in Britain. This site represents caves of the North Sea coast cut into soft rock exposures and is important for its specialised cave algal communities. There are more than 200 caves within the site, particularly around the headland and on the north-facing cliffs. Some of these caves are partially submerged at all stages of the tide, others dry out at low tide, and some lie above the high water mark but are heavily influenced by wave splash and salt spray from the sea. The largest caves are known to extend for more than 50 m from their entrance on the coast. | |

Adapted from www.jncc.gov.uk

Table 2.2 lists the SPAs present in the three SMP sub-cells and summarises the reasons for their international importance.

**Table 2.2 SPAs in the SMP study area and their interest features**

| Name | Description of interests | Area (ha) |
|---|---|---|
| NORTHUMBRIA COAST | The Northumbria Coast SPA includes much of the coastline between the Tweed and Tees Estuaries in north-east England. The site consists mainly of discrete sections of rocky shore with associated boulder and cobble beaches. The SPA also includes parts of three artificial pier structures and a small section of sandy beach. In summer, the site supports important numbers of breeding Little Tern, whilst in winter the mixture of rocky and sandy shore supports large number of Turnstone and Purple Sandpiper. | 1097.37 |
| TEESMOUTH & CLEVELAND COAST | Teesmouth and Cleveland Coast SPA is located on the coast of north-east England. It includes a range of coastal habitats – sand- and mud-flats, rocky shore, saltmarsh, freshwater marsh and sand dunes – on and around an estuary which has been considerably modified by human activities. Together these habitats provide feeding and roosting opportunities for important numbers of waterbirds in winter and during passage periods. In summer Little Tern breed on beaches within the site, while Sandwich Tern are abundant on passage. | 1250.37 |
| FLAMBOROUGH HEAD & BEMPTON CLIFFS | Flamborough Head supports large numbers of breeding seabirds including Kittiwake and auks, as well as the only mainland-breeding colony of Gannet in the UK. The seabirds feed and raft in the waters around the cliffs, outside the SPA, as well as feeding more distantly in the North Sea. The intertidal chalk platforms are also used as roosting sites, particularly at low water and notably by juvenile Kittiwakes. | 208.35 |

From www.jncc.gov.uk

Further detail of these site locations including Ramsar sites is provided at the end of this Appendix, with maps illustrating the site boundaries.

The key interests along large tracts of the coastline are soft or rocky cliffs and shores that rely on the continued action of natural processes to maintain their

interests. Whilst it must be recognised that these interests are consequently finite, management objectives from a nature conservation perspective should reflect such objectives.

**National Designations**

The principal national designation of ecological importance is Site of Special Scientific Interest (SSSI). SSSIs are designated by English Nature as being "of special interest by reason of... flora, fauna, or geological or physiographical features". SSSIs represent areas of national importance to nature conservation in the United Kingdom. In the context of the Yorkshire and North East coastlines it is worth noting that SSSIs are also often designated wholly or partly for their geological interest.

All public authorities along the coastline of the study area, including local planning authorities, have a duty under the amended Wildlife and Countryside Act 1981 to further and enhance the nature conservation interests of these sites whilst carrying out their statutory functions. This should be achieved by consulting the relevant government nature conservation advisors (in this case English Nature) for advice on whether a proposed licence or work to be undertaken directly for the authority is likely to harm the SSSI interests. If the advice is not followed, the authority must provide reasons for this in writing to the Secretary of State, and make good any damage to the site.

English Nature has also established non-statutory Sensitive Marine Areas at Flamborough Head and Robin Hood's Bay and Coast in recognition of the important littoral and sub-littoral features. Flamborough Head is now a European marine site (SAC – see above) for its littoral and sub-littoral reefs. However Robin Hoods Bay remains a non-statutory site, containing as it does a valuable sub-littoral resource of rocky and sedimentary habitats.

A map summarising the SSSI locations and boundaries along the coastline is provided in Figure 2.3 and Figure 2.4 below, and a list of SSSIs is provided in Table 2.3.

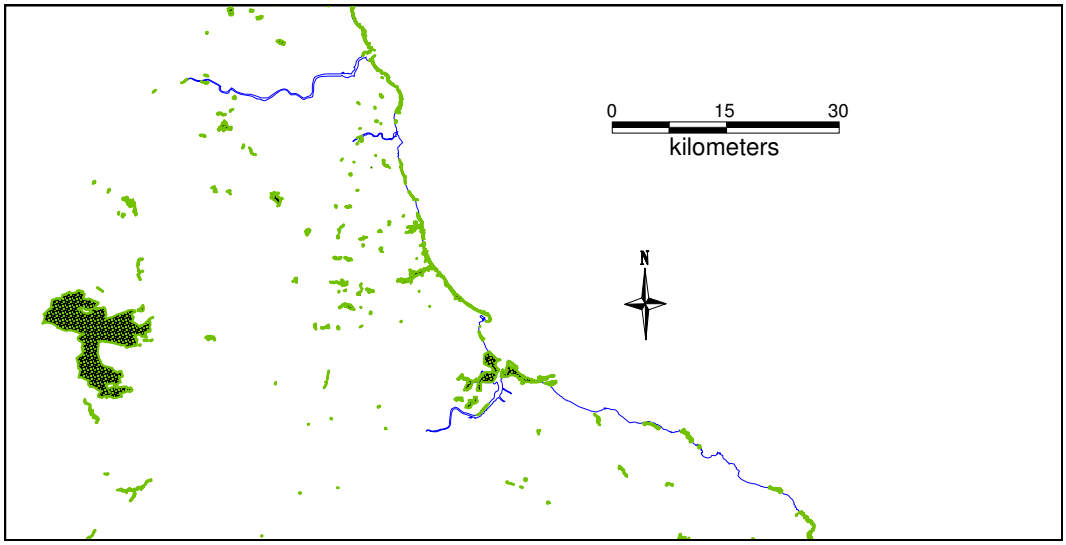



**Figure 2.3 SSSI sites in northern half of the SMP area (© Crown Copyright)**

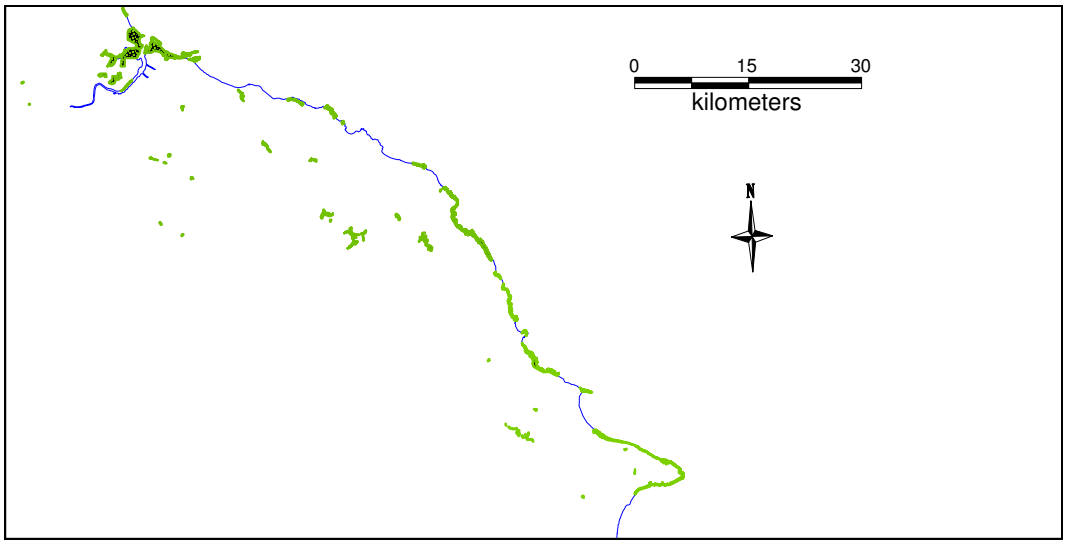



**Figure 2.4 SSSI sites in the southern half of the SMP area (© Crown Copyright)**

Further detail of SSSI site interests listed in Table 2.3 is provided below, including a summary of site features.

**Table 2.3 SSSIs within the SMP study area**

| Reference | Name | Hectares | Citation |
|---|---|---|---|
| 1003262 | BOLDON PASTURES | 3.55 | 1002859 |
| 1003198 | BOULBY QUARRIES | 42.39 | 1000219 |
| 1003375 | CASTLE EDEN DENE | 189 | 1000738 |
| 1003580 | CAYTON, CORNELIAN & SOUTH BAYS | 155.5 | 1004165 |
| 1003608 | CLEADON HILL | 10.18 | 1000817 |
| 1003190 | COWPEN MARSH | 121.56 | 1000036 |
| 1007205 | DURHAM COAST | 511.08 | 1000255 |
| 1003449 | FILEY BRIGG | 27.64 | 1002497 |
| 1003595 | FLAMBOROUGH HEAD | 326.92 | 1002289 |
| 1003455 | GRISTHORPE BAY & RED CLIFF | 52.96 | 1002632 |
| 1003359 | HARTLEPOOL SUBMERGED FOREST | 20.58 | 1002491 |
| 1003225 | HARTON DOWN HILL | 1.02 | 1001204 |
| 1003391 | HAWTHORN DENE | 63.01 | 1000304 |
| 1003235 | HAWTHORN QUARRY | 11.04 | 1001762 |
| 1003464 | HAYBURN WYKE | 21 | 1003327 |
| 1003259 | HODDY COWS SPRING | 1.98 | 1002371 |
| 1003467 | IRON SCAR & HUNDALE POINT TO SCALBY NESS | 116.86 | 1003380 |
| 1003496 | NORTH BAY TO SOUTH TOLL HOUSE CLIFF | 9.71 | 1004394 |
| 1007119 | NORTH YORK MOORS | 44096.86 | 2000356 |
| 1003355 | NORTHUMBERLAND SHORE | 1888.26 | 2000134 |
| 1003200 | REDCAR ROCKS | 30.23 | 1000263 |
| 1006290 | ROBIN HOODS BAY: MAW WYKE TO BEAST CLIFF | 369 | 2000311 |
| 1003480 | RUNSWICK BAY | 10.06 | 1003689 |
| 1003660 | SALTBURN GILL | 20 | 1000289 |
| 1003195 | SEAL SANDS | 297.13 | 1000141 |
| 1003196 | SEATON DUNES & COMMON | 313.58 | 1000150 |
| 1003197 | SOUTH GARE & COATHAM SANDS | 396.35 | 1000178 |
| 1003498 | STAITHES-PORT MULGRAVE | 63.19 | 1004429 |
| 1006651 | TEES & HARTLEPOOL FORESHORE & WETLANDS | 245.32 | 2000289 |
| 1003223 | TYNEMOUTH TO SEATON SLUICE | 87.36 | 1001176 |
| 1003507 | WHITBY-SALTWICK | 39.95 | 1000071 |
| 1003224 | WEAR RIVER BANK | 4.8 | 1001193 |

## Boldon Pastures

Boldon Pastures comprises unimproved neutral grassland formerly subject to ridge and furrow cultivation, with associated hedgebanks and drainage channels, a rare habitat in this district.

## Boulby Quarries

Boulby Quarries provide a series of highly important cliff-top exposures which cut through the base of the mid-Jurassic Ravenscar Group into Upper Lias deposits of the Lower Jurassic Period.

### Castle Eden Dene

Castle Eden Dene SSSI was first notified in 1984, and is also designated a National Nature Reserve, managed by English Nature, and is a candidate SAC as noted above. The site is the largest and biologically the richest of a series of steep-sided wooded denes and supports important calcareous woodland habitats. The section of Castle Eden Dene located to the east of the A I 086 is included within the Durham Coast SSSI.

### Cayton, Cornelian and South Bays

Cayton, Cornelian and South Bays are of both biological and geological interest. The cliffs and foreshore between Scarborough and Cayton Bay show a superb composite section through rocks of Middle to early Upper Jurassic age, including deposits of Bajocian, Bathonian, Callovian and Oxfordian age. The cliffs are also of importance for species-rich vegetation and notable assemblages of invertebrates.

### Cleadon Hill

Identified in 1984, Cleadon Hill is of interest for its Magnesian Limestone grassland communities which are associated in the main with shallow soils, rock outcrops and old earthworks on the flanks of the hill.

### Cowpen Marsh

Cowpen Marsh SSSI comprises a large area of saltmarsh and coastal grazing marsh which provide important nesting and feeding grounds for migratory wildfowl and waders. Part of Cowpen Marsh is managed as a nature reserve by a committee comprising English Nature, ICI and the Industry and Nature Conservation Association (INCA). This SSSI includes Greatham Creek.

### Durham Coast

The boundary of the Durham Coast has been extended during the 1999 revision and incorporates the following sites previously notified under Section 28 of the Wildlife and Countryside Act, 1981 (as amended): Trow Point to Whitburn Steel, Seaham Harbour, Shippersea Bay and Warren House Gill, Blackhalls Rocks and Hart Warren Dunes. The site is adjacent to Tees and Hartlepool Foreshore and Wetlands SSSI, Castle Eden Dene SSSI and Hawthorn Dene SSSI. Part of the site is listed as Hart Warren to Hawthorn Dene Coast in 'A Nature Conservation Review', edited by D. A. Ratcliffe (1977), Cambridge University Press.

The site contains six Geological Conservation Review (GCR) sites: Marsden Bay, Whitburn, Blackhalls Rocks, Seaham Harbour, Shippersea Bay and Warren House Gill. Parts of the site are within the Castle Eden Dene National Nature Reserve and the Durham Coast National Nature Reserve. Blackhall Rocks is owned by Durham Wildlife Trust and managed as a reserve.
Parts of the Durham Coast fulfil criteria for consideration as part of a proposed Wetland of international importance under the Ramsar Convention

and proposed Special Protection Area under the European Community Directive 79/409/EEC on the Conservation of Wild Birds.

The site supports the following species which are listed in British Red Data Books: Birds, edited by L. A. Batten, 1990: little tern and British Red Data Books Insects, edited by D. B. Shirt, 1987: *Photedes captiuncula* (least minor moth) and *Helophorus dorsalis* (water beetle).

The Durham Coast contains most of the paramaritime Magnesian Limestone vegetation in Britain, as well as a species-rich dune system, and supports nationally important numbers of wintering shore birds and breeding little terns which contribute to the internationally important populations of the north-east coast.
A small saltmarsh occurs at the mouth of the Castle Eden Dene, whilst at Crimdon there is a small area of sand dune dominated by marram grass (*Ammophila arenaria*). The cliffs of Marsden Bay also support a sea bird colony which includes over 4100 pairs of kittiwake, 150 pairs of fulmar and 110 pairs of cormorant which breed on top of Marsden Rock.

**Filey Brigg**

Filey Brigg is of both geological and ornithological interest. It is a key Corallian site showing the most extensive exposures through the Lower Calcareous Grit, the Hambleton Oolite and Middle Calcareous Grit. Filey Brigg affords the best opportunity to examine the Calcareous Grit and its faunas. The 'Ball Beds', which are lost further west in Yorkshire, are particularly well exposed here.
During the winter months the intertidal areas and rocky shoreline of Filey Brigg support purple sandpiper in nationally significant numbers.

**Flamborough Head**

The SSSI comprises the coastal cliffs of Flamborough Head between Reighton and Sewerby, composed of chalk and softer sedimentary rocks. The cliff line exposes a variety of internationally important geological features and the chalk, which reaches 130m at Bempton, has been eroded to form impressive stacks and caves between North Cliff and Castlemere Hole. As discussed in more detail in Section XXX above, these rock exposures are also of interest in supporting important breeding bird colonies, whilst the cliff tops and sides support internationally important plant communities.

**Gristhorpe Bay and Red Cliff**

A nationally important stratigraphic locality for the Middle Jurassic, Gristhorpe Bay is of great historical significance in the development of the study of the Jurassic in Yorkshire. It is the type locality of the Cayton Bay Formation (*Millepore* and Yon Nab Beds) and the Gristhorpe Plant Bed and also preserves an important section in the attenuated Scarborough Formation, near the southern limit of its present distribution. The overlying Scalby Formation is also of considerable interest at this locality.

### Hartlepool Submerged Forest

This site was first notified in 1988 in view of its stratigraphic evidence for Flandrian sea-level changes in Eastern England. The interest is focused upon inorganic and organic deposits of the intertidal area, including a peat bed. The deposits contain pollen and archaeological remains which have been used to date sea level change over the last 5000 years. In addition to its designation as an SSSI, the site is identified as of national importance in the Flandrian Sea-Level Changes block of the Geological Conservation Review. Special consideration will be required when assessing and undertaking coast protection schemes in this area, in order to ensure that the value of the site is not compromised.

### Harton Down Hill

Harton Down Hill is of importance for the Magnesian Limestone Grassland communities which are associated with the shallow soils and rock outcrops of this small but prominent hill near South Shields. It is less than 500m from the existing coastline.

