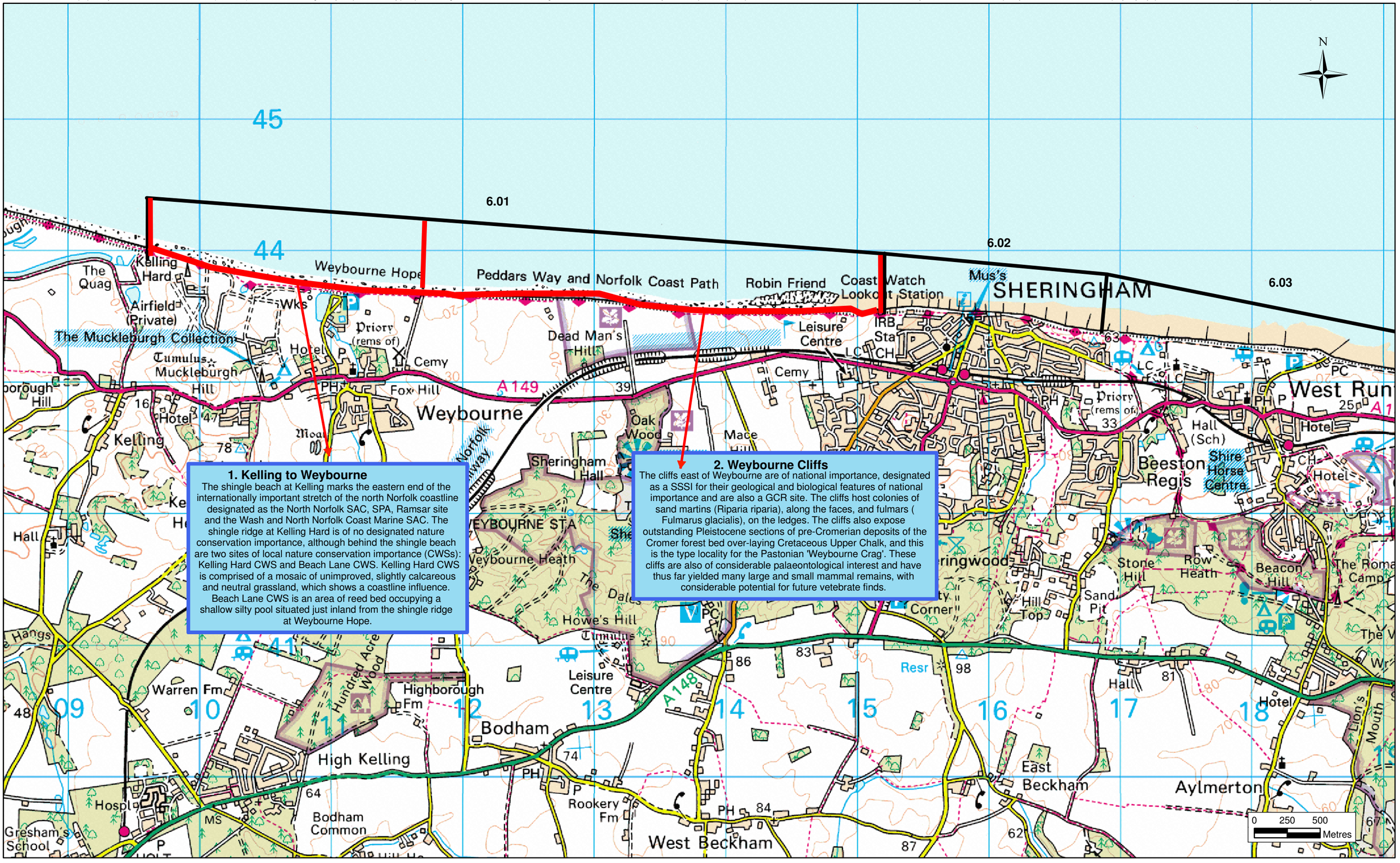
8 Natural Environment



1. Kelling to Weybourne

The shingle beach at Kelling marks the eastern end of the internationally important stretch of the north Norfolk coastline designated as the North Norfolk SAC, SPA, Ramsar site and the Wash and North Norfolk Coast Marine SAC. The shingle ridge at Kelling Hard is of no designated nature conservation importance, although behind the shingle beach are two sites of local nature conservation importance (CWSs): Kelling Hard CWS and Beach Lane CWS. Kelling Hard CWS is comprised of a mosaic of unimproved, slightly calcareous and neutral grassland, which shows a coastline influence. Beach Lane CWS is an area of reed bed occupying a shallow silty pool situated just inland from the shingle ridge at Weybourne Hope.

