SECTION 4

REGIONAL LANDSCAPE CHARACTER TYPES

Upland Limestone Pastures, Derbyshire (© Derbyshire County Council)

LIST OF GROUPS AND TYPES: PAGE

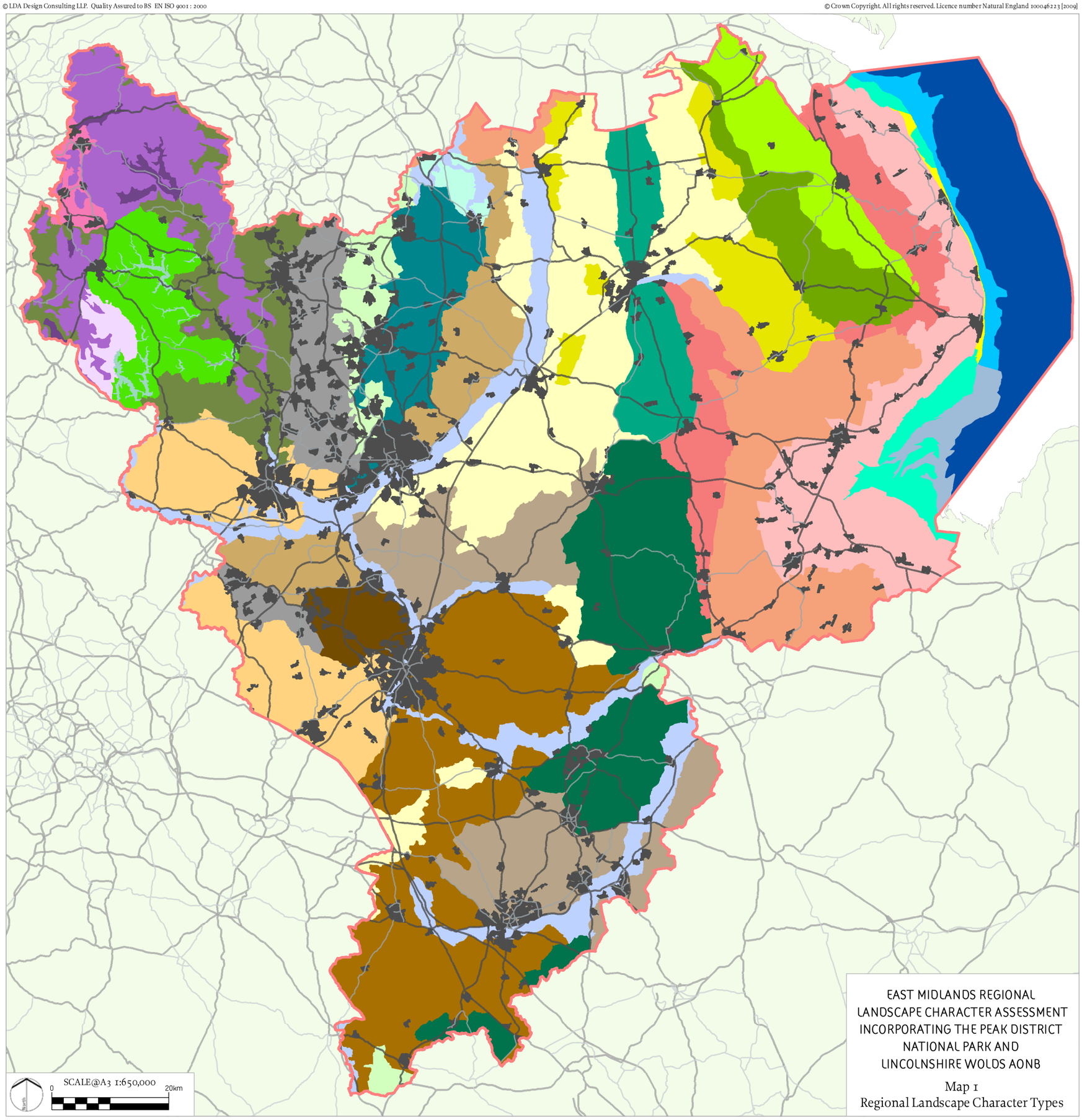
For further information about landscape character, forces for change and shaping the future landscape, refer to relevant National Character Area (NCA) descriptions, the National Landscape Typology and Landscape Character Assessments and Landscape Strategies that have been undertaken at national, county and district level.

Other reference material helpful to understanding landscape character may also be available, such as Historic Landscape Characterisations (HLC) and Townscape Characterisation. Village and Town Design Statements and Conservation Area Appraisals are also useful reference sources that can provide further information about intrinsic built character and sense of place. With regard to offshore coastal areas, English Heritage's Historic Seascapes Characterisation project will also be of relevance, the pilot study for which included Withernsea to Skegness.

A schedule of LCA and HLC assessments available at the time of the publication of the EMRLCA is presented in Appendix 1. Please note that since publication, new or updated material may be available. For further information contact the relevant county and/or district local authority or visit the Natural England website and follow links to the Landscape Character Network and the Database of Landscape Character Assessments in England located there.

EAST MIDLANDS REGIONAL LANDSCAPE CHARACTER ASSESSMENT
INCORPORATING THE PEAK DISTRICT NATIONAL PARK AND
LINCOLNSHIRE WOLDS AONB

MAP 1
REGIONAL LANDSCAPE CHARACTER TYPES



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EAST MIDLANDS REGIONAL LANDSCAPE CHARACTER ASSESSMENT INCORPORATING THE PEAK DISTRICT NATIONAL PARK AND LINCOLNSHIRE WOLDS AONB

Map 1
Regional Landscape Character Types

Legend

- Study Area Boundary
- Built Up Area

Group 1: Coast and Sea

- 1a: Coastal Saltmarshes and Mudflats
- 1b: Coastal Dunes, Beach and Intertidal Sand Flats
- 1c: Shallow Coastal Waters
- 1d: Shallow Inlet Bay
- 1e: Offshore Industries, Fisheries and Navigations

Group 2: Fenland and Fenland Margins

- 2a: Settled Fens and Marshes
- 2b: Planned and Drained Fens and Carrlands
- 2c: Fen and Marsh Margin Farmlands

Group 3: River Valley Floodplains

- 3a: Floodplain Valleys
- 3b: Sandland Farmlands

Group 4: Lowland Vales

- 4a: Unwooded Vales
- 4b: Wooded Vales

Group 5: Village Farmlands

- 5a: Village Farmlands
- 5b: Wooded Village Farmlands
- 5c: Undulating Mixed Farmlands

Group 6: Limestone Farmlands

- 6a: Limestone Scarps and Dipslopes
- 6b: Upland Limestone Pastures
- 6c: Limestone Dales
- 6d: Limestone Farmlands

Group 7: Chalk Wolds

- 7a: Chalk Wolds
- 7b: Wolds Scarps, Ridges and Valleys

Group 8: Clay Wolds

- 8a: Clay Wolds

Group 9: Coalfields

- 9a: Settled Coalfield Farmlands

Group 10: Woods and Forests

- 10a: Forest Hills and Ridges
- 10b: Sandstone Forests and Heaths
- 10c: Wooded Slopes and Valleys
- 10d: Forested Ancient Hills

Group 11: Gritstone Moors and Fringes

- 11a: Open Moors and Inbye Land
- 11b: Moorland Valleys
- 11c: Settled Valleys and Enclosed Gritstone Uplands
- 11d: Upland Pastoral Hills and Valleys

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Source: Ordnance Survey

Upland Limestone Pastures, Dam Dale White Peak (© Jim Horsfall, Natural England)

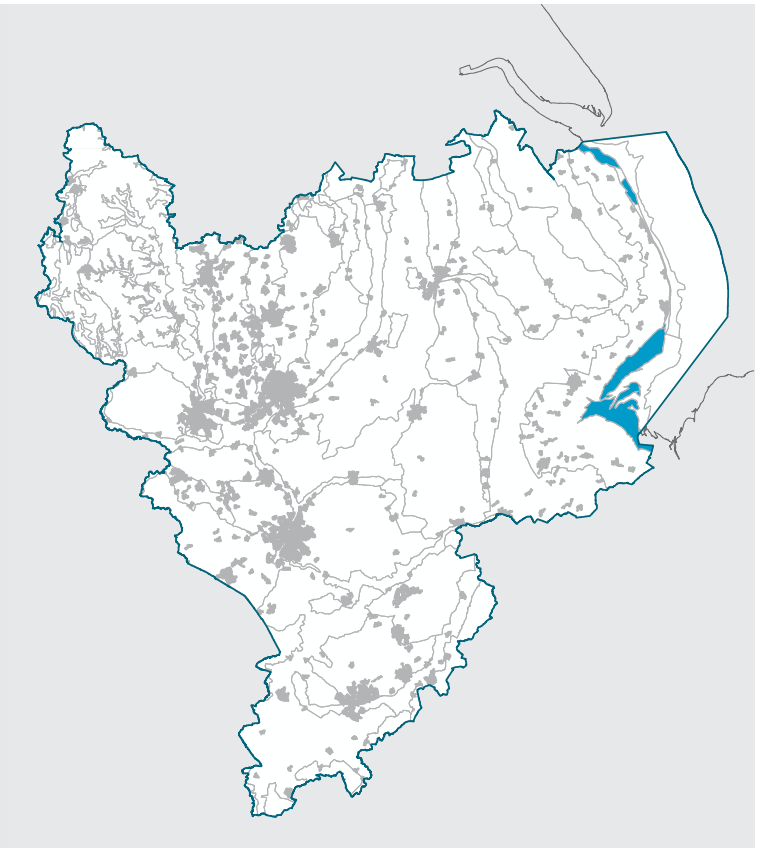
GROUP 1: COAST AND SEA

Coastal dunes are characteristic of the Coast and Sea (© Wash Estuary Strategy Group/Lincolnshire County Council)

1A:

COASTAL SALTMARSHES AND MUDFLATS

Extensive landscape with wide panoramic views out to sea (© J Watson)



KEY CHARACTERISTICS

- Dynamic landscape formed by natural processes of deposition, inundation and ecological succession;
- Extensive low lying landscape with wide panoramic views out to sea, notably in The Wash albeit limited in some places by sea banks;
- More intimate and varied saltmarsh landscapes on the North Lincolnshire Coast where views inland and out to sea are often obscured by dunes or sea banks.
- Complex networks of brackish pools, tidal creeks and inlets;
- Temporal landscape influenced by tides;
- Generally inaccessible in The Wash with little or no built development evident. Greater access provision to areas of saltmarsh along the North Lincolnshire Coast;
- Rich mosaic of saltmarsh plant communities offer important habitats for waterfowl and invertebrates, and form part of complex and protected coastal ecosystems; and
- Dramatic and evocative landscape offering views of wild places little influenced by human activities.

LANDSCAPE CHARACTER

The Coastal Saltmarshes and Mudflats Landscape Character Type is a simple and visually unified landscape of low lying salt tolerant plant communities, tidal creeks and wide open areas of intertidal mud. The landscape generally retains a wild, remote character and is highly valued for its nature conservation interest as part of extensive maritime habitats extending around the fringes of The Wash and along the North Lincolnshire Coast.

Expansive views from the seabanks and dunes that mark the inland extent of the saltmarshes are possible across large areas characterised by low vegetation, level horizons, and vast skies, particularly in The Wash area. The ebb and flow of tides can also be observed, adding a dynamic quality to otherwise undisturbed landscapes.

The natural character of the landscape prevails. However, mooring along creeks in The Wash and at Gibraltar Point, grazing and occasional evidence of military uses, demonstrates that human influences are at play even in what seem to be undisturbed landscapes.

Coastal Saltmarshes and Mudflats
(© Natural England)

PHYSICAL INFLUENCES

Saltmarsh forms through natural processes in areas between the mean high water level of spring and neap tides on sheltered coasts. They are intimately related to the intertidal flats which form in front of them. The movement of sediment between saltmarsh and flats are a normal part of the functioning of both habitats.

Saltmarsh is characterised by an intricate network of tidal creeks and open areas consisting of various saltmarsh habitats, the most common being pioneer and lower marsh characterised by salt tolerant glasswort, common saltmarsh grass and sea purslane communities. At one time significant areas of higher and middle saltmarsh communities would have existed. In The Wash saltmarshes have been lost to centuries of coastal drainage and agricultural reclamation. However, overall they are accreting. Saltmarsh and mudflat habitats are very important to a number of marine and terrestrial wildlife species, some of which are rare. Indeed, the matrix of wet and dry areas and different plant communities are home to many specialised invertebrates such as spiders, moths, beetles and flies. Many areas of saltmarsh also provide grazing for large flocks of wintering duck and geese and shelter for breeding birds such as redshank. As a consequence the saltmarshes in the region mark the landward limits of important nature conservation designations including The Wash and Humber Estuary Special Protection Areas and Special Areas of Conservation and Ramsar status.

