

**PELHAM SPRING SOLAR FARM
ENVIRONMENTAL STATEMENT
TECHNICAL APPENDICES**

**APPENDIX 6.2 – EXTRACT FROM NATURAL
ENGLAND NCA 86 SOUTH SUFFOLK AND NORTH
ESSEX CLAYLAND**

On behalf of Low Carbon Solar Park 6 Limited

Date: December 2022

86. South Suffolk and North Essex Clayland

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Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper¹, Biodiversity 2020² and the European Landscape Convention³, we are revising profiles for England's 159 National Character Areas (NCAs). These are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.

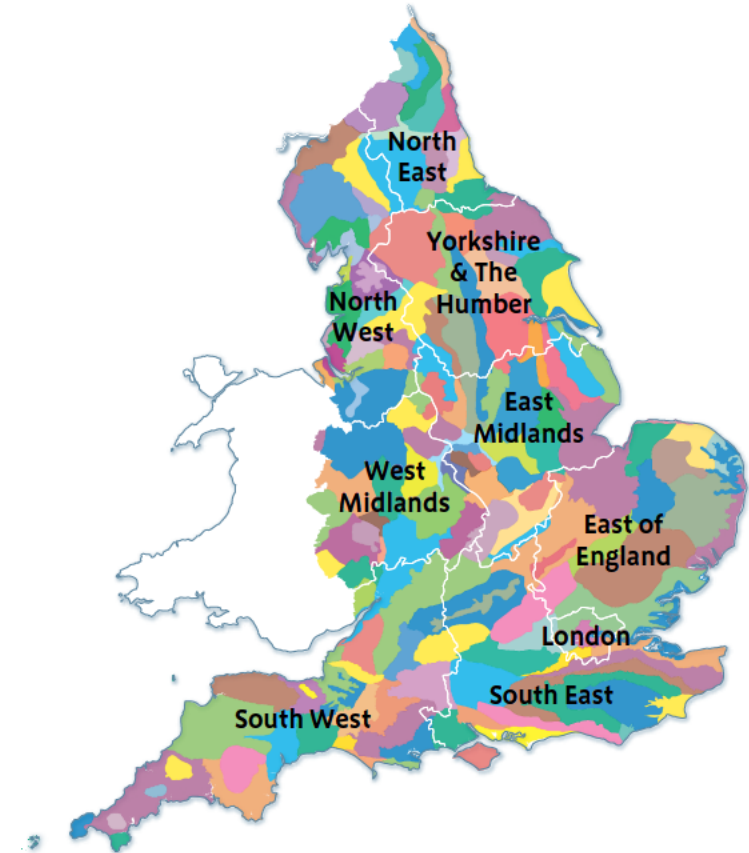
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and encourage broader partnership working through Local Nature Partnerships. The profiles will also help to inform choices about how land is managed and can change.

Each profile includes a description of the natural and cultural features that shape our landscapes, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics and ecosystem services. Statements of Environmental Opportunity (SEOs) are suggested, which draw on this integrated information. The SEOs offer guidance on the critical issues, which could help to achieve sustainable growth and a more secure environmental future.

NCA profiles are working documents which draw on current evidence and knowledge. We will aim to refresh and update them periodically as new information becomes available to us.

We would like to hear how useful the NCA profiles are to you. You can contact the NCA team by emailing ncaprofiles@naturalengland.org.uk

National Character Areas map



¹ The Natural Choice: Securing the Value of Nature, Defra

(2011; URL: www.official-documents.gov.uk/document/cm80/8082/8082.pdf)

² Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, Defra

(2011; URL: www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf)

³ European Landscape Convention, Council of Europe

(2000; [REDACTED])

Summary

The South Suffolk and North Essex Clayland National Character Area covers the four counties of Suffolk, Essex, Hertfordshire and Cambridgeshire. It stretches from Bury St Edmunds in the north-west to Ipswich in the north-east, roughly following the line of the A14 trunk road through the Gipping Valley. It then embraces the Colchester hinterland before encompassing the urban areas of Braintree and Chelmsford in the south and stretching to Bishop's Stortford and Stevenage in the west.

It is an ancient landscape of wooded arable countryside with a distinct sense of enclosure. The overall character is of a gently undulating, chalky boulder clay plateau, the undulations being caused by the numerous small-scale river valleys that dissect the plateau. There is a complex network of old species-rich hedgerows, ancient woods and parklands, meadows with streams and rivers that flow eastwards. Traditional irregular field patterns are still discernable over much of the area, despite field enlargements in the second half of the 20th century. The widespread moderately fertile, chalky clay soils give the vegetation a more or less calcareous character. Gravel and sand deposits under the clay are important geological features, often exposed during mineral extraction, which contribute to our understanding of ice-age environmental change.

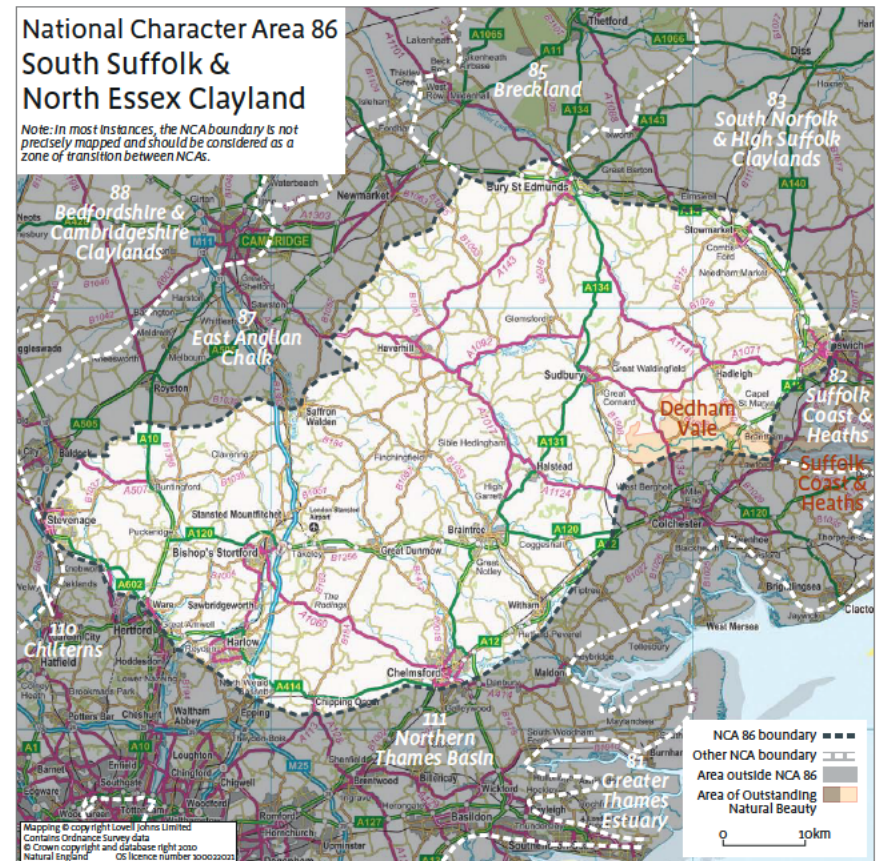
Some 2 per cent of the area is designated as the Dedham Vale Area of Outstanding Natural Beauty (AONB), which sits on the borders of Essex and Suffolk. The area was made famous worldwide through the paintings of the landscape artist John Constable. Many of the scenes that brought him inspiration two centuries ago can still be seen today, especially at Flatford and along the banks of the River Stour. This area, now known as 'Constable Country', is a popular visitor destination, particularly during the summer months.

The area's rich archaeology provides evidence of a long history of settlement and significant past wealth and importance, including Palaeolithic finds, Roman sites, medieval monasteries and castles, isolated moated farmsteads, barns and a number of large country houses. It is an area of notable medieval towns and villages, such as Lavenham, Cavendish and Thaxted, which support many vernacular buildings dating from the 13th to 17th centuries, when the wool and cloth trade brought considerable wealth to the area. Traditional settlements are characterised by organic street patterns, large churches – sometimes, as at Long Melford, overlooking village greens – and groups of colour-washed medieval houses with pegtile roofs interspersed with ones refronted with brick facades in Georgian or Victorian times. An intricate maze of narrow, winding lanes links settlements. Some 6.5 per cent of the area is urban, with most major settlements being located along the southern border, including Ipswich, Chelmsford and the new towns of Harlow and Stevenage. Major transport infrastructure includes the A14 and A12 and the M11, which links to Stansted Airport.

Summary continued...

Semi-natural habitats of particular importance include sparsely scattered, small lowland meadows and ancient woodlands. These include Hatfield Forest and Bradfield Woods, which are important for rare species including the dormouse, nightingale and stag beetle, as well as being among the richest in the country for flowering plants such as bluebells, which often carpet the ground in spring. Parts of the river valley floors contain pasture and willow pollards, which contribute an uncommon pastoral quality. Mosaics of valley floor habitats such as grazing marsh, fen and wet woodland support European protected species including great crested newt, otter and pipistrelle bats, as well as the rare black poplar tree.

Farming, predominantly for arable crops, utilises 84 per cent of the land area, supported by the moderately fertile soils and equable climate. Recent changes in farming methods have had an impact on farmland habitats such as hedges and ponds, and once-common species of arable land such as tree sparrow, grey partridge, cornflower and brown hare have declined in numbers. Over recent years the uptake of agri-environment options for land management has increased the potential to restore much of the lost in-field wildlife of the area.



Click map to enlarge; click again to reduce.

Statements of Environmental Opportunity

- **SEO 1:** Maintain and enhance the character of this gently undulating, rural landscape by maintaining agricultural productivity and encouraging sustainable land management practices that protect and enhance the landscape, geodiversity and biodiversity assets and benefit carbon storage and water quality, as well as the over-riding sense of place.
- **SEO 2:** Protect and enhance the area's ancient woodland cover, parkland trees, river valley plantations and ancient hedgerows, through the management of existing woods and the planting of new woods, hedgerows and hedgerow trees to benefit landscape character, habitat connectivity and a range of ecosystem services, including timber provision, the regulation of soil erosion and the strengthening of the sense of place and history.
- **SEO 3:** Enhance the slow-flowing, winding rivers and their pastoral valley flood plains that provide linkages through the landscape, including redundant sand and gravel extraction sites, for their ecological, historical and recreational importance. This will support the operation of natural processes and their contribution to biodiversity, geodiversity, soil quality, water availability, regulating water flow and the character of the area.
- **SEO 4:** Conserve and enhance the distinctive character of the Dedham Vale Area of Outstanding Natural Beauty with its much-visited 'Constable Country' and improve opportunities for people to enjoy and understand the distinctive assemblage of historic landscapes outside the AONB. Ensure that access and recreational resources are managed to be compatible with the tranquillity of the area and the special qualities of protected landscapes, while providing a valuable health, education and access resource.



The gently undulating rural landscape characterised by arable fields within a network of hedgerows, copses, fragmented woodlands and isolated farmsteads.

Description

Physical and functional links to other National Character Areas

The South Suffolk and North Essex Clayland National Character Area (NCA) shares a boundary with six other NCAs: Suffolk Coast and Heaths, South Norfolk and High Suffolk Claylands, The Brecks, East Anglian Chalk, Chilterns and the Northern Thames Basin. They all share a generally flat topography, with underlying bedrock geology of Late Cretaceous Chalk overlain by sand and gravel deposits as well as glacial tills. The underlying chalk aquifer supplies the population of East Anglia, functionally linking these areas.

To the north-east the landscape flows seamlessly into the flatter and more open South Norfolk and High Suffolk Claylands NCA, which forms part of the same boulder clay arable plateau. Intervisibility between the NCAs is varied due to the claylands' low, undulating nature. Transport links include the A140 to Norwich and the Great Eastern Main Line between London and Norwich.

To the north-west the NCA abuts the dry, open landscape of the Brecks. Views from the elevated plateau extend across the Brecks to 'the ship of the Fens', Ely Cathedral. In dry years the rivers in the Ely Ouse catchment supply water via the Ely Ouse to Essex Transfer Scheme to the headwaters of the Suffolk and Essex rivers, the Stour and the Pant/Blackwater. Water is then abstracted from the rivers to the reservoirs of Abberton and Hanningfield in the Northern Thames Basin NCA, to supply the increasing demand for potable water from south Essex and London.

To the west, the broad-scale character of the East Anglian Chalk NCA rises away from the claylands. Intervisibility is often framed by beech shelterbelts, although generally views are open and panoramic. The Wadlow Wind Farm,

north of Balsham, is a prominent feature across the NCAs' dividing boundary. The River Granta flows westwards from the claylands, forming the River Cam in Cambridge. The M11 and A10 dissect the western claylands, linking the East Anglian Chalk to the Northern Thames Basin, while in the north the A14 and the Ipswich to Cambridge rail line create functional links.

Links to the Northern Thames Basin NCA are created by the rivers Rib, Ash and Stort, which flow south along watercourses incised into heavy boulder clays, while to the south-east the rivers Colne, Blackwater, Brain, Ter and Chelmer flow from the clay plateau eastwards to the North Sea. Flood storage areas such as the Sible Hedingham lagoons ease flood risk further downstream in the Northern Thames Basin and Greater Thames Estuary NCAs. Views extend to the shallow wooded ridgeline that swings round in an arc from Tiptree to Epping Forest, enclosing the area.

In the east along the lower part of the Stour Valley, the Dedham Vale Area of Outstanding Natural Beauty (AONB) extends into the adjoining Suffolk Coast and Heaths and Northern Thames Basin NCAs. The River Gipping flows into the River Orwell at Ipswich, which straddles the boundary between the NCAs. The East Coast Main Line and the A14 and A12 trunk roads also create functional links.

Distinct areas

- The lower half of the Stour Valley – the Dedham Vale.

Key characteristics



Large, often ancient hedgerows link woods and copses to form wooded skylines, that are a key characteristic of the area.

- An undulating chalky boulder clay plateau is dissected by numerous river valleys, giving a topography of gentle slopes in the lower, wider valleys and steeper slopes in the narrower upper parts.
- Fragments of chalk give many of the soils a calcareous character, which also influences the character of the semi-natural vegetation cover.
- South-east-flowing streams and rivers drain the clay plateau. Watercourses wind slowly across flood plains, supporting wet, fen-type habitats; grazing marsh; and blocks of cricket-bat willows, poplars and old willow pollards. Navigation locks are present on some rivers.
- Lowland wood pasture and ancient woodlands support the dormouse and a rich diversity of flowering plants on the clay plateau. Large, often ancient hedgerows link woods and copses, forming wooded skylines.
- The agricultural landscape is predominantly arable with a wooded appearance. There is some pasture on the valley floors. Field patterns are irregular despite rationalisation, with much ancient countryside surviving. Field margins support corn bunting, cornflower and brown hare.
- Roman sites, medieval monasteries and castles and ancient woodlands contribute to a rich archaeology. Impressive churches, large barns, substantial country house estates and Second World War airfields dot the landscape, forming historical resources.

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Key characteristics continued...

- There is a dispersed settlement pattern of scattered farmsteads, parishes and small settlements around 'tyes' (commons) or strip greens and isolated hamlets. The NCA features a concentration of isolated moated farmsteads and numerous well-preserved medieval towns and large villages.
- Larger 20th-century development has taken place to the south and east around Chelmsford, Ipswich and the new towns of Harlow and Stevenage.
- Traditional timber-frame, often elaborate buildings with exposed timbers, colour-washed render, pargeting and steeply pitched roofs with pegtiles or long straw thatch. Sometimes they have been refronted with Georgian red brick or Victorian cream-coloured bricks ('Suffolk whites'). Clay lump is often used in cottages and farm buildings.
- Winding, narrow and sometimes sunken lanes are bounded by deep ditches, wide verges and strong hedgerows. Transport infrastructure includes the A14, A12, M11 and Stansted Airport.
- A strong network of public rights of way provides access to the area's archetypal lowland English countryside.

South Suffolk and North Essex Clayland today

The South Suffolk and North Essex Clayland's chalky, boulder clay plateau is dissected by small-scale undulating river valley topography. Views from the plateau, which rises to 161 m above sea level, are often extensive, with large, open skies. The winding river valleys are smaller in scale, with an intimate sense of enclosure, particularly in their upper reaches.



Carpets of bluebells add spring colour to the ancient woodlands that are found across the plateau.

The area is underlain by Late Cretaceous Chalk that is exposed in redundant chalk quarries and pits that feature throughout the area, such as at Little Blakenham and Claydon. In places, London Clay and other Palaeogene deposits overlie the Chalk. Sand and gravel deposits are often exposed on the sides of the many deeply incised river valleys, particularly in the upper reaches of the Stour and its tributaries, as well as flanking the valley flood plains in the form of river terraces. They are often exploited by quarrying, which exposes important geological sequences. The overlying glacial till gives rise to heavy clay soils full of flints. The Chalk strongly influences the calcareous nature of many of the area's soils, and consequently the semi-natural vegetation character.

Rivers including the Colne, Blackwater, Brain, Ter, Chelmer and Stour all have their headwaters on the clay plateau. Some streams are so close together that the interfluvium is no more than a narrow ridge in many places. As they flow slowly south-east towards the North Sea, their gently winding courses, often lined with old willow pollards, form lush riparian corridors.

The area's open yet wooded character is sufficiently endowed with copses and small woods to have wooded horizons, which give a large, distantly wooded character to the landscape – an impression that is sometimes missing at close quarters due to the loss of hedges and hedgerow trees. Larger woods are typically confined to the north and south of the area. Within the valleys, the main impression is of the blocks of willows and poplars planted on the valley floor and sides. Hedgerow trees are typically young elm (with hornbeam and field maple) in Essex. In Suffolk, oaks and ash, with some cherry and holly, give a more treed and hedged character. Many examples of ancient woodland survive, providing a strong sense of history – especially those with small-leaved limes. They include the National Nature Reserves of Hatfield Forest and Bradfield Woods; the latter is a working wood that has been under continuous traditional coppice management since at least 1252.

It is ancient countryside, and appears in many areas to have undergone little 20th-century rationalisation to excessively large fields. Close-grained irregular medieval enclosures, bounded by ancient, species-rich high hedgerows, are predominant in the north and east and in the numerous narrow river valleys, whereas later, larger fields are more characteristic in the south and west, where post-medieval Parliamentary enclosure has occurred. Farming utilises 84 per cent of the land area. It is primarily agricultural, except on parts of the river valley floors, where pasture contributes to a pastoral quality that is uncommon elsewhere in East Anglia. The moderately fertile soils along with an equable climate support profitable arable crops including, oilseed rape and sugar beet. Outdoor pig units are typical on the lighter soils in the north-east, while sheep with some cattle graze the valley pastures and wood pasture of estates such as Ickworth. Fruit farms and orchards are also found on the lighter land.

Semi-natural habitats of particular importance include sparsely scattered small lowland meadows and ancient woodland remnants that are among the richest in the country for flowering plants, including pignut, oxlip, moschatel and orchids such as the greater butterfly orchid (a Suffolk rarity) and the nationally scarce bird's-nest orchid. Carpets of bluebells in the spring are a strong characteristic of the woodlands. These woodlands are also important for the dormouse and birds such as nightingale, blackcap and willow warbler. The mosaic of valley floor habitats (for example grazing marsh, fen and wet woodland) support European protected species including great crested newt, otter and pipistrelle bats, as well as the rare black poplar tree, which can still be found along the Suffolk–Essex border.

The area's rich archaeology provides evidence of a long history of settlement and significant past wealth and importance, including the stone tools evident of a Palaeolithic presence, Roman sites, ruined medieval monasteries, Norman castles (for example, Hedingham Castle), medieval moated farmstead sites and a rich heritage of timber-frame barns. There are a few substantial houses and estates, such as Audley End, with its landscaped parklands designed by Lancelot

'Capability' Brown, Ickworth, Kentwell, Melford Hall, Chadacre and Shrubland Hall; the Repton-enhanced landscape and Italianate gardens of the latter were designed by Charles Barry. Relics of the once-numerous Second World War airfield sites are also dotted across the landscape, underlining the NCA's strategic wartime importance. Pillboxes of the 1940 military 'stop lines' also snake along this countryside as a further reminder of this tense wartime period.