2. Weybourne Cliffs

The cliffs east of Weybourne are of national importance, designated as a SSSI for their geological and biological features of national importance and are also a GCR site. The cliffs host colonies of sand martins (Riparia riparia), along the faces, and fulmars (Fulmarus glacialis), on the ledges. The cliffs also expose outstanding Pleistocene sections of pre-Cromerian deposits of the Cromer forest bed over-laying Cretaceous Upper Chalk, and this is the type locality for the Pastonian 'Weybourne Crag'. These cliffs are also of considerable palaeontological interest and have thus far yielded many large and small mammal remains, with considerable potential for future vetebrate finds.

KEY:

- Policy Units
- 1. Kelling to Weybourne
- 2. Weybourne Cliffs

TITLE:

FIGURE 8.1
NATURAL ENVIRONMENT

PROJECT

KELLING TO
LOWESTOFT NESS SMP

CLIENT:

Water Management Alliance; North Norfolk District Council; Great Yarmouth Borough Council; Norfolk Coast Partnership; Natural England; Waveney District Council Serving the Community; Environment Agency; Broads Authority The Broads - a member of the National Park family

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No. FIGURE 8.1			Rev: A

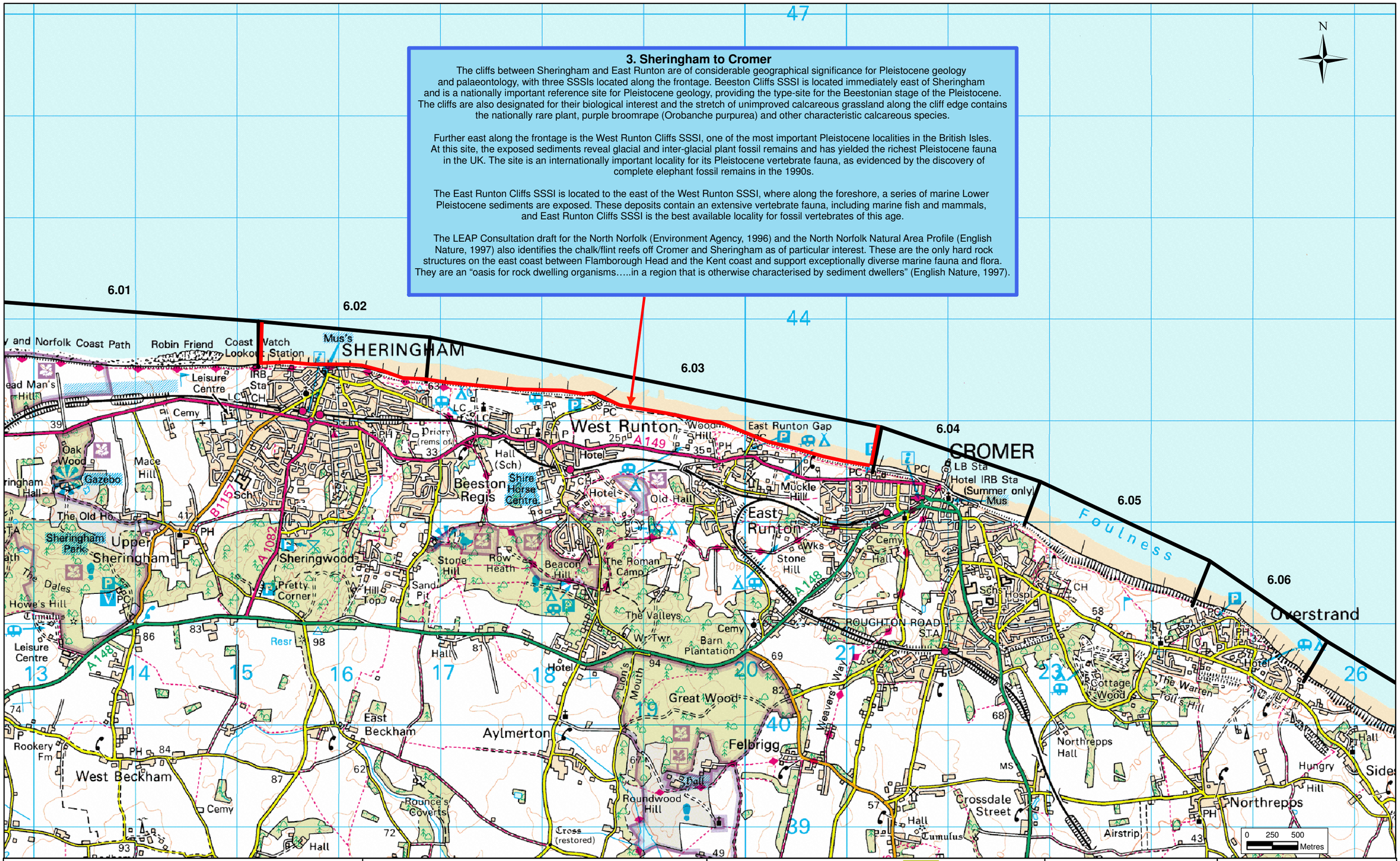
3. Sheringham to Cromer

The cliffs between Sheringham and East Runton are of considerable geographical significance for Pleistocene geology and palaeontology, with three SSSIs located along the frontage. Beeston Cliffs SSSI is located immediately east of Sheringham and is a nationally important reference site for Pleistocene geology, providing the type-site for the Beestonian stage of the Pleistocene. The cliffs are also designated for their biological interest and the stretch of unimproved calcareous grassland along the cliff edge contains the nationally rare plant, purple broomrape (Orobanche purpurea) and other characteristic calcareous species.

Further east along the frontage is the West Runton Cliffs SSSI, one of the most important Pleistocene localities in the British Isles. At this site, the exposed sediments reveal glacial and inter-glacial plant fossil remains and has yielded the richest Pleistocene fauna in the UK. The site is an internationally important locality for its Pleistocene vertebrate fauna, as evidenced by the discovery of complete elephant fossil remains in the 1990s.

The East Runton Cliffs SSSI is located to the east of the West Runton SSSI, where along the foreshore, a series of marine Lower Pleistocene sediments are exposed. These deposits contain an extensive vertebrate fauna, including marine fish and mammals, and East Runton Cliffs SSSI is the best available locality for fossil vertebrates of this age.

The LEAP Consultation draft for the North Norfolk (Environment Agency, 1996) and the North Norfolk Natural Area Profile (English Nature, 1997) also identifies the chalk/flint reefs off Cromer and Sheringham as of particular interest. These are the only hard rock structures on the east coast between Flamborough Head and the Kent coast and support exceptionally diverse marine fauna and flora. They are an “oasis for rock dwelling organisms…..in a region that is otherwise characterised by sediment dwellers” (English Nature, 1997).