Whilst appearing natural, areas of saltmarsh within The Wash are managed by grazing. Although light grazing can be advantageous, high grazing pressure can reduce conservation interest.

In addition to providing important habitats, many areas of saltmarsh also protect inland areas from flooding by dissipating and reducing the amount of tidal energy reaching the shoreline.

With the flat landscape and no geological exposures within the Coastal Saltmarshes and Mudflats, there is very limited potential for the application of practices for the care, maintenance and management of features of geodiversity interest and the promotion of their educational and interpretational interest. However, the former river channels beneath the fenland deposits often produce raised ground and form excellent geomorphological features worthy of preservation.

CULTURAL INFLUENCES

The Coastal Saltmarshes and Mudflats Landscape Character Type retains a strong sense of wilderness with few visible indicators of human intervention. Exceptions include the seabanks, which define the landward edge of the saltmarshes, visitor facilities such as at Gibraltar Point and the boats that moor in sheltered creeks in The Wash. Some areas also form part of military ranges, and contain infrastructure and buildings such as watchtowers and metalled tracks.

Coastal Saltmarshes and Mudflats (© Natural England)

AESTHETIC AND PERCEPTUAL QUALITIES

The Coastal Saltmarshes and Mudflats is one of the most remote Landscape Character Types in the East Midlands and marks the transition between land and sea. It has a strong character and sense of place, defined by a limited number of landscape features; intertidal mudflats, low lying salt tolerant vegetation and dendritic patterns of creeks which allow tidal waters to flow in and out.

Whilst views inland and out to sea are sometimes restricted by sea banks and dunes, occasional views can be wide and expansive, adding to the landscape's remote and natural character. Where grazing occurs and where boats are moored in tidal creeks in The Wash the landscape can appear less wild and remote. However, generally wide areas show few signs of human intervention and retain a tranquil character.

LANDSCAPE CHANGE AND MANAGEMENT

INFRASTRUCTURE

Forces for Change

In places, and notably within The Wash, land reclamation for agriculture has historically reduced the proportion of saltmarsh. Whilst the process of land reclamation has eased in recent decades, incremental development such as car parks and viewpoints, flood defence works and infrastructure associated with military ranges have created visual intrusions and reduced the sense of tranquillity in some locations. In some locations the area of saltmarsh has grown as a result of land use change and/or marine sediment deposition.

Shaping the Future Landscape

The strategy should be to protect the simple character of the landscape and consider the visual impact of any new structures or facilities. Fishing, Agriculture and Land Management

AGRICULTURE, LAND MANAGEMENT AND FISHING

Forces for Change

Grazing is important for the vegetation structure and the overall ecology of the saltmarshes and mudflats, notably in The Wash. However, change in agricultural practices has led to a reduction in grazing in recent decades.

Shaping the Future Landscape

The aim should be to manage new and existing saltmarsh through grazing where appropriate, ensuring landscape and biodiversity character is enhanced or restored. The frequency and intensity of grazing should be considered on a site by site basis.

Saltmarsh east of Seaview, Saltfleetby
(© Natural England)

TOURISM AND FISHING

Forces for Change

The Wash section of the Coastal Saltmarshes and Mudflats is generally inaccessible although boat moorings are evident in some of the creeks. A greater level of access is available to the areas of saltmarsh along the North Lincolnshire Coast with visitor facilities, notably at Gibraltar Point. Visitor levels are low and mainly confined to those seeking the enjoyment of the wild, remote character and nature conservation interest. Nevertheless, at the car parks and principal viewpoints, there is potential to affect the tranquillity and simplicity of the landscape and the provision of further facilities could further detract from an area where there is little evidence of human activity.

Shaping the Future Landscape

The aim should be to manage this landscape to limit the long term impacts of human activity and ensure that existing and any future facilities and access to the saltmarshes are carefully controlled in order to retain the wild and remote character.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

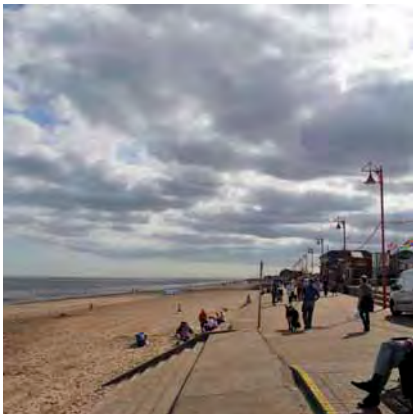
Climate change could present a major threat to coastal landscapes where the intertidal zones become 'squeezed' between rising sea levels and sea defences. If the defences stay where they currently are, the size and nature of the defences will change significantly, probably to the detriment of landscape quality.

Shaping the Future Landscape

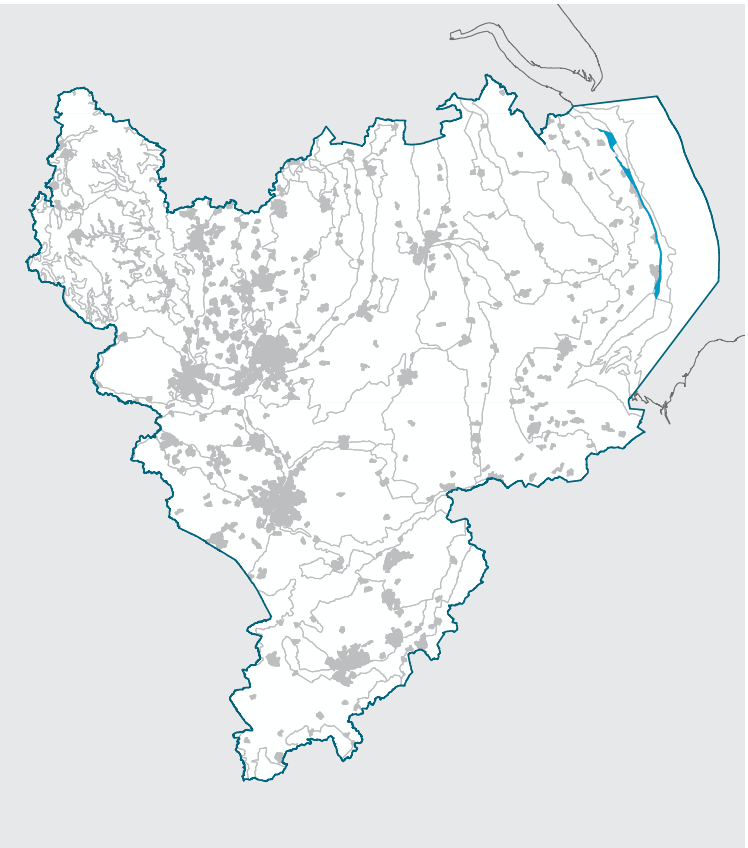
Flood defence work (both new construction and maintenance) should be planned to seek to avoid damage to existing saltmarsh.

1 B:

COASTAL DUNES, BEACH AND INTERTIDAL SAND FLATS



Mablethorpe Beach Dunes and Beaches
(© Neil Pike, Natural England)



KEY CHARACTERISTICS

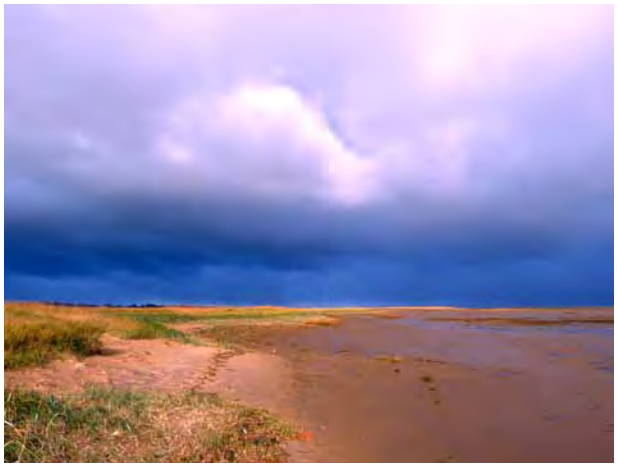
- Dynamic landscape intimately linked to natural coastal processes;
- Gently rolling landform of dunes fronted by sandy beaches and intertidal sand flats and occasionally saltmarsh on the North Lincolnshire Coast;
- Intertidal flats and beaches washed by waves with limited or no plant growth;
- Low, fragile vegetation succession ranging from pioneer species on shoreline to scrub and grassland communities across established dunes, indicative of more stable areas beyond the influence of normal tides;
- Limited evidence of human activity beyond fencing, tracks and tourist facilities, such as viewpoints. During the summer months, in locations close to busy holiday resorts, a temporary busy character prevails in contrast to the predominantly empty character elsewhere.

LANDSCAPE CHARACTER

The Coastal Dunes, Beach and Intertidal Sand Flats Landscape Character Type is a dynamic landscape, with change occurring daily as a result of the ebb and flow of the tides, and over longer periods of time due to vegetation succession and erosion and accretion patterns.

A wide range of important habitats, from dry dunes and their flowering plants, to the sand flats with their associated insect fauna contribute to complex maritime ecosystems.

Whilst wide areas retain a remote and tranquil character, accessible stretches of coastline in close proximity to resorts and caravan parks are the focus for significant numbers of holiday makers. In some areas, permanent tourist infrastructure is evident which diminishes the natural character of the landscape and sense of remoteness that prevails elsewhere.



Beach at Theddlethorpe (© Neil Pike, Natural England)

PHYSICAL INFLUENCES

The Coastal Dunes, Beach and Intertidal Sand Flats is a dynamic landscape that demonstrates a complex array of natural processes. It marks the transition from land to sea, and whilst the ebb and flow of the tide is important to the maintenance of the beaches and sand flats, variations in the landward component of the landscape are dependent on a range of other factors.

Coastal dunes, such as those at Gibraltar Point, Saltfleetby and Theddlethorpe are created by wind driven and biological processes, rather than wave action or coastal currents, although marine processes are important in transporting sand to intertidal drying areas from where it becomes available for dune formation. Sea sandwort, sea rocket, and prickly saltwort are characteristic fore-dune plants which are succeeded by dune building grasses that are typical of mobile and semi-fixed dunes. As dunes stabilise other grasses dominate the sward, which if left un-grazed become succeeded by scrub vegetation.

In a few locations behind the dunes, ponds have formed in the clay pits dug to make the sea banks. These 'borrow pits' now support a range of wildlife including rare brackish water invertebrates and bird species. Pits with reedbeds have supported bittern and marsh harrier in recent years whilst other borrow pits have breeding sedge warbler and a varied water plant flora. Others pits have populations of unusual water beetles.

The various sand and dune habitat types represented in the landscape are some of the most valued in the region, with the dune systems at Gibraltar Point being regarded as one of the best sites of its type in the country. Indeed, this area is noted for nationally significant breeding colonies of little tern and ringed plover, which depend on the open sand habitats.

Under natural conditions, dune systems are dynamic and develop in tandem with shoreline evolution. As such, in areas of accretion dunes will move seaward, and in areas of erosion they will move inland.

Grazing animals play an important role in maintaining short turf communities on the dunes, and major new initiatives are being taken to reintroduce livestock grazing to areas of the dunes which have become overgrown with scrub.

Wide areas of the landscape are designated for their nature conservation importance, with National Nature Reserves such as at Saltfleetby and Theddlethorpe offering visitors an opportunity to experience areas of dune and coast.

By contrast to the dunes, sand flats which are highly mobile, tend to support few plants and animals. However, where organic detritus accumulates on the strandline of sandy beaches, mixed pioneer vegetation develops, usually dominated by annual plants. These are often important habitats in the beach shoreline ecosystem that are exploited by a wide variety of plants and animals. Pioneer plants can also trigger the process of dune formation.

The Coastal Dunes, Beach and Intertidal Sand Flats offer very limited potential for the application of practices for the care, maintenance and management of features of geodiversity interest and the promotion of their educational and interpretational interest. However, the range of coastal landforms and associated features are of geomorphological interest.

CULTURAL INFLUENCES

The Coastal Dunes, Beach and Intertidal Sand Flats contains some of the wildest and most natural habitats in the region. Significant areas retain a remote and untamed character. However, in areas close to coastal holiday resorts, dunes and sands can often have a busy character, particularly in summer months. Whilst these landscapes generally contain few built elements, car parks and wartime defences are sometimes visible.

Elevated dunes also provide vantage points. Whilst views to the sea rarely contain modern development beyond occasional ship, and offshore wind energy schemes, views inland encompass development associated with coastal resorts and agriculture, much of which is arable in the south around The Wash. Other human interventions can be seen in the form of infrastructure associated with military ranges, although these are often located in inaccessible areas, thus reducing their impact.