### Hawthorn Dene

Hawthorn Dene SSSI was first notified in 1968 for its semi-natural woodland habitat on Magnesian Limestone and additional habitats including Magnesian Limestone grassland and tall fen. A revision in 1984 resulted in the coastal grasslands to the east of the railway being incorporated into the adjoining Durham Coast SSSI, but Hawthorn Dene SSSI should be considered in the preparation of the SMP as the Magnesian Limestone grassland which extends to the east of this site.

Hawthorn Dene supports one of the most extensive, diverse and least disturbed areas of semi-natural woodland on the Magnesian Limestone of County Durham (second only to Castle Eden Dene), with additional habitats including Magnesian Limestone grassland and tall fen.

A number of local species are noted at this site, including yellow-wort *(Blackstunia perfuliata),* dyers green-weed (*Genista tincturia)* and lesser meadow rue (*Thalictrum minus).* The site is managed as a Nature Reserve by Durham Wildlife Trust.

### Hawthorn Quarry

The western end of Hawthorn Quarry is designated as an SSSI for its geological interest. This Quarry lies adjacent to the Durham Coast Railway which separates it from the coastal landscape. This site has sections in the Middle Magnesian Limestone which is highly informative and helps in the understanding of the later evolution of carbonate environments in the mid-Magnesian Limestone times, with reef carbonate overlain by bedded, non-reef sediments.

### Hayburn Wyke

This site is of national importance for its fossil plant beds, deciduous woodlands and also hosts healthy bird populations.

### Hoddy Cows Spring

Hoddy Cows Spring is a wet pasture on boulder clay through which a base-rich spring arises from the underlying chalk. The area occupied by the spring itself is very small, and consists of a tussocky fen community with an abundance of mosses, and a great diversity of flowering plants. Despite its very small area, this is a site of particular interest in North Humberside, being one of only four sites known in the area displaying a species-rich fen flora.
The site lies less than 800m from the existing coastline.

### Iron Scar and Hundale Point to Scalby Ness

This site is of note for its geological interest. The cliffs and intertidal reefs between Iron Scar and Scalby Ness provide an almost complete section through the rocks of the Lower and Middle Jurassic Aalenian, Bajocian and Bathonian Stages and the exposures here are of national importance. In addition important fossil plant localities occur at Cloughton Wyke and Scalby Ness.

### North Bay to South Toll House Cliff

The site comprises both cliff and foreshore geological exposures which together demonstrate a remarkably complete succession through the Callovian Stage and the Lower Oxfordian Substage geological periods.

### Northumberland Shore

The Northumberland Shore includes most of the coastline between the Scottish border and the Tyne Estuary. This complements the Lindisfarne SSSI, which it abuts, in providing important wintering grounds for shore birds, and it is of international, or national significance for six species, purple sandpiper, turnstone, sanderling, golden plover, ringed plover and redshank.
The Northumberland shore consists largely of sandy bays separated by rocky headlands with wave-cut platforms, backed by dunes or soft and hard cliffs. Discrete areas of estuarine intertidal mudflats and saltmarsh are also included.
In additional, the Northumberland Shore as a whole is used by various other species in winter including curlew *(Calidris ferrugineai*), oystercatcher (*Haemaiopus ostralegusi*) dunlin (*Calidrs alpine*), knot (*Calidris canutusi*), bar-tailed godwit (*Limosa lapponica*) and lapwing (*Vanellus vanellus).* Arctic and little terns breed on the shore during the summer.

### Redcar Rocks

The Redcar Rocks geological SSSI was first notified in 1984. The SSSl represents the finest exposures of rock in the Lower Lias series, and displays most of the stratigraphical interval missing from along the Yorkshire coast sections. When exposed at low tide, the rocks and sands are important feeding grounds for wading birds including knot, sanderling and turnstone.

### Robin Hoods Bay: Maw Wyke to Beast Cliff

This site consists of part of the North Yorkshire coast in the vicinity of Robin Hood's Bay, north of Scarborough, from Maw Wyke and Hawsker Bottoms at

the northern end to Beast Cliff at the southern end. The site is of importance for five distinct areas of geological interest, the coastal/woodland vegetation at Beast Cliff and the zonation of marine biotopes on the rocky foreshore.
One site unit, the area immediately around Robin Hoods Bay village, is currently identified as being in 'unfavourable condition' through English Nature's site condition monitoring programme. This has been caused by the presence of coastal defences interrupting natural processes required to maintain the nature conservation interests at the locality.

**Runswick Bay**

This site has been identified for its geological fossil remains.

**Saltburn Gill**

Saltburn Gill is a steep sided coastal dene, incised into glacial clays, shales and sandstones of the Lower Jurassic period. The site comprises the eastern slopes of the gill which are of particular importance in supporting one of the few relatively undisturbed areas of mixed deciduous woodland in Cleveland.
The site currently lies less than 500m from the coastline at its most easterly end.

**Seal Sands**

Seal Sands SSSI contains extensive tidal flats which support important populations of knot *(Calidris canutus),* redshank (*Tringa totanus),* shelduck (*Tadorna tadorna),* ringed plover *(Charadrius hiaticula)* and sandwich tern *(Sterna sandvieensis).*

**Seaton Dunes and Common**

Seaton Dunes and Common SSSI is located to the north of the Tees Estuary, and supports a range of habitats and associated species. The dunes to landward of sandy shores and flats have a diverse flora, including the nationally scarce rich-leaved fescue (*Festuca* junclfolia). A moderately extensive area of grazing marsh is also present. Parts of the Seaton Dunes and Common SSSI fall within the boundaries for the Teesmouth NNR, and the Seaton Dunes have also been designated a Local Nature Reserve (LNR). Works to prevent coastal and footpath erosion within the site have been undertaken and these are supported by the Borough Council. Local planning policies make provision for enhancement of the SSSIs.

**South Gare and Coatham Sands**

South Gare and Coatham Sands SSSI includes a large area of sand dunes, fronted by extensive intertidal habitats. The mudflats at Bran Sands within the SSSI provide feeding grounds for many birds including the bar-tailed godwit *(Limosa lapponica),* curlew *(Numenius arquata),* redshank (*Tringa totanus)* and grey plover *(Pluvialis squatarola).* An important breeding colony of little terns *(Sterna albifrons)* is found on the stretch of coastline at the South Gare and a new colony has also established at Crimdon in recent years. Little terns are listed on Annex I of the EC Birds Directive and are

subject to "special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution".

**Staithes to Port Mulgrave**

This SSSI is of international stratigraphic significance, providing excellent exposures of the geological Pliensbachian-Toarcian stage boundary.

**Tees and Hartlepool Foreshore and Wetlands**

The Tees and Hartlepool Foreshore and Wetlands comprises several coastal areas which are an integral part of the complex of wetlands, estuarine and maritime sites supporting the internationally important population of wildfowl and waders on the Tees Estuary.

The successive reclamation and development of the Tees Estuary has resulted in the loss of most of the upper shore as feeding and roosting areas for waterfowl. At high tide the birds have to disperse to inland wetlands or more distant coastal locations. Research has shown that the birds move in regular patterns around the estuary utilising different sites at different stages of the tide.

In winter the site supports nationally important numbers of purple sandpiper, sanderling and shoveler.

**Tynemouth to Seaton Sluice**

As well as supporting significant bird populations, this site also provides one of the best exposures of Coal Measures strata in Great Britain, and outcrops yield non-marine bivalve faunas which provide details of the stratigraphical sequence other outcrops such as sandstone bodies mean that the site is of considerable importance for interpreting the palaeogeographical structure of Britain during the Middle Carboniferous period. The coast from Tynemouth to Seaton Sluice provides one of the best exposures of Coal Measures strata in Great Britain, showing a continuous lower Westphalian B sequence from the Plessey to the High Main seams. It includes outcrops of numerous coal seams, and several mudstone horizons yielding non-marine bivalve faunas, which together provide a tight stratigraphical control on the sequence.

**Whitby to Saltwick**

On the coast between Whitby and Saltwick three blocks of geological interest have been identified covering vertebrate palaeontology, palaeobotany and Toarcian exposures. This stretch of coast is considered to be of international stratigraphic significance for its classic section in the Lower Toarcian; a critical Jurassic exposure forming the type locality for the Whitbian Substage.

**Wear River Bank**

The Wear river bank provides the best exposure of the highest Carboniferous, early Westphalian C age, strata in the Northumberland and Durham Coalfield. It is situated well up the Wear estuary.

## National Nature Reserves

In addition to SSSIs, several National Nature Reserves (NNRs) are situated along the coast, as listed in Table 2.4. NNRs represent some of the most important natural and semi-natural ecosystems in Great Britain. They are statutorily declared under section 19 of the National Parks and Access to the Countryside Act 1949, or section 35 of the Wildlife and Countryside Act 1981, and managed for the national interest of the site and its wildlife.

**Table 2.4 NNRs situated within the SMP area**

| Reference | Name | Summary description | Hectares |
|---|---|---|---|
| 1007022 | DURHAM COAST | Declared 1951, this site includes part of Seal Sands and Seaton Dunes and Common SSSI The NNR is located in the Easington District and comprises sections of the coastline between Horden in the north and Crimdon in the south. | 62.61 |
| 1006029 | CASTLE EDEN DENE | Castle Eden Dene is the largest area of semi-natural woodland in north-east England, renowned for yew trees. It was upgraded from a Local Nature Reserve to a NNR in 1985 in view of the quality of its limestone geology, vegetation and wildlife. | 221.06 |
| 1006937 | TEESMOUTH | Teesmouth National Nature Reserve (NNR) is a coastal site with a range of habitats including intertidal mud and sand flats, sand dune systems, saltmarsh and grazing marsh. The site has a highly industrial context at the mouth of the Tees Estuary, close to the conurbations of Middlesborough, Stockton-on-Tees, Billingham and Hartlepool. Its main interest is ornithological. | 344.46 |

## Regionally and locally important sites

Local Planning Authorities have powers to identify Sites of Importance for Nature Conservation (SINCs). Whilst these sites are not protected by legislation, the local planning assumption is that development which would result in loss or significant harm to the wildlife value of these areas would not be permitted. In addition, positive management of these sites is often facilitated in the form of assistance with funding applications from local conservation groups, or with recognition in local plans in order to facilitate planning gain opportunities.

Planning authorities are also often eligible for funding to identify and manage Local Nature Reserves. A list of these sites is provided in Table 2.5.

**Table 2.5 Local Nature Reserves in the SMP area** (from www.magic.gov.uk)

| Name | County | Grid reference | Hectares |
|---|---|---|---|
| CLARKSONS WOOD | Cleveland | NZ707179 | 16.93 |
| CLEADON HILLS | Tyne & Wear | NZ389630 | 10.19 |
| DANES DYKE | East Riding of Yorkshire | TA216696 | 61.49 |
| FLAMBOROUGH OUTER HEADLAND | East Riding of Yorkshire | TA252702 | 83.08 |

| | | | |
|---|---|---|---|
| FULWELL QUARRY | Tyne & Wear | NZ382598 | 17.1 |
| HART TO HASWELL WALKWAY | Durham | NZ477365 | 9.85 |
| HART WARREN DUNES | Durham | NZ492363 | 4.46 |
| HARTON DOWN HILL | Tyne & Wear | NZ391655 | 4.51 |
| HOLYWELL DENE | Tyne & Wear | NZ334750 | 13.6 |
| MARSDEN OLD QUARRY | Tyne & Wear | NZ393643 | 19.33 |
| ROSECROFT WOODS | Cleveland | NZ716175 | 7.04 |
| SEATON DUNES AND COMMON | Durham | NZ527285 | 96.16 |
| SOUTH LANDING | East Riding of Yorkshire | TA232694 | 14.89 |
| ST MARY'S ISLAND | Tyne & Wear | NZ349749 | 47.61 |
| SUMMERHILL | Durham | NZ485314 | 41.26 |
| TUNSTALL HILLS | Tyne & Wear | NZ395540 | 40.9 |
| WHITBURN POINT | Tyne & Wear | NZ412633 | 4.11 |
| WHITECLIFF, LOFTUS AND ROSECROFT WOODS | Cleveland | NZ713182 | 15.08 |

Regionally important geological sites can be identified by local geology groups such as Scarborough and Ryedale Geological Trust as Regionally Important Geological Sites (RIGS). RIGS are considered worthy of protection in view of their educational, historical or aesthetic importance, as well as their intrinsic geological interest. A full list of RIGS sites is not available for the whole SMP area. However, RIGS groups are among the target stakeholder consultees, ensuring due consideration of RIGS sites as part of the SMP development process.

### Other Conservation Areas and habitats

Several non-governmental conservation organisations have land holdings in the study area, most of which overlap with other statutory and non-statutory designations such as SSSIs, Heritage Coast or National Parks. These include the Royal Society for the Protection of Birds (RSPB), the National Trust, the Durham, Cleveland and Yorkshire Wildlife Trusts. The latter formerly managed the Hayburn Wyke woodlands reserve, however management responsibility has now been taken over by the National Trust, who are also the landowners.

### National Trust

The National Trust is a key stakeholder within the SMP review process, owning a significant proportion of the coastline with much of this land subject to Royal Charter. A list of land ownership is provided in Table 2.6.

**Table 2.6 National Trust land holdings within the SMP area (indicative only)**

| Property Name | Public Access Arrangements | Area (ha) |
|---|---|---|
| BEACON HILL | NO AUTOMATIC RIGHT OF ACCESS | 166.92 |
| CAYTON BAY & KNIPE POINT | NO AUTOMATIC RIGHT OF ACCESS | 39.32 |
| COWBAR NAB | NO AUTOMATIC RIGHT OF ACCESS | 1.15 |
| HAYBURN WYKE | NO AUTOMATIC RIGHT OF ACCESS | 27.16 |
| HUMMERSEA | NO AUTOMATIC RIGHT OF ACCESS | 79.52 |
| NEWBIGGIN EAST FARM | NO AUTOMATIC RIGHT OF ACCESS | 34.85 |

| | | |
|---|---|---|
| PORT MULGRAVE AND RUNSWICK BAY | NO AUTOMATIC RIGHT OF ACCESS | 47.02 |
| RAVENSCAR | NO AUTOMATIC RIGHT OF ACCESS | 207.85 |
| RAVENSCAR | NO AUTOMATIC RIGHT OF ACCESS | 207.85 |
| ROBIN HOOD'S BAY | NO AUTOMATIC RIGHT OF ACCESS | 163.45 |
| SALTWICK NAB | NO AUTOMATIC RIGHT OF ACCESS | 3.36 |
| THE LEAS & MARSDEN ROCK | NO AUTOMATIC RIGHT OF ACCESS | 113.78 |
| THE LEAS & MARSDEN ROCK | NO AUTOMATIC RIGHT OF ACCESS | 113.78 |
| WARREN HOUSE GILL AND FOXHOLES DENE | NO AUTOMATIC RIGHT OF ACCESS | 93.56 |
| WARSETT HILL | NO AUTOMATIC RIGHT OF ACCESS | 74.14 |

Taken from www.magic.gov.uk

At many of these sites the National Trust's overall policy of working with natural processes where possible is likely to influence shoreline management strategy and policy, for example at Cayton Bay.

### RSPB Reserves

The RSPB owns and manages one reserve within the SMP area. The Bempton Cliffs reserve on the north side of the Flamborough headland is one of the most visited reserves in the UK, where visitors can view some of the sea bird life for which the cliffs are recognised as being internationally important.

### Habitats within the SMP boundaries

The shoreline of the SMP area is very rich in terms of habitats, geology and ecology and this is reflected in the number of designations afforded at international, national and local level. English Nature's Natural Area Profiles for the whole SMP study area include areas 99, Tyne to Tees Coast, and 100; Saltburn to Bridlington. These describe the key habitats present along the coast and the processes, both natural and sometimes anthropogenic, within which these habitats sit.

The following descriptions are adapted from the Natural Area profiles along the coast from the Tyne to Flamborough Head.

### Natural Area Profile 99: Tyne to Tees Coast

This maritime Natural Area encompasses a varied coastline with Magnesian Limestone cliffs south of the Tyne giving rocky shore platforms, with headlands and sandy bays along the coast to Whitburn. Some mudflats survive on the tidal part of the Tyne and Wear. The Magnesian Limestone outcrops again from Seaham south to Crimdon but for the most part the interest is hidden under coal waste in the intertidal zone and the sea that forms a covering in the subtidal reaching up to the extreme high tide level. Almost no sea life survives in these areas, except on headlands where high currents maintain an exposed rocky shore fauna. The cliff-top grasslands have a maritime character and differ from the Magnesian Limestone grasslands further inland. At Crimdon the cliffs give way to sand dunes and beach which stretch south to the Tees with the exceptions of the rocky shore

of Hartlepool headland and the protected frontage from Hartlepool to Seaton Carew. The Tees Estuary, although devastated by land-claim, has remnants of its original habitats with mudflats, saltmarsh, grazing marsh and associated wetlands. South of the Tees the dunes give way to beaches with protected frontage at Redcar and Marske, with cliffs at Saltburn.