KEY:

- Policy Units
- 3. Sheringham to Cromer

TITLE:
FIGURE 8.2
NATURAL ENVIRONMENT

PROJECT:
KELLING TO
LOWESTOFT NESS SMP

CLIENT: Water Management Alliance; North Norfolk District Council; Great Yarmouth Borough Council; Norfolk Coast Partnership; Waveney District Council Serving the Community; Natural England; Environment Agency; Broads Authority The Broads - a member of the National Park family

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No. FIGURE 8.2			Rev: A

4. Cromer to Overstrand

The stretch of coast between Cromer and Overstrand provides the best example of soft cliff habitat in East Anglia, and the Overstrand Cliffs have been designated internationally as a SAC andnationally as a SSSI. Part of the Overstrand SSSI is also designated as a GCR site.

The cliffs are up to 70m high and consist of unconsolidated Pleistocene sediments, which are unprotected by seas defences and are subject to cliff falls and slumping. This instability has led to the development of an extensive succession series of habitats, ranging from uncolonised mud flows and bare sand, ruderal communities, to semi-stabilised and relatively mature unimproved grassland and scrub communities. This diverse range of sub-maritime habitats is of considerable biological, entomological and ecological importance, with colonies of nationally important plant species, invertebrates (butterflies, moths, soldier flies and beetles) and birds (sand martins and fulmars). Vegetated sea cliffs are an Annex I habitat and the primary reason for the selection of the site as a SAC.

In addition to their biological value, the cliff exposures at the eastern end of the SSSI provide important information concerning the glacial history of the area. The special value of the Overstrand Cliffs lies in the completeness of the succession of glacial sequences (shows all three Cromer Tills and intervening beds) and the variety and style of the deformation structures, which are internationally important geomorphologiacal features and are not seen elsewhere along the coast.

Cromer Sea Front CWS comprises the coastal cliffs, beach and intertidal zone between East Runton Cliffs SSSI to the west and Overstrand Cliffs SSSI to the east. Semi-natural vegetation is confined to the cliff faces, but scattered through the site are species-rich patches. The cliffs also provide nesting sites for fulmars (Fulmarus glacialis). Between the southern boundary of the Overstrand Cliffs SSSI and the northern boundary of the Sidestrand to Trimingham Cliffs SSSI s the Overstrand Cliffs CWS. This comprises the maritime cliffs and foreshore at Overstrand and is of local interest due to the development of vegetation along the slumped cliff slopes, although coastal defence works have heavily modified this area. The cliffs are shallow sloped as a result of slumping and the vegetation is a diverse mixture of communities, many influenced by seepage. The beach comprises sand and an area of gravels interspersed with groynes; and is heavily used and disturbed (Posford Haskoning, 2003b).