AESTHETIC AND PERCEPTUAL QUALITIES

The Coastal Dunes, Beach and Intertidal Sand Flats generally retain a wild character. Whilst this is significantly diminished in areas close to major holiday resorts, vast areas are tranquil, with little evidence of human intervention. Extensive panoramas across a seemingly unchanged coast and sea are possible, adding to a sense of remoteness and detachment from the modern world.

Coastal Dunes (© Natural England)

In the summer, the dunes and sands close to the major resorts become busy with holidaymakers. This creates a new, temporary character across many areas, with deck chairs, wind breaks and large numbers of people using the beaches and dunes for recreation and relaxation adding dynamism to an otherwise simple, natural landscape. Although this is temporary, in some areas permanent infrastructure has been installed to facilitate enjoyment of the beach and sea by large numbers of people, such as the beach huts at Chapel St Leonards.

This is a dynamic landscape, with the ebb and flow of tides changing the character of the sands hour by hour and the wind shaping the dune fronts. The landscape is also shifting and changing over much longer periods of time, with dune systems moving gradually over several generations. However, tidal surges can be responsible for rapid change in this landscape, with erosion and deposition creating new landscapes overnight.

Coastal Dunes and Intertidal Sandflats (© Natural England)

LANDSCAPE CHANGE AND MANAGEMENT

INFRASTRUCTURE

Forces for Change

Around the popular resorts car parks and access points have developed on the landward side of the dunes over many years. At Donna Nook the targets and signs of the military bombing range creates an engineered visual intrusion on an otherwise natural beach scene further amplified by the sound of the planes when the range is operational.

Shaping the Future Landscape

The aim should be to protect the simple character of the landscape and consider the visual impact of any new structures or facilities and the effects on tranquillity and remoteness.

AGRICULTURE, LAND MANAGEMENT AND FISHING

Forces for Change

Grazing of domestic animals is important for the vegetation structure and overall ecology of the coastal dunes. However, changes in agricultural practices have led to a reduction of grazing in recent decades.

Shaping the Future Landscape

The intention should be to maintain and enhance the varied dune landscape using grazing where appropriate, to manage the balance between grassy and scrubby dunes. The frequency and intensity of grazing should be considered on a site by site basis.

TOURISM AND LEISURE

Forces for Change

The coastal resorts continue to be a popular destination for holidays and day-trips. As such, in the summer months, the beaches close to major resorts are heavily used by holiday makers. This changes landscape character across many areas, transforming a simple, natural landscape into a busy environment. The popularity of holiday resorts such as Skegness and Mablethorpe, including caravan parks, may lead to pressure on the dunes for leisure activities that would be highly visually intrusive and would modify the dune or beach character.

The dunes are also affected by recreational activity. The creation of golf courses and public access has resulted in the damage, loss and fragmentation of dune vegetation.

Theddlethorpe Dunes NNR (© Neil Pike, Natural England)

Shaping the Future Landscape

While this is an inevitable change, the aim should be to manage this landscape to limit the long term impacts of human activity. Management plans should manage the busiest stretches of beaches and dunes, helping to conserve the natural environment whilst enhancing the beach as a tourist resort.
It is also important to consider the visual and environmental impact of any new or extended golf courses.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

Climate change could present a major threat to coastal landscapes where the intertidal zones become 'squeezed' between rising sea levels and sea defences. If the defences stay where they currently are, the size and nature of the defences will change significantly, probably to the detriment of the landscape quality.

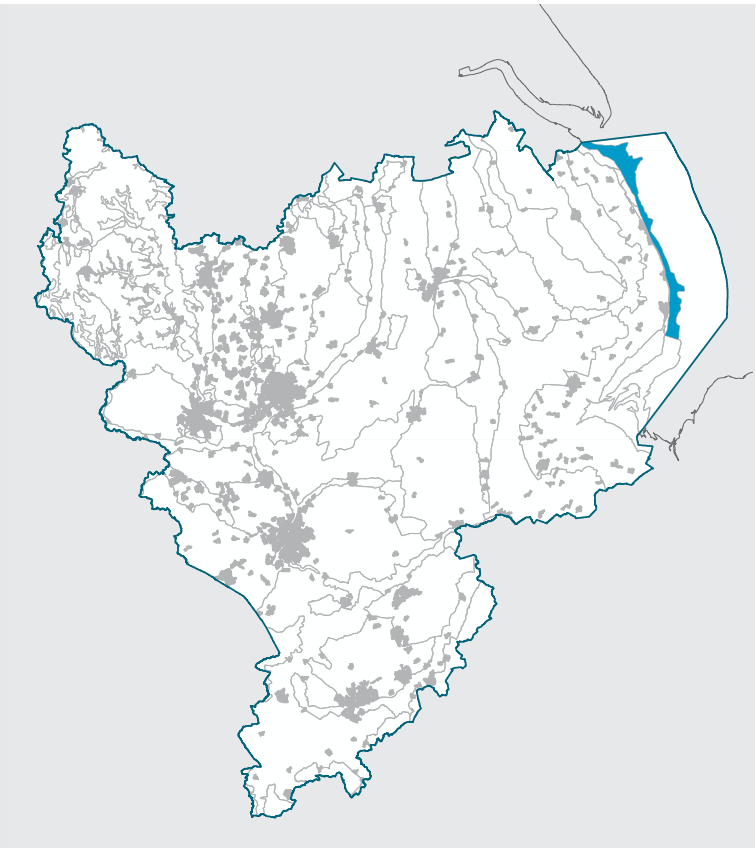
Shaping the Future Landscape

Flood defence work (both new construction and maintenance) should be planned to seek to avoid damage to existing coastal habitat

1C:

SHALLOW COASTAL WATERS

Shallow water along the Lincolnshire coast
(© Wash Estuary Strategy Group/P Gray)



KEY CHARACTERISTICS

- Shallow marine waters fringing the coastline, influenced by strong wave action coming off the North Sea;
- Shifting sub-tidal sediments and mobile marine communities;
- The upwelling of nutrients that occurs in shallow areas forms important basis for complex food chains;
- Important fisheries, in particular shell fisheries
- Strong human influences close to major holiday resorts associated with recreational uses during the summer; and
- Ecosystems sensitive to onshore and offshore pollution.

LANDSCAPE CHARACTER

The Shallow Coastal Waters Landscape Character Type occupies a narrow stretch of exposed coastline between the more sheltered waters of the Humber Estuary and The Wash.

The constant shifting of the sea bed sediments by tidal action means that few stable plant communities exist. However, seaweeds and planktons form the basis of elaborate food chains and notably shoals of fish. Tidal action also creates a shifting and temporal landscape on its landward edge, where there is an ongoing daily transition from open sea to coastal beaches and flats.

The proximity of major coastal holiday destinations and caravan parks exert a strong influence on the character of the landscape, notably in the summer. Here, shallow waters are popular for bathing and other activities and as such have a busy character for several months of the year. In winter, the landscape reverts to a more semi-natural character, albeit influenced by views to permanent coastal development.

Shallow Coastal Waters - A Shrimper (© Natural England)

PHYSICAL INFLUENCES

The Shallow Coastal Waters Landscape Character Type has been identified along the exposed stretch of the Lincolnshire Coast between the more sheltered waters of The Wash and Humber Estuary and comprises marine areas up to 5m deep. The coastal shelf is generally relatively narrow, extending some 1km offshore. However, towards the Humber Estuary, shallow waters can be seen to extend 6km from the coastline.

The benthic habitats of the North Sea fringing the Lincolnshire Coast are defined by the substrate of the sea bed. A thin veneer of sub tidal unconsolidated sediment, dominated by sands, muds and gravels, is subject to natural movement and change from powerful waves coming off the North Sea.

The varied invertebrate marine fauna is exploited by birds, predatory fish, mobile invertebrates, such as shrimps and crabs and by fishermen.

Sheltered areas close to the coastline are important nursery grounds for fish and other marine life, such as herring, which spawn off the North Norfolk Coast and feed in the North Sea where they are fished commercially.

To date, the geodiversity interest within the offshore environments has not been investigated but there may be features relating to bedforms on the sea floor with potential for interpretation and of educational interest.

CULTURAL INFLUENCES

Evidence of human activity is sparse. However, views to onshore development, offshore wind energy schemes, and general activity associated with shipping, fishing and recreational uses of the shallows makes these areas more heavily influenced by humans than the deeper offshore waters of the North Sea.

Of particular note are recreational pursuits such as swimming and wildlife watching in the shallow waters off the major holiday resorts. Small scale commercial fishing craft are also notable, although these also venture further out into deeper waters. The shallow seas off several resorts have been popular since the mid 19th century although there is little tangible evidence of historic tourist activity remaining.

As with other marine environments, the impact of human activity on benthic and pelagic areas is not immediately evident. However, pollution from onshore and offshore sources threatens water quality and the health and diversity of habitats.

Wrecks and other obstructions are relatively common, and many visible wrecks are popular shallow water dive sites.

AESTHETIC AND PERCEPTUAL QUALITIES

The Shallow Coastal Waters is a visually dynamic landscape, encompassing views inland and further out to sea. Indeed, the changing coastline significantly influences seascape character, with areas in close proximity to the major coastal resorts having a distinctly different sense of tranquillity and 'naturalness' to areas where views to the land consist of undeveloped coastal dunes and sands. Similarly, areas of the coast which are busy navigation routes or are in close proximity to wind energy schemes are perceived as being less remote.

The character of the landscape is also significantly affected by the seasons. In summer, the accessible coastline attracts thousands of holidaymakers who use the shallow waters for a range of leisure pursuits. Outside the holiday season, the shallow coastal waters return to their natural peaceful state, albeit continually influenced by views to coastal resorts, offshore wind energy schemes and commercial activity such as dredging. In wild and remote areas the sea is less affected by summer visitors except for people taking the opportunity to view offshore wildlife. Some areas are subject to military training activities which also limits public access.

LANDSCAPE CHANGE AND MANAGEMENT

INFRASTRUCTURE

Forces for Change

In recent decades there have been minor infrastructure developments along the Lincolnshire Coast, such as moorings and launching slips which, depending on tidal action, extend into the Shallow Coastal Waters. Such infrastructure has the potential to create visual intrusions and diminish the semi-natural character of the coastline.

Shaping the Future Landscape

The aim should be to manage the transitional character of the landward edge, ensuring any new infrastructure is of appropriate design and scale.

AGRICULTURE, LAND MANAGEMENT AND FISHING

Forces for Change

While the majority of fishing activity generally occurs further out to sea, it is a major contributor to litter that can be found on UK beaches and in the shallow coastal waters. Items may include nets, boxes and buoys and can have a significant impact on visual amenity and perceptions of scenic quality as well as being detrimental to wildlife.
There is also risk of pollutants enter the sea through discharges of effluents and run-off.

Shaping the Future Landscape

Management plans should target the busiest stretches of beaches and shallow coastal waters, and help to conserve the natural environment whilst enhancing the beach as a tourist resort. This could include monitoring levels of litter and strategies for litter collection and removal.

The aim should be to continue to protect against effluents and run-off, following due processes, ensuring benthic and pelagic habitats are maintained. Pollution should be addressed at source, with River Basin Management Plans produced for managing and monitoring river water quality. These should also inform management plans for individual farms and/or land holdings, as part of proposals to remediate against the sources of pollution and enhance the quality of ditches and dykes.

TOURISM AND LEISURE

Forces for Change

The coastal resorts continue to be a popular destination for holidays and day-trips. As such, in the summer months, the shallow coastal waters are used for bathing and other activities. This changes the landscape character across many areas, transforming a simple, natural landscape into a busy, man-made environment.

Shaping the Future Landscape

The intention should be to manage the semi natural character of the landward edge, including sea-based leisure activities such as boat trips and diving, and ensure any new infrastructure is of appropriate design and scale.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

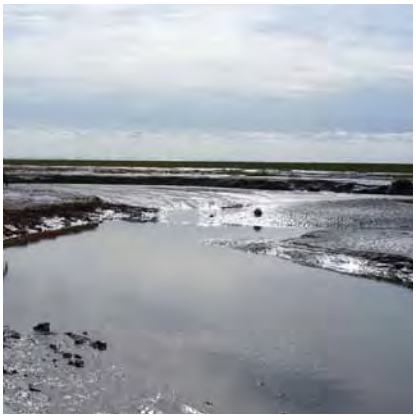
Rising sea levels associated with climate change will have a significant effect on the Shallow Coastal Waters Landscape Character Type with a progressive realignment of the area lying within this type.