A countryside of close-grained irregular Medieval enclosures, bounded by ancient, species-rich high hedgerows and grass margins.

The strong sense of history is reinforced by the dispersed settlement pattern of scattered farmsteads and small villages near the top of the valley slopes. They are often located around 'tyes' (commons) or strip greens, with isolated hamlets linked by an intricate maze of narrow, often sunken lanes with wide verges, deep ditches and strong hedgerows. Medieval towns and villages such as Lavenham, Cavendish and Thaxted retain a strong sense of character, with their idiosyncratic street patterns and the juxtaposition of a large, ornate church with a village green and groups of colour-washed medieval houses with their steeply pitched long straw thatch or pegtile roofs. Timber is the main traditional building material of the area, often with a pink-buff Georgian brick-facing to an older timber frame. Ornamental exterior plasterwork or parquetry is also characteristic, with good examples to be seen in Clare, Ipswich and Saffron Walden.

Much of the rural part of the NCA has a residual tranquillity, with much of the central part remote from main roads (for example around Great Bardfield, Thaxted and Cavendish; in the villages south of Bury St Edmunds; or even further south in Essex around Pleshey, north of Chelmsford). The sense of remoteness is enhanced by the woody nature of the plateau and the deep incision of the valleys. However, tranquillity is reduced close to the main transport infrastructure (for example the A12, the A120, the A14, the M11 and the airport at Stansted). The major towns (Chelmsford, Ipswich, Stowmarket, Bury St Edmunds, Bishop's Stortford, Harlow and Stevenage) make the boundaries of the NCA less tranquil than its centre.

The area's rural character makes it popular with tourists and day-trippers, particularly the Stour Valley, which sits on the Suffolk–Essex border. The variable topography of rolling hills and gentle valleys and the combination of features – trees, river bank willows, flood plain meadow, ancient lanes, traditional villages and farm buildings and the meandering river – produce a classic English lowland character that is quite distinct from the rest of Suffolk and Essex. This exceptionally picturesque landscape was made famous worldwide through the

paintings of the landscape artist John Constable (1776–1837) and the lower half of the valley is designated as the Dedham Vale AONB. Many of the scenes that brought John Constable inspiration can still be seen today, especially at Flatford and along the banks of the River Stour.



The medieval town of Cavendish with its traditional buildings including the pink almshouse cottages and St Mary's Church set around the central green.

The landscape through time

The underlying bedrock of the South Suffolk and North Essex Clayland is Cretaceous 'Middle' and 'Upper' Chalk, deposited as a pure limestone in tropical seas between 100 and 65 million years ago. Another mineral, silica, was left behind at this time and formed nodules of hard flint within the Chalk.

Sands and clays of the Lambeth Group and London Clay were deposited over the Chalk in the Palaeocene and Eocene Periods that followed. They have been exposed by river erosion in the lower slopes and floors of the major valleys such as the Chelmer and Stour, where the impermeable London Clay gives rise locally to many springs.

The ancestral River Thames flowed north-eastwards across the area about a million years ago, depositing a distinctive suite of gravels known as the Kesgrave Formation. The course of this pre-diversion Thames is picked up at several Sites of Special Scientific Interest (SSSI), such as Downfield Pit SSSI, and contributes locally to sandy soils.

The Anglian glaciation around 450,000 years ago covered the area with thick ice sheets and deposited vast amounts of chalk and clay on the land as glacial till (boulder clay) and associated outwash sands and gravels; these capped the bedrock. These unconsolidated glacial deposits made erosion by rivers 'easy', allowing well-developed valleys to form, as well as river terraces in them. As a result, many of today's rivers and streams appear too small for their valleys. Where exposed, the sand and gravel deposits associated with the rivers have yielded significant evidence of Pleistocene vertebrates and Palaeolithic human life, as at Brundon.

The earliest occupation of this NCA is likely to pre-date the Anglian glaciations, with occasional finds of stone tools in deposits beneath the till, as well as well-documented sites being found in neighbouring NCAs. Later settlement focused on the river valleys, which were extensively cleared and occupied in the prehistoric period. The muddy ice-laid material on the plateau tops made these areas very difficult to farm, leading to a history of thick tree cover on the higher ground. Archaeological remains associated with prehistoric and Roman settlement sites are visible as cropmarks and earthworks, such as the Bartlow Hills Roman tumuli (burial mounds). Roman occupation from 43 AD lasted for some 350 years and contributed trading settlements, such as Chelmsford, and roads that still provide the backbone of today's transport links, for example Ermine Street, which now forms part of the A10.

Wealth within the area developed during the Anglo-Saxon period. This is evidenced by the establishment of Ipswich as a major early trading port and by the important 'princely' burial site at Broomfield to the north of Chelmsford.

The existing pattern of towns and villages was laid down by the time of the Domesday Book in 1086. Bury St Edmunds' late 11th-century gridiron street pattern is an advanced example of town planning from this period. From the time of the Norman Conquest until the 19th-century spread of London, the north-western part of Essex was the most densely populated part of the county.

Early medieval enclosure divided up the land into mostly small fields with wide borders that were grazed or cut for hay crops. There were also some much larger fields, particularly on demesnes (manorial land). Large estates were unusual, as small freeholders dominated. Where the land was too wet and heavy to farm, woodland was not cleared but instead managed for timber, as were hedges.



The half-timbered Guildhall, Dick Turpin cottage and the magnificent Parish Church in Thaxted, are typical of the local vernacular found within the 'wool towns'.

Today's ancient deciduous woodlands provide a historic landscape record from this time. The unique Hatfield Forest, established in the late 11th century and the only remaining intact Royal Hunting Forest, is a prime example. It is thought to be the largest area in the east of England never to have been ploughed, and so provides a direct link back to the wildwood that was once extensive across the whole of the area. The river valleys contained the best soils and the low-lying valley bottoms supported rich pasture, while mixed arable farming dominated the valley sides. Where the heavy, wet land was ploughed it was mainly used for fodder crops such as cabbages and beans. From the 17th century, turnips were commonly grown on the slightly drier land, and a dairy-based industry remained important up until the end of the 18th century. Settlement was normally dispersed about the parishes, with scattered moated farmsteads and small villages around open 'tyes' (commons) or strip greens, which remained open until the 19th century.

The densely settled pattern intensified with the development of the wool and cloth trade from the 13th to 17th centuries, which had the dominant historical impact on this area. The wealth generated by the industry is manifested in the timber-frame houses clustered in the towns and villages (for example, Long Melford, Lavenham, Thaxted, Halstead and Coggeshall), and in the ostentatious but magnificent churches such as Thaxted Church, with its 181-foot (c. 50-metre) spire. Sudbury was a centre for weaving and silk, while Thaxted prospered from its cutlery trade and Saffron Walden enjoyed the rewards of both cloth and locally produced saffron (used as a spice, a medicine and to dye cloth) until the 19th century, when artificial substitutes destroyed this latter trade. Towns such as Braintree, Great Dunmow, Halstead and Coggeshall were 'bays and says' towns, so called because of their production of baize or serge-like cloths from the 16th century onwards. Between the 15th and early 17th centuries this was the wealthiest part of England. The peak of prosperity was 1450–1550, with a minor boom in the 17th century. The woollen/cloth trade declined in the 17th century to focus on northern and western England, and development in the area stopped. There was little post-17th century architecture until the advent of 20th-century housing and commercial estates.

Most of the area was already enclosed into hedged fields by the medieval period, but westward of a line extending southwards from Bury St Edmunds to Haverhill, Saffron Walden, Bishop's Stortford and Harlow (and to a limited extent in the Stour Valley) there were considerable amounts of open common fields that were the subject of Parliamentary enclosure in the 18th and 19th centuries. At the beginning of the 18th century the golden age of local agriculture commenced. The average landholding was probably 60 ha (150 acres), but increased grain prices, improved drainage techniques, mechanisation and the influence of the proximity of the London market spread throughout the area and resulted in the ploughing-up of pasture and the reduction in dairies. By late Georgian times, increases in wealth saw the building of grand houses such as Ickworth and Shrubland Hall. River courses were modified and opened up to traffic to help transport food and goods from Suffolk to meet the demand in London. The Stour Navigation (between Sudbury and Manningtree) opened in 1713, the Stort Navigation opened in 1769 and the Stowmarket Navigation, along the Gipping, opened in 1793. In the 1840s the railway arrived, and with it a large decline in water-borne trade. The historic industrial influence of the river navigations is now mostly lost amid today's rural landscape.

The agricultural depressions of the mid- and late 19th century and the interwar period of the 20th century took their toll on agriculture here as elsewhere. There was a drift of labour to the capital, balanced during the last century by the southern drift of Scottish farmers who were prepared to take on derelict farms.

The onset of the Second World War saw military 'stop lines' drawn across the rural countryside, with pillboxes at key locations. Numerous airfields were constructed across the open plateau, such as Wattisham, Sudbury, Stradishall and Castle Camps.

Since 1945 this region has been well farmed, producing a wide range of food crops, often for the London, and latterly the European, market. Agricultural improvements resulted in changes to the structure of the countryside, which was defined by a dense network of fields, meadows, hedges and woods. Although rationalisation was not as extreme as in other areas of East Anglia, it resulted in losses of semi-natural vegetation, especially lowland grassland, ancient woodland and hedgerows. Although many villages and towns have accommodated significant post-war housing, the historic cores remain intact; little local industry has developed, and the character of these towns and villages has ensured their preservation.



Although not as extensive as in other parts of East Anglia, the removal of field boundary hedgerows since 1945 has enlarged many fields, as seen to the south-west of Haverhill.

After the Second World War, the Abercrombie Plan called for the establishment of a ring of new towns around London to ease overcrowding in the capital and the surrounding areas due to the mass devastation caused by the bombing during the Blitz. Stevenage was designated the first New Town on 1 August 1946, followed closely by Harlow. Twentieth-century development in Chelmsford followed the sale of land for railways, and the broad, shallow Chelmer Valley is now obliterated by recent development. The north-western part of Essex has largely avoided the massive 20th-century outward migration from London, which is a pronounced feature of the London Clay to the south. This is largely due to the effectiveness of Green Belt policy in preventing the coalescence of towns. South Suffolk has seen very little recent development, except significant expansions of both Sudbury and Ipswich and around Stowmarket, which, being on the main line railway line, now has some characteristics of a commuter town.

The lower half of the Stour Valley with its preserved, archetypal lowland English countryside, coupled with attractive vernacular buildings, was designated as the Dedham Vale AONB in 1970. From the 1970s onwards, Dutch elm disease had a profound effect by removing one of the most common hedgerow and field trees from the landscape. The peripheries of the area continue to change, with increasing pressure for housing, infrastructure and industrial growth associated with, for instance, the Haven Gateway and other strategic growth points such as Chelmsford and Stevenage.

Ecosystem services

The South Suffolk and North Essex Clayland NCA provides a wide range of benefits to society. Each is derived from the attributes and processes (both natural and cultural features) within the area. These benefits are known collectively as 'ecosystem services'. The predominant services are summarised below. Further information on ecosystem services provided in the South Suffolk and North Essex Clayland NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** Some 84 per cent of the land area is farmed, with the widespread chalky clay soils (mostly Grades 2 and 3) supporting predominantly arable farming with large areas of cereals and oilseed rape. The area also provides dairy products and sugar beet, with peas, fruit farms and market gardening on areas of lighter land. Livestock farming includes pigs, poultry, sheep and lowland cattle. Value-added food producers (for example, organic producers, pork butchers and brewers) cluster around urban areas such as Bury St Edmunds and Ipswich⁴, as do several 'pick your own' farms.
- **Water availability:** The major underground chalk aquifer is overlain by London Clay, which confines the chalk aquifer, restricting the flow of groundwater in and out. These are overlain by locally important sand and gravel minor aquifers. Groundwater resources within the chalk aquifer are currently committed, and new groundwater abstraction applications are only considered from drift deposits. Groundwater and surface water river abstractions are primarily for public water supply for the major areas of population (for example Ipswich, Chelmsford, Braintree, Bury St Edmunds and the Harlow/Stansted corridor). Agricultural use for spray irrigation to support food production is also a high user. The highest priority catchments in terms of water abstraction control include the Stour, the Colne and the Gipping. During low flow conditions, the rivers Stour and

⁴

Pant/Blackwater can have their flows increased through the Ely Ouse to Essex Transfer Scheme. This maintains flows at a level that is high enough to protect the natural ecology of the system without restricting abstraction for public water supply⁵. The River Stour is further supported by the Stour Augmentation Groundwater Scheme. The requirement for these schemes highlights the scarcity of water in the area, with Essex being a net importer of water to meet the needs of its population.

- **Genetic diversity:** The Large Black Pig, the rarest historic pig breed and one of the oldest in Britain, is associated with the area. It is considered by some to be the fourth member of the Suffolk Trinity (Suffolk Punch horse, Black Faced Sheep and Red Poll cattle), all of which can be found in the area. Herds of Red Poll cattle graze Hatfield Forest, with sheep (Speckled Faced Beulah, Wiltshire Horn and Manx Loaghtan) used as 'conservation grazers'. Rare breeds are kept in the north-east at the Baylham House Rare Breeds Farm. Breeds include Norfolk Horn, Greyface Dartmoor, Balwen, Llanwenog, Herdwick and Ouessant sheep; White Park cattle; Pygmy and Golden Guernsey goats; and Middle White and Berkshire pigs. Remnant traditional orchards provide a genetic stock of old local fruit varieties including Red Miller's Seedling, St Edmunds Russet, Honey Pippin, Clopton Red, Maxton, Maclean's Favourite, Catherine, Suffolk Styles Pippin and Sturmer Pippin apples, and Coe's Golden Drop gage.

Regulating services (water purification, air quality maintenance and climate regulation)

- **Regulating water quality:** Water quality is important for biodiversity, agriculture and public drinking water. Both groundwater and surface water quality is critically dependent on the land management in the NCA. Woodlands, hedgerows, grasslands, riparian vegetation and the filtering qualities of the underground sand and gravel and chalk deposits all contribute to the service.

⁵ *The Combined Essex Catchment Abstraction Management Strategy*, Environment Agency (February 2007)

The chemical status of groundwater is, however, generally good, as is that of the surface waters. Only 33 per cent of surface waters achieve at least good biological status. The ecological status of the rivers is generally moderate, although the status is poor in the Gipping, Cam, Blackwater, Chelmer, Ter and Quin⁶. The highest priority catchments in terms of water pollution control are the Stour, the Colne and the Gipping. The Little Ouse (Thetford Ouse) and the Gipping and Orwell catchments are priority catchments under the Catchment Sensitive Farming Project.

- **Regulating water flow:** A large number of rivers drain the clay plateau, their natural flows increased by flood plain drainage and increasing amounts of non-permeable surfacing within settlements. During low flow conditions, the rivers Stour and Pant/Blackwater can have their flows recharged through the Ely Ouse to Essex Transfer Scheme. The River Stour is further supported by the Stour Augmentation Groundwater Scheme. Woodlands, hedgerows, flood plain wet fen-type habitats, grazing marsh and riparian vegetation all contribute to this service by holding water within the system.

Chelmsford is currently at a high risk from flooding, although some protection is provided by its ageing flood alleviation scheme. Braintree, Great Dunmow and Bocking are at risk from the rivers Blackwater and Chelmer. The Mid Colne and River Stour present a flood risk in villages including Bures, Bures St Mary, White Colne and Chappel. A combination of flood banks, a bypass channel on the River Stour and a flood storage area upstream of Halstead has reduced the flood risk⁷. Meldham Washlands flood alleviation scheme on the River Stour provides a high standard of protection to Haverhill, and the creation of flood storage lagoons as at Sible Hedingham eases flood risk further downstream. The River Gipping has the potential to flood parts of western Ipswich, although a flood alleviation scheme at Stowmarket helps to reduce the risk both in Stowmarket and Ipswich⁸.

⁶ *River Basin Management Plan, Anglian River Basin District*, Environment Agency (2009)

⁷ *North Essex Catchment Flood Management Plan Summary Report*, Environment Agency (December 2009) ⁸ *East Suffolk Catchment Abstraction Management Plan Summary Report*, Environment Agency (December 2009)

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** A strong sense of place is provided by the underlying Chalk geology that influences the calcareous nature of many of the soils and much of the vegetation character. The many steep-sided, small-scale, intimate river valleys, along with their mixed land use patterns, contribute to the archetypal English countryside character. Small woodlands linked by large hedgerows along ridgelines create a wooded character. Large, ornate churches, timber-frame buildings often rendered and colour-washed, with pegtiles or long straw thatch, either as scattered farmsteads or as whole streets in well-preserved medieval villages or towns (such as Kersey and Lavenham), also contribute to the strong sense of place.

Feelings of inspiration are associated with the strong historic character of the medieval settlements, while the surrounding landscape with its wide views, open skies and unspoilt rural tranquillity has provided inspiration for many artists, including John Constable and Thomas Gainsborough and, more recently, Cedric Morris and John Nash.

- **Sense of history:** The many historical assets, clearly visible throughout this landscape, provide a strong sense both of history and of how the landscape has developed over time. These include Roman roads, medieval villages such as the Rodings, Norman castles, ruined abbeys and ancient woodlands, including the unique Hatfield Forest. The magnificent 'wool' churches (as at Long Melford and Lavenham) and country houses with historic parklands (such as Audley End, Kentwell Hall and Ickworth) illustrate past wealth.

Some rivers, including the Gipping, Stour and Stort, have an industrial past revealed by historic navigation locks and water mills. The area's wartime importance remains visible, with numerous Second World War airstrips, some of which are still used for flying while others are just remnants alongside hangars and pillboxes. Distinctive historic features include close-grained medieval enclosures, medieval moated farmsteads, villages around 'tyes' (commons) or strip greens, historical barns, and small medieval towns such as Lavenham, Finchingfield, Cavendish and Thaxted, which contain many Grade I Listed Buildings in the vernacular style. The Dedham Vale AONB, a preserved archetypal lowland pastoral English countryside, with its strong association with John Constable, and the 20th-century new towns of the south-west, such as Harlow, provide further, strongly contrasting historical elements.

- **Recreation:** The NCA offers a network of rights of way totalling 6,375 km, as well as a small amount of open access land covering 3,628 ha. Large numbers of tourists and day-trippers are attracted to the 'honeypot' destinations of the Dedham Vale and the picturesque 'wool' towns such as Lavenham, together with popular access routes such as the Stour Valley Path, the Stort Valley Way, the Essex Way and the Flich Way. Key green space and heritage venues are popular all year round with visitors and locals, and include Hatfield Forest, which has many miles of walks; the Colne Valley heritage railway; Stowmarket's Museum of East Anglian Life; Hedingham Castle; Audley End in Uttlesford; and Ickworth House near Bury St Edmunds. Water recreation opportunities are available on the River Stour Navigation and Chelmer Navigation reservoirs and are popular with locals.

Statements of Environmental Opportunity

SEO 1: Maintain and enhance the character of this gently undulating, rural landscape by maintaining agricultural productivity and encouraging sustainable land management practices that protect and enhance the landscape, geodiversity and biodiversity assets and networks to benefit geodiversity, biodiversity, carbon storage and water quality, as well as the over-riding sense of place.

