Freckenham Neighbourhood Plan
Landscape Character Appraisal

APPENDICES

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Appendices

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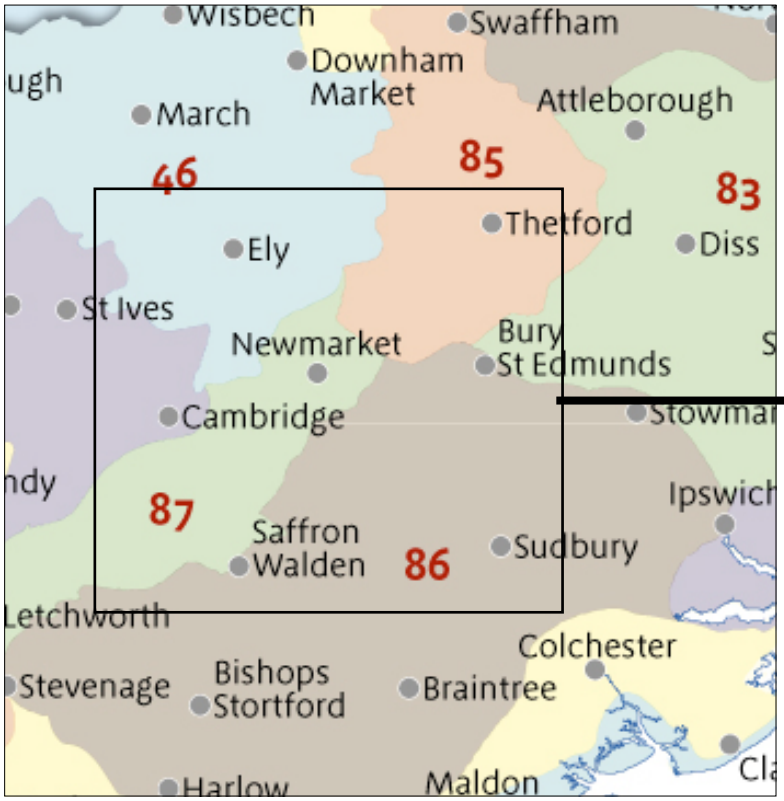
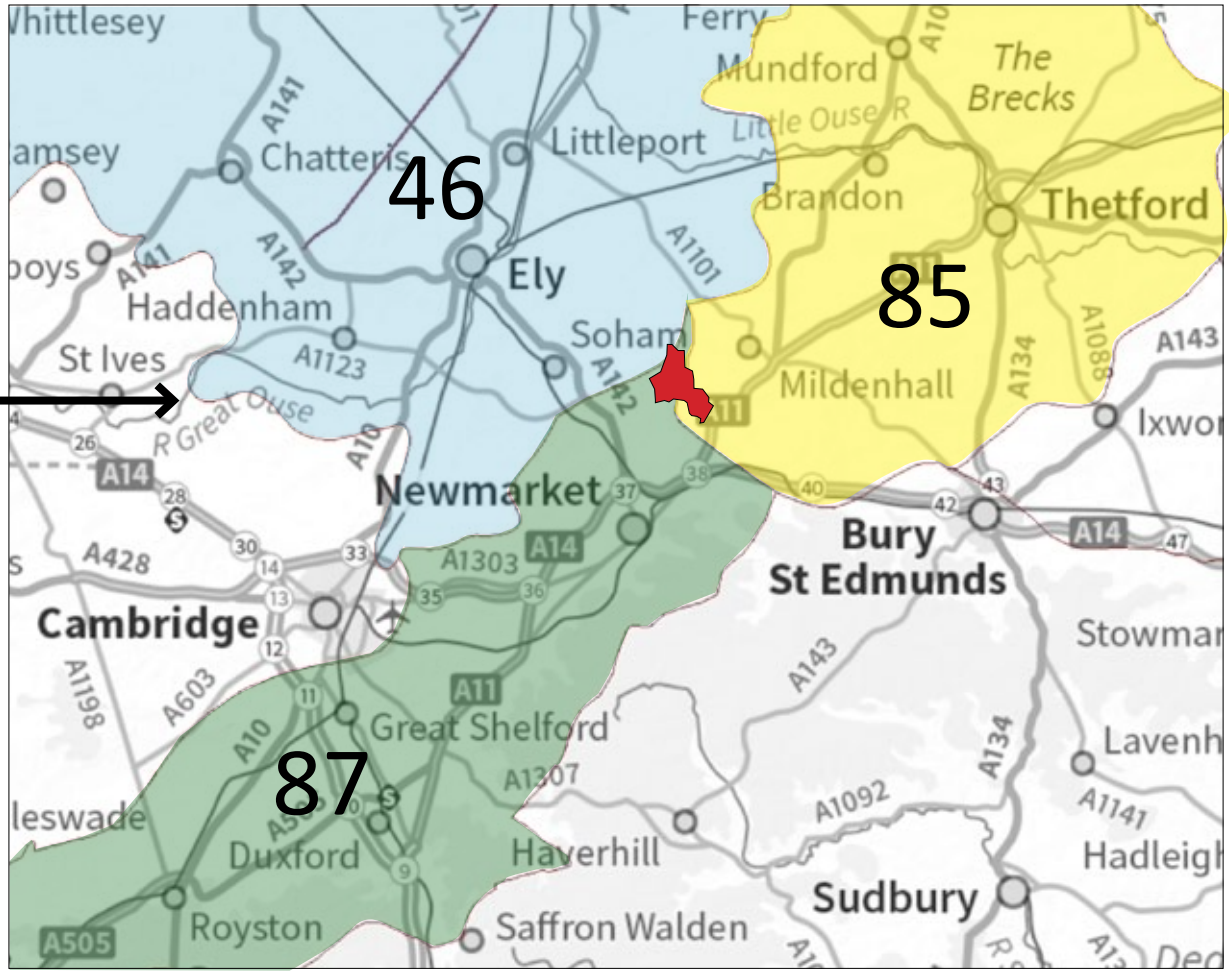
Appendix A: National Character Map