Shaping the Future Landscape

There are no opportunities for mitigation but instead an observation of the inevitability of the interplay of geomorphological and marine processes

1D:

SHALLOW INLET BAY



Shallow bays within the Mouth of The Wash (© Wash Estuary Strategy Group/L Curtis)

KEY CHARACTERISTICS

- Unique marine environment characterised by shallow waters over fluvial and marine mud flats and sandbanks;
- Sheltered waters, albeit influenced by high tidal ranges;
- Accumulations of marine and terrestrial sediments;
- Important nursery ground for several fish species and recognised for internationally important habitats;
- Limited evidence of human activity and semi natural character prevails; and
- Temporal landscape displaying marine and terrestrial characteristics dependent upon tides.

LANDSCAPE CHARACTER

The Shallow Inlet Bay Landscape Character Type of The Wash represents a unique marine environment. It is effectively an estuary lying beyond where the rivers Witham, Welland, Nene and Great Ouse meet the sea.

Centuries of sediment deposition and land reclamation have created the current coastline. Marine and terrestrial sediments continue to be deposited in The Wash, and create shallow waters interspersed with several large sandbanks which are exposed at low tide fringing a deep channel at the centre of The Wash.

Despite generally being characterised by calm, sheltered waters, the shallows and banks of sediment in The Wash make navigation hazardous. As such, some of the most prominent human influences in the landscape are buoys and lightships, located to guide shipping into the coastal ports of King's Lynn and Boston.

PHYSICAL INFLUENCES

The Shallow Inlet Bay of The Wash is a unique marine environment consisting of shallow waters over a complex array of fluvial and marine muds, sands and gravels, generally no more than 10m in depth. In deeper areas gravel predominates whereas closer to the shore, sand is mixed with varying amounts of gravel or mud. As tides ebb and flow, the landscape shifts from sea to intertidal mud flats and as a result there is a blurred transition from terrestrial to marine over much of the area.

At the end of the last glaciation, when sea levels were lower than today, the rivers Welland, Nene and Great Ouse were tributaries of a single great watercourse. However, the deep valley of The Wash was not created by this river, but by earlier glacial ice flows carving a deep channel.

In contrast to the North Lincolnshire Coast, the enclosed shallow nature and orientation of the embayment reduces the power and impacts of waves considerably. The average spring tide range is 6.5m between high and low water levels, which is the highest on the east coast of Britain. The tides and currents that move sediments into, out of and around The Wash have a significant influence on the overall nature of the embayment.

Since the last Ice Age the Shallow Inlet Bay of The Wash has been a sediment sink, gradually accumulating muds, sands and gravels. Whilst some is from the terrestrial fenland rivers, much of the sediment is marine in origin, with several million tonnes of marine sediment entering The Wash each year. This is derived in part from the near-shore seabed off the Central Lincolnshire Coast.

Intertidal flats and sandbanks are associated with the major estuarine systems of the North Lincolnshire Coast and The Wash. These consist of vast flat areas of muds and sediments that become inundated at high tide. Some areas extend outwards from the shore, whereas others are 'islands' in open water, notably in The Wash. Muddy sands are often rich habitats and important to a range of organisms including worms and arthropods which in turn are an important food source for higher organisms such as fish and wading birds.

The diverse habitats that characterise the Shallow Inlet Bay are dynamic and dependent on a range of physical processes, and along with the intertidal flats, are of outstanding importance to wildlife, notably a great diversity of fish. Harbour Seals use the intertidal sandbanks within The Wash as extensive pupping areas. The intertidal mudflats and sandbanks of The Wash also support internationally important numbers of migrating and overwintering wildfowl. These birds also use surrounding saltmarsh and agricultural fields to roost.

In recognition of its international nature conservation significance, the entire Wash Area has been designated as a Special Protection Area and Special Area of Conservation.

To date, the geodiversity interest within the offshore environments has not been investigated but there may be features relating to bedforms on the sea floor with potential for interpretation and of educational interest as well as features exposed at low tide that are of geomorphological value.

CULTURAL INFLUENCES

Evidence of human activity is sparse, and the Shallow Inlet Bay Landscape Character Type retains a remote, natural character, albeit influenced by views to coastal development and various types of shipping.

The absence of major coastal resorts and caravan parks on the coastline, and limited recreational use of the coastal waters of The Wash enhances the natural character of the landscape. However, navigation buoys located along established channels to guide vessels between shallow waters and sand bars into the coastal ports of Boston and King's Lynn, are evident in some areas. Markers associated with designated anchorages are also notable, albeit located in the deep water channel at the centre of The Wash. The historic environment of the Shallow Inlet Bay also has the potential to include drowned cultural landscapes, as well as specific artefacts, such as wharves and wrecks.

Significant areas are also marked as danger areas, and form part of large military training areas. The mudflats of The Wash also contain a unique circular feature dating to the 1970s. Whilst this is located outside the Study Area, it can be seen for several kilometres around including from the mudflats and waters of The Wash. The 'Donut' was one of two experimental sites to determine the feasibility of storing freshwater offshore. The experiment failed. However, the site remains a dramatic and enigmatic feature in an otherwise featureless seascape and is now an important breeding bird colony.

As with other marine environments, the impact of human activity on benthic and pelagic zones is not immediately evident. However, pollution from onshore and offshore sources threatens water quality and the health and diversity of marine habitats and ecosystems. Infrastructure, such as that associated with offshore wind energy schemes also has a localised impact.

AESTHETIC AND PERCEPTUAL QUALITIES

The enclosed nature of the bay is significant, creating a sheltered peaceful environment when compared to the more exposed coastal waters off North Lincolnshire. Whilst buoys and markers associated with busy shipping lanes are evident leading into Boston and King's Lynn, the landscape retains a natural character with few indications of human intervention or activity.

The shifting nature of the tides is also a significant factor affecting the perceptual quality of the landscape. As tides fall, large areas of intertidal flats and creeks are exposed, which become submerged again on the rising tide. As such, the Shallow Inlet Bay is perceived as a temporal space, shifting between marine and terrestrial character.

LANDSCAPE CHANGE AND MANAGEMENT

AGRICULTURE, LAND MANAGEMENT AND FISHING

Forces for Change

While the majority of fishing activity occurs offshore, trawling for shrimp also occurs in the Shallow Inlet Bay of The Wash and the intertidal flats are dredged for mussels and cockles. In recent decades, fishing activity has been transformed by more powerful fishing gear and vessels, increasing pressure on stocks and potentially causing long term damage to sediments. Fishing activity has also been identified as a major contributor to litter. Items may include nets, boxes and buoys and can have a significant impact on visual perceptions of the seascape and well as 'ghost fishing', where discarded equipment continues to fish.

Shaping the Future Landscape

The aim should be to manage fishing activity, ensuring trawling does not compromise scenic quality or benthic and pelagic habitats.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

A rise in sea level linked to the effects of climate change will affect the physical processes, morphology and disposition of fluvial and marine deposits associated with the Shallow Inlet Bay of The Wash. In due course the sand banks and intertidal mud flats currently exposed at low tide will become progressively and permanently submerged, resulting in a change in the dynamics and disposition of the rich and diverse habitats that are currently supported .

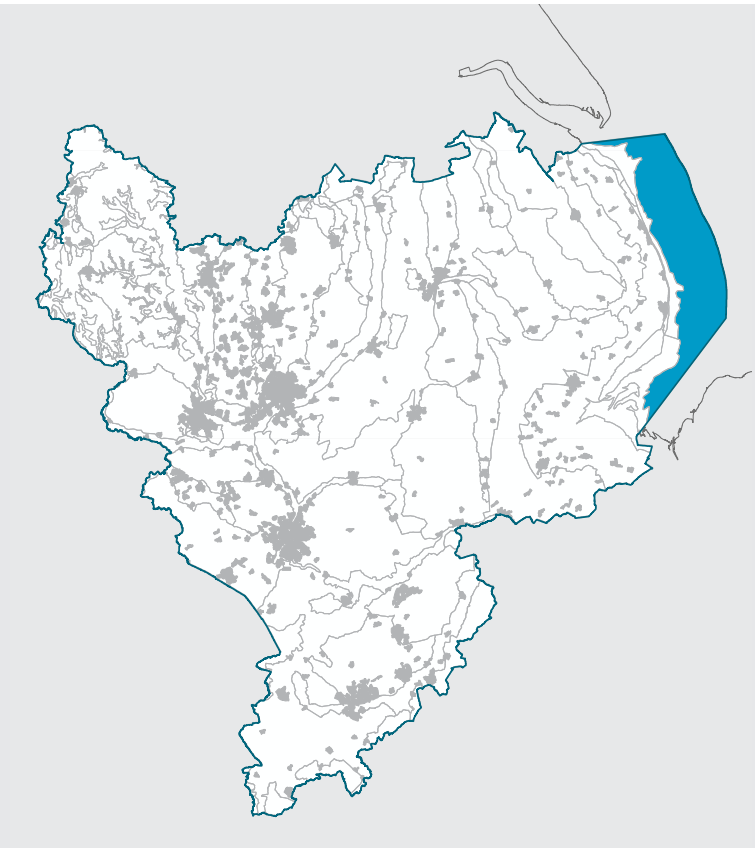
Shaping the Future Landscape

In view of the international nature conservation significance of The Wash area, there will be careful monitoring of the effects of sea level change on this transitional area of terrestrial and marine environments. The depth of the sea, and the ebb and flow of the tides are fundamental determinants of this fragile environment, so there are no opportunities for mitigation but instead an observation of the inevitability of the interplay of geomorphological and marine processes.

1E:

OFFSHORE INDUSTRIES, FISHERIES AND NAVIGATIONS

Shipping lanes along the Lincolnshire coast (© J Watson)



KEY CHARACTERISTICS

- Visually unified landscape of open water extending for several kilometres out into the North Sea;
- Increasingly limited visual influences from coastal development with distance from the shoreline;
- Natural and remote character, influenced in places by modern commercial activities such as navigations, fisheries and wind energy schemes; and
- Other commercial activities such as dredging and dumping have localised influence on benthic and pelagic environments.

LANDSCAPE CHARACTER

The Offshore Industries, Fisheries and Navigations Landscape Character Type has been identified beyond the near-shore coastal waters of the Lincolnshire Coast and The Wash. Unlike these shallower waters, water depths are such that no major mudflats or sand banks are exposed at low tide. As such, albeit superficially, the landscape is a constant expanse of open sea.

Modern commercial use of the sea has had a dramatic albeit geographically limited influence on the character of these expansive seascapes, with notable visual intrusions arising from wind energy schemes and large scale vessels. Commercial activity can also be identified on the sea bed in the form of licensed dredging and dumping grounds. Whilst these have limited influence at the surface, the natural characteristics of the sea bed and marine environments can be affected.

The seaward extent of the Offshore Industries, Fisheries and Navigations Landscape Character Type is defined in this assessment by the Study Area boundary. Further into the North Sea, water depths limit commercial use of the sea for dredging, gas drilling and wind energy schemes. As such a further Landscape Character Type is recognised (the Open Sea Landscape Character Type). However, as this lies beyond the Study Area boundary, it has not been assessed and described in the EMRLCA.

PHYSICAL INFLUENCES

Much of the sea floor consists of marine sands and gravels that date to the Pleistocene or more recent periods. These mask the underlying geology and have a significant influence on benthic and pelagic habitats and also on modern extraction industries.

As with the shallower coastal waters, various benthic and pelagic habitats exist. In the water column, plankton provides a critical role in the food chain of oceanic wildlife including fish, birds and marine mammals. The abundance of plankton is strongly influenced by factors such as depth, tidal mixing and temperature stratification. Plankton blooms generally occur far offshore in March when nutrient levels are high, the amount of daylight increases, and the sea gradually warms.

Benthic habitats are defined by the substrate of the sea bed. A thin veneer of sub tidal unconsolidated sediment, dominated by sands and gravels, is subject to natural movement and change from powerful waves.

The varied invertebrate marine fauna is exploited by birds, predatory fish and mobile invertebrates such as shrimps and crabs.

Sheltered areas close to the coastline are important nursery grounds for fish and other marine life, such as herring which spawn off the north Norfolk coast and feed in the North Sea where they are fished commercially.

To date, the geodiversity interest within the offshore environments has not been investigated but there may be features relating to bedforms on the sea floor with potential for interpretation and of educational interest.

CULTURAL INFLUENCES

In areas of otherwise featureless open seas, commercial activities have a notable influence on the character of the landscape.

Fisheries extending further out into the North Sea attract large numbers of commercial fishing vessels and trawlers, although smaller vessels are also common. However, in the vastness of the sea these vessels exert only a limited influence on the natural character of the sea. By contrast, large commercial cargo ships, tankers and ferries are more visually prominent, particularly because they follow strictly defined shipping lanes. Within the Study Area, large vessels are particularly prominent off the North Lincolnshire coast entering the Humber Estuary.

A further and more visually prominent human influence on seascape character are offshore wind energy schemes. Two constructed wind energy schemes are located approximately 5km off the Lincolnshire coast and are visible for many kilometres. Indeed the scale and massing of the turbines can be seen from the shoreline. Turbines can also be regarded as incongruous features in an otherwise natural environment. They also create movement, and as such impact on the open views of sea from land. Lighting also impacts on otherwise dark skies at night.