For example, by:

- Encouraging sustainable farming practices and the diversification of cropping and livestock to support the continued production of food supplied to local and national markets and the financial security of rural businesses.
- Working with farmers and landowners to create ecological networks through the farmed landscape to benefit biodiversity (for example by increasing farmland bird populations) and to enhance ecosystem services, such as by intercepting surface water to improve water quality and by providing more habitats for pollinator and pest-regulating species.
- Restoring important characteristic ancient field boundary patterns and parish boundaries with substantial hedges, together with the historical pattern of farmsteads (many with 17th-century or earlier buildings), through recording, promoting, understanding and recognising their historic significance.
- Encouraging farmers to protect watercourses from water quality deterioration, reducing diffuse pollution by encouraging soil management improvements and the uptake of beneficial agri-environment schemes and options. Ensure compliance with regulations on nitrate vulnerable zones to manage fertiliser inputs.
- Encouraging the reversion from arable to permanent grassland and the creation of grass margins in arable fields on valley sides, to help reduce soil erosion and sedimentation of watercourses, especially within the priority catchments.
- Enhancing soil condition through good soil management techniques that reduce erosion, improve productivity and have a positive effect on water quality. This can be achieved through reducing cultivation and soil compaction, creating grass margins in arable fields and restoring boundary hedgerows, which will also increase habitats for pollinators and pest-regulating species.
- Facilitating the ability of viable agricultural businesses to undertake more tailored agricultural and conservation management, incorporating uncultivated margins to arable fields in order to support rare arable weeds and farmland bird species (for example yellowhammer, grey partridge and tree sparrow).
- Ensuring that land management practices maintain and, where necessary, improve the condition of the Sites of Special Scientific Interest.
- Working in partnership with farmers to encourage the appropriate design and sensitive siting of new on-farm water storage, which will help to reduce the impact of water abstraction and enhance biodiversity and landscape character.
- Ensuring that advice is provided to support and enable sustainable farming practices to be carried out efficiently, including follow-up monitoring and advice, to help inform future land management decisions.

SEO 2: Protect and enhance the area's ancient woodland cover, parkland trees, river valley plantations and ancient hedgerows, through the management of existing woods and the planting of new woods, hedgerows and hedgerow trees to benefit landscape character, habitat connectivity and a range of ecosystem services, including timber provision, the regulation of soil erosion and the strengthening of the sense of place and history.

For example, by:

- Seeking opportunities to restore and enhance ancient woodland habitats, particularly using techniques such as coppicing, to enhance landscape character and biodiversity, especially assemblages of flora, invertebrates and woodland birds.
- Encouraging the reinstatement of active management of existing farm woodlands where they have been neglected, re-introducing sustainable traditional management techniques such as selective felling, pollarding and coppicing, to strengthen the historic landscape character and support biodiversity. Where appropriate, exploit commercial opportunities for resulting wood fuel.
- Encouraging local businesses to increase appropriate-scale generation of heat, utilising woody biomass for woodchip boilers, where it is sustainable to do so. This will in turn bring further opportunities for improved woodland management, while being mindful of locally valued landscape characteristics, habitats and species.
- Encouraging the planting of new woodlands on former woodland sites or adjacent to existing sites using local native species, where this results in enhanced ecological connectivity and benefit to the traditional wooded appearance and character.
- Encouraging communities and schools to become involved in creating, conserving and enhancing local woods and orchards, by working with partners to promote volunteering opportunities.

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Conserving historic parklands, with their important veteran trees with ancient woodland habitats is particularly important for saproxylic species and hole-nesting birds.

SEO 2: Protect and enhance the area's ancient woodland cover, parkland trees, river valley plantations and ancient hedgerows, through the management of existing woods and the planting of new woods, hedgerows and hedgerow trees to benefit landscape character, habitat connectivity and a range of ecosystem services, including timber provision, the regulation of soil erosion and the strengthening of the sense of place and history.

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- Increasing poplar and willow plantations where appropriate and where there is no conflict with the historic landscape; that is, particularly along the River Blackwater between Witham and Kelvedon. This will enhance woodland character.
- Conserving historic parklands, with their important veteran trees (for example those at Ickworth), in particular focusing on the continuity of the mature and veteran tree resource in the parklands and in the surrounding landscape.
- Restoring traditional orchards, once a feature of many settlements, which contribute to the area's sense of place and genetic diversity.
- Conserving, managing and replanting hedgerows, especially those that are ancient and species rich, in a manner consistent with the historical patterns, particularly in areas that will help to regulate soil erosion.
- Encouraging the planting of characteristic hedgerow trees from existing hedgerow stocks; that is, oak in Suffolk and field maple and hornbeam in Essex. This will enhance landscape diversity and ecosystem services, including carbon storage. It will also help to counteract the threats to landscape character and biodiversity from tree diseases such as ash die-back.
- Protecting ancient hedgerow pollards, which are an important habitat for saproxylic beetles and hole nesting birds.
- Ensuring that new hedgerow planting on the plateau does not block important views and overly enclose the landscape. Planting characteristic species mixes will support biodiversity and landscape character and should include hawthorn, blackthorn, hazel, field maple, dogwood, spindle and small-leaved lime (derived from woodland).
- Extending and linking woodland sites, including orchards, through the expansion and enhancement of semi-natural linear features such as hedgebanks, streams, sunken hedged lanes, grass verges and farm woodlands, enhancing biodiversity and landscape character.

SEO 3: Enhance the slow-flowing, winding rivers and their pastoral valley flood plains that provide linkages through the landscape, including redundant sand and gravel extraction sites, for their ecological, historical and recreational importance. This will support the operation of natural processes and their contribution to biodiversity, geodiversity, soil quality, water availability and regulating water flow and their function in contributing to the character of the area.

For example, by:

- Working with watercourses to support the operation of natural processes to help reduce bank erosion and improve water quality.
- Conserving and managing the range of riverine and wetland habitats and landscapes, incorporating uncultivated margins and established habitat to protect watercourses in order to support rare species such as otters.
- Working with landowners to protect, enhance and reinstate fen-type flood plain habitats and to maximise opportunities to expand and link these habitats and their connections to rivers for breeding waders (for example, lapwing and snipe) and overwintering wildfowl. These habitats also make an important contribution to the landscape character.
- Restoring, repairing and enhancing river valley grasslands (where appropriate), supporting and reinstating grazing regimes. Where possible, manage livestock access to rivers and streams to prevent bank damage and increased sedimentation in the priority catchments of the Stour, Colne, Gipping, Cam and Stort.
- Protecting the archaeology and history of human settlement in the flood plain areas, by encouraging appropriate non-intensive land management and reinstating permanent pasture and grazing marsh habitats.
- Managing and enhancing the river flood plains for their flood storage capacity and identifying areas where bank and channel management can be altered to improve natural river profiles and connection with the flood plain, supporting the operation of natural processes.
- Managing extraction of the sand and gravel resource within the flood plains to minimise damage to existing habitats, geodiversity features and archaeological sites.
- Conserving and enhancing the network of geological sites that contribute to the understanding of the area's geology, in particular the disused quarries and pits.
- Continuing to restore mineral extraction sites to a variety of wetland habitats, for their multiple benefits for nature conservation, recreation and landscape interests.
- Working in partnership to reduce threats posed by non-native species' colonisation of the open water and riverine habitats.

SEO 4: Conserve and enhance the distinctive character of the Dedham Vale Area of Outstanding Natural Beauty with its much-visited 'Constable Country' and improve opportunities for people to enjoy and understand the distinctive assemblage of historic landscapes outside the AONB. Ensure that access and recreational resources are managed to be compatible with the tranquillity of the area and the special qualities of protected landscapes, while providing a valuable health, education and access resource.

For example, by:

- Working with the AONB Management Plan and using the special qualities, elements and features of the Dedham Vale AONB to plan landscape restoration, creation and enhancement activities to improve public enjoyment and understanding of the landscape.
- Exploring working with partners and organisations that support volunteering in the natural environment, which provides opportunities for people to increase their knowledge and understanding of the local area, while also benefiting habitats and species.
- Encouraging local schools and community groups to become involved in projects and other educational opportunities to develop a better understanding of their natural and historical environment and help to preserve it for the future.
- Creating access opportunities with consideration to minimising the risk of damage to landforms from recreation, particularly in the valleys, and promoting public appreciation of the geological resource by local communities and visitors.
- Managing and further enhancing the access and recreation opportunities, which centre on enjoyment of the tranquil and deeply rural countryside via the network of quiet lanes, villages, footpaths, bridleways and watercourses, to facilitate and encourage access to the wider countryside for all users.

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The village of Kersey, which although outside of the Dedham Vale AONB, is a popular visitor destination.

SEO 4: Conserve and enhance the distinctive character of the Dedham Vale Area of Outstanding Natural Beauty with its much-visited 'Constable Country' and improve opportunities for people to enjoy and understand the distinctive assemblage of historic landscapes outside the AONB. Ensure that access and recreational resources are managed to be compatible with the tranquillity of the area and the special qualities of protected landscapes, while providing a valuable health, education and access resource.

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- Promoting access to, interpretation of and understanding of less well-known sites and features to accommodate and diffuse tourism. This will help to maintain existing levels of tranquillity and manage landscape character pressures, especially in the AONB.
- Enhancing existing sustainable networks and providing links to growth areas and the wider countryside to help to link people with places.
- Enhancing and promoting the access network within, and connecting to, river corridors, for biodiversity, geodiversity, recreation and health benefits.
- Promoting links between geological sites, archaeological evidence and the biological interest of these areas, to achieve wider public understanding and enjoyment.
- Promoting sustainable tourism, such as access to visitor attractions via green infrastructure networks, including cycling and walking (for example, the Stour Valley Path and the Essex Way) and other sustainable transport options, to improve health and wellbeing and enjoyment of the environment, while supporting the local economy.
- Managing visitor pressures at popular and sensitive sites by investing in high-quality infrastructure and interpretation. Ensure that new infrastructure meets the different needs and levels of use of a range of visitors (for example, local communities, recreational day visitors and tourists) without being the cause of damage to or degradation of natural assets.

Additional Opportunity

1: Encourage measures that lead to the enhancement of existing historic settlements and sites of archaeological interest and the design and location of new developments and infrastructure. Provide wider associated social and cultural benefits through the provision and management of high-quality green infrastructure networks.

For example, by:

- Conserving the historic environment and key features of 'ancient countryside' such as timber-frame houses, moated farmsteads, historic churches, barns, castles and enclosure patterns, together with sites of archaeological interest.
- Within urban areas creating new multifunctional landscapes and habitats and extending at appropriate scales existing networks that are in character with the area and contribute to biodiversity through green infrastructure planning.
- Working with partners to ensure that water resources and flood risk management issues within areas of settlement can be addressed in a sustainable way, to accommodate future planned growth.
- Conserving and appropriately managing the area's sense of place within the built environment and using this understanding, and the area's traditional settlement patterns, to plan for and inspire new development, particularly around Ipswich, Chelmsford, Harlow and Stevenage.
- Conserving traditional building features that are distinctive to the area, including pargeting, straw thatch, flint-knapped churches, weatherboarded post windmills and the traditional riverside features such as water mills, which have a strong visual impact in the landscape.
- Ensuring that high-quality green infrastructure is considered in all new-build projects, encouraging developers and planners to consider this aspect at the outset of scheme design with the aim of promoting space for wildlife and outdoor recreation.
- Promoting the use of traditional building materials in building restoration or new development where this would be appropriate, to enhance the local character (for example, exposed timbers, colour-washed render (in traditional colours), pargeting, cream bricks ('Suffolk whites') or soft-hued red bricks).

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1: Encourage measures that lead to the enhancement of existing historic settlements and sites of archaeological interest and the design and location of new developments and infrastructure. Provide wider associated social and cultural benefits through the provision and management of high-quality green infrastructure networks.

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- Raising the profile of the area by promoting the 'wool towns' as a destination 'brand', which includes distinctive features such as the historic picturesque settlements (for example Lavenham, Cavendish and Thaxted with their large, highly decorated churches), local produce and the area's deeply rural and tranquil character.
- Ensuring that local development frameworks recognise the importance of conserving and enhancing the landscape to help to reduce the likelihood of negative impacts from new developments.
- Working in partnership with businesses within the AONB and nearby to encourage best practice to ensure that measures are taken to control light and noise pollution in order to protect the area's special qualities and high levels of tranquillity.
- Supporting the use of historic and landscape characterisations to inform change, and encouraging their use in community-based planning to help to identify locally valued townscapes, rural landscapes and heritage assets.
- Investigating ways of securing better management of the heritage assets that contribute to the character of the area, particularly those that have been identified as 'Heritage at Risk'.
- Conserving and interpreting historic features in the landscape, including traditional farmsteads and buildings, and geological and archaeological interest features such as ancient wood banks and earthworks, while recognising the potential for undiscovered remains.

Supporting document 1: Key facts and data

Area of South Suffolk and North Essex Clayland
National Character Area (NCA): 328,988 ha

1. Landscape and nature conservation designations

The Dedham Vale Area of Outstanding Natural Beauty (AONB) covers 7,708 ha (2 per cent) of the NCA.

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	% of NCA
International	Ramsar	Lee Valley; Stour & Orwell Estuaries	156	<1
European	Special Protection Area (SPA)	Lee Valley SPA; Stour and Orwell Estuaries SPA	156	<1
	Special Area of Conservation (SAC)	n/a	0	0

Tier	Designation	Name	Area (ha)	% of NCA
National	National Nature Reserve (NNR)	Hatfield Forest NNR; Bradfield Woods NNR; Hales Wood NNR	464	<1
	Site of Special Scientific Interest (SSSI)	A total of 67 sites wholly or partly within the NCA	2,314	1

Source: Natural England (2011)

Please note: (i) Designated areas may overlap (ii) all figures are cut to Mean High Water Line, designations that span coastal areas/views below this line will not be included.

There are 1,539 local sites in South Suffolk and North Essex Claylands covering 11,039 ha (3 per cent of the NCA).

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at: [redacted]
- Details of Local Nature Reserves (LNR) can be searched at: [redacted]
- Maps showing locations of Statutory sites can be found at: <http://magic.Defra.gov.uk/website/magic/> – select 'Rural Designations Statutory'

1.1.1 Condition of designated sites

SSSI condition category	Area (ha)	Percentage of NCA SSSI resource
Unfavourable declining	124	5
Favourable	761	33
Unfavourable no change	270	12
Unfavourable recovering	1,148	50

Source: Natural England (March 2011)

- Details of SSSI condition can be searched at:

2. Landform, geology and soils

2.1 Elevation

Elevation in the NCA ranges from <1 m below sea level to a maximum of 161 m above sea level. The average elevation of the landscape is 74 m.

Source: Natural England 2010

2.2 Landform and process

This NCA is made up of undulating countryside, incised by small river valleys flowing east to the North Sea, with sporadic but narrow interfluvial plateaux. This is an area of chalky boulder clay (glacial till) but with more topographical variation than the area to the north.

Source: South Suffolk & North Essex Claylands Countryside Character Area description

2.3 Bedrock geology

The solid geology of the East Anglian plain, of which this NCA forms a part, mainly comprises Upper Cretaceous Chalk. Overlying much of the chalk is a complex sequence of Quaternary sediments.

Source: South Suffolk & North Essex Claylands Countryside Character Area description; Natural England (2010)

2.4 Superficial deposits

During the Anglian glaciation ice sheets moving across the area deposited a layer of boulder clay in places tens of metres thick over the Chalk. Pre-glacial river gravels under the clay are an important feature, with evidence of old river channels which were interrupted by the last ice age. As the climate warmed and the ice melted, fast-flowing streams carried sands and gravels and deposited them in valleys where they can be found today.

Source: East Anglian Plain Natural Area profile

2.5 Designated geological sites

Tier	Designation	Number
National	Geological Site of Special Scientific Interest (SSSI)	9
National	Mixed Interest SSSI	0
Local	Local Geological Sites	1

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at:

2.6 Soils and Agricultural Land Classification

The area is bounded to the north-west by the lighter soils of Breckland and to the east by the clays and sands of the Northern Thames Basin, particularly the Essex Heaths of the Colchester area.

Source: South Suffolk & North Essex Claylands Countryside Character Area description

The main grades of agricultural land in the NCA are broken down as follows (as a proportion of total land area):

Grade	Area (ha)	% of NCA
Grade 1	0	0
Grade 2	199,378	61
Grade 3	109,676	33
Grade 4	2,280	1
Grade 5	0	0
Non-agricultural	4,620	1
Urban	13,034	4

Source: Natural England (2010)

- Maps showing locations of Statutory sites can be found at: <http://magic.Defra.gov.uk/website/magic/> – select 'Landscape' (shows ALC classification and 27 types of soils).

3. Key water bodies and catchments

3.1 Major rivers/canals

The following major rivers/canals (by length) have been identified in this NCA.

■ River Stour	80 km
■ River Chelmer	50 km
■ River Brett	39 km
■ River Stort	38 km
■ River Colne	31 km
■ River Pant	29 km
■ River Blackwater	28 km
■ River Gipping	27 km
■ River Ash	26 km
■ River Rib	25 km
■ River Ter	24 km
■ River Beane	22 km
■ River Can	16 km
■ River Lark	16 km
■ River Can or Granta	14 km
■ River Brain	14 km
■ River Quin	12 km
■ River Brook	11 km
■ River Kennett	10 km
■ River Lee or Lea	6 km
■ Roman River	5 km
■ River Granta	2 km

Source: Natural England (2010)

Please note: Other significant rivers (by volume) may also occur. These are not listed where the length within the NCA is short.

Introduction & Summary

Description

Opportunities

Key facts
and dataLandscape
change

Analysis

The Stour rises in Cambridgeshire, north-east of Haverhill at West Wrattling and flows in a south-easterly direction through Wixoe, Clare, Sudbury, Flatford and Dedham (in the Dedham Vale AONB), before it finally reaches the North Sea at Harwich. For much of its length it forms the border between Suffolk and Essex. There are numerous pumping stations and bore holes along the river extracting water for local use. The Stour Navigation was established in the early 18th century and there are restored locks at Dedham, Flatford and Great Cornard.

Since 1971 the Ely-Ouse to Essex Transfer scheme has been used to augment the rivers Stour and Blackwater by up to 1,545 million litres of water per day. A vast amount of this water is then pumped to the reservoirs at Abberton and Hanningfield to supply South Essex and London. Winter rain is stored in these two large reservoirs, which are drawn down in the summer months when river flows are low.

The River Chelmer flows through the county of Essex. It rises close to the source of the River Can near Debden Green, Thaxted. It generally flows south-southeast and is joined by the River Can in Chelmsford. From there it flows east through the neighbouring Northern Thames Basin NCA and into the Greater Thames Estuary NCA where it meets the River Blackwater near Maldon and discharges into the North Sea via the Blackwater Estuary.

The River Brett is a picturesque and peaceful northern tributary of the River Stour, which winds its way through the heart of the Suffolk "Wool Towns" region.

The River Stort is a tributary of the Lea or Lee which it joins at Hoddesdon in Hertfordshire. It is a gentle rural river with a winding course that has remained unaltered. The Stort Navigation runs for 22 km from Bishops Stortford through a drop of 27 m with 15 narrow locks.

The River Pant which rises in the north-west of the NCA becomes the River Blackwater near Braintree in the east. At Little Sampford the river increases in volume courtesy of an outlet of water piped from the Ely – part of the Ouse to Essex water transfer scheme.

The River Gipping in the very north of the NCA flows in a south-easterly direction. It is the source river for the River Orwell that flows to the North Sea from the port of Ipswich through the neighbouring Suffolk Coasts and Heaths NCA. The route of the river was altered for navigation with the addition of 15 locks between Ipswich and Stowmarket in the late 18th century. Parts of the navigation have undergone restoration in recent years, for example at Baylham Lock.

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 328,988 ha (all of the NCA).

Source: Natural England (2010)

3.3 Water Framework Directive

Maps are available from the Environment Agency showing current and projected future status of water bodies at:

http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopic&lang=_e

4. Trees and woodlands

4.1 Total woodland cover

The NCA contains 20,559 ha of woodland (6 per cent of the total area), of which 7,260 ha is ancient woodland.