KEY:

- Policy Units
- 4. Cromer to Overstrand

TITLE: FIGURE 8.3 NATURAL ENVIRONMENT

PROJECT: KELLING TO LOWESTOFT NESS SMP

CLIENT: Water Management Alliance; North Norfolk District Council; Great Yarmouth Borough Council; Norfolk Coast Partnership; Natural England; Waveney District Council Serving the Community; Environment Agency; Broads Authority The Broads - a member of the National Park family

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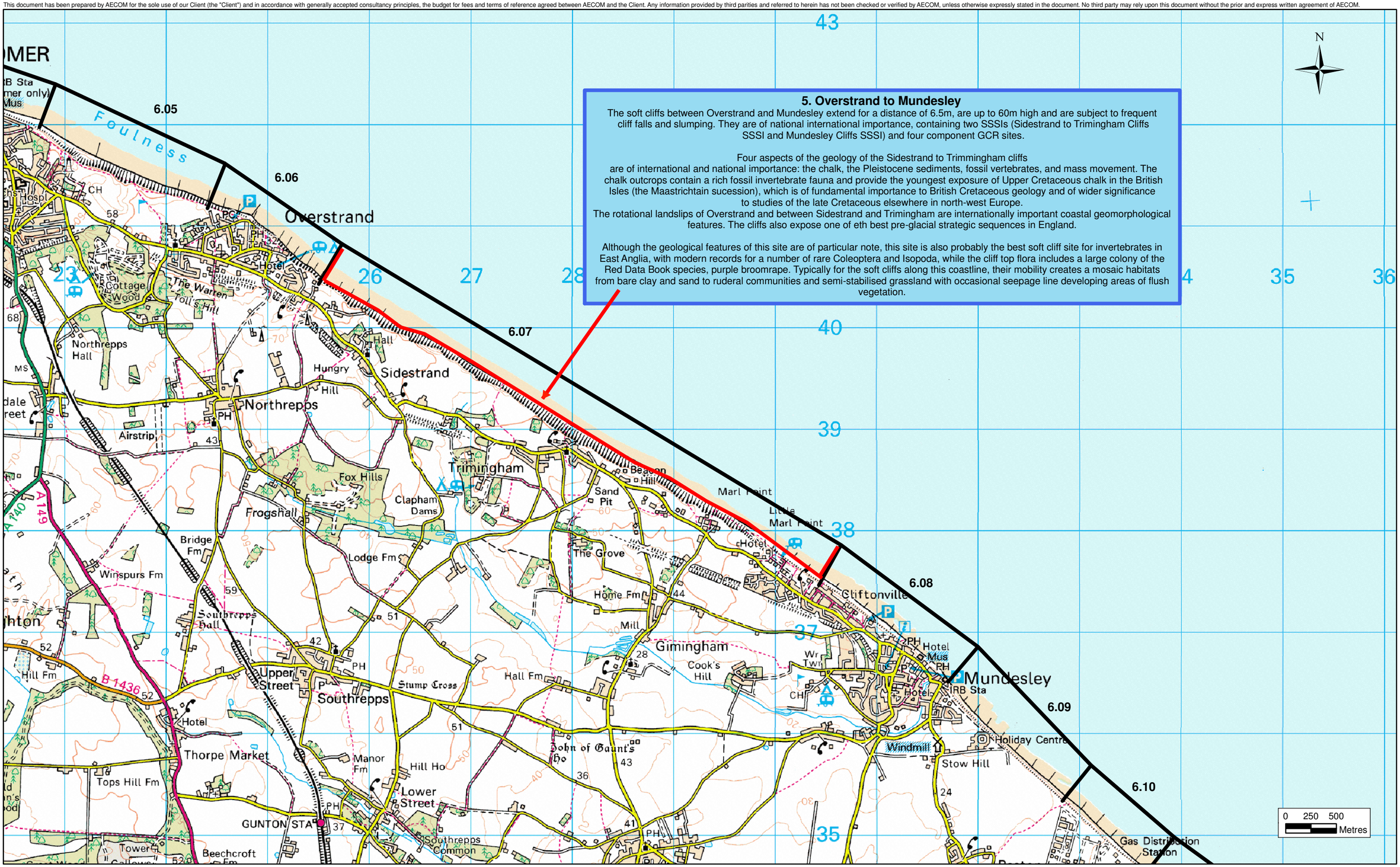
No. FIGURE 8.3		Rev: A	



5. Overstrand to Mundesley

The soft cliffs between Overstrand and Mundesley extend for a distance of 6.5m, are up to 60m high and are subject to frequent cliff falls and slumping. They are of national international importance, containing two SSSIs (Sidestrand to Trimingham Cliffs SSSI and Mundesley Cliffs SSSI) and four component GCR sites.