### Coastal Sand Dunes

There are sand dunes present within the sub-cell 1b supporting a range of nationally scarce plants. The dunes are also important for breeding bird populations including little tern *(Sterna albifrons)* and a number of waterfowl. The Teesmouth Dunes are of international importance for birds as noted above. Bay dunes are almost exclusively represented at Hart Warren and flanking the mouth of the Tees. A summary of the dunes resource is provided in Table 2.5.

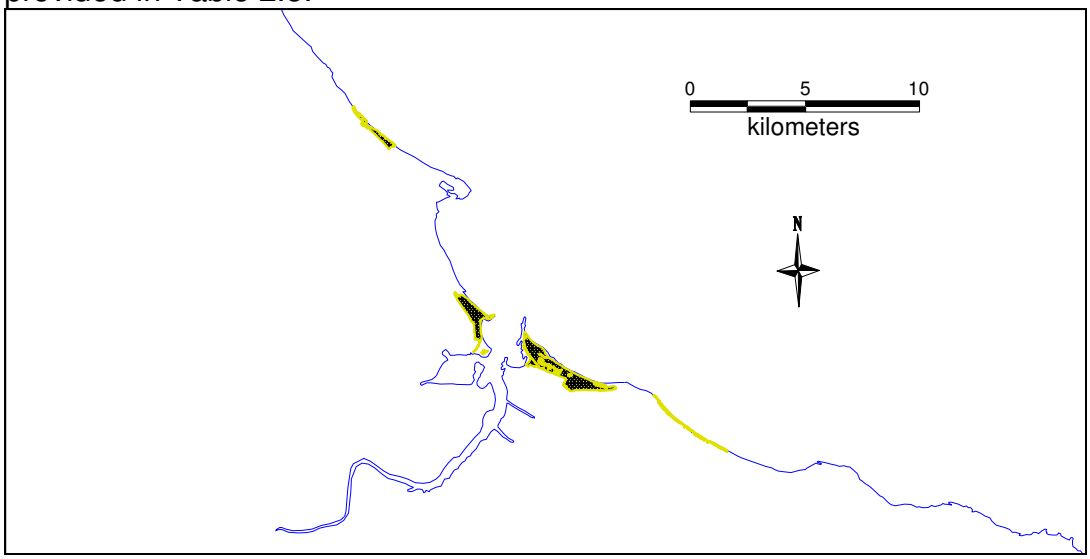



**Figure 2.5 Coastal dune habitats (© Crown Copyright)**

An interesting distinction can be made between these two; although lying less than 10km apart, the more northerly Hart Warren and Crimdon Dunes hold plant communities very similar to the distinctive types of the Northumberland Coast ,some 40 km to the north, with lesser meadow-rue, bloody crane's-bill and burnet rose. The Tees Bay dunes lack this distinctive character. Dunes at South Gare contain coastal inundation grassland dominated by tall fescue.

These dunes are likely to be threatened with sea level rises unless there is sufficient space to migrate landwards. This is likely to be a contentious issue as the dunes generally front land used for development (for example golf courses, and they provide some measure of coastal defence. If retreat of the dunes systems landward is prevented, the habitats will be lost by a process termed "coastal squeeze", as sea level rises. The little terns are known to nest in some of these dune systems, and are potentially threatened by changes in the rate of coastal erosion. Another issue to be considered during the preparation of the SMP is that Castle Eden Dene cSAC, SSSI and NNR supports a range of freshwater species. Although intrusion of saline

water is prevented by a bund on the shoreline, this situation is likely to change as sea level rises. It is not, however, considered that coastal defences should be constructed to prevent such ecological changes, as they would almost certainly be unsustainable.

Dune systems are also present further down the coast at Skinningrove, these representing one of the only dune areas between the Tees and the Humber Estuary.

**National Parks**

National Parks were defined by the National Parks and Access to the Countryside Act, 1949 as areas which, by reason of their landscape and environmental character and location in relation to centres of population, should be protected and enhanced for the benefit of the nation.

The purpose of National Parks along with the aims of the designation are:

- to preserve and enhance the natural beauty of the National Park; and
- to promote its enjoyment by the public.

In addition there is also the requirement to have regard to the social and economic well being of the local communities within the National Park, including the needs of farming and forestry. The North York Moors National Park is one of eleven National Parks, if the Broads Authority is included, and covers 533 square miles (1432 square kilometres). It was designated in 1952 to conserve the areas of heather moorland, traditional farmland, attractive villages, woodlands and 25 miles of the coastline, characterised by rugged cliffscapes and picturesque fishing villages.

It can therefore be concluded that those areas of the National Park within the study area, which are also generally coincident with the Heritage Coast designation, are of significant national importance in terms of landscape, ecological and land use consideration. The National Park is administered by a Committee as a part of the North Yorkshire County Council, with Committee members drawn from; County Councils; District Councils and one third of the members appointed directly by the Secretary of State for the Environment

**Heritage Coast**

There are three key Heritage Coasts within the SMP review area. These are the Durham, North Yorkshire and Cleveland, and Flamborough Head Heritage Coasts. The Heritage Coast boundaries are summarised in Figure 2.6. It should be noted that the North Yorkshire and Cleveland Heritage Coast is now managed by the Coastal Projects team, previously the Heritage Coast project, based in Whitby. This organisation has extended its conservation and community project activities south of the North Yorkshire and Cleveland Heritage Coast area to join up with the Flamborough Head Heritage Coast.

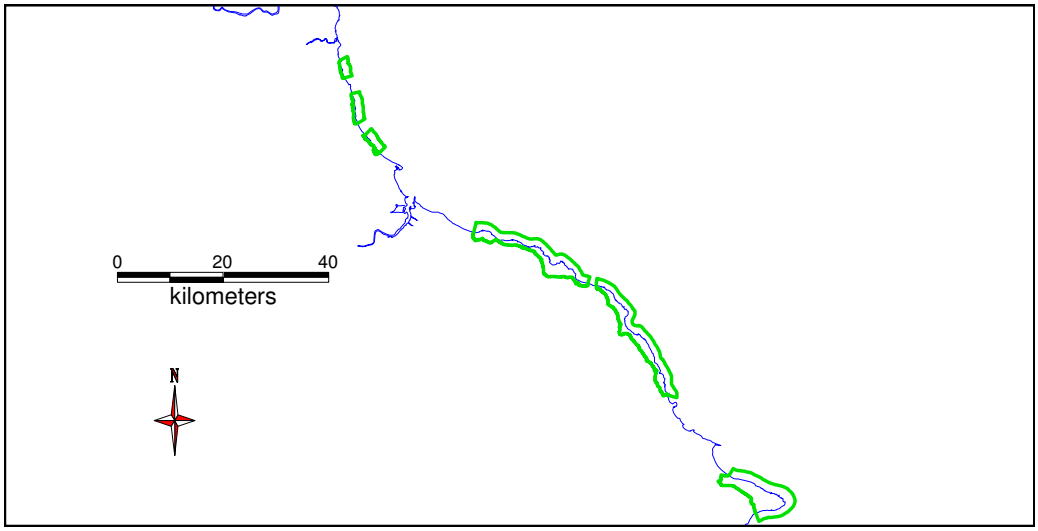



**Figure 2.6 Heritage Coast boundaries within the SMP area (© Crown Copyright)**

Further information on the Heritage Coasts is provided in Table 2.7 below.

**Table 2.7 Heritage Coast information within SMP area**

| Reference | Name | Area ($km^2$) | Hotlink |
|---|---|---|---|
| 15 | NORTH YORKSHIRE & CLEVELAND | 66.95 | http://www.countryside.gov.uk/livinglandscapes/finest_countryside/heritage_coasts/north_yorkshire_and_cleveland.asp |
| 4 | FLAMBOROUGH HEADLAND | 34.91 | http://www.eastriding.gov.uk/environment/sustainability/heritagecoasts.html |
| 32 | DURHAM | 6.23 | http://www.durhamheritagecoast.org/ |

The objectives of designation as Heritage Coast are set out by the Countryside Commission as follows:

"The finest stretches of coast justify national recognition as Heritage Coasts. They should be given effective protection and management; stronger measures should apply there than elsewhere. The main objectives for 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 architectural, historical and archaeological interest;
- to facilitate and enhance their enjoyment, understanding and appreciation by the public by improving and extending opportunities for recreational, educational, sporting and tourist activities that draw on, and are consistent with, the conservation of their natural beauty and the protection of their heritage features;
- 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 of the economic and social needs of the small communities on these coasts, by promoting sustainable forms of social and economic development, which in themselves conserve and enhance natural beauty and heritage features.

## D2.3 Earth Heritage

### D2.3.1 Introduction

The Tyne to Tees Coast contains several nationally important Earth science sites, most of which have been notified as SSSIs. Most of the interest is stratigraphical, particularly from the Permian Period of 250 million years before present. In addition to the actual geological or geomorphological value of the coast, the physical structure of many areas is critical to support a wealth of flora and fauna, indeed many of the invertebrate diversity of the study areas is found in areas not designated specifically for nature conservation. Several other sites are important in illustrating geomorphological processes of various types.

At Wear River Bank SSSI, the exposure of the Upper Carboniferous Westphalian beds, uncomfortably overlain by the lowermost Permian Yellow Sands, is a geological feature of nationally notable significance.

Three SSSI, together showing virtually the whole range of marine Permian strata exposed in Britain, occur on the steep cliffs of the coastline.

The sea-cliffs of Trow Point to Whitburn Steel SSSI provide the key to understanding much of the Magnesian Limestone Sequence, exposed in a variety of coastal exposures and inland quarries. They display a whole range of depositional features characteristic of the Zechstein Sea, and also the subsequent effects of evaporite dissolution and foundering. They are of international importance.

Further south, Seaham Harbour SSSI holds the type locality and the best examples of the Seaham Formation and the Seaham Residue, and is also important for the Roker dolomite. These are all geological strata which overlie the rest of the Magnesian Limestone sequence. They too provide a superb site for the study of evaporite dissolution.

At Blackhall Rocks on the Durham Coast excellent examples of stromatolites occur, showing associated strata and processes. Stromatolites are dome-shaped structures formed from colonies of micro-organisms or algae which once thrived on the tropical Permian reefs.

At Redcar Rocks, south of the Tees estuary, a sequence of Lower Jurassic rocks revealed within the foreshore off Redcar provide one of the most complete records of this period in Britain.

The Tyne to Tees coast also holds three sites important in illustrating processes characteristic of the most recent episodes in Britain's past. At Shippersea Bay the Easington Raised Beach can be seen, a sequence of sands and gravels containing marine shells resting on a rock platform 27m above present sea level. This provides key evidence for interpreting the late quaternary succession and in reconstructing past sea-levels. A second site, Warren House Gill, is important for displaying a sequence of ice-sheet deposits from the last glaciation and, importantly, preceding glaciations. Lastly the coastline reveals in Hartlepool Bay flat shelves of black ancient peat with the roots of half-fossilised pine trees embedded in it. This is Hartlepool Submerged Forest SSSI, which was growing 5,000 years ago but became covered during sea-level changes in the Flandrian period. The forest is now revealed again as conditions change once more.
The SSSI at Trow Point to Whitburn Steel is not only important for the stratigraphical sequence of the Permian rocks but also in demonstrating a range of coastal geomorphological features such as cliffs, wave-cut platforms, caves, arches and stacks.

**Littoral sediments**

Over a century and a half, some 80% of the mud, silt and sand bank habitat in the Tees Estuary has been reclaimed - walled around and ground made using dredgings to create industrial real estate. The remaining natural areas of the intertidal zone and the nearby wet grassland are still of outstanding interest for the bird life they support. The remaining estuary-related habitats form the single most important concentration of wildlife interest in the natural area, and one of the most distinctive conservation features in Europe.

**Maritime cliffs and slopes**

Between South Shields and the Wear lies a relatively natural coastline of high cliffs and rocky shores with some sandy bays, important for its wildlife interest. The cliffs here tend to be steep or sheer and support very limited areas of Magnesian Limestone grassland on cliff-tops, often ‘squeezed’ by amenity grassland on the plateau above. The more exposed headlands show a greater (although still limited) development of true maritime grassland and ledge-flora than is seen on the Durham coast further south.

Further south, the Durham Coast holds excellent examples of paramaritime Magnesian Limestone grassland, as discussed previously. The Magnesian Limestone is subject to an increasing rate of coastal erosion, particularly where spoil heaps have been removed from the shore, and statutory bodies are increasingly attempting to find methods to work with these processes wherever possible.

The national context of this vegetation of soft cliffs and coastal slopes is poorly understood, and whilst some of its intimate mosaic of communities are quite good examples of types of mire, mesotrophic or calcareous grassland typical of inland areas, others, often those with a maritime flavour, are more

unusual. These latter types may take the form of open vegetation over slumped mud with a mixture of calcicoles, ruderal species such as coltsfoot (growing, most unusually, in highly natural situations), and maritime herbs such as sea-pink and sea plantain. Alternatively, typical grassland types such as the calcicolous *Festuca-Avenula* grassland may occur over steep shallow soils but hold a high proportion of sea plantain. In yet other places slumped soils may be dominated by tall fescue, a grassland-type with strong coastal affinities. Only on the most exposed headlands of hard cliffs is there limited development of true maritime grasslands. Lastly, maritime influence is also seen in at least one area where perched dune vegetation with marram and sand sedge occurs atop low cliffs, and the atlantic fern sea spleenwort grows in some of its southernmost east-coast colonies on hardcliffs near Blackhall.

### Natural Area 100: Saltburn to Bridlington

The Natural Area is located on the north-east coast and stretches from the Tees Estuary in the north to Flamborough Head in the south. The coastline is largely dominated by hard cliffs of chalk, limestone and sandstone with some soft cliffs of boulder clay. The most well known feature is Flamborough Head, where high chalk cliffs support important breeding populations of seabirds. The wave-cut chalk platforms provide a variety of exposures to wave action and support a unique diversity of algal species, including species at their southern limits of distribution. The coastal cliffs are of outstanding importance for their geological stratigraphy and fossils. The slumping cliffs of boulder clay support species rich-grassland and rare invertebrates.

### Littoral and sub-littoral chalk

Chalk reefs by Flamborough Head extend up to 6 km out to sea, with rich communities of seaweeds and invertebrate animals, many of which have not been recorded from other chalk shores in Britain.

### Littoral rock

Rocky shores along the coast are generally characterised by wave-eroded rock platforms which run into the sea at right angles, and can extend from foreshore, through beach, to sub- tidal areas. Outcrops of sandstone, shale, limestone and chalk all occur as might be expected from the geology of the area. Biological communities present may include brown, green and red seaweeds, molluscs (such as mussels, limpets, periwinkles and dogwhelks), crustaceans (such as edible crabs, barnacles and lobsters), echinoderms (such as starfish and sea urchins) and a variety of other animals such as sponges and sea anemones. Rocky platforms adjacent to sewage outfalls are often dominated by mussel beds, which thrive on the nutrient-rich water.

### Maritime cliff and slopes

Grasslands of importance are present on cliffs all along the coastline within this Natural Area, and a summary of the known resource extent is provided in Figure 2.7. On calcareous substrates, much as sandstone, good base-rich

grasslands are present, with species such as kidney vetch, quaking grass sedges and cowslips present. Closer to the sea, more maritime species such as thrift and sea plantain can be abundant. Orchids such as pyramidal orchid, twayblade and common spotted-orchid are sometimes present in more species-rich areas. Damper, flushed areas may support common reed, grass-of-Parnassus, northern marsh-orchid and sometimes even saltmarsh species such as common saltmarsh-grass, sea arrowgrass and sea-milkwort. Recently exposed areas of mud and shale are often colonised by coltsfoot.