Source: Natural England (2010), Forestry Commission (2011)

4.2 Distribution and size of woodland and trees in the landscape

A shallow wooded ridge sweeps round in a curve from Tiptree to Epping Forest. This area has an open yet wooded character, demonstrating aspects of medieval enclosure, the impact of 20th century field rationalization and Dutch elm disease. Although the north-western part of Essex was historically not as forested as the

ridge, it is sufficiently well-endowed with copses and woods to have wooded horizons which give a distinctly enclosed character to the landscape. This pattern varies slightly in the northern part of the NCA, where hedgerow trees are mostly oak and there are a number of larger woods. Within the Stour valley, the main impression is of modern blocks of cricket-bat willows and poplars planted on the valley floor and sides. The crack willow pollards along the river are also a notable landscape feature, partly reflecting the early 20th century willow industry producing poles and hurdles.

Ancient woodland is strongly represented in the area, though mainly in small parcels. Woods containing small-leaved lime are particularly significant.

Wood pasture and the ancient woodland of Hatfield Forest (formerly a royal hunting preserve) is an important historical and ecological resource.

Source: South Suffolk & North Essex Claylands Countryside Character Area description

4.3 Woodland types

A statistical breakdown of the area and type of woodland found across the NCA is detailed below.

Area and proportion of different woodland types in the NCA (over 2 ha)

Woodland type	Area (ha)	% of NCA
Broadleaved	17,108	5
Coniferous	2,229	1
Mixed	355	<1
Other	867	<1

Source: Forestry Commission (2011)

Area and proportion of ancient woodland and planted ancient woodland within the NCA.

Type	Area (ha)	% of NCA
Ancient semi-natural woodland	5,168	2
Planted Ancient Woodland (PAWS)	2,092	1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

The dominant hedgerow tree in Essex was elm, but Dutch elm disease has had a profound effect on hedgerows and field boundaries which are now lost, gappy or decrepit. In the Suffolk part of the area hedgerow oaks and dense hedgerows continue to give a more treed and hedged character.

Source: South Suffolk & North Essex Claylands Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

This is largely an area of 'ancient countryside' where the field boundaries are predominantly substantial hedgerows of medieval or earlier date. Fields are frequently irregular in shape and without strong patterning; a character which is still evident despite some 20th century hedgerow removals to increase field sizes. There is a change in character on the western side of the area, roughly on a line running south-westward from Bury St Edmunds to Haverhill, Saffron Walden, Bishop's Stortford and Harlow. To the west of this line there is substantial evidence of 18th and 19th century parliamentary enclosure of former common arable fields. To the east there is very little evidence of former common fields, except in pockets along the Stour valley, notably around Sudbury and Dedham.

Source: South Suffolk & North Essex Claylands Countryside Character Area description; Countryside Quality Counts (2003)

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6. Agriculture

The following data has been taken from the Agricultural Census linked to this NCA.

6.1 Farm type

The area is predominantly arable with some pasture found in the valley floors. The landscape's mixed farming character is supported by the breakdown of farm types: 1,305 cereals (58 per cent of holdings); 319 'other' types (most commonly associated with smallholdings) (14 per cent); 222 lowland grazing livestock (10 per cent); 148 general cropping (7 per cent); 108 horticulture (5 per cent); 86 mixed (4 per cent); 37 specialist poultry (2 per cent); 28 specialist pigs (1 per cent) and 14 dairy (1 per cent). There was a 39 per cent decrease in dairy farms (23 to 14 farms) between 2000 and 2009. Trends also show a decrease in the number of specialist poultry farms (58 to 37 or 36 per cent) as well as a reduction in the number of general cropping holdings (222 to 148 or 33 per cent), mixed holdings (120 to 86 or 28 per cent) and horticulture holdings (148 to 108 or 27 per cent). Lowland grazing livestock holdings increased by 30 per cent (171 to 222 holdings) and the general category of 'other' holdings has also seen a small increase of 3 per cent (310 to 319 holdings). The number of specialist pig farms remained static at 28 holdings.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Farms over 100 ha are the most common in the area, 802 accounting for 35 per cent of holdings, followed by farms between 5 and 20 ha, 484 holdings or 21 per cent, farms between 20 and 50 ha, 468 or 21 per cent, and farms between 50 and 100 ha, 338 or 15 per cent. The least common farm size in the area is holdings under 5 ha, just 175 or 8 per cent of holdings. The largest holdings, those over 100 ha, make up 82 per cent of the total farmed area compared to those under 5 ha which cover less than 0.5 per cent of the farmed area. The trends in farm size show a 21 per cent decrease in the number of farms of less than 5 ha (221 to

175). The number of holdings over 100 ha has also decreased by 10 per cent (888 to 802) as has the number of holdings between 5 and 20 ha by 8 per cent (525 to 484). The number of holdings between 20 and 50 ha increased by 9 per cent (429 to 468). The number of farms between 50 and 100 ha remained relatively static, increasing by 1 per cent (334 to 338).

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

2009: Total farm area = 254,478 ha; owned land = 194,583 ha

2000: Total farm area = 265,939 ha; owned land = 195,435 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

Because of the drainage provided by the rolling nature of the countryside there has always been a significant arable component in the farming of this NCA, subsequently the dominant agricultural land uses are for cereals, accounting for 137,164 ha (54 per cent of the total farmed area). Grass and uncropped land accounts for 38,980 ha (15 per cent). Oilseeds cover 32,008 ha (13 per cent) and 'other' arable crops cover 21,409 ha (8 per cent). Other agricultural land uses each represent less than 5 per cent of the total farmed area. Between 2000 and 2009 there was a 10 per cent decrease in the area of cereals (down by 14,783 ha) and a 22 per cent decrease in the area of grass and uncropped land (down by 11,018 ha). The area under oilseeds increased by 13,003 ha (68 per cent) and the area under 'other' arable crops increased by 4,611 ha (27 per cent). There were also increases in the area of land used for growing stock feed, an increase of 193 ha (140 per cent) and hardy nursery stock, up 13 ha (10 per cent). A decrease was seen in the area of land used for vegetables, down 529 ha (51 per cent). Land used to grow fruit was also down by 344 ha (42 per cent) and land under glasshouses was down 11 ha (33 per cent). Land used for cash roots reduced by 2,347 ha (26 per cent). Other agricultural land uses were relatively static or related to less than five holdings.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

Pigs are the most numerous livestock within this landscape, numbering 78,600 animals. Sheep are the next most numerous with 45,300 animals while cattle numbered 21,900. All livestock numbers have decreased during the period 2000 to 2009. Pig numbers decreased by 41 per cent (54,600 animals), sheep by 34 per cent (23,700 animals) and cattle by 28 per cent (8,600 animals).

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The majority of holdings are run by principal farmers (including their spouses and business partners) rather than salaried managers (3,177 principal farmers, 419 salaried managers). Together, employed full-time and part-time workers (1,039 FT and 682 PT) are more numerous than casual/gang workers (746). Trends from 2000 to 2009 show a decrease in the number of principal farmers (down by 415) and an increase in salaried managers (up by 70). During this period the number of full-time workers decreased (down by 598) as did the number of part-time workers (down by 108) and the number of casual/gang workers (down by 200).

Source: Agricultural Census, Defra (2010)

Please note: (i) Some of the Census data is estimated by Defra so will not be accurate for every holding (ii) Data refers to Commercial Holdings only (iii) Data includes land outside of the NCA belonging to holdings whose centre point is within the NCA listed.

7. Key habitats and species

7.1 Habitat distribution/coverage

A breakdown by habitat is included below:

Wood pasture, parkland and veteran trees – pollarded willows line some of the rivers, especially the River Stour on the Suffolk/Essex border. Many other veteran trees can be found in hedgerows, on field boundaries, in churchyards, on the boundaries of ancient coppice woods, and in parkland.

Lowland mixed and broadleaved woodland – compared to other eastern areas South Suffolk and North Essex is fortunate to have a high density of woodland. This primarily is a wooded arable landscape, except on the river valley floors where arable land, grassland and willow pollards dominate (for example the River Chelmer valley). Hedgerows, copses and blocks of woodland are numerous with many examples of ancient woodland still surviving. The Dedham Vale for example has an open wooded character.

Ancient and species-rich hedgerows – a higher than average density of hedgerows can be found in this area giving a well-wooded feel to the landscape. Remnant hedgerows are also common and hedgerow trees persist in many areas. The dominant hedgerow tree in South Suffolk is oak and in Essex it is elm, however elms have been severely affected by Dutch elm disease resulting in the loss of the species from many hedgerows and field boundaries. Largely associated with arable land, hedgerows provide valuable linkages and buffers for a variety of wildlife within the landscape especially when found in conjunction with field margins and ditches.

Wetland habitats – numerous small rivers flow east towards the North Sea supporting a range of species and habitats including reedbed and fen. The Stour valley contains blocks of cricket-bat willows and poplars planted on the valley floor and sides, with pollarded crack willows being a notable feature of the riversides.

Lowland meadow – only very small fragments of lowland meadow remain. The existing resource is very fragmented and declining in quality and quantity. The survival of some species now relies on the protected road verge systems that run in both Suffolk and Essex.

Lowland heathland and acid grassland – The area is bounded to the north-west by the lighter soils of Breckland and to the east by the transition to former heathland on lighter soils. Some small areas of heath are recorded in Great Cornard, Leavenheath and East Bergholt.

Source: East Anglia Plain Natural Area Profile

7.2 Priority habitats

The Government's new strategy for biodiversity in England, *Biodiversity 2020*, replaces the previous Biodiversity Action Plan (BAP) led approach. Priority habitats and species are identified in *Biodiversity 2020*, but references to BAP priority habitats and species, and previous national targets have been removed. Biodiversity Action Plans remain a useful source of guidance and information. More information about *Biodiversity 2020* can be found at;

<http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/englandsbiodiversitystrategy2011.aspx>

The NCA contains the following areas of mapped priority habitats (as mapped by National Inventories). Footnotes denote local/expert interpretation. This will be used to inform future national inventory updates.


Priority habitat	Area (ha)	% of NCA
Broadleaved mixed and yew woodland (broad habitat)	9,232	3
Coastal flood plain and grazing marsh	1,465	<1
Lowland meadows	316	<1
Lowland calcareous grassland	91	<1
Lowland dry acid grassland	51	<1
Lowland heathland	4	<1
Mudflats	1	<1

Source: Natural England (2011)

Maps showing locations of priority habitats are available at

- <http://magic.Defra.gov.uk/website/magic/select> 'Habitat Inventories'

7.3 Key species and assemblages of species

- Maps showing locations of priority habitats are available at: <http://magic.Defra.gov.uk/website/magic/>
- Maps showing locations of S41 species are available at: 

8. Settlement and development patterns

8.1 Settlement pattern

The existing pattern of towns and villages was laid down by the time of Domesday survey of 1086, when the area was already densely settled. This pattern intensified with the development of the medieval woollen trade, which was mainly home-based, backed up by a collection of interdependent trade's people within the towns and major villages with markets. The latter tend to be larger than villages in the South Norfolk and High Suffolk Claylands due to this industrial growth. Otherwise there is a similarity of a dispersed settlement pattern of small hamlets and dispersed farmsteads. Manorial halls, often with a medieval church nearby, form primary settlement clusters of likely late-Saxon origin in the river valleys, with secondary settlements clustering around the edges of greens on the adjacent interfluvial plateaux. Because of the narrowness of the interfluvial greens in this NCA are significantly smaller and narrower than those in the South Norfolk and High Suffolk Claylands. The use of the term 'tye' for a green (as in Barking Tye and Bulmer Tye) is locally distinctive and does not occur to the north of Stowmarket. Most of the dispersed farmsteads are medieval in origin and many display their status by being encircled by water filled moats.

Source: South Suffolk & North Essex Claylands Countryside Character Area description; Countryside Quality Counts (2003)

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8.2 Main settlements

The main settlements within the NCA are; Bishops Stortford, Braintree, Bury St Edmunds, Chelmsford (northern half), Harlow, Haverhill, Ipswich (western half), Stevenage, Stowmarket, and Sudbury. Both Harlow and Haverhill were developed after the Second World War as overflows for London. Chelmsford was awarded city status in 2012.

Source: South Suffolk & North Essex Claylands Countryside Character Area description; Countryside Quality Counts (2003)

8.3 Local vernacular and building materials

Timber is the main building material of this area, with late medieval timber-framed buildings being most numerous in the districts to the south and west of the rivers Lark and Gipping, especially in the old textile areas along the Stour and its tributaries, particularly in towns like Lavenham, Hadleigh, and Sudbury, or in formerly industrialised villages like Kersey. Traditional timber construction used an infill of 'loam and laths' between vertical timber studs, which was then lime washed to protect it from the elements and to enhance its appearance. Coloured washes became more popular after 1900, as did the practice of exposing the timber frame. Parquetting, a form of raised plaster decoration on external walls, was popular in the 17th century, but is now undergoing a revival. Good examples can be seen in Clare, Hadleigh, Ipswich and Saffron Walden.

Brick is also widely used, formerly supplied by numerous local brickworks; those at Bulmer being a rare survival. Little Wenham Hall (Wenham Castle) in the east of the area dates from the 1270s and is the oldest substantially brick building in England. The Deanery Tower in Hadleigh, Melford Hall and Horham Hall are notable examples of Tudor brick buildings. Many of the 'brick' buildings are however just a Georgian or later brick facing to an older timber-framed structure. 'Clay lump' (large unfired clay bricks) was also used as a building material in the 19th century, mainly for farm buildings and cottages. Other forms of clay construction, such as cob or rammed earth, are also found. There is a concentration of clay buildings in Buxhall, the home of the Reverend Copinger Hill, a strong advocate of clay building in the 1840s.

Pegtiles rather than pantiles are mainly seen in this area and there is a significant amount of wheat straw thatch.

Ipswich contains examples of Victorian neo-Italianate Gothic buildings (Norman Scarfe).

Source: South Suffolk & North Essex Claylands Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

This is mainly an anciently-enclosed landscape of mixed farming practises, with a pattern of small isolated farms and farming hamlets around greens and commons which retain a rich legacy of historic barns and other farm buildings. Confirmation of the age of the dispersed settlement pattern is provided by the numerous halls and farmsteads that are surrounded by medieval and Tudor moats.

The area also has some of the finest medieval churches in East Anglia, many of them funded by the lucrative wool trade, as at Lavenham and Long Melford.

Medieval parks and the later 'landscape' parks surrounding substantial country houses have left numerous traces in the landscape, as at Ickworth, Kentwell in Long Melford, and Chadacre.

Audley End became the royal palace of Charles II in the 17th century.

Towns such as Long Melford, Lavenham, Sudbury, Thaxted, Halstead and Coggeshall, and Bury St Edmunds maintain their medieval street patterns and contain a wealth of remarkable buildings that demonstrate the wealth founded in the medieval wool trade.

Hatfield Forest, formerly a royal hunting preserve, is an important historical and ecological resource.

Bury St Edmunds on the northern edge of the area contains the remains of one of the five richest and most powerful abbeys in England during the Middle Ages.

Flatford Mill in East Bergholt is strongly represented in the paintings of John Constable, as are other scenes in the locality (Dedham, Stoke-by-Nayland) giving this part of the Stour Valley an identity as 'Constable Country' and a claim to be the iconic landscape of lowland England. The Sudbury area features in the paintings of Thomas Gainsborough and other artists such as Sir Alfred Munnings, Sir Cedric Morris and John Nash also worked in the area.

A long string of Second World War pillboxes is a legacy of a 1940 defensive 'stopline' called the Eastern Command Line that ran from the River Colne northwards to Bures, along the River Stour to Long Melford and then across the country to Bury St Edmunds and the River Lark. There are also remnants of wartime airfields at Chedburgh, Lavenham, Rattlesden, Stradishall, Sudbury and Raydon, with the one at Wattisham still being in active service.

The Norman Foster designed Willis building in Ipswich, constructed between 1970 and 1975 is seen as a landmark in the development of the 'high tech' architectural style. It was listed as a Grade 1 building by English Heritage in 1991.

Source: Countryside Quality Counts Draft Historic Profile, Countryside Character Area description

9.2 Designated historic assets

This NCA has the following historic designations:

- 44 Registered Parks and Gardens covering 3,004 ha
- No Registered Battlefields
- 330 Scheduled Monuments
- 17,233 Listed Buildings

Source: Natural England (2010)

- More information is available at the following address:

[Redacted address]

10. Recreation and access

10.1 Public access

- One per cent of the NCA 3,628 ha is classified as being publically accessible.
- There are 6,375 km of public rights of way at a density of 1.9 per km².
- There are no National Trails within the NCA.

Sources: Natural England (2010)



The Grade II listed 14th century Nether Hall in Cavendish is typical of many of the timber-framed medieval buildings that are a key characteristic of the area.

The table below shows the breakdown of land which is publically accessible in perpetuity:

Access designation	Area (ha)	% of NCA
National Trust (Accessible all year)	531	<1
Common Land	386	<1
Country Parks	505	<1
CROW Access Land (Section 4 and 16)	721	<1
CROW Section 15	232	<1
Village Greens	258	<1
Doorstep Greens	4	<1
Forestry Commission Walkers Welcome Grants	1,710	1
Local Nature Reserves (LNRs)	316	<1
Millennium Greens	16	<1
Accessible National Nature Reserves (NNRs)	456	<1
Agri-environment Scheme Access	137	<1
Woods for People	1,846	1

Sources: Natural England (2011)

Please note: Common Land refers to land included in the 1965 commons register; CROW = Countryside and Rights of Way Act 2000; OC and RCL = Open Country and Registered Common Land.

11. Experiential qualities

11.1 Tranquillity

Based on the CPRE map of tranquillity (2006) it appears that the lowest scores for tranquillity are associated with the urban centres of Bury St Edmunds, Ipswich, Sudbury, Braintree, Chelmsford, Bishops Stortford, Harlow and Stevenage. Other areas of disturbance can be seen to be associated with the main transport routes linking these centres, the M11, A120, A131, A14 and A12. The highest scores for tranquillity are within the upper clay plateau north of the NCA within south Suffolk and north Essex on the agricultural land between the settlements.

A breakdown of tranquillity values for this NCA is detailed in the table below:

Category of tranquillity	Score
Highest value within NCA	36
Lowest value within NCA	-95
Mean value within NCA	-8

Sources: CPRE (2006)

- More information is available at the following address:





Wooded arable landscapes of the NCA provide a strong rural sense of place with high levels of tranquility.

11.2 Intrusion

The 2007 Intrusion Map (CPRE) shows the extent to which rural landscapes are 'intruded on' from urban development, noise (primarily traffic noise), and other sources of visual and auditory intrusion. This shows that disturbance is associated with the busy 'A' roads that run through and around the boundaries of the area including the A120, A131, A14 and A12, together with the M11 and the major settlements of Bury St Edmunds, Ipswich, Sudbury, Braintree, Chelmsford, Bishops Stortford, Harlow and Stevenage.

A breakdown of intrusion values for this NCA is detailed in the table below.

Category of intrusion	1960s (%)	1990s (%)	2007 (%)	% change (1960s-2007)
Disturbed	16	35	42	26
Undisturbed	81	62	53	-28
Urban	3	3	5	2

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are a notable increase of disturbed or intruded land by 26 per cent which is matched by a reduction of undisturbed or un-intruded land by 28 per cent.