Offshore Industries, Fisheries (© Natural England)

The commercial use of the sea floor also has an influence on the character of the landscape. A single licensed dumping ground is located within the Study Area. Strict controls are in place to govern the type of waste that can be disposed of to ensure that environmental impacts are minimised. However, such activity adds to the commercial character of these marine areas. Commercial dredging / aggregate extraction is also evident, albeit in a single location, further adding to the commercial importance of the North Sea.

The historic environment of the offshore area has the potential to include drowned cultural landscapes, as well as specific artefacts, such as wharves, wrecks and aircraft (war graves).

AESTHETIC AND PERCEPTUAL QUALITIES

The deeper waters of the North Sea are visually unified, encompassing views across extensive and unchanging tracts of largely open water. In contrast to shallower coastal waters, the ebb and flow of tides is imperceptible, although the swell of waves and breakers can be dramatic.

Across wide areas, and notably where views are further out to sea and not influenced by modern commercial developments, the prevailing characteristics are of remoteness and isolation.

By contrast, views that encompass large scale wind turbines bring a developed and modern utilitarian character to seascape character.

LANDSCAPE CHANGE AND MANAGEMENT

INFRASTRUCTURE

Forces for Change

There are many shipping lanes within the deeper waters of the North Sea and sea traffic and fishing vessels can have an impact on tranquillity and visual amenity, albeit locally and temporarily. There is also risk of operational pollution, accidental pollution and physical damage resulting from the movement of vessels, damaging benthic and pelagic habitats.

Shaping the Future Landscape

The aim should be to manage shipping, ensuring sea traffic and fishing vessels are kept outside the most sensitive marine environments.

ENERGY PROVISION

Forces for Change

Offshore wind energy schemes are a feature of the seascape, with two wind energy schemes located approximately 5km off the coast. Given the Government's commitment to increasing energy from renewable sources, the reliance on wind power is likely to continue, and further schemes are under construction, consented or in planning. New offshore wind energy schemes will create visual landmarks in this open, flat seascape and reduce the tranquil, natural character of the sea. In addition, the submerged element of the turbines can be damaging to coastal process and benthic habitats.

Shaping the Future Landscape

With the inclusion of a seascape character assessment within the EMRLCA, it has the potential to contribute to the development of strategic regional and sub regional level guidance on commercial wind energy schemes, both onshore and offshore, including considerations of cumulative impact.

While there are limited opportunities to protect the open character of the seascape, the aim should be to protect visual amenity by siting infrastructure away from sensitive onshore and coastal locations with sensitive receptors or particularly strong or valued semi-natural character. The strategy should also protect biodiversity by siting offshore wind energy schemes outside of the most sensitive marine environments and further offshore to limit impacts to sensitive landscape.

MINERALS AND WASTE

Forces for Change

Sand and gravel extraction occurs in the North Sea. As pressure on land-based sources continues to increase, there is likely to be greater reliance on dredging. As described under 'infrastructure' vessels used for dredging can have a significant impact on tranquillity and visual amenity, albeit locally and temporarily. Dredging also disturbs benthic habitats, removing the substrata and changing the topography of the seabed.

Gas extraction also occurs in the North Sea and natural gas fields are located approximately 25-30 kilometres offshore, and as such lie beyond the Study Area of this assessment. Therefore, whilst extraction is unlikely to directly affect the seascape of the Study Area, exploration, construction, operation and decommissioning of facilities can have a detrimental effect on the character and visual amenity of the wider environment.

Shaping the Future Landscape

The goal should be to manage dredging, ensuring vessels are kept outside the most sensitive marine environments.

Measures should be taken to ensure impacts of gas extraction are localised if practical, protecting the landward seascapes.

AGRICULTURE, LAND MANAGEMENT AND FISHING

Forces for Change

In recent decades, fishing activity has been transformed by more powerful fishing gears and vessels, thereby increasing pressure on stocks and potentially causing long term damage to sea floor sediments. Fishing activity has also been identified as a major contributor to litter. Items may include nets, boxes and buoys and can have a significant impact on visual perceptions of the seascape and well as 'ghost fishing', where discarded equipment continues to fish.

Shaping the Future Landscape

The aim should be to manage fishing activity, ensuring trawling does not compromise seascape or biodiversity character.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

Rising sea levels associated with climate change will result in a progressive realignment of the geographical area lying within this Offshore Industries, Fisheries and Navigation Landscape Type.

GROUP 2:

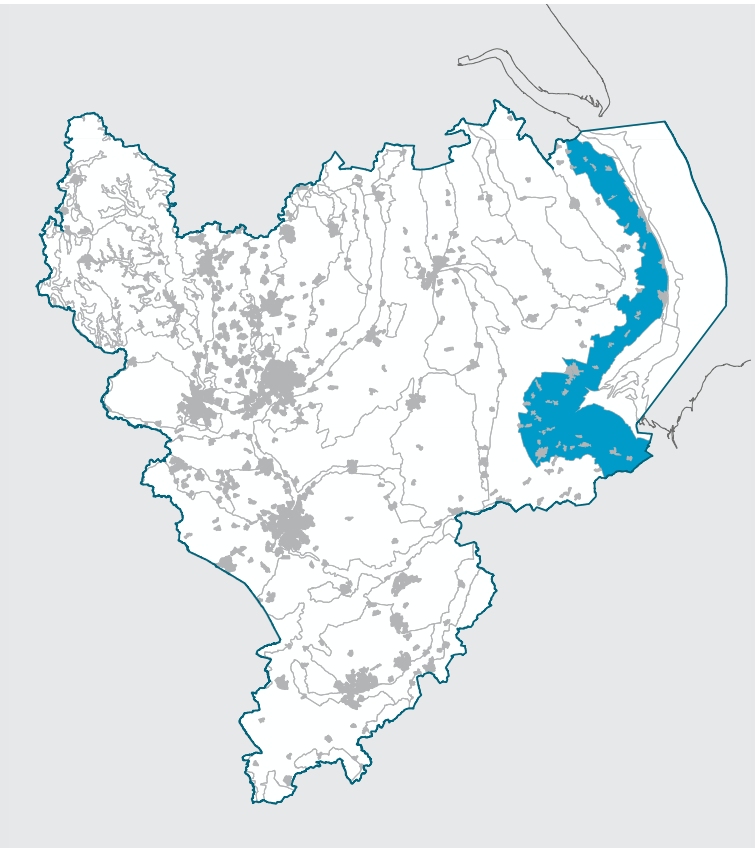
FENLAND AND FENLAND MARGINS

Flat farmlands with extensive and uninterrupted vistas are characteristic of the Fenland and Fenland Margins (© J Watson)

2A:

SETTLED FENS AND MARSHES

Fertile soils support arable farming and horticulture (© Wash Estuary Strategy Group/A Lambert)



KEY CHARACTERISTICS

- Low lying, flat and open landscape with wide horizons and panoramas encompassing vast skies;
- Fertile soils supporting highly productive arable farming with limited biodiversity interest;
- Successive periods of enclosure creating local variations in character from organic late Saxon enclosures to rigid 19th and 20th century geometric field systems towards the coast;
- Field boundaries predominantly defined by wet dykes, sea walls, roads and canalised rivers; few hedgerows, hedgerow trees and woodlands;
- Large farm buildings and glass houses often associated with industrial scale agricultural and horticultural operations; and
- Coastal seaside resorts with large areas of static caravans and associated facilities contrast to productive farmland and remote countryside elsewhere.

LANDSCAPE CHARACTER

The Settled Fens and Marshes is a complex Landscape Character Type that has been strongly influenced by various episodes of enclosure and settlement of former saltmarsh and fen.

Lying beyond the limits of the Roman's first sea defences that ran between Peterborough and Lincoln further to the west, the area was first drained and settled by the Saxons. The organic pattern of enclosure boundaries and roads of the 'Townlands' provide a tangible link to the origins of the well settled agricultural landscape. Here, ancient villages and outlying hamlets mark the first of several successive waves of drainage, enclosure and settlement, culminating in the more geometric patterns associated with 19th and 20th century enclosures towards the coast.

Land use is typically arable, the area being particularly fertile and productive. This has resulted in only small areas of land being noted for their habitat value. Wide areas are well settled and busy, notably coastal resorts during the summer months. Elsewhere, the scarcity of settlement and access means that wide areas are remote and isolated, with perceptions enhanced by featureless horizons and vast skies.

Grazing Marshes and Pasture, Saltfleetby, Settled Fens and Marshes. (© Neil Pike, Natural England)

PHYSICAL INFLUENCES

The underlying geology is largely Quaternary tidal flat deposits of clay and silt, which give rise to naturally wet, fertile loamy and clayey soils. Landform is generally flat and low lying, typically between sea level and 5m AOD, although some areas lie below sea level.

From the 4th century rising sea levels led to the deposition of a band of marine silts which in turn led to the creation of intertidal salt marshes with localised areas of slightly higher ground. Prior to improvement, the river systems, along with tidal inundations, caused widespread seasonal waterlogging of the area. Centuries of drainage and water management have created artificial, canalized river channels which run straight for several kilometres and are flanked by high embankments to protect the adjacent lower lying fields. Elsewhere smaller streams appear to occupy more natural winding courses. However, these too are part of a highly managed water management system to maintain the viability of agricultural areas.

With the flat landscape and no geological exposures, there is very limited potential for the application of practices for the care, maintenance and management of features of geodiversity interest and the promotion of their educational and interpretational interest. However, the former river channels beneath the fenland deposits often produce raised ground and form excellent geomorphological features worthy of preservation.

Land cover is dominated by productive agriculture comprising predominantly wheat, barley, legumes and brassicas. However, some pasture is evident in smaller hedged fields close to villages and along seabanks. Bulb growing is also notable, with fields of flowers providing seasonal colour and visual interest. Intensive agriculture has resulted in only limited retention of semi-natural habitats, but with the close proximity of internationally important coastal and marine habitat, this highlights the importance of good agricultural practices across the landscape.

Woodland cover is generally sparse. However, some areas fringing the Lincolnshire Wolds retain higher levels of woodland cover, a significant proportion of which is ancient woodland. The predominant pattern across the Settled Fens and Marshes is of small plantations of young trees, often arranged in geometric shelter belts and plantations close to farms or along field boundaries in an otherwise open, agricultural landscape. Hedgerows are also largely absent, giving visual prominence to trees found along roadsides, in belts around farms and clustering on the fringes of villages.

CULTURAL INFLUENCES

The Settled Fens and Marshes display a complex history of land drainage, settlement and agriculture. In a landscape that displays a simple unity in the underlying physical influences of geology, soils, landform and land use, the local variations in landscape character are significantly influenced by the age and type of land reclamation and more recent patterns of settlement and agricultural land management.

River Eau at Saltfleetby, Settled Fens and Marshes
(© Neil Pike, Natural England)

During the prehistoric and Roman period the landscape would have been coastal in character characterised by intertidal salt marsh and areas of marginally higher ground. However, rather than being beyond settlement and practical use, the landscape would have been a rich wetland environment exploited by local communities for wildfowl and an important base for salt manufacture.

In the mid Saxon period, cattle ranches were set up on the higher ground, linked to inland areas by drove roads. However, it was during the medieval period that the coastal fens and marshes began to be comprehensively drained and settled. The 'Townlands', located in a broad arc inland from The Wash form the historic core of the landscape and represent a period of drainage and enclosure from at least the late Saxon period. A string of nucleated medieval market towns and villages lie along winding arterial routes running parallel to the coastline, with several having outlying satellite settlements, often sharing the name of the parent community. The villages and towns of the Townlands are characterised by ancient stone churches and post medieval brick structures, set within a framework of winding rural roads and sinuous enclosures.

The seaward edge of the Townlands is defined by the Roman Bank, constructed around 1300, beyond which lay areas of coastal saltmarsh that were reclaimed in later centuries. The land was initially used for wildfowling and seasonal grazing, with livestock being driven between extensive areas of common saltmarsh and drier areas inland close to the villages. During the post medieval period (between 1660 and early 19th century) the common saltmarsh was drained for farming with field patterns becoming more regular and geometric as time progressed. Here, settlement tends to be dispersed, strung out along roads with older properties tending to be of red brick and dating from the 1750s onwards, interspersed with modern agricultural buildings, some of which are on an industrial scale. Windmills remain a common sight, which along with church towers, are iconic

and prominent landmarks in an otherwise flat, open landscape. A fine example can be seen at Moulton, where the early 19th century tower mill mirrors the scale of the nearby medieval church spire.