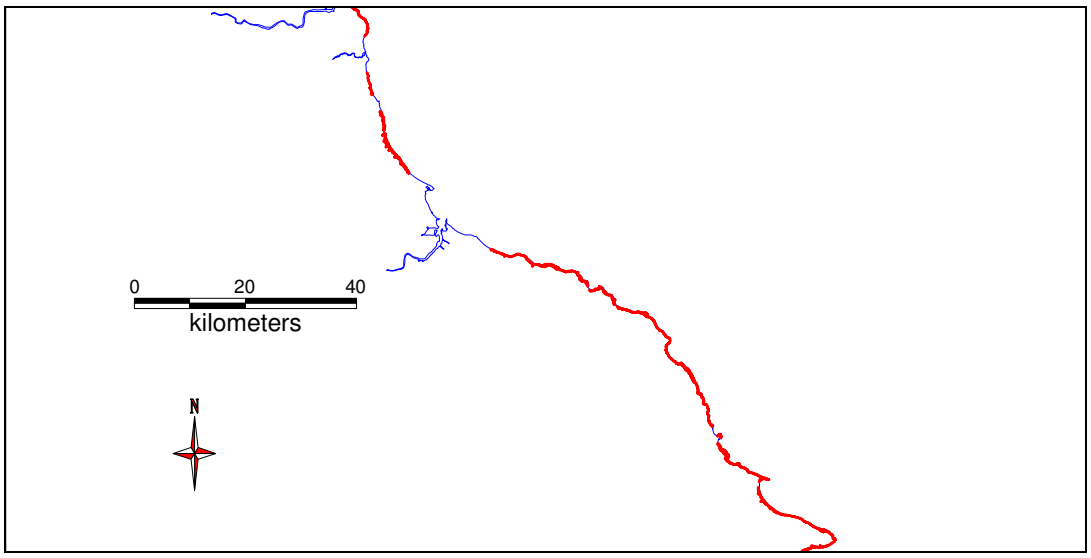



**Figure 2.7 Maritime Cliff and Slopes (shown in red) along the SMP coastline (© Crown Copyright)**

Populations of cliff-nesting birds are found all along the coast of the Natural Area, especially where the cliffs are composed of solid rocks such as sandstone and chalk and provide secure nesting sites, including the SPA at Flamborough Head. Other sea-birds found on these cliffs include fulmars and gannets, whilst peregrines are a rare occurrence nesting and hunting on coastal cliffs. Cliff vegetation may provide suitable breeding habitats for birds such as chiffchaff, willow warbler, pied flycatcher, redstart and blackcap.

The coastal cliffs support a good range of invertebrates including beetles, butterflies, flies, bugs, bees and wasps. Some of these invertebrates are associated with vegetation communities present on the cliffs, such as some weevils and butterflies, whilst others are associated with substrates, in particular the Upper Jurassic clays, for example ground beetles and woodlice (e.g. *Trichoniscoides albidus*).

The Cayton and Cornelian Bay area is believed to have the richest invertebrate fauna of ground beetles and soldier flies associated with soft-rock cliffs in the whole of northern England, with similarities to some of the soft cliffs on the Norfolk coast. Seepages in the cliff grasslands support important populations of soldier flies (Stratiomyidae) and weevils, whilst the bare earth and boulder clay blocks of the soft cliffs support nationally scarce ground beetles, including the shore ground beetle and a number of beetles of

the genus Bembidion. This resource depends on the continued action of natural processes on the soft cliffs, providing cracks and bare ground for the various different invertebrate requirements.

**Coastal vegetated shingle**

Eroded rocks can accumulate as shingle, slate or boulder beaches. The undersides of larger pieces of rock can support a variety of animal life including polychaete worms, molluscs, crustaceans and echinoderms; channel wrack occurs amongst the localised shelter of large boulders in Robin Hood's Bay and is infrequent elsewhere along the Yorkshire coast. More exposed areas may host seaweeds, barnacles, tube-living polychaete worms and bryozoans (a type of colony-forming invertebrate).

**Inshore sublittoral sediments**

Beds of eel grass *Zostera sp*. can occur in subtidal (sublittoral) sediments and the animal communities of these soft sediments are often dominated by species of polychaete worms. The rare hydroid *Tamarisca tamarisca* is recorded from sublittoral sediments off Robin Hood's Bay, as is the sea slug *Stelliger bellulus* which is often associated with eelgrass beds.

**Littoral sediment**

All along the Natural Area, intertidal areas of sand and mud can support wading birds such as redshank, dunlin, oystercatcher and sanderling. Sandy tidal areas, especially around Sandsend, Scarborough and south of Filey Brigg, are particularly good habitats for wading birds as they are rich in the invertebrates which provide an important food source for the birds. Invertebrates present include polychaete worms (marine bristle worms) such as lugworm *Arenicola marina* which burrow into the sand, as well as a variety of crustaceans and molluscs (e.g. razorshell).

The Esk estuary is the only estuary within the Natural Area. The estuary shores consist largely of muddy sand, cobbles and exposed bedrock. Middle reaches of cobbles and pebbles on mud are dominated by *Fucus* seaweeds, with mussels and barnacles. Upper reaches are predominantly muddy and sandy, mainly dominated by crustacean populations.

# D3 Landscape & Character

## D3.1 General

Landscape character is an important national resource which is part of our natural and cultural inheritance, widely appreciated for its aesthetic beauty, contribution to regional identity and sense of place. The recognition of coastal landscape values is therefore is critical to the management of coastal defence options, since the consequences of such actions have the potential to radically change the coastal landscape.

This section therefore reviews the identified coastal landscape features for the study area as they have been identified by means of local study or designation.

## D3.2 Landscape and Visual Features

The Countryside Agency's landscape character summaries provide brief descriptions of the pandscape throughout the SMP study area. Maps illustrating the area boundaries are provided in Figure 3.1.

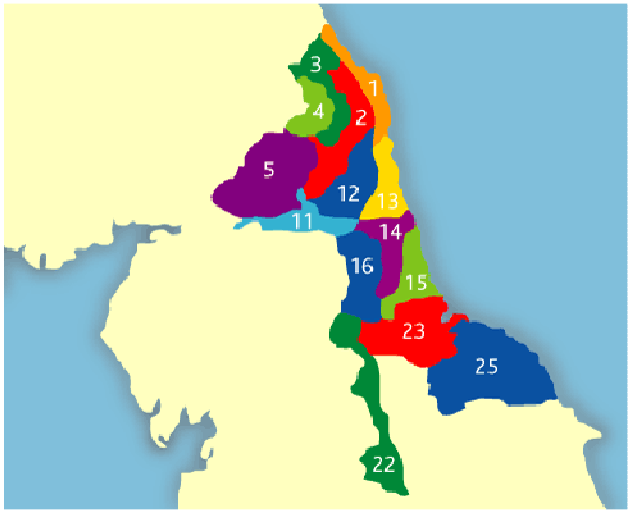



**Figure 3.1 Landscape Character areas in the SMP area (Northumberland – taken from www.countryside.gov.uk)**

### D3.2.1 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 and Durham, strategically located at bridging points of the rivers Tyne and Wear.

### D3.2.2 Area 15 - Durham Magnesian Limestone Plateau

The key characteristics of the Durham Magnesian Limestone Plateau are:

- **Gently undulating low upland plateau, of open, predominantly arable, farmland dipping southward and eastward, with incised denes cut into coastal edge on the east**.
- Clearly defined west-facing escarpment, dissected by minor streams, with remnant broadleaved woodland, scrub and species-rich limestone grassland on steeper slopes.
- Widespread industrial development, with large scale active and disused quarries and landfill sites, often prominent on the escarpment, and areas of derelict, under-used or recently restored colliery land.
- **Varied coastal scenery of low cliffs, bays and headlands, rich in wildlife, although despoiled in places by former extensive dumping of colliery waste on beaches and foreshores**.
- Strong urban development, dominated by Sunderland and by larger mining towns and villages towards the north and east, contrasting with small villages in rural areas.
- A19 corridor, railway lines and other infrastructure elements.

### D3.2.3 Area 23 - Tees Lowlands

The key characteristics of the Tees Lowlands are:

- A broad low-lying plain of gently undulating, predominantly arable farmland, with some pasture, and wide views to distant hills.
- Meandering, slow moving river Tees flows through the heart of the area, dividing the lowlands to north and south.
- **Contrast of quiet rural areas with extensive urban and industrial development, concentrated along the lower reaches of the Tees, the estuary and coast**.

- **Large scale chemical and oil refining works, dock facilities and other heavy plants along the Tees estuary form a distinctive skyline both by day and by night**.
- Overhead transmission lines and pylons, motorway corridors, railway lines and other infrastructure elements are widespread features.
- **Woodland cover is generally sparse, but with local variation such as at Skerne Carr, on steep banks of the middle reaches of the Tees, and to parkland and managed estates**.
- **Distinctive areas of peaty fenland flatts and carrs within the Skerne lowlands, and extensive areas of mud flats, saltmarsh wetlands and dunes at mouth of the river Tees, which support valuable wildlife habitats**.
- Minor valleys and linear strips of open land extend as "green corridors" from rural farmland into the heart of the Teesside conurbation.

### D3.2.4 Area 25 - North Yorkshire Moors and Cleveland Hills

The key characteristics of the North Yorkshire Moors and Cleveland Hills are:

- Upland plateau landscape underlain mainly by sandstone and mudstone of Middle Jurassic age, and in the south, calcareous sandstone and limestone of Upper Jurassic age, with areas of undulating land arising from deposits of glacial till, sand and gravel.
- Plateaux dissected by a series of dales, often broad and sweeping, but with steep-sided river valleys in places, and floored by Lower Jurassic shales.
- Extensive areas of heather moorland on plateaux and hills, creating a sense of space, expansiveness and openness.
- Arable landscape to south and east, but part still on elevated, sweeping plateaux and hills.
- Sparsely settled, with population concentrated in the dales and around the fringes.
- Valley landscapes characterised by predominantly pastoral farming with clear demarcation between the enclosed fields, farms, settlements and the moorland ridges above. The transition is often marked by bracken fringes.
- Panoramic views over moorland ridges, dales, surrounding lowland vales and the sea.
- Extensive areas of coniferous plantations, especially on the Tabular Hills in the south-east and Hackness north of Pickering; with remnant areas of predominantly ancient semi-natural woodland occurring mainly on valley side slopes, on escarpments and fringing hills.

- Traditional stone walls and hedgerows enclosing fields in the dales and lower fringing farmland - now often replaced by fences.
- Farms and villages built of predominantly rubble limestone or dressed sandstone, with red pantile or slate roofs.
- **Distinctive and dramatic coastal landscapes with high cliffs, small coves and bays, coastal towns and fishing villages**.
- Rich archaeological heritage from many different periods, especially on the high moorland plateaux.

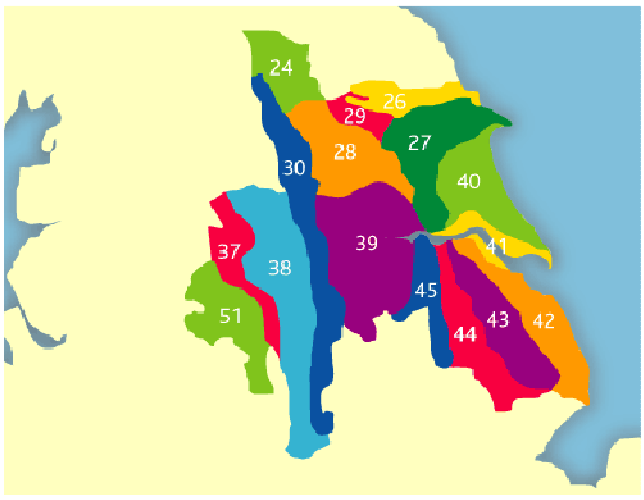



**Figure 3.2 Landscape Character areas in the SMP area (Yorkshire and the Humber – taken from www.countryside.gov.uk)**

### D3.2.5 Area 26 - Vale of Pickering

The key characteristics of the Vale of Pickering are:

- Low lying flat or gently undulating vale with land rising gently in the north to the foothills of the North York Moors and Cleveland Hills, and the steep scarp of the Yorkshire Wolds and the Howardian Hills to the south.
- Enclosed high ground on all sides except the east where the Vale opens to the coast between Scarborough and Filey.
- Pastoral floodplains of the rivers Rye and Derwent and their predominantly northern tributaries.
- Landscape contrast between east and western parts of the Vale. Predominantly flat, arable farmland in medium to large size rectangular fields enclosed by low hedges, and drainage ditches and dykes on the peat soils in the east, colonised by reeds and willows. The clay areas in the west characterised by more grassland and tree cover.
- Relatively sparse tree cover and few woodlands overall, with those which do occur being mainly mixed or coniferous in character and located more to the north and west of the Vale.
- Settlement concentrated along main transport routes on higher ground around the fringes, with small nucleated settlements on lower ground in the Vale, especially in the western clay area.

- Varied building materials, including hard sandstone, brought in from surrounding uplands, and brick.
- Some parkland and historic landscapes concentrated around perimeter.

### D3.2.5 Area 27 - Yorkshire Wolds

The key characteristics of the Yorkshire Wolds are:

- Prominent escarpment and foothills rising from the Vales of York and Pickering and falling to the plain of Holderness.
- Defined by the presence of the Chalk but with small areas of Jurassic rocks along the western fringe.
- Remnants of unimproved or semi-improved chalk grassland in steep sided dry valleys, often defined by a hedge at the break of slope and sometimes showing signs of scrub encroachment.
- Important archaeological remains with a particular concentration of prehistoric earthworks including burial mounds.
- A large-scale landscape of rounded, rolling hills, with big skies and long views from the escarpment and plateaux, contrasting with the more enclosed, sheltered valleys.
- Fertile, chalky soils supporting mainly arable farming.
- Pattern of large, regular fields crossed by drove ways and enclosure roads with wide verges, resulting mainly from late Parliamentary enclosure.
- A generally lightly settled landscape with predominantly brick - but sometimes chalk and pantile - buildings, large scattered farmsteads on high ground, small villages in valleys, and small market towns at the fringes.
- **High chalk cliffs where the outcrop reaches the coast at Flamborough Head**.
- Limited extent of woodland, mainly confined to steep slopes, escarpments and the hills formed from Jurassic rocks.
- Parkland and estate landscapes with large country houses, estate villages and estate woodlands.

# D4 Historic Environment

## D4.1 General

Heritage features are this 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. Additionally marine heritage features provide an insight into the maritime history of the coast and can also 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 values of the coast.

At present, the provision of Government policy on archaeological remains is set out in PPG16 Archaeology & Planning which provides a clear focus in ensuring that heritage features are protected in all initiative relating to land use and planning.

Additionally, heritage features are important in defining the identity of areas and in attracting visitors to features of national or regional interest, for example Whitby Castle.

## D4.2 Terrestrial

### D4.2.1 General

The industrial heritage of this area of coastline, coupled with the rural legacy of the more southern areas has provided a diverse range of terrestrial heritage features across the plan area. The area is home to some of the countries most outstanding national monuments (such as Whitby Abbey) but equally the area documents a strong industrial past and contains a wealth of archaeological features.

### D4.2.2 1 River Tyne to Souter Point (Management Units 1 -5)

In a strong industrial, urban setting, this area contains two Scheduled Ancient Monuments (SAMs) which represent examples from pre and post industrial revolution heritage:

- SCM279 – Roman Fort at South Shields; and
- SCM280 – Marsden Lime Kilns at Lizard Point

No other archaeological or heritage features are found in this area.

### D4.2.32 Souter Point to Pincushion (Management Units 6 – 8)

This area includes the entirety of the Sunderland urban foreshore, and two SAMs which again provide examples of ancient and modern heritage features:

- SCM282 – Ryhope Pumping engines
- SCM286 – Clifford's Fort

### D4.2.43 Hartlepool Bay (Management Unit 12)

The coastline contains no listed heritage features on the coastline from the above unit down to Hartlepool Bay, which is representative of the relatively rural character of this area. The North Sands area, to the North of the Headland at Hartlepool and the area including the town itself down to Little Scar represents one of the most densely features heritage sites on the entire coastline. Whilst the area only contains two SAMs, 179 listed archaeological sites are listed within this compact area. The SAMs listed are as follows:

- SCM0 – Town Wall and Sandwell Gate; and
- SCM4 - Heugh coastal artillery battery immediately North West of Heugh Lighthouse

### D4.2.54 Tees Bay (Management Unit 13)

The Tees Bay area, to the south of the town of Hartlepool, includes the mouth of the River Tees and Coatham Sands. Again this area contains a wealth of archaeological sites which document the settled history of the area ( with 97 listed archaeological sites). The are also contains one SAM:

- SCM15 - Foss Castle: a motte and bailey, precursor to Old Mulgrave Castle

Foss Castle is just to the South of the beach at Seaton Carew.

### D4.2.65 Coatham to Redcar (Management Unit 14)

This area, which includes the sands and rocks offshore of Redcar includes no SAMs, however the archaeological resource remains significant with 15 listed archaeological sites found concentrated around the foreshore area. The area also contains Redcar Racecourse which has significant national heritage value, however this feature is located over 500metres from the foreshore.

### D4.2.76 Marske & Saltburn Sands (Management Unit 15)

Similar to the Coatham to Redcar area, the coastline from Marske to Salburn, contains high density of archaeological sites (16 listed sites). No SAMs or other designations are found in this area.

### D4.2.87 Huntcliffe to Boulby (Management Units 16 – 18)

The coastline from Huntcliffe to the foreshore which fronts Boulby is largely undeveloped. The area contains four SAMs relating to modern historical use and/or settlement of the area:

- SCM266 - Huntcliffe Guibal fan house
- SCM269 - Boulby Alum Quarries and works
- SCM270 - Round barrow on Boulby Cliffs known as the site of Rockcliff Beacon
- SCM278 - World War I early warning acoustic mirror 60m east of Boulby Barns Farm

Additionally, the area contains 89 listed archaeological sites which are distributed fairly evenly along the coast on the foreshore or clifftop areas. The area also contains numerous designations for the North York Moors National Park Authority which describe the historical features of the area such as the mine workings at Boulby Alum Mine.