- More information is available at the following address:

[Redacted address]

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12. Data sources

- British Geological Survey (2006)
- Natural Area Profiles, Natural England (published by English Nature 1993-1998)
- Countryside Character Descriptions, Natural England (regional volumes published by Countryside Commission/Countryside Agency 1998/1999)
- Joint Character Area GIS boundaries, Natural England (data created 2001)
- National Parks and AONBs GIS boundaries, Natural England (2006)
- Heritage Coast Boundaries, Natural England (2006)
- Agricultural Census June Survey, Defra (2000,2009)
- National Forest Inventory, Forestry Commission (2011)
- Countryside Quality Counts Draft Historic Profiles, English Heritage (2004)*
- Ancient Woodland Inventory, Natural England (2003)
- Priority Habitats GIS data, Natural England (March 2011)
- Special Areas of Conservation data, Natural England (data accessed in March 2011)
- Special Protection Areas data, Natural England (data accessed in March 2011)
- Ramsar sites data, Natural England (data accessed in March 2011)
- Sites of Special Scientific Interest, Natural England (data accessed in March 2011)
- Detailed River Network, Environment Agency (2008)
- Source protection zones, Environment Agency (2005)
- Registered Common Land GIS data, Natural England (2004)
- Open Country GIS data, Natural England (2004)
- Public Rights of Way Density, Defra (2011)
- National Trails, Natural England (2006)
- National Tranquillity Mapping data, CPRE (2007)
- Intrusion map data, CPRE (2007)
- Registered Battlefields, English Heritage (2005)
- Record of Scheduled Monuments, English Heritage (2006)
- Registered Parks and Gardens, English Heritage (2006)
- World Heritage Sites, English Heritage (2006)
- Incorporates Historic Landscape Characterisation and work for preliminary Historic Farmstead Character Statements (English Heritage/Countryside Agency 2006)

Please note all figures contained within the report have been rounded to the nearest unit. For this reason proportion figures will not (in all) cases add up to 100%. The convention <1 has been used to denote values less than a whole unit.

Supporting document 2: Landscape change

Recent changes

Trees and woodlands

- Assessment of 1999 to 2003 data indicates some enhancement in the levels of woodland cover in the NCA.
- Between 1999 and 2003 an area equivalent to 3 per cent of the 1999 total stock was approved for new planting under a Woodland Grant Scheme agreement (449 ha). Much of the new planting was in the form of small woodland blocks scattered throughout the area, reinforcing existing patterns.
- In 2003 the proportion of established, eligible National Inventory of Woodland and Trees woodland stock covered by a Woodland Grant Scheme management agreement was about 21 per cent. About 54 per cent of the woodland cover is on an ancient woodland site. The proportion of these sites covered by a Woodland Grant Scheme agreement changed from 20 per cent to 30 per cent between 1999 and 2003 indicating that the woodland character was maintained.
- An increase in poplar and willow plantations (particularly along the River Blackwater between Witham and Kelvedon), has impacted on woodland character.
- Semi-natural ancient woodland is under threat from the recent arrival of new species of *Phytophthora*. Ash die-back (*Chalara fraxinea*) was first reported in 2012. Acute oak decline has also recently taken hold within the NCA.

- There have been recent improvements in bringing existing farm woodlands into active management and protecting them from damage caused by grazing deer. Some replanting of estate woodland and parkland trees has also been carried and further opportunities exist.

Boundary features

- Commercial agricultural improvement combined with a number of other factors has resulted in the loss of some structural landscape features such as hedgerows, ditches, banks, copses and lines of trees. The absence of these features has led in some places to a loss of definition and texture within the landscape. The removal of hedgerows has largely ceased and hedgerow replanting and management under environmental stewardship is increasing.
- Between 1999 and 2003, Countryside Stewardship capital agreements for linear features included fencing (95 km), hedge management (170 km), hedge planting and restoration (171 km) and restored boundary protection (21 km). The estimated boundary length for the NCA is about 17,972 km. Total length of agreements between 1999 and 2003, is equivalent to about 4 per cent of this total meaning that the resource had been neglected.
- Management of hedgerows has improved over recent years with the length of hedgerows in Environmental Stewardship boundary management in 2011 being 4,963 km. As well as this 333 km of woodland, 810 km of ditch, .5 km of ditches and .5 km of stone-faced ditch bank were also in environmental stewardship boundary management schemes.

Agriculture

- Over the period between 2000 and 2009 the area of farmed land fell by approximately 11,500 ha. Losses of pasture land within the valleys (except the Stour) have affected the character of the farmed landscape, although this process is now thought to be stable. As a result the overall area of rough and permanent grass has increased and there has been some reduction in mixed and general cropping and cereals and a shift to cattle and sheep which has strengthened the grassland character. Increases in horse ownership across the NCA have led to some permanent pasture being used as horse paddocks.
- Between 2000 and 2009 the land used for growing cereals fell by 10 per cent. Land used for oil seed increased by 13,000 ha (68 per cent). The hectareage of grassland and uncropped land reduced by 22 per cent.
- Livestock numbers which increased significantly during the 1990s, significantly declined from 2000 to 2009. Pig numbers decreased by 41 per cent (54,500 animals) due to falling prices. Sheep numbers decreased by 34 per cent (23,700 animals), and cattle numbers by 28 per cent (8,500 animals).

Settlement and development

- Existing road and rail links to London are good and combined with the proximity to Stansted Airport this has led to increasing growth, mainly in the south, connected with towns such as Chelmsford, Harlow and Stevenage.
- Other areas of extensive housing, retail and commercial development have occurred around the edges of the NCA. The north east of the character area falls within the Haven Gateway Growth Point, centred on Colchester and Ipswich. This is one of the key international gateways to the UK which has seen increasing urban development. Development has also occurred along the Gipping Valley/A14 corridor at Stowmarket, Claydon, and the west of Ipswich, which has had a localised impact on rural character. Bury St

Edmunds in the north has also seen a significant increase in its housing stock on its north-eastern side.

- Development pressure across the central arable plateau has generally been low, although considerable scattered development has occurred. Haverhill has rapidly expanding over the last two decades.
- Increased light pollution from major roads and urban development has detracted from the rural character of the NCA.
- Recreational pressures from increased numbers of people visiting popular sites within the Dedham Vale AONB, has caused detrimental effects relating to traffic volumes. This has resulted in reduced levels of tranquillity. Seasonal congestion has resulted in increased pressure on the area in terms of demands for visitor attractions, accommodation, road space and parking.

Semi-natural habitat

- The condition of half of the NCA's SSSI area has been classified as unfavourable recovering with 33 per cent classified as favourable.
- Dormouse, stag beetle and black poplar are all rare species found within the NCA, which direct conservation measures over recent years have helped improve the quality of their specialised habitats and increased the species population numbers.
- The reinstatement of coppice management in ancient neglected woods such as at Bonny Wood, which overlooks Barking Tye in the north east of the NCA, has allowed the recovery of rich and diverse woodland ground flora. Silver-washed fritillary butterflies which had become locally extinct in the mid-20th century have begun to return.

- The area has a high pond density that supports many species including great crested newts. There has been significant restoration of larger ponds both before and since 1999.
- Non native species colonisation of semi natural habitats within the NCA has been on the increase, particularly within the river valleys, with species such as mink, which predated on water vole, signal crayfish, which spreads disease to native white-clawed crayfish, as well as non-native wetland plants including New Zealand pigmy weed and Himalayan balsam.

Historic features

- Over time the area has seen the neglect of many of its historic features. Over the last century it has lost around half of its historic parklands. In 2003 29 per cent of the remaining parkland was covered by a Historic Parkland Grant, and included within an agri-environmental scheme.
- Restoration of ancient woodlands has taken place with improved management at sites including Priestly Wood and Northfield Wood near Stowmarket and in the case of Bradfield Woods the opening of a visitor/ education centre.
- There has been a significant loss of historic farm buildings, in many cases through conversion to residential properties. In 2003 only about 69 per cent of historic farm buildings remained unconverted.
- There has been some loss in river-valley habitat and grazing land particularly in the Stort Valley.
- Gravel extraction in the river valleys and elsewhere is a concern for both earthworks and archaeological sites visible from cropmarks, but may provide opportunities for geodiversity and Palaeolithic archaeology.

- Since 1994 the River Gipping Trust has been involved in preserving the historic heritage of the Stowmarket Navigation by restoring the structures that enabled navigation of the River Gipping from the centre of Stowmarket to the docks in Ipswich. Restoration has included Bosmere Lock, Creeting Lock and Baylham Lock and continues with work at Pippys Ford. The River Stour Trust has successfully restored the locks at Dedham, Flatford and Great Cornard whilst the restoration of Stratford St Mary Lock is ongoing.

Coasts and rivers

- In 2003 Countryside Stewardship annual agreements included restoration/ conservation of fen/reedbed/carr (10 ha), and managing reedbed (7 ha). In 2003, within the Environmentally Sensitive Area Scheme, the extent of agreements for marshland supplement was 24 ha and water level supplement was 4 ha. These figures suggested that the resource had probably been maintained.
- Since 1971, the Ely-Ouse to Essex Transfer scheme has been used to augment the rivers Stour and Blackwater by up to 1,546 million litres of water per day. A vast amount of this water is then pumped to the reservoirs at Abberton and Hanningfield in the Northern Thames Basin NCA, to supply south Essex and London.
- High concentrations of both nitrate and phosphate in the river systems in the very north of the NCA mean that the Little Ouse (Thetford Ouse), the River Lark in Bury St Edmunds and the Gipping are priority catchments under the Catchment Sensitive Farming initiative. Only 33 per cent of rivers and lakes in the NCA currently achieve at least good biological status. Water quality in the rivers has however improved through measures implemented under agri-environment schemes.

Minerals

- The geological resources of the area (chalk, clay, sand and gravel) have been historically important sources of building materials and may be in the future. Chalk has been burnt locally to provide lime for mortar and cement, as at Great Blakenham, although the cement works closed in 1999.
- Sand and gravels of the Kesgrave Formation and Lowestoft Formation continue to be significant sources of aggregate, with quarries including Barham, Boreham and Great Easton. Production levels have dropped over recent years, reflecting the impact of the economic downturn on the construction industry. Where active quarrying is currently taking place and proposals for site extensions exist there are challenges as well as opportunities for geodiversity. Opportunities for restoration include geological exposures, wetlands and woodland.
- Chalk is a source of agricultural lime for dressing fields. There are two active chalk quarries in the NCA, Newport Quarry, Saffron Walden (the only working chalk quarry in Essex) produces over 15,000 tons of ground chalk supplying South Suffolk, Essex and Cambridgeshire and Needham Market Chalk Quarry producing around 30,000 tons of ground chalk a year.
- Palaeogene clays were formerly an important source of Brickearth, as at Bishop's Stortford and Sudbury, and small-scale local extraction still takes place at The Brickfields, Bulmer.
- There are nine geological SSSI and one Local Geodiversity Site. Some are in quarry settings, emphasising the importance of man-made exposures for geoconservation and accessing and understanding geological history.

Drivers of change

Climate change

- Changes to rainfall patterns and timings will impact upon wetland features and habitats such as grazing marsh, fen type habitats and ponds.
- River valleys prevented from naturally evolving may increase flood risks if climate change impacts increase rainfall levels and subsequent flow volumes in rivers. Increased flood events may also impact on footpaths and infrastructure increasing their maintenance requirements.
- Adapting agricultural practices in response to water availability and longer growing seasons will result in pressure on traditional pastoral landscapes and grasslands in a move towards drought tolerant crops and grasslands. The role of adaptation strategies will become increasingly important.
- Planning for future development will need to address potential pressures on already stressed areas, for example water availability. The findings and development of techniques from water cycle studies will play an important part in taking forward green infrastructure strategies.
- Historic woodlands and native species may not be the most resilient and therefore unable to survive reduced soil moisture or extreme events. There may be potential opportunities to alter species mix to build resilience to climate change.
- Drying out of bedrock and top soil during periods of drought may have associated impacts on the stability of buildings, especially on the clay plateau.
- Longer, drier summers may reduce soil moisture resulting in desiccation/ of top soils/surface deposits and may lead to erosion of geological faces/exposures.

- Palaeo-environmental deposits and sites may be impacted upon by drying out of sub-soils/increased erosion.
- Pressure to restore minerals sites for water/flood storage may result in loss of access to or creation of geological sections.
- The arrival of new non native species and diseases/invertebrates as vectors of disease for livestock and crops could alter land use practices.
- Flexibility to adapt recreation and access facilities (paths and car parking) to deal with increases in visitor numbers brought about by warmer, drier summers. Increased visitor pressure may cause erosion to footpaths and more road congestion. This will be particularly relevant for key visitor locations such as the Dedham Vale and the 'wool towns'.

Other key drivers

- The East of England Implementation Plan suggested growth would be focussed on Chelmsford and Braintree, forming a strategic growth point, in order to retain the quality of the rural Essex coastline, smaller historic towns and the arable countryside. The plan proposed around 30,000 new homes of which 16,000 will be in Chelmsford and 7,700 in Braintree and a substantial proportion of 56,000 planned jobs for Essex. It is expected that much of this development will take place.
- The Haven Gateway is subject to major housing and jobs growth putting potential pressure on sensitive landscapes and habitats through increased public access and recreation. Water resources are predicted to become stretched. Priorities are to ensure a balance between economic, housing and infrastructure growth with continued protection of environmental assets of the area.



Visitors soak up the summer sunshine at the Lavenham Fete, overlooked by the tall tower of the elaborate Lavenham Church of St Peter and St Paul.

- The west of the character area – encompassing Stevenage, Harlow, Stansted and Bishop's Stortford - falls within the London Arc East (Harlow/Stansted corridor). It has the key transport links of the M11 and Stansted Airport within it and its proximity to London gives it a strong strategic location for growth. The quality of the natural environment is strong in places such as Hatfield Forest, alongside locations of high deprivation for example in Harlow.
- In the north, Bury St Edmunds falls within the designated growth area of St Edmundsbury district. Much of the area is rural in character and includes protected landscapes and habitats. Agriculture and tourism are important sectors. There are strong functional links with Cambridge. Infrastructure constraints remain an issue for continued growth as does the provision and access to employment land.
- Pressure on tranquillity comes from the proposed growth at the major towns, the potential second runway at Stansted, further development of Haven Gateway ports as a passenger gateway to the area and increasing car use on the major transport corridors (M11, A12, A14, and A120).
- The perceived issue of food security may result in further change to farming practices that could impact on ecological habitats and landscape character of the area. Agri-environment schemes provide opportunities to work with land managers to develop networks of linked habitats and enhance landscape character. Increasing the uptake of schemes remains challenging, due to high agricultural returns achievable in the area.
- The ever increasing deer population is altering the structure of woodlands and climate change will most likely result in further ecological change within the woodland habitats.
- Ash die-back could potentially have a significant impact as ash is a common and characteristic tree species of the NCA.
- Restoration of former gravel workings and other mineral sites is a major driver for geodiversity and biodiversity gain, providing opportunities for priority habitats and geological exposures to be created.
- Locally determined planning and development control may in some cases have the potential to impact on the landscape. Ensuring that local development frameworks recognise the importance of conserving and enhancing the landscape will help reduce any potentially negative impacts.
- Potential growth may lead to increases in the importance of the recreational and environmental value of landscapes within the urban surround; the potential for green infrastructure funding; opportunities for improved access and climate change adaptation.
- Initiatives such as 'Suffolk – Creating the Greenest County' can act as a forum for developing new thinking and promoting carbon-reduction solutions within local communities and businesses.

Supporting document 3: Analysis supporting Statements of Environmental Opportunity

The following analysis section focuses on a selection of the key provisioning, regulating and cultural ecosystem goods and services for this NCA. These are underpinned by supporting services such as photosynthesis, nutrient cycling, soil formation and evapo-transpiration. Supporting services perform an essential role in ensuring the availability of all ecosystem services.

Biodiversity and geodiversity are crucial in supporting the full range of ecosystem services provided by this landscape. Wildlife and geologically-rich landscapes are also of cultural value and are included in this section of the analysis. This analysis shows the projected impact of Statements of Environmental Opportunity on the value of nominated ecosystem services within this landscape.



Only very small fragments of lowland meadow remain. Those that do are a haven for wildflowers, many of which have been lost from the wider landscape.

Statement of Environmental Opportunity	Ecosystem Service																			
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/inspiration	Sense of history	Tranquility	Recreation	Biodiversity	Geodiversity	
SEO 1: Maintain and enhance the character of this gently undulating, rural landscape by maintaining agricultural productivity and encouraging sustainable land management practices that protect and enhance the landscape, geodiversity and biodiversity assets and networks to benefit geodiversity, biodiversity, carbon storage and water quality, as well as the over-riding sense of place.	↗ ***	↔ **	↗ ***	↔ **	↔ **	↗ ***	↑ **	↗ ***	↗ **	↗ **	↑ **	↑ **	n/a	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↔ ***
SEO 2: Protect and enhance the area's ancient woodland cover, parkland trees, river valley plantations and ancient hedgerows, through the management of existing woods and the planting of new woods, hedgerows and hedgerow trees to benefit landscape character, habitat connectivity and a range of ecosystem services, including timber provision, the regulation of soil erosion and the strengthening of the sense of place and history.	↗ **	↗ ***	↗ **	↔ **	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	n/a	↑ ***	↑ ***	↗ **	↗ **	↑ ***	↔ ***	

Note: Arrows shown in the table above indicate anticipated impact on service delivery: ↑ = Increase ↗ = Slight Increase ↔ = No change ↘ = Slight Decrease ↓ = Decrease. Asterisks denote confidence in projection (*low **medium***high) ° symbol denotes where insufficient information on the likely impact is available.

Dark plum = National Importance; Mid plum = Regional Importance; Light plum = Local Importance

Ecosystem Service

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SEO 3: Enhance the slow-flowing, winding rivers and their pastoral valley flood plains that provide linkages through the landscape, including redundant sand and gravel extraction sites, for their ecological, historical and recreational importance. This will support the operation of natural processes and their contribution to biodiversity, geodiversity, soil quality, water availability and regulating water flow and their function in contributing to the character of the area.

SEO 4: Conserve and enhance the distinctive character of the Dedham Vale Area of Outstanding Natural Beauty with its much-visited 'Constable Country' and improve opportunities for people to enjoy and understand the distinctive assemblage of historic landscapes outside the AONB. Ensure that access and recreational resources are managed to be compatible with the tranquillity of the area and the special qualities of protected landscapes, while providing a valuable health, education and access resource.

Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/inspiration	Sense of history	Tranquility	Recreation	Biodiversity	Geodiversity	
↘ *	↔ **	↗ ***	↔ **	↔ **	↗ ***	↑ ***	↑ ***	↗ ***	↗ ***	↗ **	↗ **	n/a	↑ ***	↑ ***	↗ ***	↑ ***	↑ ***	↗ ***	↗ ***
↔ **	↔ **	↔ **	↔ **	↔ **	↗ **	↗ **	↔ **	↔ **	↗ ***	↗ **	↗ **	n/a	↑ ***	↑ ***	↑ ***	↑ ***	↗ ***	↗ ***	↗ ***

Note: Arrows shown in the table above indicate anticipated impact on service delivery: ↑ = Increase ↗ = Slight Increase ↔ = No change ↘ = Slight Decrease ↓ = Decrease. Asterisks denote confidence in projection (*low **medium***high) ° symbol denotes where insufficient information on the likely impact is available.