Four aspects of the geology of the Sidestrand to Trimmingham cliffs are of international and national importance: the chalk, the Pleistocene sediments, fossil vertebrates, and mass movement. The chalk outcrops contain a rich fossil invertebrate fauna and provide the youngest exposure of Upper Cretaceous chalk in the British Isles (the Maastrichtain sucession), which is of fundamental importance to British Cretaceous geology and of wider significance to studies of the late Cretaceous elsewhere in north-west Europe.
The rotational landslips of Overstrand and between Sidestrand and Trimingham are internationally important coastal geomorphological features. The cliffs also expose one of eth best pre-glacial strategic sequences in England.

Although the geological features of this site are of particular note, this site is also probably the best soft cliff site for invertebrates in East Anglia, with modern records for a number of rare Coleoptera and Isopoda, while the cliff top flora includes a large colony of the Red Data Book species, purple broomrape. Typically for the soft cliffs along this coastline, their mobility creates a mosaic habitats from bare clay and sand to ruderal communities and semi-stabilised grassland with occasional seepage line developing areas of flush vegetation.

KEY:

- Policy Units
- 5. Overstrand to Mundesley

TITLE: FIGURE 8.4 NATURAL ENVIRONMENT

PROJECT: KELLING TO LOWESTOFT NESS SMP

CLIENT: Water Management Alliance; North Norfolk District Council; Great Yarmouth Borough Council; Norfolk Coast Partnership; Waveney District Council Serving the Community; Natural England; Environment Agency; Broads Authority The Broads - a member of the National Park family

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No. FIGURE 8.4		Rev: A	

6. Mundesley to Happisburgh
Within the town of Mundesley, the cliffs and cliff top grassland are designated as a CWS; part of this site runs adjacent to Mundesley Cliffs SSSI, which are designated for their geological interest, as they represent a nationally important site for its extensive Pleistocene sequence, with some of the best sections of the Pleistocene Cromer Forest-bed formation in the UK.

7. Happisburgh
The cliffs at Happisburgh are designated as the Happisburgh Cliffs SSSI. This locality is important for the cliff exposures, which uniquely show three glacial deposits and are important for dating the Pleistocene succession of East Anglia, with a range of sediments from marine to freshwater and glacial

KEY:

- Policy Units
- 5. Mundesley to Happisburgh
- 6. Happisburgh

TITLE:
FIGURE 8.5
NATURAL ENVIRONMENT

PROJECT:
KELLING TO
LOWESTOFT NESS SMP

CLIENT:

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No. FIGURE 8.5			Rev: A

8. Happisburgh to Winterton

The linear stretch of sand dunes along the coastline between Eccles on Sea and Winterton is designated as the Marram Hills CWS and Waxham Sands Holiday Park CWS. The Marram Hills CWS site is described as an extensive coastal site that includes the foreshore and dunes, together with small adjacent areas of scrub and grassland on the landward site and extends to just south of Waxham. Waxham Sands Holiday Park CWS is a smaller site which encompasses a complex mosaic of habitats with the seaward edge typified by unmodified semi-fixed dune vegetation with a range of largely unimproved dry to damp acidic grassland swards further inland.

To the south, the stretch of coast between Horsey and Hemsby (Winterton) consists of an extensive dune system supporting well developed areas of dune heath, 'slacks' and dune grassland verging in to grazing marsh and birch woodland. This is a composite site made up of the NNR at Winterton Dunes and the former separate SSSIs at Horsey Warren, Winterton Dunes and Winterton Great Valley. The whole area is a Grade I NCR site. The site is also designated both as an internationally important SAC and is unusual in that it shows greater ecological similarities to the dune systems of the west coast, supporting acidic plant communities, than the geographically closer, but calcareous, dunes along the North Norfolk coast. Component habitats of the SAC include the priority habitat decalcified fixed dunes, embryonic shifting dunes, humid dune slacks and shifting white dunes. A rare amphibian, Natterjack toad (Bufo calamita) breeds in shallow pools behind the main dune ridge and the site is the only Norfolk locality for a rare butterfly. Aside from the interest features of the SAC, the SSSI includes damp, fern rich meadows, which form a large area of rough tussocky grassland behind the main dunes. Aside from the nationally and internationally important nature conservation interest of the Winterton to Horsey Dunes SSSI, the site is also of physiographic significance in being one of a number of 'ness' features that are characteristic of the East Anglican coast, designated as Winterton Ness GCR site. This site is significant for the well-formed dunes, which are its most characteristic landform, and the processes that affect its continued development.

The site supports a wide range of breeding and over-wintering birds, also forming part of the Great Yarmouth North Denes SPA, which hosts nationally important numbers of breeding little terns (Sterna albifrons).