Further towards the coast, a network of active and relict earthen sea banks is evident, along with continuation of agricultural land uses, associated with 19th and 20th century reclamation and enclosure. When compared to inland areas, the coastal enclosures display a more rigid and geometric character and a lower settlement density, with large areas retaining a remote and inaccessible character.

Boundaries throughout the Settled Fens and Marshes generally comprise narrow, shallow wet dykes interspersed with modified river channels. The characteristic organic pattern of roads and enclosures is a dramatic contrast to the rigidly geometric patterns evident across the neighbouring fens. These variations are often a good indication of the period of time that the land was reclaimed and settled. However, even within the organic framework of Saxon and medieval boundaries, reorganisation has occurred including field amalgamation and sub divisions, often as a result of post 1950s agricultural reform.

Several towns served as coastal ports during the medieval and post medieval period. As rivers and havens became silted up and coastal sand bars grew, a number of ports such as the historical settlement of Boston, which was associated with the European wool trade, could only function as navigations after rivers were straightened and widened to decrease upstream flooding. Other settlements such as Wainfleet, which was important for the herring and salt industries, could no longer function as ports.

During the 19th century several coastal settlements benefited from a significant influx of people and money. One example is Skegness, a former fishing village which grew rapidly in the late 19th century. Initially its prosperity was a result of the local middle classes indulging in the new fashion for sea bathing. However, in the later 19th century the railway arrived, bringing day trippers from the industrial cities. The subsequent decades saw planned growth and expansion, including the construction of piers, promenades and parks. The continued popularity of coastal resorts has resulted in their expansion throughout the 20th century, with recent decades seeing the growth of large static caravan parks.

The Lincolnshire Coastal Grazing Marshes Project has undertaken a detailed study of the 'outmarsh' that forms part of this landscape type. The area is rich in archaeological remains that contribute to the landscape character of the area, including prehistoric archaeology, ridge and furrow and abandoned settlements.

Settled Fens and Marshes (© Carol Paterson, Natural England)

AESTHETIC AND PERCEPTUAL QUALITIES

Whilst superficially there is a great unity of character across the Settled Fens and Marshes, largely as a result of its simple landform and intensive arable land use, there is great contrast in the way the landscape is perceived at local level. The sinuous and ancient character of the Townlands is evocative of a long and continuous settlement history stretching back over a thousand years, whereas elsewhere the geometric field patterns and industrial scale farm complexes creates an altogether more modern character.

Similarly, wide areas appear remote and tranquil, particularly in inaccessible areas around the coastal fringe, where the vast skies and broad, sometimes featureless horizons add to their isolated character. By contrast, in close proximity to the Townlands villages and arterial roads, tranquillity is all but lost and the landscape is perceived as well settled, busy and active. Across much of the landscape, many long views are foreshortened by tree belts. Whilst not extensive, these merge in views at ground level to form a backdrop to many panoramic views to the wide horizon.

Whilst there is a strong, simple unity of land cover features, great variation in colour and texture is created by various agricultural regimes, the absence of hedgerows allowing wide vistas across a geometric pattern of contrasting colour and texture.

LANDSCAPE CHANGE AND MANAGEMENT

BUILT DEVELOPMENT

Forces for Change

Modern built development is affecting the Townlands villages, eroding their architectural and historic character. Development on settlement margins can be particularly damaging, creating visual intrusion, resulting in the loss of surrounding landscape features and increasing the risk of coalescence. Proliferation of smaller, unplanned residential development along arterial roads is also changing the landscape, reducing the sense of remoteness and enclosing views.

Rising sea levels associated with climate change, and future changes to the coastal morphology is likely to affect the availability of land for future development with severe restrictions on growth and the longer term prospects for settlements, such as the historic settlement of Boston.

Shaping the Future Landscape

The aim should be to protect the distinctive character of settlements throughout the landscape and consider the visual impact of any new development. Specific mechanisms include Village and Town Design Statements, guiding the design of new development and ensuring the appropriate use of vernacular styles and building materials; and planning guidance for settlement coalescence, ensuring strategic gaps between settlements are maintained. As well as Village and Town Design Statements, Conservation Area Appraisals can also be important tools.

Best practice innovative architectural ideas and planning solutions utilising eco-friendly and high quality design that minimise impact on local landscape and townscape character should also be encouraged, along with limited tree planting around settlement fringes to help integrate new development into the landscape.

INFRASTRUCTURE

Forces for Change

Road improvements are commonplace, including straightening of existing routes and new 'by-pass' schemes designed to alleviate congestion within the Townlands villages. This has an urbanising effect and brings a degree on standardisation to the countryside.

Windmills are a common feature of this landscape, acting as distinctive local landmarks. However, while no new windmills are being built, some existing windmills are in poor condition. This can affect scenic quality and create an impression of disrepair.

Shaping the Future Landscape

The aim should be to protect the existing character of the rural road network, whilst having regard to safety requirements. Any new roads should be carefully planned and designed to provide positive environmental and landscape enhancements and strengthen prevailing character.

The aim should be to protect existing windmills, ensuring they positively contribute to the landscape character and enhance legibility in an area. Opportunities should be explored to manage and promote deteriorating windmills, providing recreational and educational benefits.

ENERGY PROVISION

Forces for Change

Wind energy schemes are a common feature of this landscape due to the strength of prevailing winds off the North Sea. Given the Government's commitment to increasing energy from renewable sources, there is likely to be continued pressure to accommodate new wind energy schemes. Indeed, further schemes are under construction, consented or in planning. New wind energy schemes will create visual landmarks in this predominantly flat landscape and reduce the sense of remoteness and isolation.

Shaping the Future Landscape

The aim should be to protect the historic character of villages and the open character of the surrounding landscape by siting wind energy schemes away from visually prominent locations. The impact on long distance views from the coast and areas inland should also be considered. There is potential for strategic regional and sub regional guidance on commercial wind energy schemes, including cumulative impact, informed by the EMRLCA and other studies. In addition, planning guidance for the siting and design of wind energy schemes should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development and setting out the criteria against which new applications will be assessed.

AGRICULTURE AND LAND MANAGEMENT

Forces for Change

There is marked evidence of agricultural intensification and farm amalgamation, accompanied by a move towards arable production. This has resulted in the loss or damage of many typical landscape features, including traditional patterns of field boundaries and remnants of ridge and furrow, contributing to a more homogenous landscape. Soil erosion associated with the large and exposed open fields is an ongoing problem and may be exacerbated by further agricultural intensification and also the effects of climate change. The loss of pasture is particularly evident around settlements, where grazing animals and smaller field sizes contribute to the setting and structure of several villages.

There is also a proliferation of new large scale agricultural buildings, reflecting the loss of small holdings and the general increase in farm size. The popularity in bulb growing is also notable, with an increase in the number of poly-tunnels and glass houses. Such structures can reduce the sense of remoteness in rural areas and cause visual intrusion, enclosing previously open views.

Shaping the Future Landscape

The aim should be to protect existing rural landscape features, whilst encouraging positive management of those features lost or under threat. In particular the restoration of hedgerows should be given priority around urban areas, along with an increase in grassland and pasture, creating a stronger and more mixed pattern of land use, whilst helping to integrate new development into the landscape. This will also help to limit the occurrence and effects of soil erosion. However, care should be given not to disrupt the characteristic wide horizons and panoramas in more remote locations.

The aim should be to protect the distinctive open character of the landscape and consider the visual impact of any new structures. New, large scale agricultural buildings should be carefully sited, away from visually prominent locations and located amongst existing buildings where possible. The opportunity to conserve and upgrade existing barns and buildings should also be explored.

FORESTRY AND WOODLAND

Forces for Change

Woodland cover is generally sparse; however, there is evidence of more recent tree planting close to settlements or along field boundaries in an otherwise open agricultural landscape. Coniferous shelterbelts are particularly common around isolated farm buildings. While trees can be used to screen or soften views of buildings and create opportunities for recreation and nature conservation, new planting can introduce inappropriate and visually intrusive elements in this flat and open landscape.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape by ensuring the type, scale and location of new woodland and tree planting is appropriate. Tree planting should generally be limited to roads margins or ditches where trees are already a local feature or in and around established settlements as part of mechanisms for visual containment of new built development. Instead priority should be given to managing more characteristic habitats and features, such as saltmarsh and drainage ditches as part of enhanced habitat reserves.

TOURISM AND LEISURE

Forces for Change

The continued popularity of coastal resorts has resulted in their expansion, with recent decades seeing the growth of large static caravan parks. This is particularly evident around towns such as Skegness and Mablethorpe. As with any new development on settlement margins this can be particularly damaging, causing visual intrusion, and resulting in the loss of surrounding landscape features and increasing the risk of coalescence. Static caravans tend to homogenise the landscape, creating a repetitive pattern of similar sized and shaped units.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape and consider the visual impact of any new or extended caravan parks. Planning guidance for the siting and design of static caravan sites should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development and ensuring strategic gaps between settlements are maintained. The management of native tree and hedgerow planting should also be encouraged, containing the edges of sprawling resorts.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

Along the coast is a network of sea banks, protecting against tidal flooding and inundation. In an effort to combat the growing threat associated with sea level rise linked to the effects of climate change, new engineered flood defences are being created and parts of the existing sea bank are deliberately being breached. This process is resulting in a new line of defence and the loss of some productive agricultural land.

Shaping the Future Landscape

The aim should be a planned process for the future sustainable management of the coast, conserving areas further inland and creating new areas of saltmarsh along the coast. New or realigned flood defences should attempt to not compromise existing recreation, nature conservation or heritage features. The management of new and existing salt marshes should also be considered, including the re-introduction of grazing.

2B:

PLANNED AND DRAINED FENS AND CARRLANDS

Drainage channels divide the landscape (© J Watson)

KEY CHARACTERISTICS

- Consistently low lying terrain and simple palette of land uses and landscape features gives visual unity and strong sense of identity;
- Large scale open landscape of flat farmlands with extensive and uninterrupted vistas to distant horizons beneath vast skies;
- 18th and 19th century enclosure characterises historic landscape patterns underpinned by complex history of drainage and enclosure stretching as far back as the late Saxon period in some places;
- Significant areas at or below sea level, with modestly elevated areas acting as the focus of settlement;
- Hierarchy of canalised rivers, high level drains and ditches divide the landscape up into rigid geometric patterns, dictating the grain of the landscape and patterns of movement and settlement;
- Limited settlement pattern characterised by isolated farms and linear villages strung out along roads; majority of buildings in brick with tile roofs, further adding to uniform character of the landscape;
- Rich and varied arable land uses, root crops, bulbs, vegetables and horticultural glass houses give the landscape a highly productive character and seasonal variations in colour and texture; and
- Strong sense of remoteness in expansive and sparsely settled areas although periods of intense activity during harvest.

LANDSCAPE CHARACTER

The Planned and Drained Fens and Carrlands Landscape Character Type possesses a strong landscape character derived from a simple palette of landscape features. Low lying terrain, some of which lies below sea level, is the strongest unifying character, although the rigid geometry of field drainage ditches and roads, extensive arable farms and limited settlement all combine to add to the strong and instantly recognisable identity of the landscape.

The history of the various areas of fens and carrlands that combine to form this Regional Landscape Character Type is complex. Some areas were drained and settled relatively late, whereas others demonstrate ancient patterns of enclosure that stretch back as far as the late Saxon period. Despite this, the characteristic rigid geometry of parliamentary enclosures, roads and sparse settlement create visual unity in the landscape.

The land is highly productive and is particularly well suited to intensive modern arable agriculture. This has resulted in only very limited areas of biodiversity interest. Settlement is also thinly spread, maximising the area of agricultural land.

The landscape is one of vast skies, wide panoramas and distant horizons. Whilst periodically the landscape is busy with machines and gangs of agricultural labourers, it is typically quiet with a prevailing sense of remoteness and isolation.

Planned and drained Fens and Carrlands
(© Carol Paterson, Natural England)

PHYSICAL INFLUENCES

The underlying geology is largely Quaternary deposits of clay and silt, which give rise to naturally wet, loamy or friable peaty soils. Landform is generally flat and low lying with significant areas lying at or below sea level.

A multitude of rivers and streams once meandered through the landscape, that from at least the Neolithic period deposited clays and silts washed down from neighbouring uplands to cloak the underlying geology and create a rich matrix of wetland environments. The influence of the sea is also important to note in areas fringing The Wash in Lincolnshire. Here, rising sea levels in the late Roman period around the outer, seaward fringes of the fens resulted in vast areas of marine silt being deposited, which in turn stemmed the flow of the rivers draining the neighbouring uplands, behind which freshwater peat fens developed.

With the flat landscape and no geological exposures, there is very limited potential for the application of practices for the care, maintenance and management of features of geodiversity interest and the promotion of their educational and interpretational interest. However, the former river channels beneath the fenland deposits, which often produce raised ground, and the river terraces associated with the rivers draining the landscape, form excellent geomorphological features worthy of preservation.