Dark plum = National Importance; Mid plum = Regional Importance; Light plum = Local Importance

Landscape attributes

Landscape attribute	Justification for selection
The bedrock and superficial geology has produced a broadly flat plateau, with moderately fertile chalky clay soils that support arable cultivation.	<ul style="list-style-type: none"> ■ The heavy impermeable boulder clay plateau soils and the gently undulating valley topography that assists drainage, support high levels of arable cultivation. It is an important area for agriculture; the predominance of this land use has helped maintain the overall open rural character of the NCA. ■ Cereal field margins in this area are important for farmland birds such as skylark, grey partridge and corn bunting, animals including brown hare and rare arable plants such as cornflower. ■ Traditional orchards occur on the lighter soils and are important for their local varieties of apples, as well as for biodiversity and landscape character. ■ Fragments of chalk in the clay give the semi-natural vegetation a generally calcareous character. ■ The water holding properties of the clay soils has meant that moated farmsteads have become a characteristic feature of the plateau. ■ The plateau, with its dispersed settlement pattern, ancient woods, wide views and large skylscapes supports an undeveloped nature that generates a feeling of wildness, remoteness and tranquillity.
River valley sands and gravels.	<ul style="list-style-type: none"> ■ Exposures of deposits in river valleys and extraction sites provide geodiversity interest that help illustrate the landscape through time. ■ Gravel and sand deposits are the primary mineral resource within the NCA and they are extracted to supply building materials for the construction industry at many sites. ■ Lagoons created following the extraction of sand and gravel provide regionally important habitats for overwintering wildfowl and breeding bird populations. ■ Restored, flooded former gravel extraction sites introduce new wetland habitats to the area, supporting wetland species and providing recreation opportunities for experiencing wildlife and appreciating geodiversity.

Landscape attribute	Justification for selection
Ancient broadleaved woodland and wood pasture.	<ul style="list-style-type: none"> The area has a high density of mainly small woods, many of which are ancient (such as Barking Woods, Bradfield Woods and Hatfield Forest SSSI/ NNR, one of the largest areas in East Anglia to have never been ploughed). They contain ancient oaks, ash coppice and in places small-leaved lime, some of which are over 1,200 years old, as well as evidence of centuries of woodland management (for example wood banks, ditches, other earthworks and huge coppice stools - particularly those of small leaved lime). They are important as they offer a direct link to historic landscapes. Ancient woodland is a particularly important habitat and landscape asset having suffered a dramatic reduction in area over the last century, as sites have been lost to development and agricultural intensification. Ancient woodlands provide a last refuge for unusual and specialised wildlife, sustaining rare lichens, fungi (oak polypore and beefsteak fungus); flora and fauna including oxlip and the nationally scarce bird's-nest orchid as well as barbastelle and natterer's bat. They are especially important for invertebrates associated with decaying wood, including the stag beetle. Hatfield Forest is one of the top 10 UK sites for saproxylic beetles. Where open to the public, woods provide opportunities to access nature in a cultural setting (for example Bradfield Woods NNR has been under continuous traditional management since 1252 and remains the most extensive woodland in lowland England that is still regularly coppiced on a large scale.)
Ancient species-rich hedgerows.	<ul style="list-style-type: none"> The area has a higher than average density of hedges that are the predominant boundary feature, and together with fragments of woodland they help create an treed character to the overall landscape. Hedgerow trees, many of which are ancient, form important landscape features and help distinguish local areas. The dominant hedgerow tree in South Suffolk is oak and in Essex it is elm. Species-rich hedgerows are particularly important for linking fragmented blocks of woodland habitat. In many places they provide substitute woodland habitat. This is important for many species including the dormouse, which has been particularly affected by the fragmentation of deciduous woodland. They are historically important features, providing links to the past as they often delineate medieval holding and enclosure patterns, particularly so within the river valleys and in the north-east of the character area.

Landscape attribute	Justification for selection
<p>Pastoral landscape of the intimate, small-scale river valley flood plains.</p>	<ul style="list-style-type: none"> ■ The undulating, steep-sided river valley topography provides strong features through the landscape, with much of the intrinsic character of the area coming from the riverine landscape. ■ The small scale, pastoral river valley landscapes provide a contrast to the extensive, open clay arable plateau. ■ Scattered blocks of poplar plantation, ancient 'crack' willow pollards, the rare black poplar, wet ditches and small streams and thick full hedgerows all contribute strongly to the sense of place. ■ The river valley flood plains contain a fragmented mosaic of lowland meadow, permanent pasture grazing marsh habitat, reedbed and fens that are important habitats for several species of farmland bird including lapwing, snipe and barn owl. ■ The extent of these habitats has been diminished due to extensive drainage and reversion to arable farming. Those which remain are important as they offer a direct link to historic landscapes. ■ Other than broadleaved woodland, the most extensive priority habitat is flood plain grazing marsh covering 1,456 ha, although this is still less than 1 per cent of the NCA as a whole. ■ Some of the most tranquil parts of the NCA are found in the pastoral areas beside the rivers, often with an intimate sense of enclosure formed by mature hedgerows, riparian vegetation and the bordering higher ground. They also provide a sense of permanence and history. ■ The pastoral areas supply grazing land for livestock, while also providing an important water flow regulation role. ■ The lower part of the Stour Valley is particularly important as it has been designated as the Dedham Vale AONB. Its combination of a working landscape, semi-natural features and historic picturesque settlements, were made famous by the artist John Constable, who painted the landscape two centuries ago. Today they help depict the archetypal lowland pastoral English countryside that attracts many visitors to the area, who contribute to the local economy. The area remains an important source for inspiration, still attracting many artists.

Landscape attribute	Justification for selection
Slow flowing rivers along winding courses.	<ul style="list-style-type: none"> ■ The slow-moving water of the narrow winding rivers and their bank-side riparian vegetation provides ecological connectivity into the heart of the claylands. Their character provides a unifying theme through the landscape. ■ The river catchments support water extractions for agriculture, industry and for human consumption, as well as supporting wetland habitats and biodiversity. ■ The navigable parts of the rivers such as the Stort and the Stour, are important for boating, angling, informal recreation and experiencing wildlife. They also provide a sense of tranquillity. ■ Restored and maintained locks such as the Stort Navigation from Bishops Stortford supports 15 narrow locks, bridges and old watermills, for example Baylham Mill and Needham Market Mill on the River Gipping and Flatford Mill on the River Stour, provide a strong sense of history.
Country houses, estate lands and parklands.	<ul style="list-style-type: none"> ■ Designed parkland landscapes and large houses are important historical features that portray past importance and wealth of the area. ■ Some have cultural associations such as the 17th century Audley End with its landscape parklands designed by Lancelot 'Capability' Brown. Shrublands on the north side of the Gipping Valley with its enhanced landscape by Humphrey Repton and Italianate gardens designed by Charles Barry is a prime example of the Italian Style in England. ■ These quiet and undisturbed landscapes form an important component of the area and include many ancient trees in a wood pasture setting, which are of value for wildlife including hawfinches, barn owl and specialist dead wood invertebrates such as the stag beetle. ■ Those which are open to the public such as Ixworth, Kentwell and Audley End provide popular recreation attractions for many visitors.

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Landscape attribute	Justification for selection
Distinctive settlement patterns.	<ul style="list-style-type: none"> ■ The well preserved medieval villages or small towns (such as Lavenham, Finchingfield, Cavendish and Thaxted) and their magnificent 'wool' churches are recognised as distinctive components of the landscape that help attract many visitors to the area. ■ Anglo Saxon settlements form clusters with notable examples being the Rodings, a group of eight villages in the south-west of Essex, which are the largest group in the country to bear a common name (for example Abbess Roding, Beauchamp Roding). ■ Early enclosure resulted in a mixed pattern of isolated moated farms and hamlets around small greens and nucleated settlements. This pattern provides a strong characteristic of the plateau landscape, helping to define the area.
Traditional building vernacular.	<ul style="list-style-type: none"> ■ Traditional buildings are timber framed, often with colour-washed render ('Suffolk Pink'), ornate pargeting or faced with Georgian red brick. Steeply pitched roofs support pegtiles or long straw thatch. Split 'knapped' flint is also characteristic. These vernacular building styles contribute to the rural setting and sense of place and history. ■ Weather boarding is also typical of barns, watermills (Baylham) and windmills (Thaxted and Aythorpe Roding). Norman Churches form a strong local vernacular and contribute significantly to the character of the area. Many of these historic buildings are Grade 1 Listed.

Landscape opportunities

- Carefully manage the extraction of sand and gravel deposits so that damage to archaeology, geodiversity and existing habitats is minimised and that geodiversity and biodiversity enhancements are maximised, through the creation of new wetland habitats and site restoration.
- Encourage sustainable land management practices that do not detract from existing character, benefit agricultural production for local markets, reduce soil erosion and diffuse pollution and enables landscape and habitat enhancement.
- Enhance the character and the mosaic of habitat networks within the farmed landscape by maximising agricultural diversity where appropriate.
- Manage and enhance the deciduous ancient woodlands and wood pasture including designed parkland landscapes, for their contribution to the sense of place, sense of history, biodiversity value and recreational value, as well as their retention of greenhouse gases. This is particularly important in view of the threat from ash die-back, as ash is a common hedgerow and woodland species across the NCA.
- Plan for a landscape depleted of ash by planting replacement hedgerow tree species such as oak, which is also characteristic of the area.
- Enhance the species rich hedgerow network, encouraging the uptake of agri-environment options that aid replanting where they have been lost. Positively manage and maintain those which have become neglected, to strengthen the historical field patterns, improve wildlife networks and enhance landscape character.
- Protect the pastoral river valley landscape from further fragmentation by resisting inappropriate use and development, promoting traditional management practices, protecting existing pasture from conversion to arable use (especially those containing archaeological features), and seeking opportunities to create more permanent grassland as appropriate, through the uptake of agri environment options.
- Strengthen the historic character of the river valley landscape, encouraging traditional management methods, including willow pollarding along river banks, and the planting of native rare black poplar.
- Reconnect rivers with their flood plains as part of integrated flood management and wildlife enhancement schemes by supporting the operation of natural processes. Link and extend existing habitats and restore or create new river valley grasslands, fens, reedbeds and wet woodland where possible, for their contribution to the historic record of traditional landscapes, their biodiversity value and contribution to the sense of place.
- Maintain the quality and knowledge of archaeological evidence and historic built features and enhance public awareness of the breadth of historic wealth by conserving in context or, where this is impossible, rescue and record and interpret the historic landscape features.
- Conserve the rural settlement pattern by ensuring that new development is complementary to intrinsic local character.

Continued on next page...

Landscape opportunities continued...

- Conserve rural settlement character by using traditional materials in new developments especially the use of colour-washed render and pegtiles.
- Conserve the strongly nucleated character of settlements by encouraging new development to take place within the existing curtilage of settlements.
- Protect and sustainably manage the rich heritage of country houses with designed parklands, while also conserving landscapes linked to the arts – most notably the Lower Stour Valley Dedham Vale AONB.
- Work in partnership with the AONB partnership, following guidance set out within the AONB Management Plan, to protect the tranquillity of The Dedham Vale and its setting, from intrusive communication and utility infrastructure, noisy recreational pursuits, air traffic and light pollution.
- Promote best practice and the development of a high quality visitor experience through sustainable management of visitor levels at popular sites so as not to detract from their special qualities.
- Raise the design quality of new and existing development. Incorporate green infrastructure that provides opportunities for wildlife and public access within urban areas and screens intrusive urban influence (especially on the periphery of settlements), with the use of substantial and appropriate landscaping, such as woodland planting, earthworks and green roofs.



The well preserved medieval small town of Lavenham with its distinctive timber-framed, colour-washed buildings, that contribute to the rural sense of place, is a popular visitor destination.

Ecosystem service analysis

The following section shows the analysis used to determine key ecosystem service opportunities within the area. These opportunities have been combined with the analysis of landscape opportunities to create Statements of Environmental Opportunity.

Please note that the following analysis is based upon available data and current understanding of ecosystem services. It does not represent a comprehensive local assessment. Quality and quantity of data for each service is variable locally and many of the services listed are not yet fully researched or understood. Therefore the analysis and opportunities may change upon publication of further evidence and better understanding of the inter-relationship between services at a local level.

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Moderately fertile soils (mostly Grades 2 and 3) Equable climate	84 per cent of the land area is farmed. Predominantly arable farming for cereals and oilseed rape. Sugar beet is grown on a large scale in the north of the NCA as there is a processing factory at Bury St Edmunds. Fruit farms and market gardening occur on areas of lighter land, for example Copella Orchards in the Dedham Vale at Boxford. Livestock farming includes pigs, poultry, sheep and lowland cattle. There is also some dairy farming. Value-added food producers, such as organic producers, pork butchers and brewers, cluster around urban areas such as Bury St Edmunds and Ipswich.	Regional	Arable production is the mainstay of agricultural activity across the area. Dairy and meat production are declining farming activities due to increasing costs and decreasing returns. They are, however, closely linked to cultural aspects of the area, particularly the river valleys; the sense of place, biodiversity, sense of history and heritage assets including the rich heritage of barns. There is the potential to increase dairy and meat provision within the river valleys while safeguarding biodiversity, soil erosion, water quality, water storage, carbon sequestration and climate regulation. Continued on next page...	Engage, advise and influence farming practice, ensuring that it remains competitive, and supports food security, while increasing its sustainability. Work with land managers and the farming community to restore mixed livestock/arable farming, including extensive beef production within the river valleys, to enhance traditional pastoral character, while maintaining biodiversity, historic environment and the landscape. Ensure it does not detract from the special qualities of the landscape. Maintain and enhance advice to farmers especially in areas where diffuse pollution can be a particular problem to encourage take up of Catchment Sensitive Farming initiatives and meet the Water Framework Directive targets.	Food provision Water availability Regulating water quality Regulating soil quality Regulating soil erosion Sense of place/ inspiration Biodiversity Geodiversity Recreation

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Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision cont.				<p>... continued from previous page</p> <p>The increasing weight of farm machinery can cause negative impacts to local soil structure, making some areas vulnerable to increased run-off.</p> <p>Outdoor pig units on lighter soils in the north-west are vulnerable to run-off, resulting in soil loss and diffuse pollution. Unit infrastructure (straw stacks, pens and fencing) can cause visual clutter.</p> <p>Diffuse pollution from excessive agricultural nutrients entering water courses can impact on European Union designated wildlife sites, downstream in neighbouring NCAs (such as the Stour and Orwell Estuaries Ramsar, SAC and SPA).</p> <p>Climate change is likely to have an increasing influence on food production with water stress being a key driver for change.</p>	Restore mixed livestock/arable farming, including extensive beef production.	

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Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Semi-natural woodlands (ancient, wet and deciduous woodlands), copses and plantations	<p>Only 4 per cent of area of the NCA is wooded.</p> <p>There is a small amount of commercial plantation forestry.</p> <p>There are few large woods.</p>	Local	<p>New woodland planting in the NCA would increase opportunities for timber provision. Planting would need to be sensitively carried out to increase biodiversity, retain rare species of flora and fauna and minimise conflict with food production and landscape character.</p> <p>Although commercial timber provision is relatively small scale, woodland provides an important role for carbon sequestration, biodiversity and as a recreational resource. Woodlands also provide a sense of tranquillity and support the traditional landscape character.</p> <p>An increase in timber production would give the opportunity to expand habitats and increase the biodiversity associated with woodlands.</p> <p>Coppicing in selected areas of woodland has potential to increase the overall biodiversity of the habitat, improving conditions for many species of invertebrates, birds and mammals.</p> <p>Expansion of the area of woodland would not only increase timber availability but also help to increase climate change regulation, as woodlands offer one of the most effective means of carbon sequestration.</p>	<p>Seek opportunities to increase woodland management and return existing woodland to active management where this will benefit timber provision, landscape character and biodiversity.</p> <p>Manage recreational woodlands to include timber provision where appropriate.</p> <p>Support the creation and expansion of native woodlands in appropriate locations, such as connecting existing woodland and copses, to provide increases in timber and biodiversity, enhancements to the landscape, improve the ecological networks and increase the carbon storage potential, whilst minimising the any potential conflict with food production.</p>	<p>Timber provision</p> <p>Biodiversity</p> <p>Recreation</p> <p>Biomass energy</p> <p>Climate regulation</p> <p>Sense of place / inspiration</p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	<p>The underground major chalk aquifer as well as minor crag aquifers</p> <p>Extensive network of rivers</p>	<p>The major underground chalk aquifer is overlain by London Clay which confines the chalk aquifer restricting the flow of groundwater in and out.</p> <p>Locally important sand and gravel aquifers overlie the Chalk and London Clay⁹.</p> <p>Groundwater resources within the chalk aquifer are currently committed and new groundwater abstraction applications are only considered from drift deposits.</p> <p>The Rivers Can, Brett, Stour, Brain, upper Colne currently have 'no water available' Catchment Abstraction Management Strategies (CAMS) status. The Rivers Chelmer, Blackwater, Roman, and the Lark have an 'over abstracted' CAMS status as do the rivers Rib, Quin, Beane, Ash and the upper reaches of the River Stort while the lower reaches of the Stort and Colne and the rivers Ter and Gipping and the upper River Cam have an 'over licensed' CAMS status.</p> <p>Continued on next page...</p>	National	<p>Meeting the large demand for potable and irrigation water in this area is a big challenge and one that needs to be addressed to meet the needs of an expanding population and the impacts of climate change.</p> <p>Water abstraction from the underground chalk aquifer causes a reduction in spring flows to flood plain habitats and abstraction of water from the chalk aquifer near fen habitats has caused a lowering of the water table, drying of wetland soils with associated nutrient release and a consequent replacement of wetland species by dry land species.</p> <p>A large number of agricultural businesses hold abstraction licences, enabling farmers to grow irrigated crops such as cereals, potatoes and soft fruit in the NCA).</p> <p>The highest priority catchments in terms of water abstraction control include the Stour, the Colne, and the Gipping.</p> <p>Increases in semi-natural habitats within new developments and the wider countryside such as increased areas of grassland and woodland will improve water infiltration thus increasing ground water stocks.</p>	<p>Work with land managers to promote good farming practices to improve the structure of soils, improve water infiltration and aid aquifer recharge.</p> <p>Ensure the sustainable management of the principal chalk aquifer through integrated, catchment-wide water management policies.</p> <p>Work with land managers to put in place storage measures to help meet their water demands in drier periods. Similar measures should be encouraged on recreational sites such as golf courses.</p> <p>Measures to reduce wind evaporation on fields particularly in drier periods, such as hedgerow planting, should be encouraged.</p> <p>Encourage land managers to allow natural flooding to restore wetlands, helping to store water in wetter periods; increasing water availability during drier months while limiting over abstraction.</p>	<p>Water availability</p> <p>Regulating water quality</p> <p>Regulating water flow</p> <p>Regulating soil erosion</p> <p>Climate regulation</p> <p>Food provision</p> <p>Biodiversity</p> <p>Geodiversity</p>

⁹ The Combined Essex Catchment Abstraction Management Strategy, Environment Agency (February 2007)

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Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability cont.		<p>... continued from previous page</p> <p>The Ely Ouse to Essex Transfer Scheme and the Stour Augmentation Groundwater Scheme both increase river flows during low flow conditions to protect the natural ecology of the systems without restricting abstraction for public water supply.</p>		<p>Opportunities to increase storage of water on farms and sympathetic agricultural land management practices would better enable farms to deal with increased temperatures and drought conditions and reduce abstraction demand for crop irrigation from surface and groundwater sources.</p>		
Genetic diversity	<p>Baylham House Rare Breeds Farm</p> <p>Traditional orchards</p>	<p>The Large Black Pig is found in limited numbers across the NCA at specialist farms and small holdings.</p> <p>Red Poll Cattle (one of the original native dual-purpose breeds) and Speckled Faced Beulah, Wiltshire Horn and Manx Loaghtan sheep are used for conservation grazing in Hatfield Forest.</p> <p>The livestock at Baylham House Farm mostly belong to breeds that were once common but are now under threat because of current commercial pressures.</p> <p>There are many small remnant orchards that support a variety of local fruit varieties, some of which may be rare.</p>	National	<p>The Large Black is the rarest historic pig breed in Britain. It is one of the country's oldest pig breeds. It is on the Rare Breeds Survival Trust list of 'critical' breeds. Increasing the market for its quality pork will increase its numbers.</p> <p>The Red Poll has maintained the dual-purpose characteristics, which now give it a valuable niche role in quality beef production. It is neither rare nor endangered. Increasing grazing pasture within the river valleys could increase its numbers within the NCA.</p> <p>Small scale traditional orchards are in decline; however, they preserve a number of local fruit varieties. Increasing the market for local varieties of fruit and the replanting of orchards can help maintain the existence of local varieties.</p>	<p>Protect the future of the endangered Large Black Pig breed and support educational opportunities to learn about the history of this breed and other rare breeds.</p> <p>Encourage the reversion of arable to pasture within the river valley flood plain to increase the opportunities for grazing, particularly for Red Poll cattle.</p> <p>Continue to use rare breeds in support of conservation grazing of protected sites.</p> <p>Encourage the management of traditional orchards to conserve the genetic diversity within their fruit crops along with their specialised biodiversity and cultural heritage.</p>	<p>Genetic diversity</p> <p>Sense of place/ inspiration</p> <p>Sense of history</p>