The Winterton CHaMP (Posford Haskoning, 2003a) covers the Winterton-Horsey Dunes and Great Yarmouth North Denes SPA and their constituent SSSIs. The CHaMP indicated that replacement of the fixed dune habitat present at Winterton would not be viable. It has also been recognised that the beach recharge (associated with the Happisburgh-Winterton offshore reef scheme) provides embryonic dune habitat and suitable breeding habitat for the little tern.

N

0 0.5 1 Kilometres

KEY:

Policy Units

8. Happisburgh to Winterton

TITLE:

FIGURE 8.6
NATURAL ENVIRONMENT

PROJECT

KELLING TO
LOWESTOFT NESS SMP

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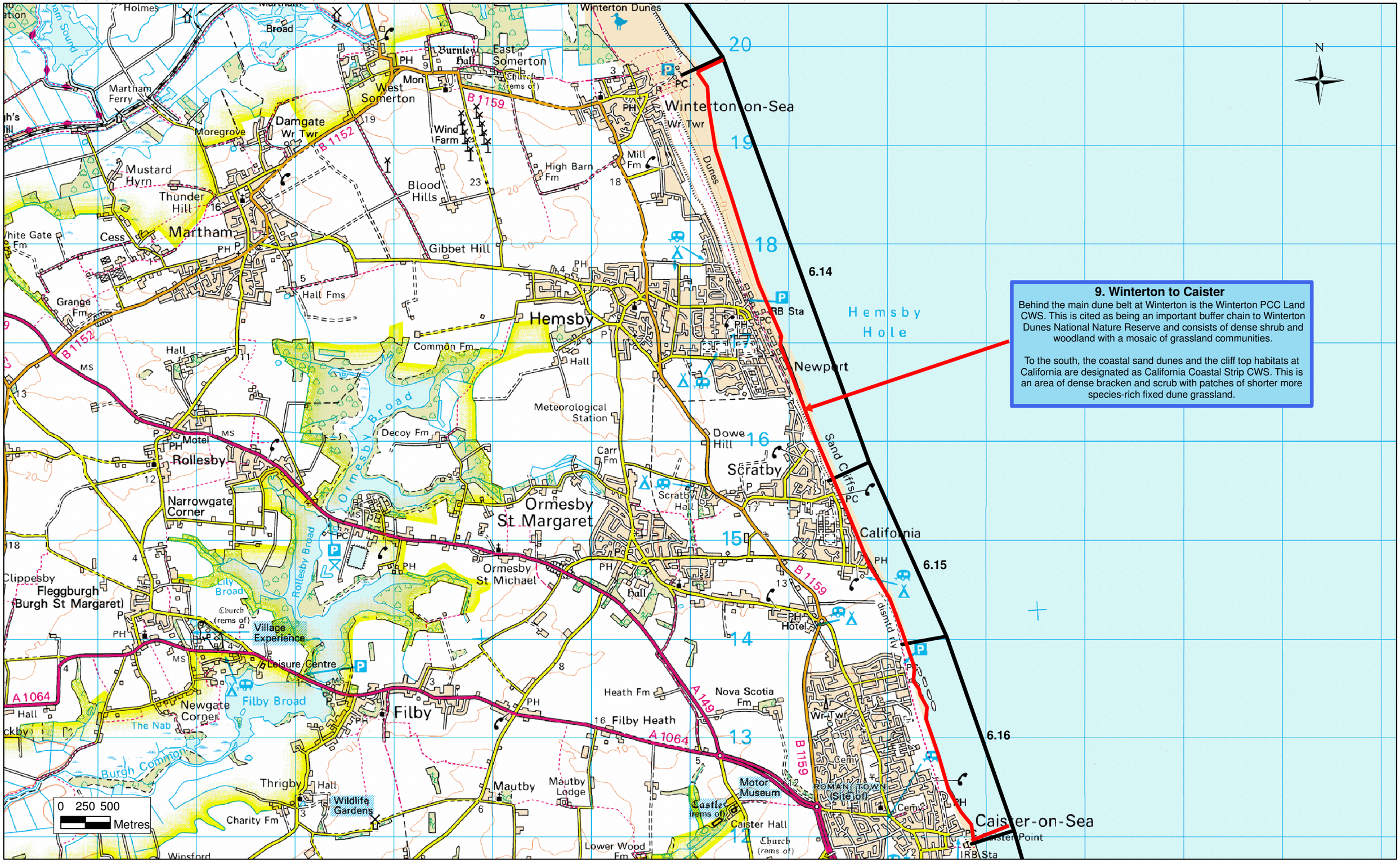

KEY:

- Policy Units
- 9. Winterton to Caister

TITLE:
FIGURE 8.7
NATURAL ENVIRONMENT

PROJECT
KELLING TO
LOWESTOFT NESS SMP

CLIENT:

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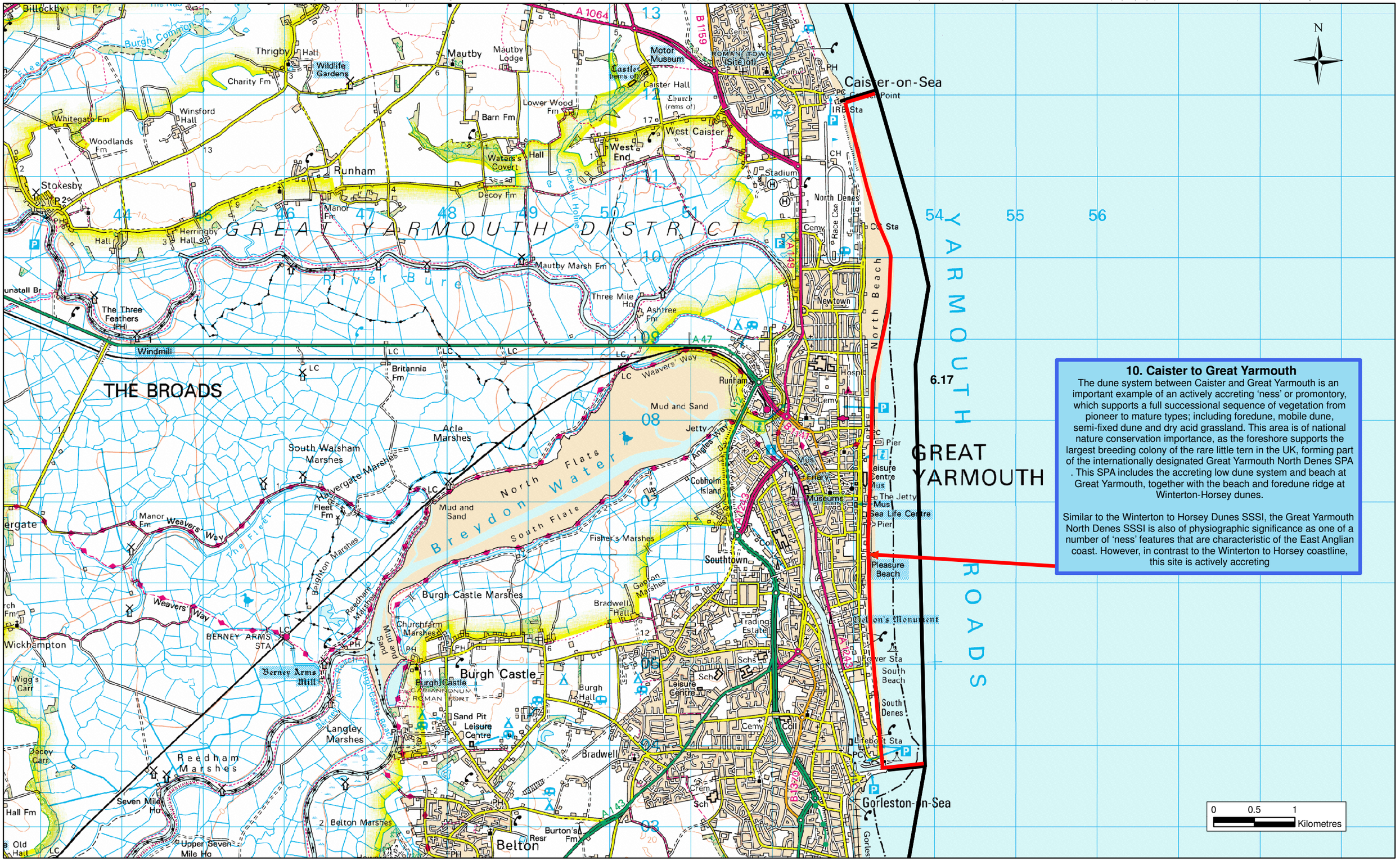

10. Caister to Great Yarmouth

The dune system between Caister and Great Yarmouth is an important example of an actively accreting 'ness' or promontory, which supports a full successional sequence of vegetation from pioneer to mature types; including foredune, mobile dune, semi-fixed dune and dry acid grassland. This area is of national nature conservation importance, as the foreshore supports the largest breeding colony of the rare little tern in the UK, forming part of the internationally designated Great Yarmouth North Denes SPA . This SPA includes the accreting low dune system and beach at Great Yarmouth, together with the beach and foredune ridge at Winterton-Horsey dunes.