### D4.2.98 Cowbar to Sandsend Wyke Management Units 19 - 22)

This section of coast contains the coastal village of Sandsend but is largely rural in character. The area contains nine SAMs:

- SCM14 – Old Mulgrave Castle: an enclosure castle incorporated into an 18th century planned landscape
- SCM15 – Foss Castle: a motte and bailey, precursor to Old Mulgrave Castle
- SCM 73 - Alum quarries and works 800m north of Sandsend Bridge
- SCM74 - Sandsend alum house
- SCM75 - Alum works at Kettleness
- SCM78 - Ash Holm alum works, 350m south east of Mulgrave Castle
- SCM108 - Round barrow and 20th century Royal Observer Corps post on Beacon Hill, known as the site of Hinderwell Beacon
- SCM127 - Roman signal station at Goldsborough, 130m south east of Scratch Alley
- SCM136 - Round barrow and gallows site known as Butter Howe

The SAMs contain a range of features which provide an account of ancient settlement (such as the Roman Signal Station at Goldsborough) and also the more recent historical history of the area such as Alum Quarries at Sandsend Bridge and Sandsend Alum House. The area also contains 4 listed archaeological sites a an extensive range of National Parks designations which record the historical heritage of the area.

### D4.2.10 9 Whitby to Hundale Point (Management Units 23 – 25)

The extensive area of coastline which runs from Whitby Sands down to Hundale Point contains a wealth of heritage values. This area contains 11 SAMs including key features of national repute such as Whitby Abbey. In addition to the Abbey, a range of SAMs have been designated which illustrate the modern history, industrial heritage and military importance of the area. The SAMs listed include:

- SCM11 - Whitby Abbey: Saxon double-house, post-Conquest Benedictine monastery, C17 manor house and C14 cross.
- SCM71 - Saltwick Nab alum quarries
- SCM72 - Saltwick Nab alum quarries
- SCM76 - Site of Stoupe Brow alum works, 210m south east of Stoupe Bank Farm
- SCM77 - Peak alum works
- SCM248 - Round barrow known as Burnt Howe
- SCM251 - Round barrow 100m north of Church Road Farm
- SCM254 - Medieval dyke known as War Dike
- SCM258 - World War II Radar station 600m east of Bent Rigg Farm
- SCM259 - World War II Radar station 600m east of Bent Rigg Farm
- SCM260 - World War II Radar station 600m east of Bent Rigg Farm

This area also contains an extensive series of designation by the National Parks Authority which document the heritage values of the foreshore and hinterland area. The coastal strip also contains three Archaeological Listed Buildings on the North Terrace at Whitby:

- Art Noveau shelther 30m west of Cliff Lift
- The Edwardian Shelter 15m west of Cliff Lift; and
- The Edwardian Shelter 15m east of Cliff Lift

### D4.2.11 10 Hundale Point to Filey Brigg (Management Units 26 – 29)

This area includes Scarborough and the coastline to the immediate north and south. Scarborough Castle lies within the this areas as does the additional SAM at St Mary's church, listed as:

- SCM12 - Scarborough Castle: Iron Age settlement, Roman signal station, Anglo-Scandinavian settlement & chapel, C12 enclosure castle and C18 battery
- SCM257 - Ruins and below ground remains of St Mary's medieval church

In addition to this, 60 areas listed of being of archaeological interest are distributed throughout the area, with the majority of sites being clustered around Scarborough and the headland itself.

### D4.2.12 11 Filey to Flamborough Head (Management Units 30 – 32)

The most southerly section of the study area which runs from Labberston Cliff down to Flamborough Head. This area contains the resort of Filey, but is largely a rural coastline. The area contains 3 SAMs
SCM6 - Roman signal station, Carr Naze
SCM8 - Round barrow SE of Moor Farm
SCM9 - Round barrow SE of Moor Farm

The Roman signal station is located on the headland at Filey Brigg, whilst the Round barrow sites are found just to the south of Hummarby Sands. The area also contains 83 listed archaeological sites and four archaeological listed buildings:

- Manor Farmhouse at Reighton;
- Numbers 27 to 41 with Iron Railings to Entrance Steps at Filey;
- The Church of St Leonard at Reighton; and
- The Railway Station at Filey.

## D4.3 Marine

Marine heritage features are thos features which are identified as being of heritage value, lying below the high water mark.

### D4.3.1 The Wreck at Seaton Carew

Identified marine features in the study area are limited to a wreck exposed on the beach ay Seaton Carew as listed in the Ancient Monument Archaeological Act 1979. The wreck was first identified in 1996 by local residents, who discovered the remains of an old wooden vessel exposed at low tide on the beach at Seaton (54°39.53N. 001°10.71W). Subsequent investigations revealed that the vessel was a medium sized (21m in length) wooden vessel, probably a used for coastal trading. The vessel was likely to have served the coal industry, moving coal between the mines of the North East and London in the late 18th century. The wreck represents a unique example of a vessel that would have been commonly seen in this area in the 18th century, and as such represents a key heritage feature which helps to document the regions industrial development. The vessel is marked and left in situ.

# D5 Current & 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 of replacement, with the introduction of Regional Spatial Strategies and Local Development Frameworks. The study area has therefore been broken down by local authority boundary 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 of anticipated future land use in the area.

The regional plans which have formed the basis of this assessment are:

- Regional Planning Guidance for the North East - RPG 1; and
- Regional Planning Guidance for Yorkshire & the Humber – RPG 12

Local planning policy has related to the following:

South Tyneside District Council

- South Tyneside Unitary Development Plan - 2001
- Emerging South Tyneside Local Development Framework documents

Sunderland City Council

- City of Sunderland Unitary Development Plan - 1998
- Emerging City of Sunderland Local Development Framework documents

District of Easington Council

- District of Easington Local Plan - 2001

Hartlepool Borough Council

- Hartlepool Revised Local Plan - 2003
- Emerging Hartlepool Local Development Framework documents

Redcar & Cleveland Borough Council

- Redcar & Cleveland Local Plan - 1999
- Emerging Redcar & Cleveland Local Development Framework documents

Scarborough Borough Council

- Scarborough Borough Local Plan – 1999
- Emerging Scarborough Borough Local Development Framework documents

East Riding of Yorkshire Council
East Yorkshire Borough Wide Local Plan – 1997

## D5.2 Overview

The majority of urban form in the study area is located in the 30km wide strip of the coastal zone. In the north of lies the major conurbation of Newcastle and Sunderland with the coastline moving southward being characterised by areas of rural coastline and smaller towns and villages. The major areas of urban form running North to South are:

- Tyneside;
- Sunderland
- Seaham
- Hartlepool
- Recar
- Marske by the Sea
- Saltburn by the Sea
- Whitby
- Scarborough
- Filey

The urban function of the study area is dominated by residential uses, but also includes major areas of :

- Port Development; 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 the following can also be found along the coast:

- Shipbuilding;
- Heavy Engineering;
- Chemical Engineering; and

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

Tourism development occurs at intervals throughout the area, but is specifically concentrated in the south, where the coast is generally more rural in character.

## D5.3 Features

### D5.3.1 South Tyneside District Council

Built form in this area is characterised by structures to support the port industry at the mouth of the Tyne, with tourism based open space areas along the foreshore at Littlehaven. Landward of the tourism and open space areas lie the residential areas of The Lawe, the Marina Park area and Whitburn. Additionally the Whitburn area contains amenity features such as a golf course and rifle range.

The maintenance of the foreshore open space is considered to be critical to provide quality of life for residents in an urban environment and additionally such areas have existing and potential tourism resource values. In this location the open space and the specific function that it serves demonstrates a coastally dependent use, which should be maintained and enhanced wherever possible.

### D5.3.2 Sunderland City Council

The Sunderland area has a similar urban form to that of South Tyneside, with estuary mouth piers dominating the coastline, and a shoreline predominantly used for open space and informal tourism. The foreshore areas to the north adjacent to Whitburn Bay provide a range of open space areas for tourism and recreation, this area is backed by residential areas of Seaburn and Roker. South of the estuary mouth, the shoreline is dominated by the Hudson Dock port and industrial complex and Metro railway and sidings. This area and the areas of open space to the south are then backed by the residential settlements of Hendon, Grangetown and Leechmere.

The continue use of open space on the foreshore is important for the reasons outlined above in South Tyneside. Such areas are of local significance, but are critically important to ensuring that local residents can enjoy the benefits of living on the coast. The extensive industrial areas of foreshore are the subject of extensive consideration in current and emerging land use policy. The broad intent being to ensure that such areas are used for regeneration initiatives and environmental enhancement. Shoreline policy should therefore have regard to the requirements of such initiatives, but equally

shoreline policy should provide a basis for the formulation of site specific action plans around the Hudson Dock and adjacent area.

### D5.3.3 District of Easington Council

The Easington coast is predominantly rural with the exception of the larger settlement of Seaham in the north and the smaller towns/villages of Easington, Horden and Blackhall.

The main coastal feature at Seaham is the Seaham Harbour. The harbour serves the port of Seaham and is a key economic resource in the local area and country in terms of distribution and services. The harbour is backed by a range of ancillary services including 50,000m$^2$ of warehousing. The maintenance of the port is clearly pivotal to the economic buoyancy of the District as efforts continue to restructure the economy since the decline of the local coal mining industry.

The remaining settlements in the Borough at Easington, Horden and Blackhall are all ex-colliery towns that are set back from the coast by at least 500m. The coastal hinterland in these areas is undeveloped and not earmarked for urban development.

The overall land use issues of this area relate to use of foreshore areas for environmental enhancement and regeneration of the foreshore adjacent to Seaham.

### D5.3.4 Hartlepool Borough Council

The Hartlepool coastal area is largely undeveloped with the exception of the towns of Hartlepool and Seaton Carew.

The headland at Hartlepool is characterised by residential development on the northern edge and the Victoria Harbour and industrial and port areas of Midddleton to the south. The headland has provided a relatively safe haven for port activity and the port and ancilliary operations on the site represent the central core economic base of the District.

To the south of Hartlepool lies the residential suburbs of Stranton and Bellevue and the town of Seaton Carew. Seaton Carew is fronted by Seaton Sands and is a significant destination in the local and county economy for tourism development. The Cliff and The Front roads delineate the town itself from the foreshore, which has a range of foreshore open space and amenities. The foreshore amenity areas which support Seaton Carew are critical to the maintenance of local quality of life and the maintenance of tourism revenue.

The southern extremity of the district is found at the northern mouth of the Tees. The Seaton on Tees Channel is fronted by North Gare Sands which

lie to the east of the Hartlepool Nuclear Power Station. This area clearly demonstrates a long-term commitment to the coastal management of this section of the coast.

### D5.3.5 Redcar & Cleveland Borough Council

The main coastal settlements within the borough are:

- Redcar;
- Marske by the Sea; and
- Saltburn;

The northern edge of the borough lies at the mouth of the Tees Estuary. The southern shore on this location is host to a range of port and industrial activity including the actual Teesport area. Moving south from this point, down the coast, the Cleveland Golf Links provide the buffer to the edge of Redcar. The foreshore areas of Redcar, especially the beach and dunes at South Gare and Redcar Sands are a significant tourism based attraction for the town. Whilst the town's historical economic base has been in fishing, the Council are pursuing the development of the town as an enhanced tourist location. Accordingly the foreshore amenity areas which lie between the residential areas of the town and the groyne fields of Redcar Sands provide a key focus for the enhancement of tourism based activities in the town.

The settlements of Marske and Saltburn also benefit from the provision of an interface with the foreshore at Marske Sands and Saltburn Sands respectively. Saltburn in particular is recognised as having a well established historical tourism base and the provision of the Marine Parade and Lower Promenade reflect this. Saltburn and Marske have a residential base which abuts the foreshore areas. Such areas contain a mix of residential properties and commercial (hospitality based establishments). The maintenance of the tourism based features of the town are critical to the viability of the tourism economic base in these areas.

### D5.3.6 Scarborough Borough Council

The main settlements in the borough are Whitby, Scarborough and Filey, however the coast is characterised by numerous small hamlets and villages along the coast. In the north of the borough lies the residential settlement of Staithes and similar residential areas can be found at Sandsend, Port Mulgrave and Ravenscar with residential properties adjacent to the foreshore.

Whitby is a historical coastal town characterised by the breakwaters of the River Esk. The town has a strong tourism economic base with residential and commercial (hospitality) based dwelling located along the foreshore, which is separated from Whitby Sands (to the west for the breakwaters) by the West Cliff escarpment. To the East of the breakwaters lies the remains of Whitby Abbey a regional landmark, relic Benedictine abbey.

Scarborough is one of the countries most popular seaside resorts. The town is located either side of a headland which is home to Scarborough Castle, another regional landmark feature. Residential and commercial (hospitality) based dwelling are located along the foreshore to the north of the headland landward of North Bay Promenade and Royal Albert Drive. The urban grain in this area is broken by a series of Victorian park gardens such as Alexandra and Clarence Gardens. To the south of the headland, lies the tourism base of the town around the Foreshore Road, in between the headland and the extent of the beach (South Sands) before the foreshore becomes rock fronted. This area of town is again backed by a residential/tourism mix on the higher ground adjacent to South Cliff. The southern extent of the town is marked by cliff top amenity areas such as South Cliff Golf Course.

The town of Filey is another tourism supported settlement. Filey is a linear coastal development with the foreshore containing a range of traditional coastal holiday uses (crazy golf courses, esplanade gardens etc.). The tourism based development is clustered in a clearly defined coastal strip adjacent to Filey Sands. The residential and commercial hospitality based accommodation is located some distance back from the foreshore. To the south of Filey lies various clusters of tourism based accommodation (caravan parks etc) at Promrose Valley, Hunmanby Sands and Reighton Sands.

The maintained provision of facilities to support tourism within the coastal zone is crucially important for the economic viability and maintenance of the character of this area of coastline.

### D5.3.7 East Riding of Yorkshire Council

The small area of the study area within this borough contains only limited urban development on the northern side of Flamborough Head, namely a small holiday centre to the North of Flamborough village.

## D5.4 Future land use /planning targets as set by local plans etc.

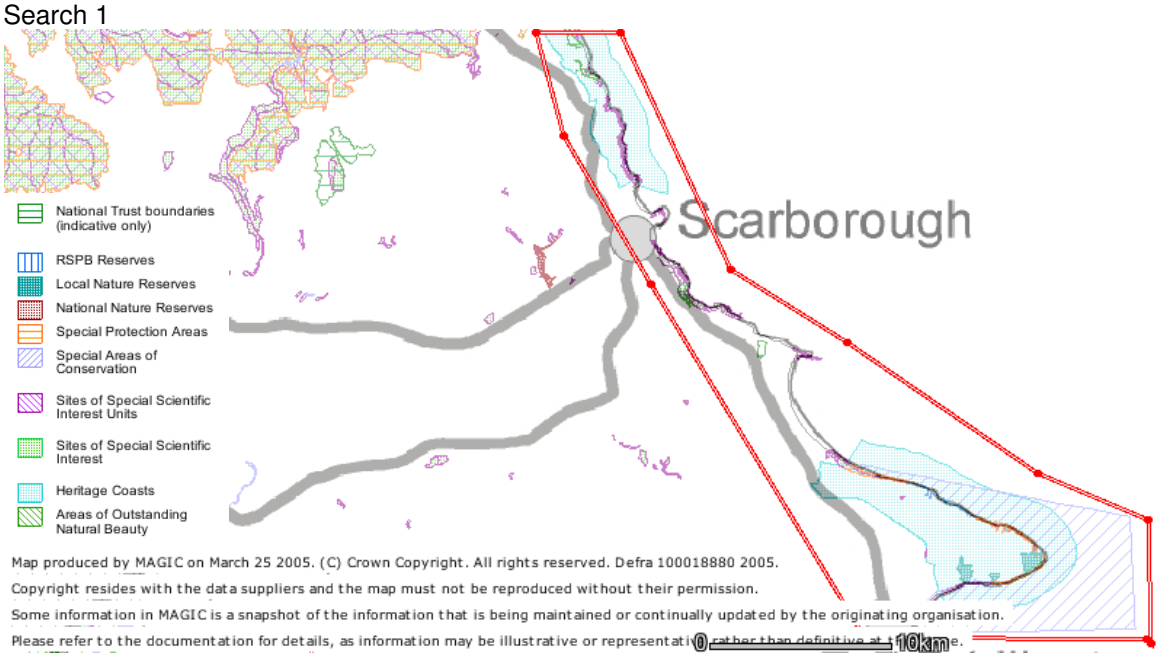
The timing of this plan, which is coincident with the review or replacement of existing land use plans with Local Development Frameworks especially difficult. Local Development Schemes (LDS's) are being produced by all local authorities within the study area, however at this stage the LDS's simply contain core matters for consideration in the forthcoming Local Development Frameworks (LDF's). Future land use matters will be addressed within the LDF's however given their preparatory stage, it is not possible to determine site specific measures at this stage.