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Biomass energy	Existing woodland	<p>The existing woodland cover (4 per cent) of which a high proportion (a little over 50 per cent) is ancient woodland offers some potential for the provision of biomass, both through bringing unmanaged woodland back under management and as a by-product of commercial timber production.</p> <p>The potential for short rotation coppice (SRC) yield in the NCA is medium; potential miscanthus yield in the NCA is high.</p>	Local	<p>Biomass plantings can help to integrate the edges of larger discordant settlements and development into the landscape.</p> <p>In terms of location, the plateau area can offer opportunities for biomass crops, such as miscanthus and SRC, if integrated carefully with the current woodland patterns.</p> <p>River valley landscapes, historic features and historic boundary patterns should be avoided when considering biomass planting so as to maintain the character of these features.</p> <p>The reintroduction of coppice management can increase biomass provision as well as benefiting biodiversity and the character of ancient coppice woodlands.</p>	<p>Secure the management of existing woodlands and the opportunity for woodland creation in appropriate locations for biomass production.</p> <p>Evaluate the potential to grow miscanthus and the SRC as sustainable sources of biomass where appropriate.</p>	<p>Biomass energy</p> <p>Climate regulation</p> <p>Regulating water flow</p> <p>Sense of place / inspiration</p> <p>Biodiversity</p> <p>Regulating soil erosion</p>
Climate regulation	<p>Woodlands</p> <p>Hedgerows/ hedgerow trees</p> <p>Wetlands</p> <p>Soils (limited contribution)</p> <p>Unimproved grasslands</p>	<p>Carbon is locked up in the woodland areas and hedgerows on the plateau and wet grasslands in the river valley bottoms. In addition there is a limited amount of carbon stored in hedgerow trees and urban features such as street trees, green walls, roofs and back gardens.</p> <p>Continued on next page...</p>	Regional	<p>Hedgerows and woodlands, particularly those managed by coppicing, are strong features of the landscape which also perform an important role in carbon sequestration.</p> <p>New planting would help increase this resource. Any new planting would need to be sensitively located to maintain landscape character and the habitat network. Existing copses, plantations and shelter belts could be extended.</p>	<p>Support new woodland/tree planting to increase carbon storage.</p> <p>Encourage the reinstatement of woodland management in neglected woodlands to improve carbon storage whilst at the same time benefiting biodiversity.</p>	<p>Climate regulation</p> <p>Food provision</p> <p>Regulating soil quality</p> <p>Regulating soil erosion</p> <p>Biodiversity</p>

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Climate regulation cont.		<p>... continued from previous page</p> <p>The mineral soils over most of the NCA have low carbon content (0–5 per cent) but there are small pockets of soil with higher carbon content (5–20 per cent) which may be associated with the loamy and clayey flood plain soils with naturally high groundwater.</p> <p>Higher soil carbon content will be found under remaining semi-natural habitats, woodlands and areas of permanent pasture.</p> <p>Soils in the NCA currently provide low carbon storage partly due to cultivation and drainage leading to loss of organic content.</p>		<p>Where agricultural land is not managed sustainably the depletion of soil carbon storage levels can occur. Careful cropping techniques, reduced cultivation, the use of cover crops and measures to actively increase the organic content of soils can increase carbon sequestration.</p> <p>There is currently high pressure on the grazing marsh, wetland and areas of semi-natural grassland from drainage of land for agriculture and development.</p> <p>Semi-natural habitats can directly help regulate climate through providing cooling effects and reduction in run-off in developed areas and, indirectly through increased sequestration and storage of carbon.</p>	<p>Enhance the hedgerow network to strengthen landscape character and improve carbon sequestration.</p> <p>Promote the planting of trees and hedgerows within new developments.</p> <p>Work with land managers to encourage farming practices that reduce tillage and increase the planting of cover crops and increase organic matter content within the soil.</p> <p>Secure opportunities to improve grassland management by reducing cutting and over grazing.</p> <p>Protect and expand areas of flood plain grazing marsh and wetland and grassland habitats.</p>	<p>Biomass energy</p> <p>Water availability</p> <p>Sense of place / inspiration</p> <p>Sense of history</p> <p>Geodiversity</p>

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Aquifers	The groundwater chemical status is generally good.	Regional	<p>Poor water quality is associated with reduced water levels and excess nitrates and phosphates, both of which can have detrimental impacts on the ecology of surface water bodies by reducing the amount of available oxygen within the water, which in turn reduces the diversity of aquatic plants, invertebrates and fish.</p> <p>An excess of nitrates and phosphates is often associated with agricultural applications, outdoor pig farming and sedimentation from soil erosion. Increasing population densities within towns (such as Bury St Edmunds, Ipswich and Chelmsford) can also increase pressure on water quality through discharges from sewage treatment works and diffuse pollution from industrial processes and surface water drains.</p> <p>Urban growth and regeneration will increase demands on the water resource but also present opportunities for improvements to the water environment through sustainable urban drainage schemes.</p> <p>Continued on next page...</p>	<p>Work with partners and land managers to implement catchment-wide water management plans to ensure a coordinated approach to reducing the impacts of pollution.</p> <p>Improve the sustainable use of water by employing sympathetic land management practices which reduce the demand for ground water for agriculture to maintain water levels in rivers.</p> <p>Encourage agricultural practices that minimise soil erosion from land at risk of generating diffuse pollution in the catchments such as protecting grassland margins on slopes. Also ensure the use of fertiliser and pesticide is sustainable and associated with good in-field analysis to reduce diffuse pollution.</p> <p>Ensure local development plans include the sustainable management of water resources and promote measures to reduce adverse impacts on water quality in the future, including the use of sustainable drainage systems, sewage treatment options and reducing nutrients from diffuse pollution.</p>	<p>Regulating water quality</p> <p>Regulating water quality</p> <p>Biodiversity</p> <p>Geodiversity</p> <p>Sense of place/inspiration</p> <p>Recreation</p>
	Streams and rivers	33 per cent of rivers and lakes in the NCA currently achieve at least good biological status. 67 per cent including the rivers Gipping, Lark, Cam, Stour and the upper reaches of the Rib (north of its confluence with the River Quin) have good chemical status. The rivers Chelmer, Colne, Blackwater and Stort fail to achieve good chemical status.				
	Wetlands					
	Woodlands					
	Vegetated slopes	The ecological status of the Colne, Lark, Brett, Stour, Ash, Beane and the Roman River, is moderate. The River Stort near Harlow has a good ecological status but the status is considered poor north of Bishops Stortford. The upper reaches of the River Rib have a moderate ecological status but this drops to poor when it joins the River Quin to the north of Hertford. The rivers Gipping, Cam, Blackwater, Chelmer, Ter and Quin have a poor ecological status ¹⁰ .				
	Geomorphology	All of the NCA is a Nitrate Vulnerable Zone. There are two priority catchments under the England Catchment Sensitive Farming Initiative: The Little Ouse (Thetford Ouse) and the Gipping and Orwell.				

¹⁰ River Basin Management Plan, Anglian River Basin District, Environment Agency (2009)

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Regulating water quality cont.				<p>... continued from previous page</p> <p>Semi-natural habitats play an important role in filtering surface water run-off before it enters watercourses. Reed beds and wetlands are good examples but tree lines, woodlands, hedgerows and grass verges will also play a part in reducing the levels of chemicals that can enter water systems.</p> <p>Restoration and creation of low-input unimproved grasslands within river catchments can help to improve the water quality in both rivers and underground aquifers.</p> <p>Enhanced land management, for example an increase in buffer strips along water courses, will help prevent deterioration in water quality caused by high nutrient levels.</p>	<p>Where lost, encourage the reinstatement of natural water filters such as reed beds, tree lines, hedgerows and grass verges to help filter surface water run-off before it enters watercourses.</p> <p>Seek to increase grassland strips along field drains and watercourses to capture sediment and nutrients. Create buffer areas between nutrient input and sensitive riparian habitats, areas high in biodiversity and watercourses.</p>	

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Regulating water flow	Rivers Flood plains Wetlands Woodlands	<p>Fluvial flood risk is associated with the flood plains of the major river systems of the Blackwater, Chelmer, Colne, Gipping Stour and Stort as they flow from the higher ground of the clay plateau.</p> <p>The Environment Agency flood risk map indicates that the risk of flooding is high for the major settlements of Braintree, Chelmsford, Great Dunmow, Ipswich and Stowmarket as well as the villages of Bocking Bures, Bures St Mary, White Colne and Chappel.</p> <p>The NCAs main urban areas face increased surface water flooding risk. The areas' most likely affected are western Ipswich and Chelmsford.</p>	Regional	<p>Increased rainfall due to climate change and further urbanisation resulting in increased run-off from hard surfaces are likely to increase the flood risk for some areas, for example Chelmsford in the future. The use of SuDs within urban areas can help reduce these aspects.</p> <p>Where flood plains have been drained, agriculturally improved or developed, their flood water storage capacity and wetland interest is often lost. Increasing the continuity between rivers and their flood plain can help reduce the likelihood of flooding in settlements and improve wetland and aquatic habitats.</p> <p>The creation of flood storage lagoons and encouraging flood compatible land uses can help to alleviate some pressure. These measures help store water during high rainfall events, easing the flood risk on communities downstream in the Northern Thames Basin NCA.</p> <p>Semi natural habitat creation including woodland and hedgerow planting can help reduce levels of rapid run-off and help reduce flood risk.</p>	<p>Seek opportunities to restore a more naturally functioning flood plain and river morphology.</p> <p>In developed areas and in new development, promote sustainable drainage and increased use of semi-natural habitats and permeable surfacing to reduce run-off and increase water filtration; slowing water entering the system.</p> <p>Secure opportunities to expand or create areas of semi-natural habitats such as woodlands (particularly wet woodlands), flood plain grazing marshes, reed beds and grasslands to increase soil infiltration helping to alleviate flood risk.</p> <p>Consider the use of existing and newly created semi natural habitat to act as buffer zones to protect existing development.</p> <p>Seek opportunities for flood storage schemes where flood defences will be difficult to implement.</p> <p>Seek appropriate opportunities for flood storage in locations where people and property are not at risk.</p>	<p>Regulating water flow</p> <p>Water availability</p> <p>Regulating water quality</p> <p>Pollination</p> <p>Pest regulation</p> <p>Sense of place / inspiration</p> <p>Sense of history</p> <p>Tranquillity</p> <p>Biodiversity</p> <p>Geodiversity</p>

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	<p>Moderately fertile chalky clay (mostly Grades 2 and 3) soils</p> <p>Semi-natural habitats</p>	<p>There are seven main soilscape types in this NCA:</p> <ul style="list-style-type: none"> ■ Lime-rich loamy and clayey soils with impeded drainage cover 50 per cent of the NCA. ■ Freely draining slightly acid loamy soils (16 per cent). ■ Slightly acid loamy and clayey soils with impeded drainage (13 per cent). ■ Freely draining slightly acid but base-rich soils (7 per cent). ■ Freely draining lime-rich loamy soils (6 per cent). ■ Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (6 per cent). ■ Loamy and clayey flood plain soils with naturally high groundwater (2 per cent). 	Local	<p>The high agricultural grade soils in the NCA are important for food production.</p> <p>Changing management practices to reduce damage to soil quality could provide increases in food production in the long term. Increases in soil quality will reduce negative impacts from farming on the natural environment through reduction in run-off pollution; this will improve water quality and biodiversity.</p> <p>Maintenance of good soil structure aids water infiltration and recharge of the underlying groundwater aquifers.</p> <p>Soil compaction, poaching and loss of structural cohesion on lime-rich loamy and clayey soils with impeded drainage can become problematic, increasing the vulnerability to run-off under high precipitation conditions. Once these soils are compacted they are surprisingly difficult to rectify.</p> <p>Minimum tillage such as direct drilling can work well in some of these soils, such as those in the north and west of the area. Where organic matter is low increasing organic matter inputs or use of grass leys can help improve soil structure.</p>	<p>Adopt sustainable cultivation practices that increase organic content of soils, such as introducing fallow cropping into rotations, direct drill and grass leys.</p> <p>Avoid overstocking or machinery use where and when it would lead to the compaction of vulnerable soils.</p> <p>Promote agri-environment schemes at targeted sites to deliver resource protection gains, for example by working with farmers to retain soil quality and ensure a viable long term future for agriculture in the area.</p>	<p>Regulating soil quality</p> <p>Food provision</p> <p>Regulating soil erosion</p> <p>Regulating water quality</p> <p>Climate regulation</p> <p>Biodiversity</p> <p>Geodiversity</p> <p>Sense of place/ inspiration</p>

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Regulating soil erosion	<p>Semi-natural habitats</p> <p>Hedgerows and trees</p> <p>Woodlands</p>	<p>The majority of the NCAs soil types (covering 92 per cent of the NCA) are at risk of run-off.</p> <p>The lime-rich loamy and clayey soils with impeded drainage cover 50 per cent of the NCA.</p> <p>Freely draining slightly acid loamy soils and the freely draining lime-rich loamy soils together cover 22 per cent of the NCA.</p> <p>Slightly acid, loamy and clayey soils with impeded drainage cover 13 per cent of the NCA.</p> <p>Slightly acid but base-rich soils cover 7 per cent of the NCA.</p> <p>There are two Priority Catchments in the north and north-east of the NCA: the Little Ouse (Thetford Ouse) and the Gipping and Orwell. Both these catchments have light sandy soils vulnerable to soil erosion.</p> <p>The Gipping and Orwell catchment experiences erosion associated with outdoor pig farming.</p>	Local	<p>Both the lime-rich and acid loamy and clayey soils with impeded drainage are prone to compaction and capping/slaking which can be caused by machinery or livestock if accessed when wet. This increases the risks of soil erosion by surface water run-off, especially on steeper slopes.</p> <p>The free draining soils in the north and west have an enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, for example where outdoor pig farming takes place.</p> <p>Erosion is exacerbated where organic matter levels are low after continuous arable cultivation or where soils are compacted. This can be a problem on parts of the clay arable plateau, especially on sloping ground.</p> <p>There is potential for wind erosion on some coarse textured cultivated soils in the north and west of the area. The planting of hedgerows and shelterbelts can help reduce wind erosion in vulnerable areas.</p> <p>Appropriate soil management can reduce risks through careful timing of cultivations and maintenance of vegetation cover.</p> <p>Loamy and clayey flood plain soils with naturally high groundwater are at low risk of soil erosion.</p>	<p>Work with land managers to ensure that soils with impeded drainage are not compacted, by encouraging low stocking rates, the use of low ground pressure vehicles and by encouraging the conversion to semi natural habitat of land at risk of compaction. Encourage the uptake of agri-environment and catchment sensitive farming schemes to support these measures.</p> <p>Encourage the planting of hedgerows and shelter belts in areas where wind erosion occurs. This will also reduce soil erosion caused by overland run-off.</p> <p>On free draining, fragile soils encourage agricultural practices that utilise minimum cultivation techniques and avoid leaving surfaces exposed (for example by introducing and incorporating green cover crops, fallow rotations, overwintering stubble, or reversion to permanent grassland).</p> <p>Encourage agricultural practices that retain cover and build up organic matter especially on free draining soils.</p>	<p>Regulating soil erosion</p> <p>Food provision</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Geodiversity</p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	<p>Semi-natural habitats, especially hedgerows and grasslands/field margins</p> <p>Woodlands and orchards</p>	<p>Semi-natural habitats within the NCA including plateau woodlands and valley flower rich meadows and grasslands support a variety of pollinators which are an essential component of agricultural production.</p> <p>Networks of interstitial habitats such as hedgerows, farm track edges and ditches are also key sources of both pollen and nectar for insects that pollinate commercial arable crops such as field beans.</p> <p>The ancient countryside with its well developed network of interstitial habitats is generally good for supporting a range of pollinators although these networks are more limited across the core arable areas on the north-western parts of the clay plateau.</p>	Local	<p>Pollinating insects are generally supported by a range of semi-natural habitats, in particular species rich grasslands in the river valleys. Increases in habitat for pollinators such as creation of flower rich pasture in the river valleys, planting hedgerows and field margins, will increase the value of this service to agriculture.</p> <p>The degree to which crops rely on insect pollinators depends on both species and cultivar. Improving good networks of pollinator habitat such as field margins on the plateau will assist pollination of crops - field beans, peas and fruit trees - aiding food production.</p> <p>A strong pollinator population supports production of a wider variety of food products. The loss of semi natural habitats has reduced the population of pollinators within the NCA.</p>	<p>Extend semi-natural habitat mosaics that provide early and late nectar sources for pollinators that in turn will pollinate commercial food crops, particularly those grown on the plateau.</p> <p>Work with land managers to further protect and improve the management of areas of semi-natural habitat, buffering existing habitats where possible, to increase hibernation sites for pollinating insects.</p> <p>Work with land managers and use schemes such as environmental stewardship to increase pollen and nectar resources in arable areas through the creation of species-rich grass margins and bespoke pollen and nectar strips, creating and connecting links with other semi-natural habitats.</p>	<p>Pollination</p> <p>Biodiversity</p> <p>Sense of place/ inspiration</p> <p>Food provision</p>

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Pest regulation	<p>Areas of semi-natural habitat including:</p> <ul style="list-style-type: none"> Woodland Lowland meadow Wet grassland Hedgerows/ grass margins 	<p>Interstitial habitats such as hedgerows, farm track edges and ditches and semi natural habitats including plateau woodlands, and valley flower-rich meadows and grasslands, provide important over-wintering habitats for beneficial predatory invertebrates such as ground and rove beetles, which can regulate the populations of pests such as aphids.</p> <p>The ancient countryside with its well developed network of interstitial habitats is generally good for supporting pest regulation, although these networks are more limited across the core arable areas on the north-western parts of the clay plateau.</p>	Local	<p>The use of insecticides and herbicides in fields and especially around field edges removes a food source for ground-nesting birds such as grey partridge and skylark that can help reduce pest numbers through natural predation.</p> <p>Integrated pest management approaches may in some cases remove the requirement for chemical intervention, although evidence of the efficiency of these methods is not conclusive.</p> <p>Financial support for farmers channelled through agri-environment schemes can assist with increasing the network of these habitats in arable areas.</p>	<p>Encourage land management which reduces insecticide use around the edge of crops, to increase insect numbers that benefit predatory insects, birds (such as grey partridge and skylark) and small mammals (for example shrews and bats).</p> <p>Seek to increase diversity of structure and composition within semi-natural habitats to support a variety of species and encourage land management which reduces use of herbicide to encourage wildflowers to grow and support a greater abundance of insects.</p> <p>Increase field margins, species rich hedgerows, and the diversity of structure and composition within semi-natural habitats to encourage a network of habitats for pest regulating species close to areas of agricultural production.</p>	<p>Pest regulation</p> <p>Pollination</p> <p>Biodiversity</p> <p>Food provision</p> <p>Sense of place/ inspiration</p>
Regulating coastal erosion and flooding	n/a	n/a	n/a	n/a	n/a	n/a