Centuries of water management have canalised the main rivers, straightened streams and created a gridded network of drainage channels, allowing widespread use of the productive soils for farming. Land cover is dominated by arable production, notably cereals, legumes and brassicas. Bulb and flower cultivation is also notable, with vast acres providing seasonal colour and visual interest.

Tree cover is sparse except for geometric shelter belts and plantations along field boundaries and close to farmsteads. Intensive and widespread land improvement has significantly reduced the coverage of semi natural habitat, which at one time would have been a combination of fenland, wet woodland, carr and standing open water, highly valued by local communities for fishing and wildfowling.

Despite widespread intensive agriculture, some linear stretches of reed bed and grassland are noted for their biodiversity value along several major drains and rivers, such as the River Glen south east of Bourne, and remnant semi natural habitats continue to thrive on the River Idle in Nottinghamshire. However, it should be noted that surviving semi natural habitat is highly fragmented, with sites located in extensive areas of intensively managed agricultural land.

CULTURAL INFLUENCES

Superficially, the fens and carrs appear to have been drained and settled in a relatively short space of time between the late 18th and early 19th centuries. However, there is significant time depth and complexity within the seemingly modern geometric landscape. Whilst there are remnants of ancient drove roads preserved in modern boundaries and routes and evidence of late Saxon and medieval strip enclosure on the Lincolnshire fens, the dominant pattern of medium to large rectilinear fields, defined by shallow wet field dykes, is generally associated with drainage from the 17th century onwards. This is overlain with the rigid and unrelenting geometry of the later parliamentary enclosures of the late 18th and early 19th centuries.

The General Drainage Act of the late 16th century opened the way for extensive reclamation of the Lincolnshire fens which was largely driven and funded by private and aristocratic investors, known as 'Adventurers'.

Reclamation of the fens continued throughout the centuries. However, as the peaty soils shrank and oxidised as they dried out, artificial methods of land drainage were needed, first in the form of windmills and steam pumps, and later by diesel and electric alternatives. Initially the reclaimed land was unenclosed common grazing. From the late 18th and 19th centuries, however, population growth and food shortages prompted the common grazing to be enclosed and turned over to arable crops which thrived on the rich peaty soils.

A similar pattern can be seen in the carrlands of north Nottinghamshire. Here successive drainage schemes saw land reclaimed from common grazing from the 17th century onwards, later to be overlain by a grid of regular geometric parliamentary enclosures and roads and the installation of pumps to drain the farmland into the River Idle.

Therefore, within a framework of centuries old enclosure, the geometric pattern of parliamentary fields was created across the landscape. The construction of road infrastructure and settlement of the reclaimed lands would also have mostly occurred at the time of the parliamentary enclosures, which further contributes to the current perception that the fenland and carrland areas we see today are the result of just two centuries of endeavour.

In recent times boundary loss has been a feature of the landscape, with the drive towards increased yields and development of ever larger machines promoting the creation of prairie fields in many areas. Other changes have arisen from the industrialised nature of modern farming practices with large buildings for the storage, processing and distribution of agricultural produce now a common feature.

The relatively late agrarian exploitation of these areas is evidenced in the low density of settlement and prevalence of isolated brick farmsteads of the 18th and 19th centuries. These isolated farmsteads are often the only built elements in wide areas of arable farmland and as such contribute to the perceived remoteness of some areas. In the absence of stone or wood, brick is the ubiquitous building material of the landscape and whilst there are various building styles and type of brick used, its widespread use adds to the visual unity of the landscape.

AESTHETIC AND PERCEPTUAL QUALITIES

The consistent relief of level landform and widespread arable land uses gives a high level of visual unity to the landscape, as well as contributing to a strong sense of place and local identity. This is further enhanced by the ubiquitous use of brick as the principal building material and 18th and 19th settlement patterns within a regular pattern of geometric parliamentary enclosures and roads networks.

The flat, featureless topography creates large scale and expansive views across wide areas. Combined with the relative absence of settlement and activity this gives the landscape a remote, tranquil character, although this is significantly reduced at times of the year when large gangs of seasonal labourers are employed to harvest vegetables.

The agricultural landscape is carefully controlled, with only very limited areas of semi natural habitat in evidence, giving the landscape a productive and utilitarian character. Where present, areas of scrub, semi natural woodland and reedbed gain added significance and provide a tantalising glimpse of the appearance of the landscape prior to drainage and enclosure.

Planned and Drained Fens and Marshes
(© Carol Paterson, Natural England)

LANDSCAPE CHANGE AND MANAGEMENT

BUILT DEVELOPMENT

Forces for Change

Whilst there is generally little settlement, piecemeal development along arterial roads is reducing the sense of remoteness and creating visual intrusion. Light industrial uses in particular, such as garages and workshops, interrupt the landscape. Where development is particularly concentrated, this can enclose views and dilute the landscape's typically strong identity.

Shaping the Future Landscape

The aim should be to protect the distinctive character of the landscape. New residential, commercial and industrial development should generally be encouraged within and around existing settlements, limiting widespread incremental development. Where isolated development is unavoidable, innovative best practice architectural ideas and planning solutions that minimise impact on the landscape should be encouraged.

ENERGY PROVISION

Forces for Change

Wind energy schemes are a common feature of this landscape due to the strength of prevailing winds off the North Sea. Given the Government's commitment to increasing energy from renewable sources, this trend looks set to continue with increasing pressure for wind energy schemes. New wind energy schemes will create visual landmarks in this predominantly flat landscape and reduce the sense of remoteness and isolation.

Shaping the Future Landscape

The aim should be to protect the open character of the surrounding landscape by siting wind energy schemes away from visually prominent or sensitive locations. The impact on long distance views from the coast and areas inland should also be considered. There is potential for strategic regional and sub regional level guidance on commercial wind energy schemes, including cumulative impact, informed by the EMRLCA and other studies. In addition, planning guidance for the siting and design of wind energy schemes should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development and setting out the criteria against which new applications will be assessed.

AGRICULTURE AND LAND MANAGEMENT

Forces for Change

There is marked evidence of agricultural intensification and farm amalgamation, accompanied by a move towards arable production. Due to the flat, featureless topography of the area, specifically the lack of hedgerows, the implications of agricultural intensification is generally expressed in 'improvements' to dykes and embankments.

Indeed, ditches are a key feature of the landscape, draining the fens to create productive agricultural land. This process has implications for the shrinkage of peat soils and reducing water quality caused by soil erosion and nutrient leaching. Soil erosion associated with the large and exposed open fields may also be exacerbated by further agricultural intensification and the effects of climate change.

There is also a proliferation of new large scale agricultural buildings, reflecting the loss of smallholdings and the general increase in farm size. The impact of new structures is to reduce the sense of remoteness and create visual intrusions.

In addition to wind energy schemes, energy crops are being cultivated to meet renewable energy targets, including Miscanthus and Short Rotation Coppice (SRC). These fast growing and tall crops can radically change the appearance of the landscape. There is also a requirement for storage and processing facilities, which along with other types of agricultural buildings, can result in the loss of landscape features and increase visual intrusion.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape and consider the visual impact of any new structures. New large scale agricultural buildings should be carefully sited, away from visually prominent locations and amongst existing buildings where possible. Specific design guidance for farmsteads may be appropriate, establishing the criteria for new development. Although the introduction of energy crops will be more difficult to manage, grant applications to Natural England or the Forestry Commission may require an assessment of landscape and visual impacts.

In response to agricultural intensification, natural vegetation should be managed along dykes, drainage ditches and field margins, creating visual and biodiversity interest. The aim should also be to manage water quality and levels of dykes and ditches. Management plans should be encouraged which seek to identify and remediate against the sources of pollution and soil erosion, and could also incorporate phased enhancements to ditches and dykes to enhance biodiversity. Such proposals may be supported by Environmental Stewardship grants.

FORESTRY AND WOODLAND

Forces for Change

Woodland cover is generally sparse; however, there is evidence of more recent tree planting close to settlements or around individual farm buildings. Fast growing coniferous trees, such as *Cupressocyparis leylandii*, are particularly common, used as a screen to development or to provide shelterbelts. Unless carefully sited, new planting can introduce inappropriate and visually intrusive elements in this flat and open landscape.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape by ensuring the type and location of new woodland and tree planting is appropriate. Tree planting should generally be discouraged in remote areas. However, very limited native tree planting may be appropriate to soften the impact of agricultural or industrial buildings in the landscape. Instead, priority should be given to managing more characteristic habitats and features, such as dykes and drainage ditches.

TOURISM AND LEISURE

Forces for Change

Although the landscape is not currently a major tourist destination, there are an increasing number of visitor centres, picnic spots, caravan/camp sites and holiday cottages. As with any new development this can cause visual intrusion and result in the loss of landscape features. The effect is particularly evident in locations with little or no settlement.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape and consider the visual impact of any new tourist facilities. Planning guidance for the design and siting of new tourist facilities should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development whilst ensuring facilities respond to projected demand. In addition, the diversification of farms to provide attractions and accommodation should be carefully managed to ensure a balance is struck between maintaining rural character and supporting the rural economy.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

The effects of rising sea level as a consequence of climate change has the potential to progressively affect the lower lying area and inundation of some areas may occur in the future. There is also the potential for the water table to rise in the river terrace deposits, resulting in waterlogged ground conditions and flooding.

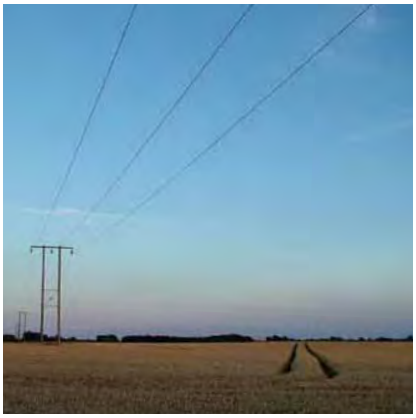
Shaping the Future Landscape

The aim should be to adapt agricultural land management practices to accommodate the projected effects of sea level rise and inundation and flooding in the locations where this is anticipated, and in association with a planned process of future sustainable management options for the adjacent Settled Fens and Marshes.

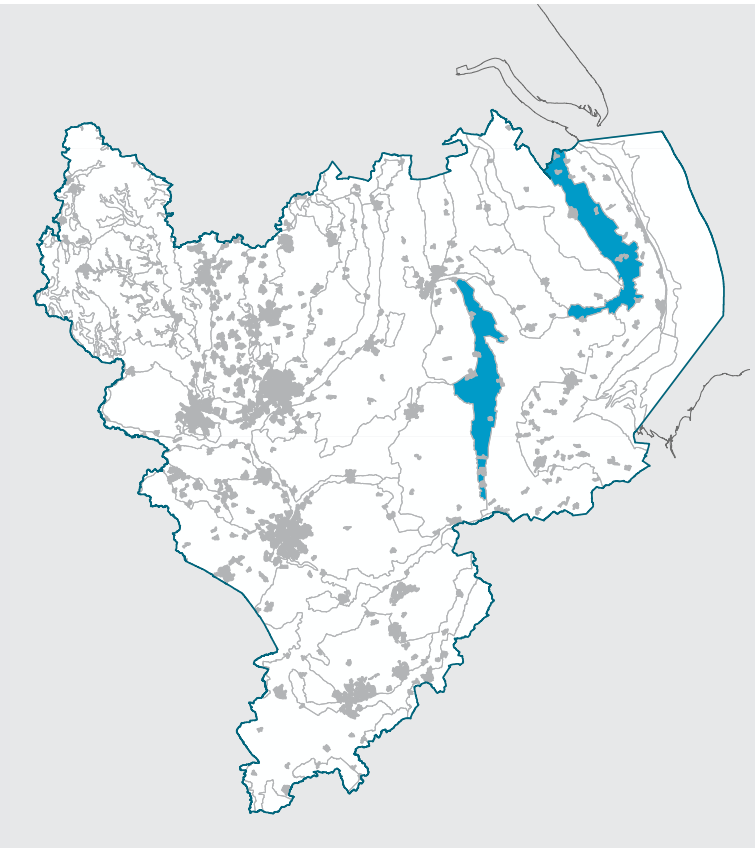
Planned and Drained Fens (© Carol Paterson, Natural England)

2C:

FEN AND MARSH MARGIN FARMLANDS



Large scale open landscape, displaying features of the low lying fens (© J Watson)



KEY CHARACTERISTICS

- Transitional landscape, displaying features characteristic of elevated areas to the west, and lowland fens and marshes to the east;
- Lowland landscape formed across expansive superficial deposits of till which gives unity of character despite varied underlying geology;
- Broad east facing landscape with consistent pattern of streams and field drains that run west to east create a gently undulating character and structure to the landscape;
- Small scale rural landscape of mixed farms with permanent pasture along valley bottoms;
- Well maintained hedgerows, woodlands, copses and plantations that contribute to well treed and intimate character;
- Network of sinuous winding rural roads linking nucleated villages, located at junctions of two or more routes; and
- Medieval moated sites and areas of remnant ridge and furrow combine with ancient road network and compact settlement cores to create a landscape of notable historic interest.