The draft LDF documents and LDS's that have emerged however, provide a clear focus on regeneration, with an emphasis on enhancing the tourism resource or diversification of the economic base. Accordingly, it is anticipated that emerging policy within LDF's will seek to maximise the

benefits of coastal land for these purposes and maximise existing benefits/consolidate existing resources.

# Section 1: MAGIC general search outputs:

Search 1




**The following features have been found in your search area:**
**Areas of Outstanding Natural Beauty**
There are no features within your search area.

**Heritage Coasts**

| Reference | Name | Statutory Area in Sq.km | Date of Complete Definition | Hotlink |
|---|---|---|---|---|
| 4 | FLAMBOROUGH HEADLAND | 34.91 | AUGUST 1989 | http://www.countryside.gov.uk/livinglandscapes/finest_countryside/heritage_coasts/flamborough_headland.asp |
| 15 | NORTH YORKSHIRE & CLEVELAND | 66.95 | MAY 1981 | http://www.countryside.gov.uk/livinglandscapes/finest_countryside/heritage_coasts/north_yorkshire_and_cleveland. |

**Local Nature Reserves**

| Name | Grid reference | Hectares |
|---|---|---|
| DANES DYKE | TA216696 | 61.49 |
| FLAMBOROUGH OUTER HEADLAND | TA252702 | 83.08 |
| FLAMBOROUGH OUTER HEADLAND | TA252702 | 83.08 |
| SOUTH LANDING | TA232694 | 14.89 |

## National Nature Reserves

There are no features within your search area.

## National Trust boundaries (indicative only)

| Region | Property Name | Hectares | Public Access Arrangements | Date Digitised or Last Edited |
|---|---|---|---|---|
| YORKSHIRE AND NORTH EAST | CAYTON BAY & KNIPE POINT | 39.32 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 20/11/2002 |
| YORKSHIRE AND NORTH EAST | HAYBURN WYKE | 27.16 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 20/11/2002 |
| YORKSHIRE AND NORTH EAST | RAVENSCAR | 207.85 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 12/11/2002 |
| YORKSHIRE AND NORTH EAST | NEWBIGGIN EAST FARM | 34.85 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 21/11/2002 |

## RSPB Reserves

| Name | Site Reference | Hectares |
|---|---|---|
| BEMPTON CLIFFS | 2410 | 28.59 |

## Sites of Special Scientific Interest

| Reference | Name | Hectares | Citation |
|---|---|---|---|
| 1003259 | HODDY COWS SPRING | 1.98 | 1002371 |
| 1006290 | ROBIN HOODS BAY: MAW WYKE TO BEAST CLIFF | 369 | 2000311 |
| 1003496 | NORTH BAY TO SOUTH TOLL HOUSE CLIFF | 9.71 | 1004394 |
| 1003467 | IRON SCAR & HUNDALE POINT TO SCALBY NESS | 116.86 | 1003380 |
| 1003464 | HAYBURN WYKE | 21 | 1003327 |
| 1003449 | FILEY BRIGG | 27.64 | 1002497 |
| 1003455 | GRISTHORPE BAY & RED CLIFF | 52.96 | 1002632 |
| 1003580 | CAYTON, CORNELIAN & SOUTH BAYS | 155.5 | 1004165 |
| 1003594 | FLAMBOROUGH RAILWAY CUTTING | 1.61 | 1000424 |
| 1003595 | FLAMBOROUGH HEAD | 326.92 | 1002289 |

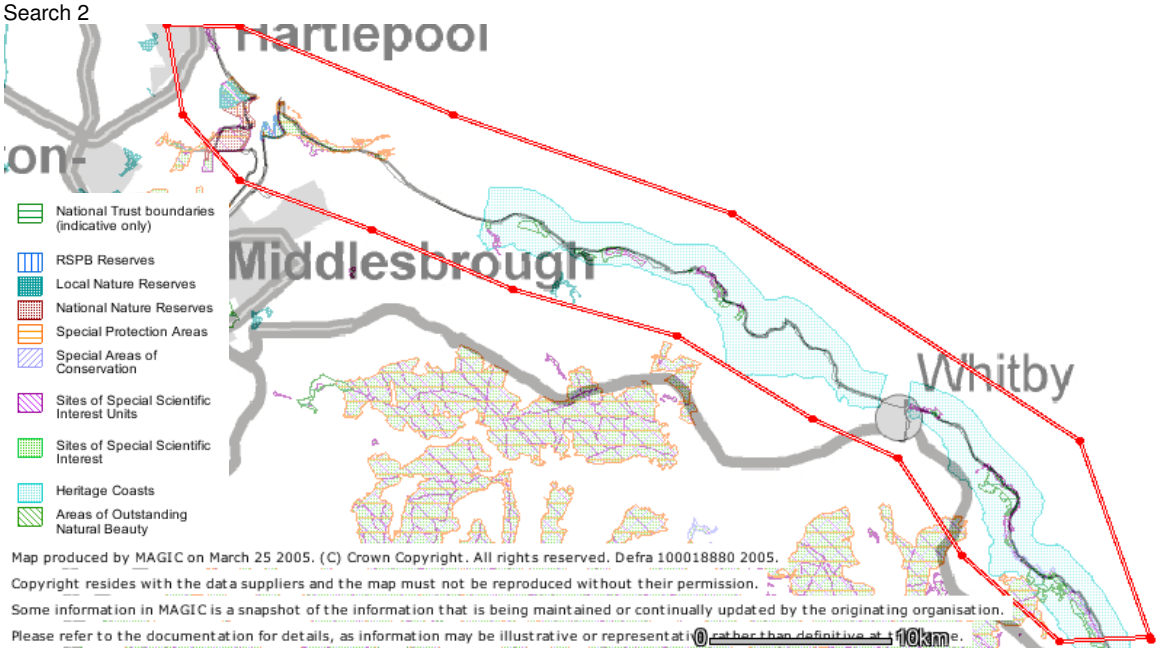
## Special Areas of Conservation

| Reference | Name | Hectares |
|---|---|---|
| UK0013036 | FLAMBOROUGH HEAD | 6316.01 |
| UK0030086 | BEAST CLIFF-WHITBY (ROBIN HOOD'S BAY) | 265.48 |

## Special Protection Areas

| Reference | Name | Hectares |
|---|---|---|
| UK9006101 | FLAMBOROUGH HEAD & BEMPTON CLIFFS | 208.35 |

Search 2




**The following features have been found in your search area:**

## Heritage Coasts

| Reference | Name | Statutory Area in Sq.km | Date of Complete Definition | Hotlink |
|---|---|---|---|---|
| 15 | NORTH YORKSHIRE & CLEVELAND | 66.95 | MAY 1981 | http://www.countryside.gov.uk/livinglandscapes/finest_countryside/heritage_coasts/north_yorkshire_and_cleveland.as |

## Local Nature Reserves

| Name | Grid reference | Hectares |
|---|---|---|
| CLARKSONS WOOD | NZ707179 | 16.93 |
| WHITECLIFF, LOFTUS AND ROSECROFT WOODS | NZ713182 | 15.08 |
| SEATON DUNES AND COMMON SSSI | NZ527285 | 96.16 |
| ROSECROFT WOODS | NZ716175 | 7.04 |
| ROSECROFT WOODS | NZ716175 | 7.04 |
| LOFTUS WOOD | NZ720177 | 1.63 |

## National Nature Reserves

| Reference | Name | Hectares |
|---|---|---|
| 1006937 | TEESMOUTH | 344.46 |

## National Nature Reserves

| Reference | Name | Hectares |
|---|---|---|
| 1007022 | DURHAM COAST | 62.61 |

| | | |
|---|---|---|
| 1006029 | CASTLE EDEN DENE | 221.06 |

## National Trust boundaries (indicative only)

| Region | Property Name | Hectares | Public Access Arrangements | Date Digitised or Last Edited |
|---|---|---|---|---|
| YORKSHIRE AND NORTH EAST | COWBAR NAB | 1.15 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 8/11/2002 |
| YORKSHIRE AND NORTH EAST | HUMMERSEA | 79.52 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 8/11/2002 |
| YORKSHIRE AND NORTH EAST | PORT MULGRAVE AND RUNSWICK BAY | 47.02 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 11/11/2002 |
| YORKSHIRE AND NORTH EAST | RAVENSCAR | 207.85 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 12/11/2002 |
| YORKSHIRE AND NORTH EAST | ROBIN HOOD'S BAY | 163.45 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 11/11/2002 |
| YORKSHIRE AND NORTH EAST | SALTWICK NAB | 3.36 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 8/11/2002 |
| YORKSHIRE AND NORTH EAST | WARSETT HILL | 74.14 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 8/11/2002 |

## RSPB Reserves

| Name | Site Reference | Hectares |
|---|---|---|
| BRAN SANDS | 13100211 | 63.38 |

## Sites of Special Scientific Interest

| Reference | Name | Hectares | Citation |
|---|---|---|---|
| 1006651 | TEES & HARTLEPOOL FORESHORE & WETLANDS | 245.32 | 2000289 |
| 1003507 | WHITBY-SALTWICK | 39.95 | 1000071 |
| 1003480 | RUNSWICK BAY | 10.06 | 1003689 |
| 1006290 | ROBIN HOODS BAY: MAW WYKE TO BEAST CLIFF | 369 | 2000311 |
| 1003498 | STAITHES-PORT MULGRAVE | 63.19 | 1004429 |
| 1003660 | SALTBURN GILL | 20 | 1000289 |
| 1007119 | NORTH YORK MOORS | 44096.86 | 2000356 |
| 1003196 | SEATON DUNES & COMMON | 313.58 | 1000150 |
| 1003197 | SOUTH GARE & COATHAM SANDS | 396.35 | 1000178 |
| 1003195 | SEAL SANDS | 297.13 | 1000141 |
| 1003198 | BOULBY QUARRIES | 42.39 | 1000219 |
| 1003359 | HARTLEPOOL SUBMERGED FOREST | 20.58 | 1002491 |
| 1003200 | REDCAR ROCKS | 30.23 | 1000263 |

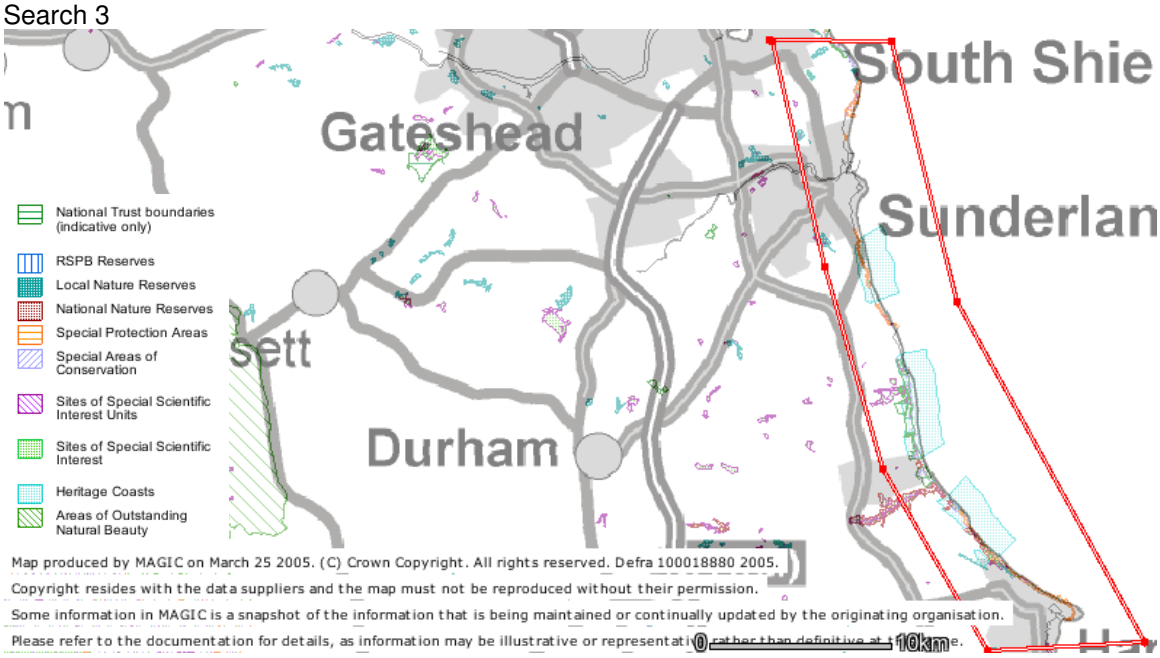
## Special Areas of Conservation

| Reference | Name | Hectares |
|---|---|---|
| UK0030086 | BEAST CLIFF-WHITBY (ROBIN HOOD'S BAY) | 265.48 |
| UK0030228 | NORTH YORK MOORS | 44096.86 |

## Special Protection Areas

| Reference | Name | Hectares |
|---|---|---|
| UK9006061 | TEESMOUTH & CLEVELAND COAST | 1250.37 |
| UK9006161 | NORTH YORK MOORS | 44096.86 |

Search 3




**The following features have been found in your search area:**

### Heritage Coasts

| Reference | Name | Statutory Area in Sq.km | Date of Complete Definition | Hotlink |
|---|---|---|---|---|
| 32 | DURHAM | 6.23 | MARCH 2001 | http://no address |

### Local Nature Reserves

| Name | Grid reference | Hectares |
|---|---|---|
| HART WARREN | NZ492363 | 4.46 |
| HART WARREN | NZ492363 | 4.46 |
| HART WARREN | NZ492363 | 4.46 |
| HART WARREN | NZ492363 | 4.46 |
| CLEADON HILLS | NZ389630 | 10.19 |
| WHITBURN POINT | NZ412633 | 4.11 |
| HART TO HASWELL WALKWAY | NZ477365 | 9.85 |
| FULWELL QUARRY | NZ382598 | 17.1 |
| FULWELL QUARRY | NZ382598 | 17.1 |
| SUMMERHILL | NZ485314 | 41.26 |
| TUNSTALL HILLS | NZ395540 | 40.9 |
| TUNSTALL HILLS | NZ395540 | 40.9 |
| MARSDEN OLD QUARRY | NZ393643 | 19.33 |

## National Nature Reserves

| Reference | Name | Hectares |
|---|---|---|
| 1007022 | DURHAM COAST | 62.61 |
| 1006029 | CASTLE EDEN DENE | 221.06 |

## National Trust boundaries (indicative only)

| Region | Property Name | Hectares | Public Access Arrangements | Date Digitised or Last Edited |
|---|---|---|---|---|
| YORKSHIRE AND NORTH EAST | BEACON HILL | 166.92 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 8/11/2002 |
| YORKSHIRE AND NORTH EAST | THE LEAS & MARSDEN ROCK | 113.78 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 22/10/2002 |
| YORKSHIRE AND NORTH EAST | WARREN HOUSE GILL AND FOXHOLES DENE | 93.56 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 8/11/2002 |

## RSPB Reserves

There are no features within your search area.