Similar to the Winterton to Horsey Dunes SSSI, the Great Yarmouth North Denes SSSI is also of physiographic significance as one of a number of 'ness' features that are characteristic of the East Anglian coast. However, in contrast to the Winterton to Horsey coastline, this site is actively accreting

KEY:

- Policy Units
- 10. Caister to Great Yarmouth

TITLE: FIGURE 8.8 NATURAL ENVIRONMENT

PROJECT: KELLING TO LOWESTOFT NESS SMP

CLIENT: Water Management Alliance; North Norfolk District Council; Great Yarmouth Borough Council; Norfolk Coast Partnership; Natural England; Environment Agency; Broads Authority (The Broads - a member of the National Park family); Waveney District Council (Serving the Community)

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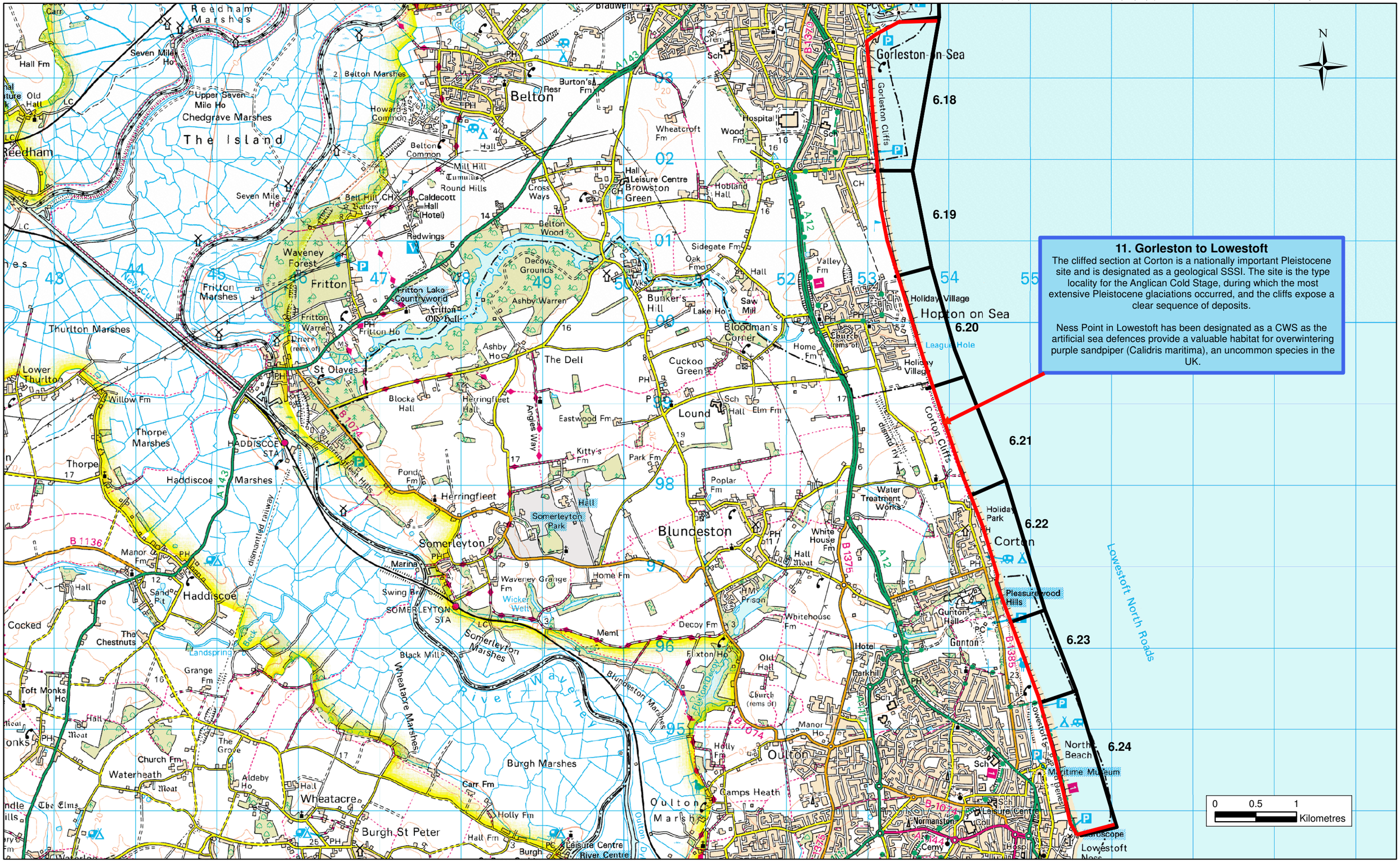

KEY:

- Policy Units
- 11. Gorleston to Lowestoft

TITLE:

FIGURE 8.9
NATURAL ENVIRONMENT

PROJECT:

KELLING TO
LOWESTOFT NESS SMP

CLIENT: Water Management Alliance; North Norfolk District Council; Great Yarmouth Borough Council; Norfolk Coast Partnership; Natural England; Waveney District Council Serving the Community; Environment Agency; Broads Authority The Broads - a member of the National Park family

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No. FIGURE 8.9		Rev: B	