LANDSCAPE CHARACTER

The rural character of the Fen and Marsh Margin Farmlands Landscape Character Type demonstrates characteristics of both the low lying fens and settled marshes, and more elevated areas further inland but it is not typical of either.

The widespread deposits of glacial till create a unity of character despite contrasts in the underlying bedrock. A number of rivers and streams drain the neighbouring uplands to create a softly undulating landscape that shelves gently eastwards.

The rural landscape is characterised by a patchwork of medium sized fields, enclosed by hedgerows and ditches, and interspersed with woodlands, copses and plantations to foreshorten views and create a more intimate character than exists in the neighbouring fens.

An ancient pattern of roads and tracks creates a network of sinuous routes across the landscape. Nucleated villages and towns are often located at the junction of north south and east west routes, which along with the rivers create a framework within which more recent geometric field patterns can be observed. Churches and old stone buildings at the centre of villages, many of which display Saxon and Norse place names, provide tangible evidence of the long period of time that the landscape has been settled. Areas of remnant ridge and furrow and medieval moated sites also add to the historic interest of the landscape.

Fen and Marsh Margin Farmland (© Carol Paterson, Natural England)

PHYSICAL INFLUENCES

The Fen and Marsh Margin Farmlands is underlain by various rock types, predominantly comprising Jurassic mudstones, sandstones and limestones and Cretaceous chalk in areas fringing the Lincolnshire Wolds. However, the underlying geology has limited surface expression beyond stone used in older cottages at the centre of villages, due to widespread superficial deposits of till that mask the underlying rocks and create a unity of landscape character. This landscape type has limited potential for the application of practices for the care, maintenance and management of features of geodiversity interest and the promotion of their educational and interpretational interest. However, it includes features of geomorphological interest and educational value such as river terraces, and the stone buildings also provide interest.

Land generally falls eastwards from the more elevated areas of the Lincolnshire Wolds and limestone hills of the Kesteven Uplands and Lincolnshire Edge. A series of watercourses drain off these hills into the neighbouring Fens creating a regular pattern of east west valleys and watersheds and a soft, gently undulating topography, typically between 30 and 10m AOD. The watercourses are sinuous and appear to follow natural courses, unlike in the neighbouring fens and marshes. They are generally not highly visible in the landscape due to their small scale. However, their course can often be traced by observing lines of alder and willow trees and areas of wet woodland.

The superficial clay deposits give rise to seasonally wet loamy and clayey soils across much of the landscape. These are particularly suited to a mixed agricultural regime of improved grasslands and arable farming consisting of root crops and cereals. In low lying areas, such as along stream valleys, naturally wet alluvial soils are common, and used predominantly for permanent pasture. In contrast to the neighbouring lowlands to the east, the fields tend to be of medium scale and defined by well maintained hedgerows and ditches, with frequent hedgerow trees.

Widespread agricultural improvement has resulted in only limited areas of semi natural habitat in the landscape. However, sizable areas of ancient wet woodland bordering the fens and rivers and streams are a notable feature. Linear stretches of calcareous grassland are also notable on railway embankments and stretches of now dismantled railway lines winding through the landscape, indicating that quantities of limestone were imported for their construction. The dense and often well managed hedgerow and drainage ditches are also noted as contributing to local biodiversity interest and creating habitat networks in an otherwise highly managed agricultural areas.

CULTURAL INFLUENCES

The widespread distribution of villages throughout the landscape indicates that settlement patterns have been established for some considerable time with place name evidence indicating Norse and Anglo Saxon origins for many villages. Indeed, the location of these elevated lands would have been attractive to farmers looking for dry land for raising crops, and close to the rich natural resources and seasonal grazing that would have been widespread in the fens and marshes prior to their drainage and improvement.

Villages and hamlets tend to be nucleated, set around a historic core consisting of a dense cluster of older stone cottages and a church located at the junction of roads criss-crossing the landscape. They also are frequently sited centrally within long narrow parishes running west to east, seemingly planned and arranged originally to encompass upland areas for cereal cropping and low lying wetlands for seasonal grazing and wildfowling.

Indeed, several villages are located on or adjacent to the Carr Dyke, a drainage channel dug in the Roman period with each settlement 'owning' its own stretch of fenland. This pattern is less prevalent across the areas fringing the Lincolnshire Wolds, however. Louth was historically the local administrative and trading centre of the wolds to the west and marshes to the east, indicating it marks a strategic position at the transition between two very different types of landscape and rural economy.

Whilst the characteristic pattern of nucleated villages has close parallels to settlements in the neighbouring upland areas to the west, several linear hamlets and village extensions can be observed with rows of brick farm workers cottages strung out along roadsides. This is more typical of the fens and marshes, further emphasising the transitional character of the landscape.

As indicated previously, there is a strong pattern of transportation routes criss-crossing the landscape, some parts of which may have ancient origins as part of a network of drove roads accessing seasonal grazing in the marshes and fens. East west routes tend be more numerous and follow watersheds between streams and rivers. North south routes are fewer, but are generally the principal arterial route through the landscape and focus for settlement. In contrast to the planned character of the fens, these routes tend to be winding and sinuous, indicating their ancient origins. The road network, along with winding streams and rivers create a broad framework into which the characteristically straight hedgerow boundaries of parliamentary enclosure can be observed.

Beyond the historic villages and network of ancient transportation routes, the landscape is rich in features of historic and cultural interest. The Carr Dyke, which defines the several stretches of the boundary of the landscape character type south of Lincoln, is of particular interest. Remnants of once more extensive ridge and furrow and a great number of medieval moated sites and fish ponds can be observed throughout the landscape in areas of permanent pasture, albeit in differing states of preservation and visibility in the landscape. Indeed the high occurrence of medieval defensive enclosures and castles indicates that the landscape has been of significant strategic importance for some considerable time. This is further evidenced in the distribution of defensive structures built during the Second World War.

AESTHETIC AND PERCEPTUAL QUALITIES

The landscape of mixed farms, medium sized fields and woodlands retains a strong rural character with a high degree of visual interest. Views tend to be foreshortened by undulating landform and woodlands, creating a domestic and intimate scale landscape, particularly adjacent to the neighbouring uplands. However, in some areas, and notably where land lies adjacent to the more open and expansive fens and marshes, long distance and panoramic views are common.

The intact and well maintained character of the landscape retains a strong historic character. Whilst the pattern of hedgerows largely dates to parliamentary enclosure of the 18th and 19th centuries, the underlying framework of winding roads, parish boundaries and small stone villages is a remnant of ancient settlement and land management. Areas of ridge and furrow and other historic sites preserved beneath pasture are also an important link to the past and evocative of past land use, which is a marked contrast to the neighbouring fens. The high occurrence of medieval defensive sites is of particular interest, and indicates that the landscape was regarded as a frontier for some considerable time.

Fen and Marsh Margin Farmland (© Carol Paterson, Natural England)

The landscape generally retains a quiet, rural character, albeit displaying a higher level of activity than is evident across the remote fens and marshes or the more sparsely settled uplands of the Lincolnshire Wolds and Kesteven Uplands. Areas surrounding the major towns and villages such as Bourne and Louth are busy, with recent growth adversely affecting the rural character and setting of these settlements.

LANDSCAPE CHANGE AND MANAGEMENT

BUILT DEVELOPMENT

Forces for Change

Modern in-fill residential development is affecting historic villages and hamlets, eroding their architectural and historic character. Development on settlement margins can also be particularly damaging, creating visual intrusion, resulting in the loss of surrounding landscape features and increasing the risk of coalescence. This is particularly evident on the fringes of larger towns, such as Louth, where new commercial and industrial premises are being developed.

Shaping the Future Landscape

The aim should be to protect the rural character of the landscape and limit the visual impact of any new development by locating development close to existing settlement. Townscape character should be considered, and care taken to ensure new development is appropriate in terms of design and scale. Specific mechanisms include Design Statements for those villages and market towns most prone to infill development and expansion and the use of best practice innovative architectural ideas and planning solutions that minimise impact on local landscape and townscape character, encourage the appropriate use of vernacular styles and building materials and utilise eco-friendly high quality design.

INFRASTRUCTURE

Forces for Change

Road improvements are commonplace, including straightening of existing routes and new 'by-pass' schemes designed to alleviate congestion within the villages. This has an urbanising effect and brings a degree of standardisation to the countryside. The network of green lanes, comprising tracks connecting farms and villages to the market towns within the area, is also significant and an important green infrastructure asset that forms part of a wider sustainable movement network. New development on the fringes of villages and towns could result in severance of these tracks and interconnected routes if priority is not given to their retention and incorporation.

Shaping the Future Landscape

The aims should be to protect the existing character of the rural road network, whilst having regard to safety requirements. Any new roads should be carefully planned and designed to provide positive environmental and landscape enhancements. The network of green lanes should be managed as a historical and recreational asset, ensuring their continued contribution to landscape character and enjoyment of the countryside.

ENERGY PROVISION

Forces for Change

Wind energy schemes are not characteristic of this landscape, although do occur in the neighbouring Settled Fens and Marshes Landscape Character Type to the east. Given the Government's commitment to increasing energy from renewable sources, there is likely to pressure to accommodate new wind energy schemes. New wind energy schemes will create visual landmarks in this predominantly flat area and reduce the sense of remoteness and isolation.

Shaping the Future Landscape

The aim should be to protect the open character of the surrounding landscape by siting wind energy schemes away from visually prominent locations. There is potential for strategic regional and sub regional level guidance on commercial wind energy schemes, including cumulative impact, informed by the EMRLCA and other studies. In addition, planning guidance for the siting and design of wind energy schemes should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development and setting out the criteria against which new applications will be assessed.

AGRICULTURE AND LAND MANAGEMENT

Forces for Change

There is marked evidence of agricultural intensification and farm amalgamation, accompanied by a move towards arable production. This has resulted in loss or damage to many typical landscape features, including traditional field boundaries and remnants of ridge and furrow, contributing to a more homogenous landscape.

In addition to wind energy schemes, energy crops are being cultivated to meet renewable energy targets, including Miscanthus and Short Rotation Coppice (SRC). These are fast growing and tall crops that can radically change the appearance of the landscape.

There is also a requirement for storage and processing facilities, which along with other new large scale agricultural buildings, can reduce the sense of remoteness in rural areas and cause visual intrusion.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape and consider the visual impacts of any new structures and changes to farming practices. New buildings and infrastructure should be carefully sited away from visually prominent locations and amongst existing structures where possible. Although the introduction of energy crops will be more difficult to manage, grant applications to Natural England or the Forestry Commission may require an assessment of landscape and visual impacts.

The aim should also be to encourage positive management of those features lost or under threat. The restoration of hedgerows should be given priority, along with an increase in grassland and pasture, creating a stronger and more mixed pattern of land use. However, consideration should be given to local variations in landscape character, particularly close to the Fens and Marsh Margin Farmlands where it is important to maintain a sense of openness.

FORESTRY AND WOODLAND

Forces for Change

Woodland cover varies across the landscape, with generally more woodland towards the Lincolnshire Wolds and limestone hills of the Kesteven Uplands and Lincolnshire Edge. Considering the transitional nature of this landscape, new woodland planting would be generally appropriate, strengthening the relationship between adjoining RLCTs, reinforcing the intimate character and sense of enclosure, whilst increasing overall woodland coverage in the East Midlands Region. New woodland could also be used in and around settlements to integrate new development into the landscape and contain future growth.

Shaping the Future Landscape

The aim should be to plan new woodland creation in upland areas and around key settlements. Such proposals should be undertaken in collaboration with the Forestry Commission and local landowners, and financial support may be available through the English Woodland Grant Scheme. Existing woodlands are characteristically small plantations or copses and large scale woodlands should be discouraged. However, consideration should be given to local variations in landscape character, particularly close to the Fens and Marshes Margin Farmlands where it is important to maintain a sense of openness.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

The effects of rising sea level as a consequence of climate change has the potential to progressively affect this lower lying part of the Fen and Marsh Margin Farmlands that occur in the eastern part of the region adjacent to the Settled Fens and Marshes, and inundation of some areas may occur in the future.

Shaping the Future Landscape

The aim should be to adapt agricultural land management practices to accommodate the projected effects of sea level rise and inundation for the eastern part of this Landscape Type in the locations where this is anticipated, and in association with a planned process of future sustainable management options for the adjacent Settled Fens and Marshes.