## Sites of Special Scientific Interest

| Reference | Name | Hectares | Citation |
|---|---|---|---|
| 1006651 | TEES & HARTLEPOOL FORESHORE & WETLANDS | 245.32 | 2000289 |
| 1003391 | HAWTHORN DENE | 63.01 | 1000304 |
| 1003608 | CLEADON HILL | 10.18 | 1000817 |
| 1007205 | DURHAM COAST | 511.08 | 1000255 |
| 1003375 | CASTLE EDEN DENE | 189 | 1000738 |
| 1003359 | HARTLEPOOL SUBMERGED FOREST | 20.58 | 1002491 |
| 1003222 | TUNSTALL HILLS & RYHOPE CUTTING | 15.61 | 1001148 |
| 1003236 | YODEN VILLAGE QUARRY | 0.34 | 1001773 |
| 1003235 | HAWTHORN QUARRY | 11.04 | 1001762 |
| 1003204 | FULWELL & CARLEY HILL QUARRIES | 6.21 | 1000369 |
| 1003162 | STONY CUT, COLD HESLEDON | 0.73 | 2000046 |
| 1003262 | BOLDON PASTURES | 3.55 | 1002859 |

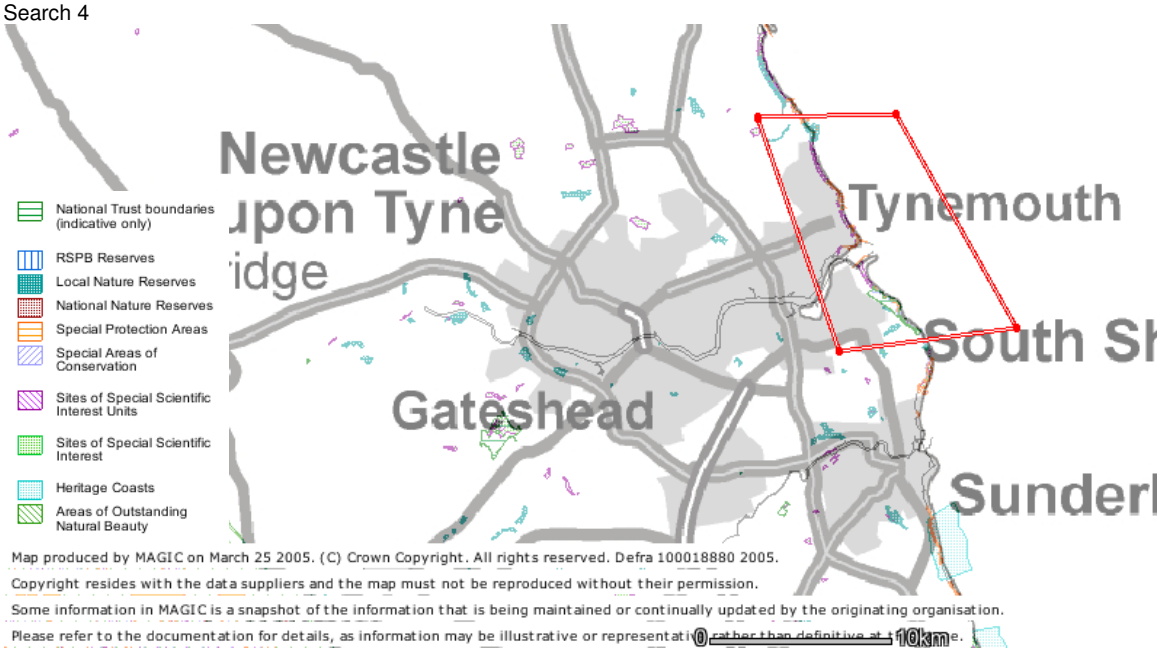
## Special Areas of Conservation

| Reference | Name | Hectares |
|---|---|---|
| UK0030140 | DURHAM COAST | 389.84 |
| UK0012768 | CASTLE EDEN DENE | 189 |

## Special Protection Areas

| Reference | Name | Hectares |
|---|---|---|
| UK9006131 | NORTHUMBRIA COAST | 1097.37 |
| UK9006061 | TEESMOUTH & CLEVELAND COAST | 1250.37 |

Search 4




**The following features have been found in your search area:**

### Local Nature Reserves

| Name | Grid reference | Hectares |
|---|---|---|
| ST MARY'S ISLAND | NZ349749 | 47.61 |
| HARTON DOWN HILL | NZ391655 | 4.51 |
| HOLYWELL DENE | NZ334750 | 13.6 |
| MARSDEN OLD QUARRY | NZ393643 | 19.33 |

### National Nature Reserves

There are no features within your search area.

### National Trust boundaries (indicative only)

| Region | Property Name | Hectares | Public Access Arrangements | Date Digitised or Last Edited |
|---|---|---|---|---|
| YORKSHIRE AND NORTH EAST | THE LEAS & MARSDEN ROCK | 113.78 | NO AUTOMATIC RIGHT OF ACCESS - CHECK ARRANGEMENTS | 22/10/2002 |

### RSPB Reserves

There are no features within your search area.

## Sites of Special Scientific Interest

| Reference | Name | Hectares | Citation |
|---|---|---|---|
| 1007205 | DURHAM COAST | 511.08 | 1000255 |
| 1003355 | NORTHUMBERLAND SHORE | 1888.26 | 2000134 |
| 1003225 | HARTON DOWN HILL | 1.02 | 1001204 |
| 1003223 | TYNEMOUTH TO SEATON SLUICE | 87.36 | 1001176 |

## Special Areas of Conservation

| Reference | Name | Hectares |
|---|---|---|
| UK0030140 | DURHAM COAST | 389.84 |

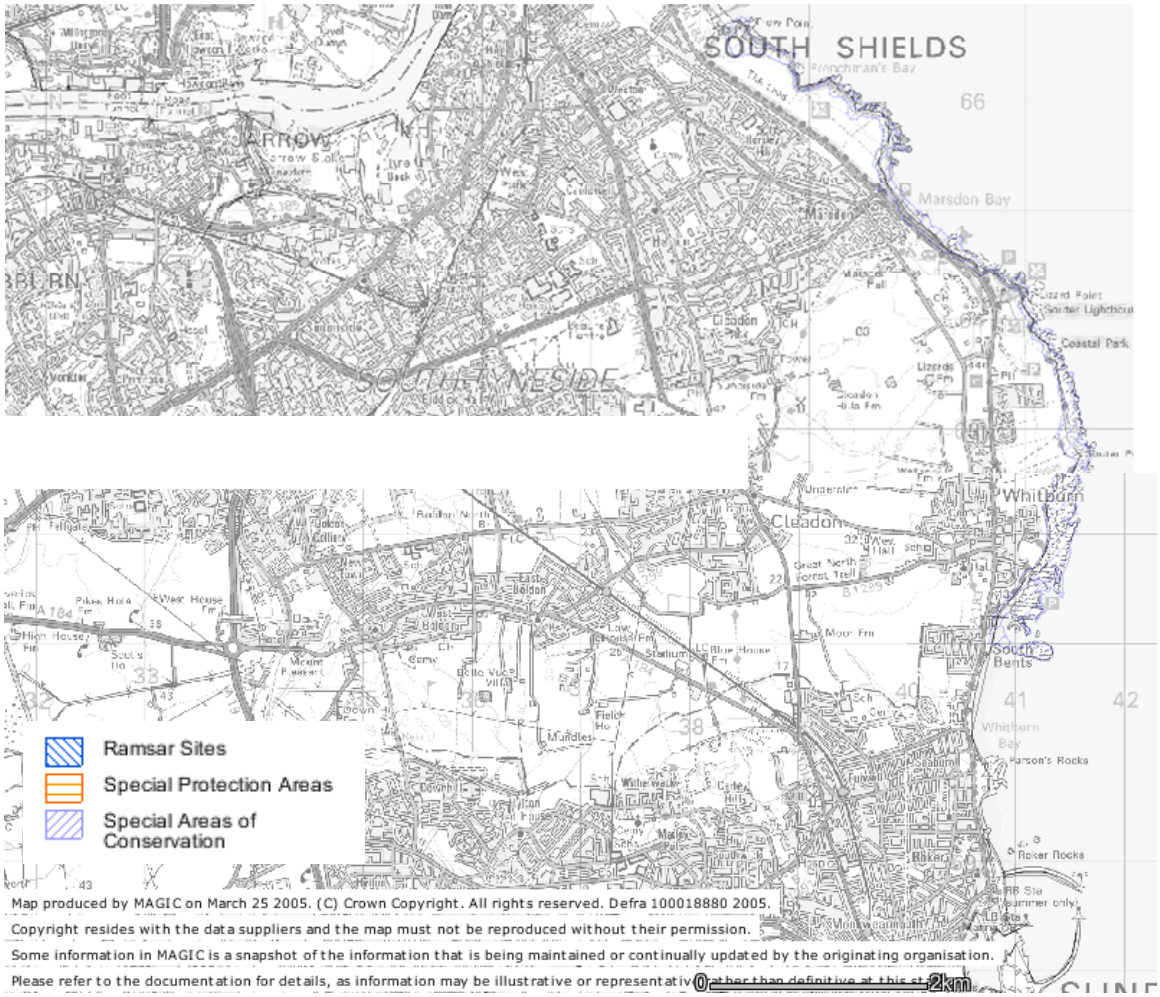
## Special Protection Areas

| Reference | Name | Hectares |
|---|---|---|
| UK9006131 | NORTHUMBRIA COAST | 1097.37 |