Character context - National Character Areas



East of England Map. https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles



National character map of the East of England.
Freckenham falls at the confluence of three NCAs:
NCA 87: East Anglian Chalk
NCA 85: The Brecks
NCA 46: The Fens

Freckenham

Appendix B: National Character Profile - 87 - East Anglian Chalk

National Character Area profile:

87. East Anglian Chalk

Supporting documents

Introduction & Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

Summary

The East Anglian Chalk National Character Area (NCA) is characterised by the narrow continuation of the chalk ridge that runs south-west–north-east across southern England. The underlying geology is Upper Cretaceous Chalk, which is covered in a surface deposit of ice and river-deposited material laid down during the last ice age. This creates a visually simple and uninterrupted landscape of smooth, rolling chalkland hills with large regular fields enclosed by low hawthorn hedges, with few trees, straight roads and expansive views to the north.

The vast majority of its landscape is open countryside, under cereal production. Sustainable farming practices are required to help to manage the thin chalk soils and support wildlife in the wider countryside. It is an open landscape but trees on hill tops are visually distinct and characteristic. The smooth, rolling chalkland hills are dissected by the two gentle valleys of the rivers Granta and Rhee, which converge to form the River Cam just south of Cambridge.

The porosity of the area's Chalk geology is one of its most noticeable assets. Rain is largely absorbed through tiny, connected pores and natural fractures, instead of lying on the surface and forming rivers, lakes and ponds. Rainwater moves through the thin chalk soils and slowly replenishes the strategically important chalk aquifer below.

Historically, sheep rearing and corn production have shaped the area, leading to the creation of botanically rich grasslands, which are now often small and fragmented. Large-scale cereal production dominates the predominantly agricultural landscape, and care must be taken to ensure that the soil quality is maintained to support a viable and sustainable future for farming.