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A sense of place/ inspiration	<p>Geology and soils</p> <p>Semi-natural habitats</p> <p>Topographic variation</p> <p>Rivers with winding courses</p> <p>Scattered ancient woodlands and large hedgerows</p> <p>Field patterns</p> <p>Quiet rural areas</p> <p>Traditional built environment - historic villages and churches</p> <p>Narrow sunken, lanes</p> <p>Expansive views, big skies</p>	<p>The underlying geology (chalk, sand and gravels and clay), underpins a mix of habitat types that provide local distinctiveness.</p> <p>Extensive large-scale views across the plateau provide a sense of openness. Undulating steep and gently sloping small river valley topography provides a small-scale intimate character that contrasts with the open plateau.</p> <p>Tranquil river valleys represent the epitome of lowland English countryside character. Particularly so along the River Stour, where the farmed Dedham Vale AONB landscape provides a strongly rural sense of place.</p> <p>Woodlands linked by large hedgerows provide wooded horizons.</p> <p>Small to medium scale medieval fields patterns are overlain in places by large scale, modern field patterns, contributing to a feeling of openness.</p> <p>Continued on next page...</p>	National	<p>The scenes of a working landscape that John Constable painted two centuries ago strongly influenced the designation of the AONB area, which has come to represent the epitome of lowland English countryside. The AONB 'Constable Country' (centred on the villages of East Bergholt, Flatford and Dedham), stands apart from other lowland river valleys because of its association with Constable and the assemblage of features that can still be seen today. Many artists continue to draw inspiration from this landscape. Pressures on this intimate and subtle landscape from its popularity with visitors can negatively impact upon the sense of place and tranquillity.</p> <p>The loss of structural landscape features such as hedgerows, ditches, banks, copses and lines of trees can result in the progressive loss of visual distinction.</p> <p>Land is increasingly being sold in smaller plots for non agricultural use. While individual incremental changes have minimal impact, cumulatively, the landscape of the area as a whole can be altered.</p>	<p>Conserve the rural mosaic of landscapes and habitats that are characteristic of the NCA and essential for the feelings of place and inspiration.</p> <p>Retain the contrasts within the local landscape character, between the plateau and river valleys and maintain and enhance the balance of the urban and rural landscapes. Ensure the character of the area's settlements is maintained in the rural areas and urban encroachment kept to a minimum.</p> <p>Strengthen the historic character of the landscape, through protecting and enhancing the wooded elements by bringing neglected woodlands into appropriate management and replanting hedgerows and hedgerow trees. Create new woodland as appropriate on the urban fringes to screen settlement edges and provide habitat and green infrastructure benefits.</p>	<p>Sense of place/ inspiration</p> <p>Sense of history</p> <p>Recreation</p> <p>Geodiversity</p>

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A sense of place/ inspiration cont.		<p>... continued from previous page</p> <p>Medieval towns and villages are larger than in the adjacent South Norfolk and High Suffolk Claylands NCA, due to wealth founded in wool. Village greens or 'tyes' are, however, smaller and more strip-like. In Essex, 150 'Ends' (for example hamlets such as Beazley End) are clustered in the north-west and distinguish Essex from Suffolk where there are only a handful.</p> <p>Vernacular building tradition of timber framed buildings with painted render locally sourced red brick, pantiles or straw thatching. Imposing churches with knapped flint decoration.</p> <p>Senses of inspiration are associated with the area's light quality, open skies, historic features and rural tranquillity.</p>		<p>Locally determined planning and development control may in some cases have the potential to impact on the landscape and sense of place.</p> <p>The growth in micro-generation, particularly small scale wind and solar photo voltaic installations can have a significant landscape impact that weaken the sense of place.</p>	<p>Improve understanding of the landscape, its history and functions including its agricultural and wildlife values.</p> <p>Conserve and enhance the rural urban fringe through the spatial planning process and through the development and use of specific design guidance to ensure that new developments fit in with the landscape character to retain local distinctiveness.</p> <p>Ensure that where conversion or change of use of rural farm buildings is considered, developments reflect local building style, resist suburbanisation and do not contribute to incremental new development in the open countryside.</p> <p>Retain wide views and the experience of big skies.</p>	

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Sense of history	Geology and soils	Chalky boulder clay and underlying gravel and sand deposits and chalk provide a geological record and provide an archive of past environmental and climatic change that may help inform our understanding of the impacts of future climate change. These deposits also provide a context for the archaeology found within this NCA such as the Palaeolithic finds.	National	Historic settlements illustrate the wealth founded on the 14th–16th-century woollen trade, which is manifested in the fine examples of medieval timber-framed houses clustered in the towns and villages as well as in the magnificent churches. They provide a historic insight to what was the wealthiest part of England in between the 15th and 17th centuries. Today they are a key attraction and support the area’s tourism industry and local economy.	Conserve, enhance and promote the historic evidence of past human settlement, historic landscapes and links between historical sites, archaeological evidence and the geological interest of the area, to achieve a wider understanding of the importance of the NCA.	Sense of history				
	Archaeology						Tranquillity			
	Roman roads						Recreation			
	Rivers						Sense of place / inspiration			
	Field patterns						Geodiversity			
	Ancient woodlands and hedgerows									
	Settlement pattern									
	Moats									
	Built environment and building vernacular						The rich heritage and long history of settlement includes Roman sites, medieval villages, Norman castles, Bury St Edmunds Abbey, medieval moated farmsteads, traditional barns and many Grade 1 listed town buildings and churches.	Place names, are important references to local history (Saffron Walden is named after the <i>Crocus sativus</i> , which was locally grown and used to dye cloth made in the town until the 19th century). Essex villages (Woodham Ferrers/ Woodham Mortimer) were named after the lord of the manor, while in the more independent Suffolk, the local church’s patron saint’s name was used.	Provide interpretation and education facilities to explain the heritage assets in the area.	
	Large estates and country houses								Manage visitor numbers to sensitive historical sites to ensure that they are sustainable and do not have a negative impact (particularly within the Dedham Vale AONB). Increase opportunities for sustainable recreation and tourism away from the AONB to help relieve congestion within the AONB.	
Second World War airfields and pillboxes				Protect, maintain and restore historic buildings that are assessed as a priority in the region.						
Colne Valley Railway	The dispersed settlement pattern of small villages around ‘tyes’ (commons) or strip greens and isolated hamlets.		The restoration of historic river features such as locks and water mills helps conserve the industrial record of the area and supports recreation opportunities within the river valleys.							
New towns	Continued on next page...									

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Sense of history cont.		<p>... continued from previous page</p> <p>River locks, tow paths and watermills allude to the past importance of the river network.</p> <p>The ancient wooded landscape, demonstrates aspects of medieval enclosure and the impact of 20th-century field rationalisation.</p> <p>The Dedham Vale AONB area is a preserved, archetypal, lowland pastoral, English countryside, coupled with attractive vernacular buildings dating from a period of industrial wealth.</p> <p>Large estates and country houses provide a sense of past wealth (Ickworth and Audley End).</p> <p>Second World War runway strips, hard standings, hangars, pillboxes and barracks buildings dot the landscape illustrating the areas wartime importance.</p>		<p>The small ancient woodland remnants are important both for landscape character as well as biodiversity (for example a last refuge for Suffolk's dormice). They are a historic record of a previously more wooded landscape. Hatfield Forest is the only remaining intact Royal Hunting Forest and is considered unique in England.</p> <p>Ancient surviving sinuous hedgerows and boundaries are representative of the pattern of medieval fields and holdings and along with the road and path network provide the backbone of the historic landscape.</p> <p>Loss of traditional village patterns through new infill development, barn conversions and the use of non traditional building materials in renovation work, can lead to gradual erosion of historical assets and the quality and distinctiveness of the built environment.</p>	<p>Provide a sense of history through promotion of the archaeological record and the value of geological sites in preserving a record of past landscapes.</p> <p>Encourage the positive management of earthworks such as moated sites where they have become overgrown or silted, reducing their visibility in the landscape. This will provide opportunities for education.</p> <p>Increase the sense of history by protecting the character and historic resource of agricultural areas and registered parks and gardens for the cultural history they contribute to the landscape character.</p> <p>Strengthen the historic settlement patterns where new development is proposed. Where the restoration of historic features is proposed encourage the use of local materials and local vernacular styles.</p>	

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Tranquillity	Woodlands Rivers Dedham Vale AONB	<p>53 per cent of the NCA is classified as undisturbed.</p> <p>Central rural areas have high levels of tranquillity due to their remoteness from main transport routes and large settlements (around Great Bardfield, Thaxted, Cavendish). The sense of remoteness is enhanced by the wooded character of the plateau and the deep incision of the river valleys.</p> <p>Lower levels of tranquillity are associated with main A roads and the M11.</p> <p>Stansted Airport also has a localised audible impact related to flight paths and an extensive night time visual impact due to the airport/airfield lighting.</p> <p>The major towns reduce tranquillity levels towards the edges of the NCA (Chelmsford, Ipswich, Stowmarket, Bury St Edmunds, Bishop's Stortford, Harlow and Stevenage).</p>	Local	<p>Despite the intrusions of human activity in the 20th and 21st centuries, the Dedham Vale AONB retains a sense of tranquillity in terms of minimal noise, light and development intrusion. Pressures on the intimate and subtle landscape are increasing as visitor numbers grow; resulting in increased disturbance, particularly at popular sites with the summer months.</p> <p>Inward migration to the towns in the area, particularly the main centres close to the boundary, has resulted in urban expansion with increased housing and infrastructure supported by improved transport links to London. This in turn has reduced the tranquillity levels within the area over time. Undisturbed areas have decreased from 81 per cent in the 1960s to 53 per cent in 2007.</p> <p>Increasing the provision of high quality sustainable recreation opportunities away from the AONB and close to areas of population can help alleviate some of the pressures on the protected landscape.</p>	<p>Increase tranquillity by conserving and extending areas of semi-natural habitat, particularly woodlands and hedgerows to benefits wildlife and people.</p> <p>Explore how tranquil areas can be mapped and retained.</p> <p>Encourage new housing and other developments to be of a high quality to meet design and sustainability requirements, particularly with regard noise and lighting in rural areas. Use specific design guidance to retain these qualities.</p> <p>Ensure that local development frameworks recognise the importance of conserving and enhancing tranquillity to help reduce negative impacts from new developments.</p>	<p>Tranquillity</p> <p>Recreation</p> <p>Sense of place / inspiration</p> <p>Sense of history</p> <p>Biodiversity</p> <p>Geodiversity</p>

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Recreation	<p>Public rights of way network</p> <p>Stour Valley Path</p> <p>Essex Way and the Flitch Way long distance footpaths</p> <p>Dedham Vale AONB</p> <p>Rivers</p> <p>Historic features</p> <p>Colne Valley Railway</p> <p>The Museum of East Anglian Life</p>	<p>The NCA attracts a diversity of visitors such as local ramblers, cyclists, artists, anglers, bird-watchers, day trippers and tourists.</p> <p>Recreation is supported by the gentle topography of the landscape and 6,375 km of public rights of way, although only 1 per cent (3,628 ha) of the NCA is classified as being publically accessible.</p> <p>The AONB allows easy access to the working farmed countryside. It provides opportunities to see rare wildlife such as bats, water voles, otters, bluebells and various orchids as well other wildlife such as badgers and foxes and many species of farmland bird, butterflies and invertebrates, all of which enhance the visitor experience.</p> <p>Rivers provide recreational resources for low impact activities such as coarse fishing, while providing green infrastructure links from urban to rural areas.</p> <p>Ancient woodlands including Hatfield Forest NNR and Bradfield Woods are open to the public allowing people to experience these ancient landscape features.</p> <p>Large estates and country houses that are open to the public.</p>	Regional	<p>Recreation in the area is on the increase as the population of the south east increases. Increased numbers of people visiting the AONB and other popular locations such as the historic town of Lavenham can cause adverse impacts to local residents and increasing pressure on local resources.</p> <p>Increasing recreational access to local areas, particularly in the summer months, can impact on tranquillity.</p> <p>Increasing the potential recreation opportunities close to areas of growth may have the potential to relieve recreational pressure at the AONB sites.</p> <p>An increase in horse riding has lead to a slow growth in equestrian grazing leading to the development of some 'pony paddocks' that can bring intrusive infrastructure and little biodiversity gain.</p>	<p>Support the development of a strategy for public access management particularly within the AONB.</p> <p>Improve people's understanding of landscapes through educational access, providing interpretation of local features at key sites.</p> <p>Support well planned green infrastructure to provide sustainable access routes.</p> <p>Increase people's engagement with the natural environment to further benefit physical and mental health, by developing improved public access.</p>	<p>Recreation</p> <p>Biodiversity</p> <p>Geodiversity</p> <p>Tranquillity</p> <p>Regulating water quality</p> <p>Regulating soil erosion</p> <p>Sense of place / inspiration</p> <p>Water availability</p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	<p>Semi-natural and priority habitats</p> <p>Nationally and internationally designated sites</p> <p>Woodlands/ancient woodland and wood pasture</p> <p>Grazing marsh</p> <p>Hedgerows</p> <p>Rivers</p> <p>Agricultural land</p> <p>Orchards</p> <p>SSSI</p>	<p>Land covered by international nature conservation designations (SPAs and Ramsar) totals 156 ha, less than 1 per cent of the total land area. The Lee Valley and the Stour and Orwell Estuaries are both designated as Ramsar and SPA. Only a very small proportion of these sites fall within the NCA.</p> <p>NNRs and SSSI total 2,314 ha or less than 1 per cent of the total land area. There are 3 NNRs all of which are woodland sites. There are 67 SSSI sites. In 2011 over 80 per cent of the SSSI area was in either favourable or recovering condition. 5 per cent was in 'unfavourable' condition.</p> <p>1,569 Local Nature Reserves cover 11,039 ha.</p> <p>Hatfield Forest SSSI/ NNR contains over 800 ancient trees, some of which are over 1,200 years old. Habitats include coppice woodland and wood pasture.</p> <p>Several of the UK's largest bat hibernacula are found within the NCA, for example Little Blakenham Pit SSSI).</p> <p>Continued on next page...</p>	National	<p>Both the Lee Valley and Stour and Orwell Estuaries Ramsar and SPA sites are on the peripheries of the NCA. They are though close to areas of population and so provide good access to nature and links into the adjacent NCAs.</p> <p>There is fragmentation of biodiversity habitats across the NCA. Important semi-natural habitats are designated, although the importance of the agricultural land for biodiversity is under-represented. Tailored conservation support for agricultural businesses, delivered through agri-environment schemes can help support on-farm biodiversity outside of protected sites.</p> <p>Woodlands, especially ancient woodlands, as well as river valley habitats are core areas for biodiversity. Ancient hedgerows function as corridors linking these often fragmented habitats. Improving the network of linking features such as hedgerows can benefit biodiversity.</p> <p>Ancient coppice woodland and wood pastures are likely to be managed relics of the original wildwood and are now extremely rare. These habitats are especially important for invertebrates, especially those associated with decaying wood. Of particular significance are the saproxylic beetles. Ensuring that dead wood remains in these woodlands will support these specialised species.</p>	<p>Improve the health and resilience of the habitat networks and associated biodiversity to safeguard against the consequential impacts of climate change.</p> <p>Facilitate agricultural businesses to undertake more tailored conservation management, improving the understanding of the area's ecology and requirements for specialist species, through support provided by agri-environment schemes.</p> <p>Seek opportunities to increase woodland management where this will benefit biodiversity as well as timber provision and sense of place.</p> <p>Support the creation and expansion of native woodlands in connection with existing woodland and copses to improve the ecological networks and provide increased benefits for biodiversity.</p>	<p>Biodiversity</p> <p>Geodiversity</p> <p>Sense of place / inspiration</p> <p>Sense of history</p> <p>Recreation</p> <p>Pollination</p> <p>Pest regulation</p> <p>Food provision</p> <p>Tranquillity</p>

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Biodiversity cont.		<p>... continued from previous page</p> <p>Farmland field habitats support skylark, grey partridge, corn bunting, cornflower and brown hare.</p>		<p>Many types of woodland are undermanaged, which has led to a decline in their importance for biodiversity. Improving or reinstating management practices such as coppicing can support biodiversity.</p> <p>The diversity of aquatic plants, invertebrates and fish within the NCAs rivers is adversely affected by poor water quality, which is associated with reduced water levels and excess nitrates and phosphates. Reducing levels of run-off into water courses through the uptake of Catchment Sensitive Farming schemes can limit the impacts of diffuse pollution of watercourses.</p>	<p>Raise awareness and improve understanding and enjoyment of the sensitive habitats and wildlife. Managing visitor pressures at popular and sensitive sites by investing in high-quality infrastructure and interpretation.</p> <p>Encourage different remedies to improve water quality such as increasing on-farm water storage to reduce water abstraction levels, increasing flow rates and water levels in rivers and continue to make improvement to waste water treatment works, to benefit aquatic biodiversity.</p> <p>Raise awareness of the role of geodiversity in underpinning biodiversity.</p>	

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Geodiversity	<p>River valley exposures</p> <p>Quarry exposures</p> <p>Geomorphology</p> <p>Archaeology</p>	<p>Geodiversity underpins much of the characteristic landscape features within this NCA.</p> <p>The principal mineral resource within the NCA is sand and gravel. Particular concentrations occur in the river valleys, especially the Gipping Valley in the north.</p> <p>The underlying Late Cretaceous Chalk is exposed in old quarries at Great Blakenham and at Little Blakenham). There are two active chalk quarries (Newport Quarry, Saffron Walden and Needham Market Chalk Quarry).</p> <p>The extensive spread of till (boulder clay) has in the past been extracted for brick making at various sites. Brickearth continues to be extracted at The Brickfields, Bulmer near Sudbury.</p> <p>Chalky boulder clay and underlying gravel and sand deposits provide a geological record and provide an archive of past environmental and climatic change that may help inform our understanding of the impacts of future climate change. These deposits also provide a context for the archaeology found within this NCA such as the Palaeolithic finds.</p> <p>Continued on next page...</p>	National	<p>The valleys significant geodiversity, including Cretaceous, Palaeocene, Eocene, Pliocene and Pleistocene geology, and also Pleistocene and Holocene landforms.</p> <p>Sand and gravel is exploited by quarrying for use in the construction industry. The restoration of river valley sand and gravel quarries provides opportunities for geodiversity, wetland biodiversity as well as recreation.</p> <p>Extracted chalk is used for the improvement of arable land and for specific industrial purposes. Redundant old chalk quarries such as those in Great Blakenham and Little Blakenham are important sites for biodiversity and in particular bats that utilise old extraction tunnels.</p> <p>Disused chalk and gravel pits continue to yield geological information and examples of relic and active landform features.</p>	<p>Use geological sites as a community educational tool, emphasising the integral role of geodiversity in underpinning the landscape character of the NCA.</p> <p>Ensure that geodiversity sites continue to be protected and conserved and are still available for research.</p> <p>Maintain and enhance the geological and geomorphological resource through implementation of the Suffolk/Essex Geodiversity Action Plan, specifically through maintenance of natural fluvial processes, together with the development of local geological conservation strategies and assessment of educational/research value of sites.</p> <p>Identify opportunities for geodiversity (and biodiversity) enhancement, which might develop through the reinstatement of semi-natural habitats.</p>	<p>Geodiversity</p> <p>Biodiversity</p> <p>Recreation</p> <p>Sense of place/ inspiration</p> <p>Sense of history</p>

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Geodiversity cont.		<p>... continued from previous page</p> <p>There are nine geological SSSI and one Local Geological Site within the NCA.</p>			<p>Ensure that sand and gravel extraction sites are restored to contribute to local landscape character and exploit geodiversity opportunities and enhance biodiversity opportunities, providing improved access where possible.</p>	

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Front cover: The characteristic arable farmed landscape of the Stour Valley near Cavendish, in the heart of the NCA.

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