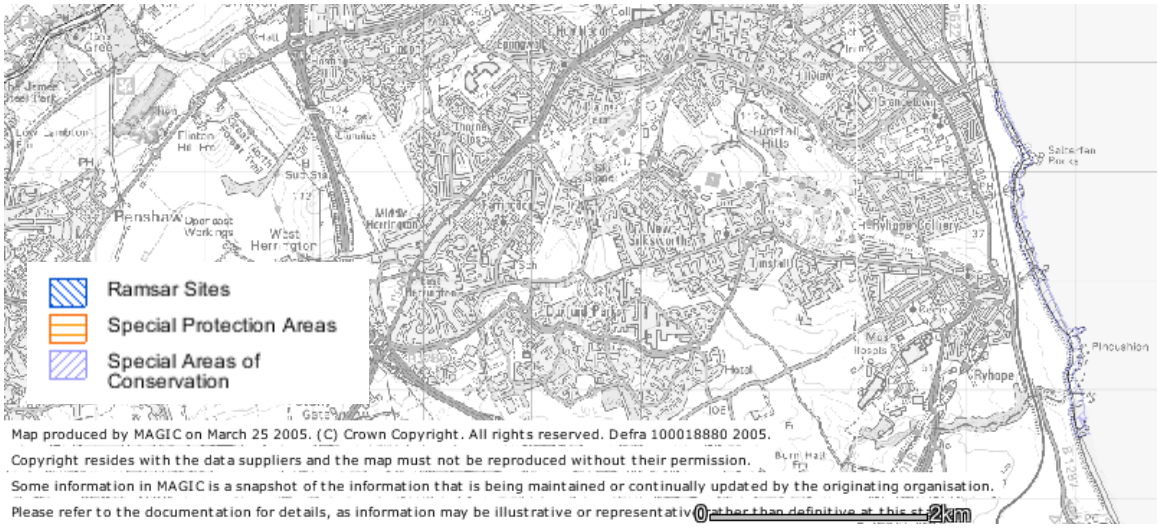
# Section 2: SPA and SAC boundary maps

Taken from www.magic.gov.uk

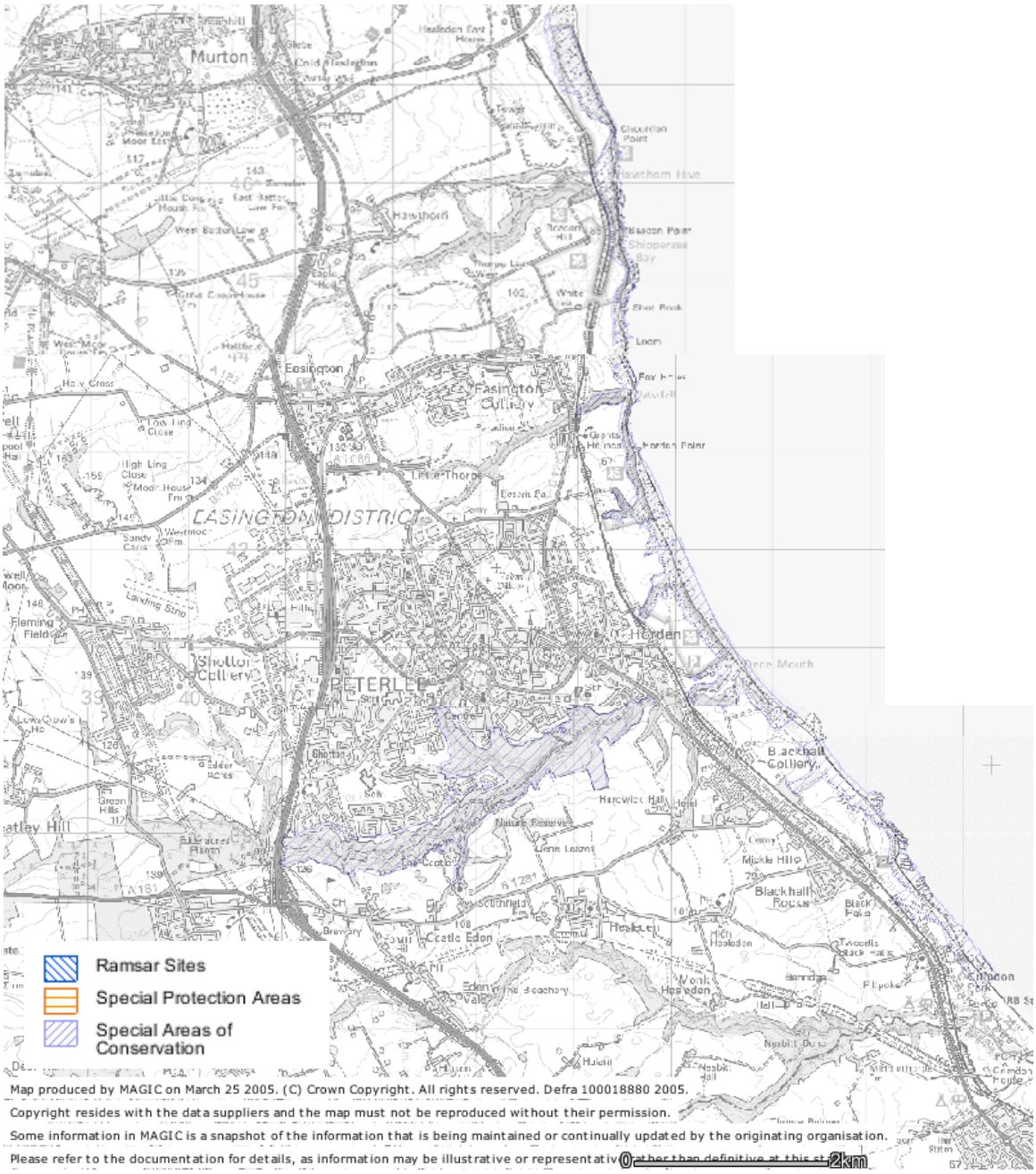
**Durham Coast SAC**




**North section**

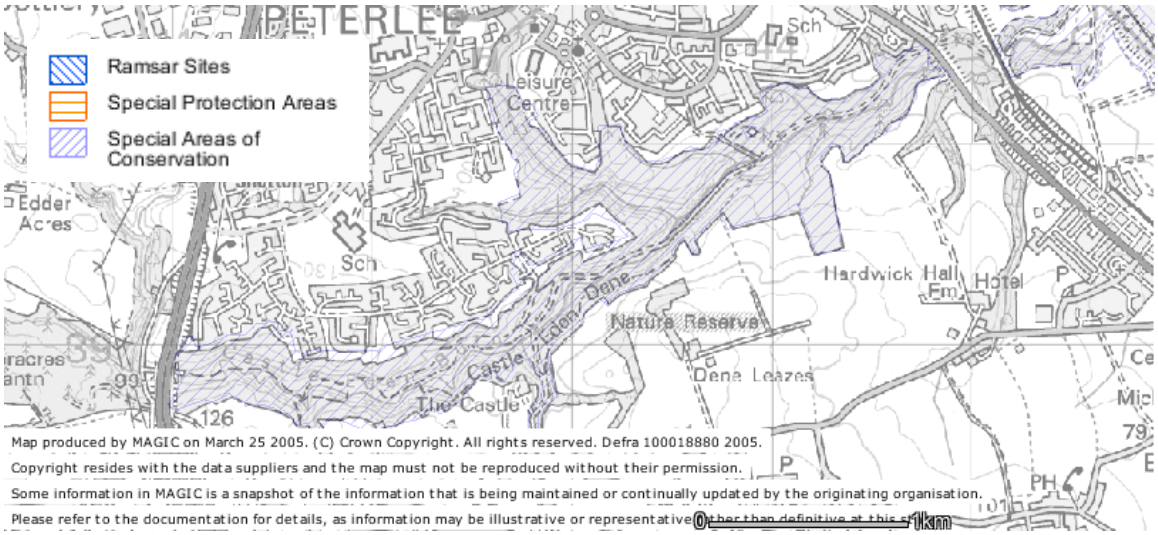



**Middle section**

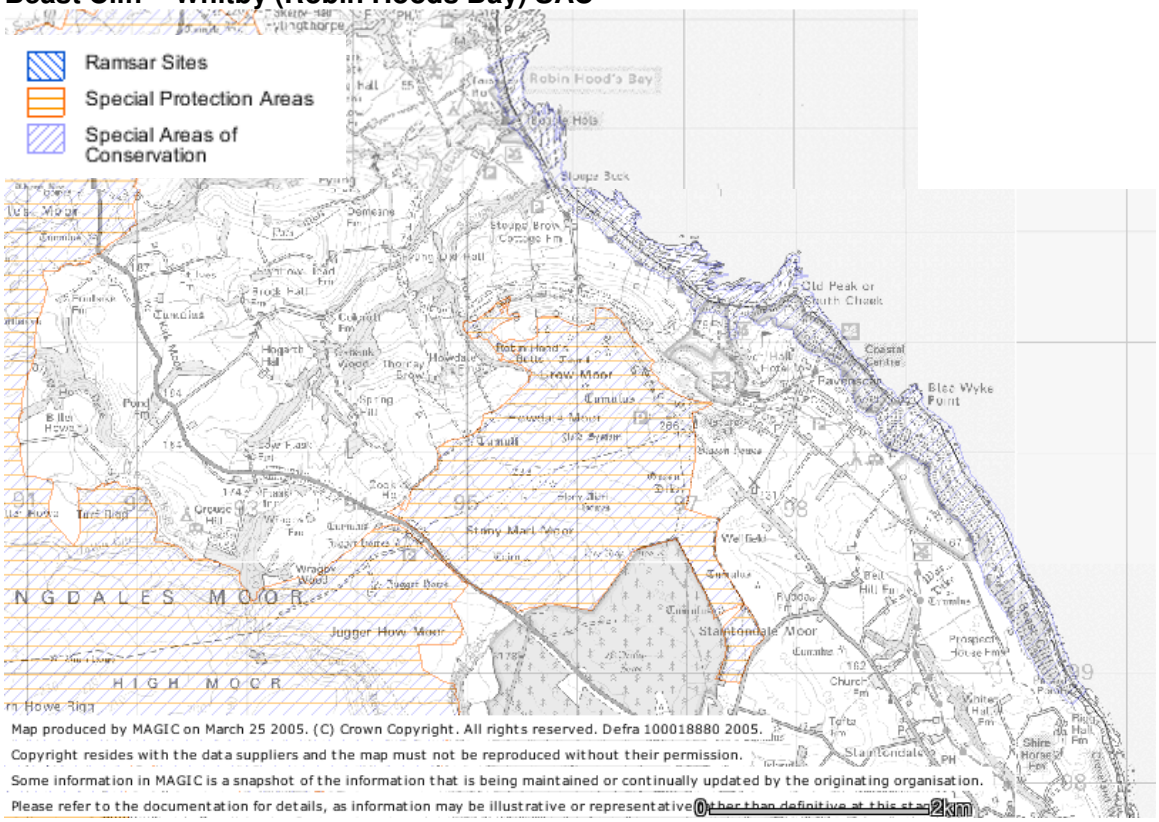



**Southern section**

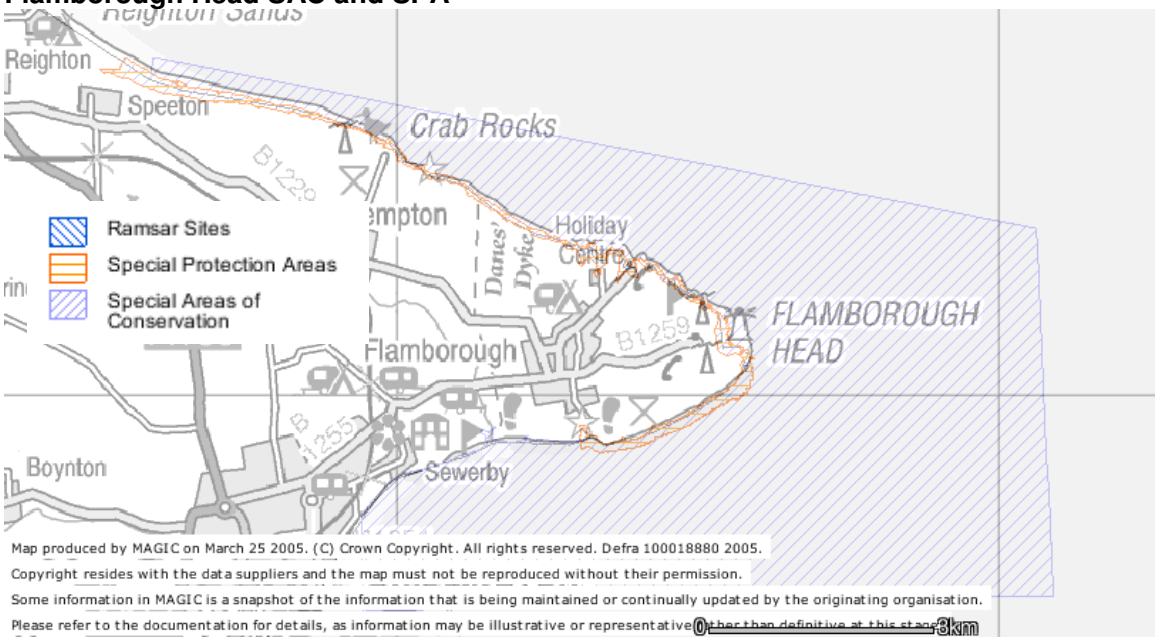
## Castle Eden Dene SAC



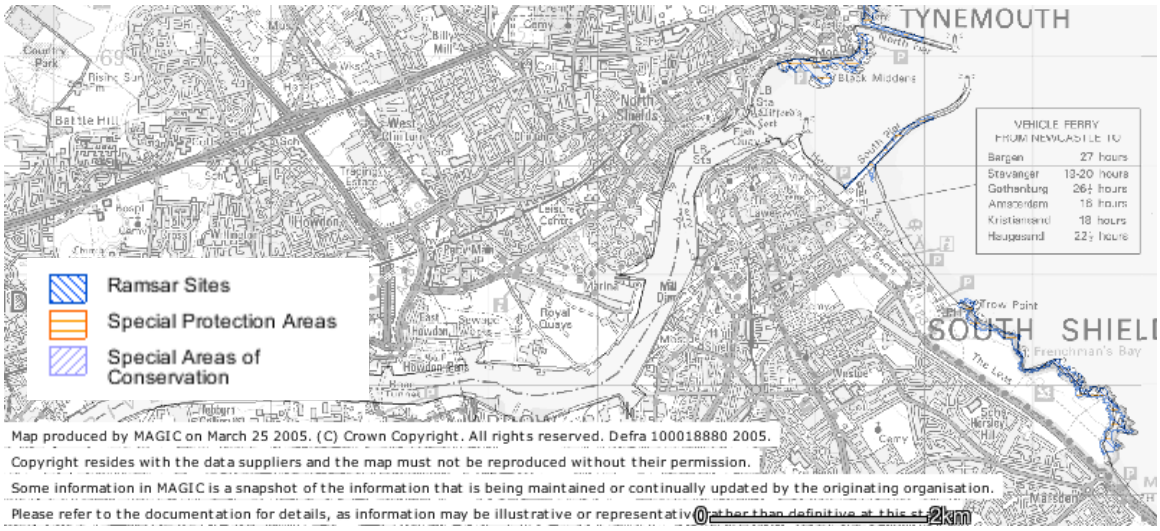

## Beast Cliff – Whitby (Robin Hoods Bay) SAC



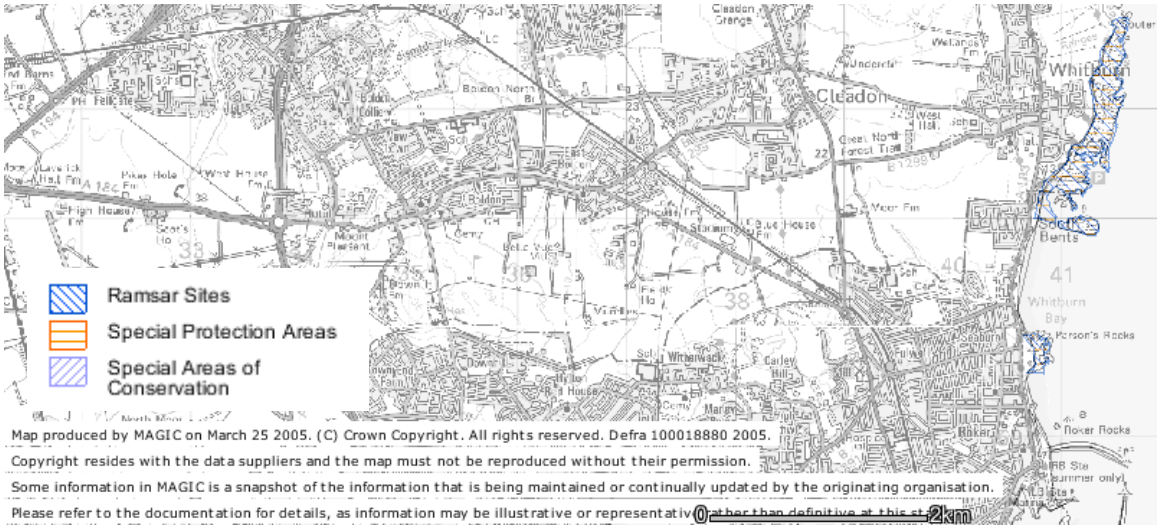
## Flamborough Head SAC and SPA



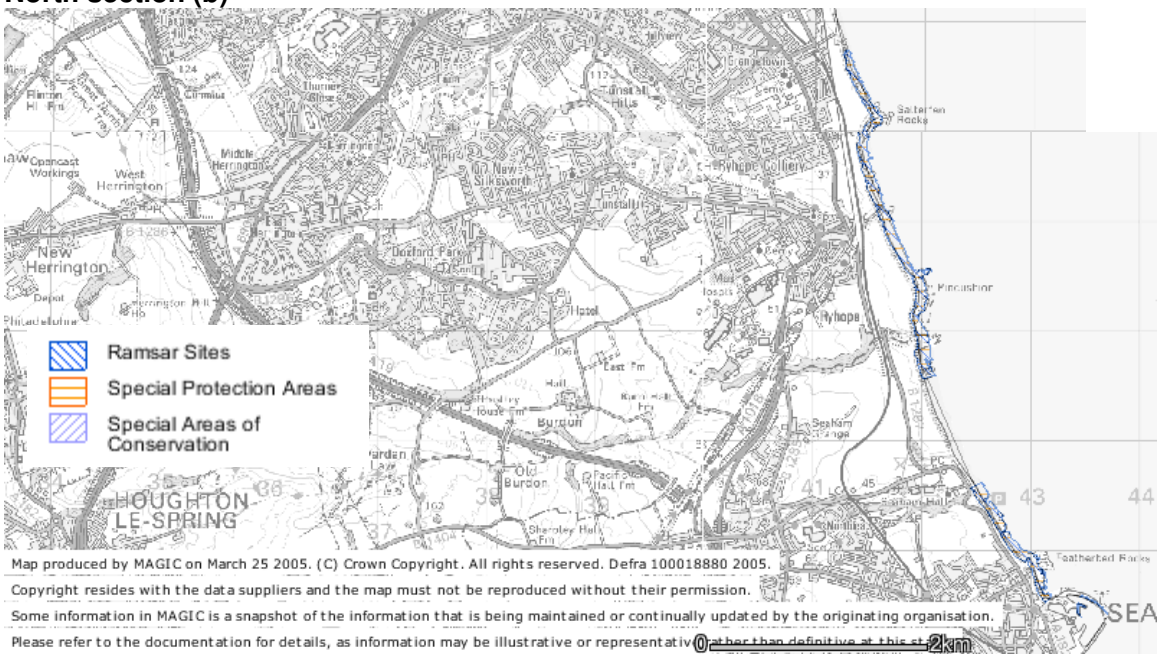

## Northumbria Coast SPA and Ramsar



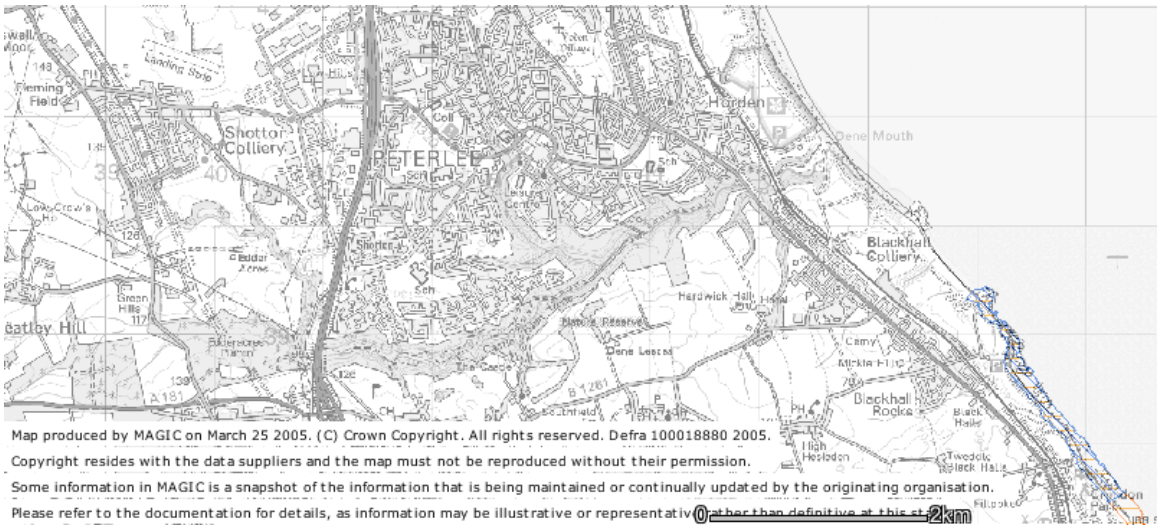

## North section (a)




**North section (b)**

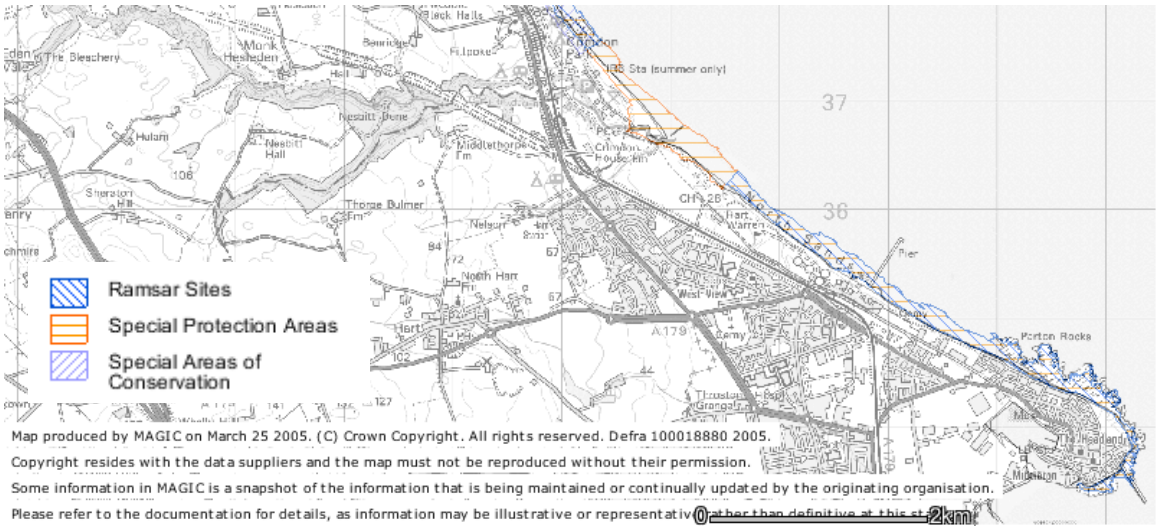



**Middle section**

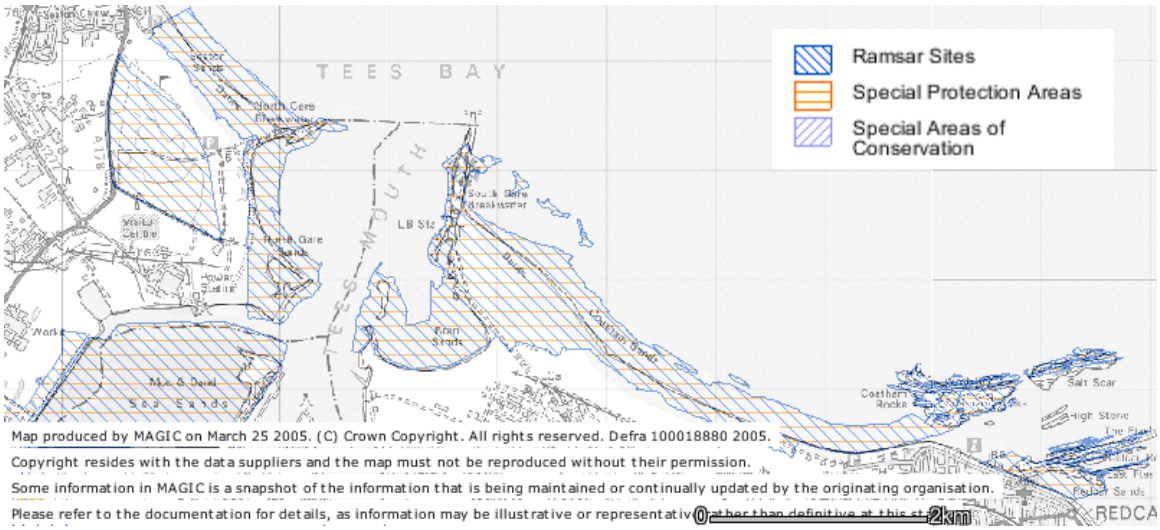



**Southern section**

## Teesmouth and Cleveland Coast SPA and Ramsar




## Northern section




## Southern section