Settlement was limited, but over the last 50 years towns – including the university city of Cambridge – and commuter villages have grown rapidly. There is pressure for more development, which is adding to the demand for water and is likely to further reduce the tranquillity of the NCA.

A significant influence around Newmarket has historically been horse-racing and stud farms, which have brought a manicured appearance to the landscape. There is great opportunity to work with the horse-racing industry to improve the quality of the grassland and shelterbelts for the benefit of biodiversity.

The chalklands are traversed by several ancient trackways, including the major ancient trackway, the Icknield Way, which extended along the length of the south-west–north-east chalk outcrop to The Ridgeway in Oxfordshire. The importance of strategic road and railway transport links across this landscape continues today.

Click map to enlarge; click again to reduce.

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Appendix B: National Character Profile - 87 - East Anglian Chalk

National Character Area profile:

87. East Anglian Chalk

Supporting documents

Key characteristics

- The underlying and solid geology is dominated by Upper Cretaceous Chalk, a narrow continuation of the chalk ridge that runs south-west–north-east across southern England, continuing in the Chilterns and along the eastern edge of The Wash. The chalk bedrock has given the NCA its nutrient-poor and shallow soils.
- Distinctive chalk rivers, the River Rhee and River Granta, flow in gentle river valleys in a diagonally north-west direction across the NCA.
- The chalk aquifer is abstracted for water to supply Cambridge and its surroundings and also supports flows of springs and chalk streams; features associated with a history of modification include watercress beds, culverts and habitat enhancements.
- The rolling downland, mostly in arable production, has sparse tree cover but distinctive beech belts along long, straight roads. Certain high points have small beech copses or 'hanger', which are prominent and characteristic features in the open landscape. In the east there are pine belts.
- Remnant chalk grassland, including road verges, supports chalkland flora and vestigial populations of invertebrates, such as great pignut and the chalkhill blue butterfly.
- Archaeological features include Neolithic long barrows and bronze-age tumuli lining the route of the prehistoric Icknield Way; iron-age hill forts, including that at Wandlebury; impressive Roman burial monuments and cemeteries such as the Bartlow Hills; a distinctive communication network linking the rural Roman landscape to settlements and small towns, such as Great Chesterford; the four parallel Cambridgeshire dykes that cross the Chalk: the Anglo-Saxon linear earthworks of Devil's Dyke, Fleam Dyke, Heydon/Bran Ditch and Brent Ditch; ridge-and-furrow cultivation remains of the open field systems of the earlier medieval period; and large numbers of later moated enclosures, park lands created, sheepwalks, arterial routes and nucleated villages that emphasise the land use change of this period.
- Brick and 'clunch' (building chalk) under thatched roofs were the traditional building materials, with some earlier survival of timber frame. Isolated farmhouses built of grey or yellowish brick have a bleached appearance.
- Settlement is focused in small towns and in villages. There are a number of expanding commuter villages located generally within valleys. Letchworth Garden City is a nationally significant designed garden city.
- In and around the wider area of Newmarket, stud farms impose a distinctive geometric, enclosed and manicured pattern to the landscape.
- The NCA is traversed by the Icknield Way, an ancient route that is now a public right of way. Roads and lanes strike across the downs perpendicularly and follow historical tracks that originally brought livestock to their summer grazing. Today major roads and railways are prominent landscape characteristics of the NCA.

Wandlebury Hill Fort from the air in 1980. The wooded concentric earth bank can be clearly seen.

Appendix C: National Character Profile - 85 - The Brecks

National Character Area profile:

85. The Brecks

Supporting documents

Introduction & Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

Summary

The Brecks National Character Area (NCA), also known as Breckland, lies at the heart of East Anglia, occupying much of south-western Norfolk and north-western Suffolk, together with a small part of north-eastern Cambridgeshire. The area has an ages-old identity, a very particular land use history and a richly distinctive wildlife, which sets it apart from all surrounding landscapes. Its underlying chalk geology has produced a low, gently undulating plateau, largely covered with sandy soils of glacial origin. The Brecks is sandwiched between the more fertile, and more wooded, clayland plateau to the north, east and south, and the level drained peat and silt fens to the west, which the main rivers, the Little Ouse, Wissey and Lark, drain into.

The Brecks is among the warmest and driest parts of the United Kingdom, with a markedly less maritime climate than other parts of England. This aspect, combined with its free-draining soils, has greatly influenced the landscape character and led to the development of dry heath and grassland communities. In the 19th century the area was termed a sandy waste, with small patches of arable cultivation that were soon abandoned. However, 20th-century agricultural advances have enabled the dry, low-fertility soils to be farmed and the area is now a major producer of vegetables and cereals, with over two-thirds of the land under cultivation.

The Brecks' rich and distinctive wildlife heritage has experienced extraordinary change and loss of species and habitats in just the last 60 years. The surviving remnants of dry heath and grassland support a great diversity of plants, invertebrates and breeding birds, which have also adapted to live in forestry and arable habitats. Woodlark and nightjar breed on the open heaths and recently felled areas within the vast conifer plantations of Thetford Forest (the largest area of lowland conifer forest in England), while 60 per cent of the United Kingdom's nesting stone curlew population establish nests on open ground provided by arable cultivation. A unique characteristic feature of these remnant heaths is that they often comprise complex mosaics of acid and calcareous grassland together with, in places, heather-dominated heath. Combined with the conifer plantations they contribute strongly to the sense of place. The rich biodiversity of the Brecks is recognised by the many statutory conservation designations which include the Breckland Special Protection Area, four Special Areas of Conservation, four National Nature Reserves and numerous Sites of Special Scientific Interest; together, these cover 40 per cent of the NCA's land area.

A wealth of archaeological heritage, including the Neolithic flint mines of Grime's Graves near Brandon and estate parklands such as Euston Park and Culford, also characterise the area. There are few settlements with Thetford being the main town, located on the A11 in the centre of the NCA, and Brandon, Mildenhall and Swaffham the only other settlements of any size. The larger town of Bury St Edmunds lies just outside the area to the south.

Click map to enlarge; click again to reduce.

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Appendix C: National Character Profile - 85 - The Brecks

National Character Area profile:

85. The Brecks

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Supporting documents

Introduction & Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

Recent change has led to some increase in the heathland and grassland resource, through conservation efforts and changes in forestry management, which has also increased the proportion of deciduous tree species within the forested area. Uptake of the current agri-environment incentives supports the nationally and internationally important biological diversity found within the Brecks, helping to secure and increase numbers of rare farmland birds such as stone curlew, and scarce plants such as bur and sickle medick, and Spanish and sand catchfly. Increased recreational use of the forest and heathland areas, new housing around Thetford and infrastructure developments such as the dualling of the A11 continue to provide challenges and opportunities in this distinctive land of flint, sand and water. A key challenge will be to increase the establishment of sustainable land management practices that help to reduce the abstraction of water from the underground aquifer and safeguard and strengthen soils and habitats, while also providing sustainable income for land managers.

Conservation grazing by Exmoor ponies on Knettishall Heath.

Statements of Environmental Opportunity

- **SEO 1**: Conserve, enhance and increase public awareness of the distinctive historic landscape of the Brecks, which is of national and international significance, through securing and expanding its unique and varied habitat mosaic, protecting and managing its sensitive periglacial landscape and rich historic environment.
- **SEO 2**: Manage the Brecks' distinctive agricultural landscape to benefit biodiversity and soil and water quality, by promoting sustainable but productive farming practices that are able to adapt to changing agricultural economics, the considerable challenge of climate change and the increasing water stress within the NCA.
- **SEO 3**: Manage the Brecks' forest plantations and woodlands to combine commercial forestry and fuel production with a mix of habitats for rare and endangered plants and animals, enhancing both their capacity and capability as a national recreational resource and their role in climate change adaptation and regulation.
- **SEO 4**: Encourage measures which lead to the enhancement of landscape character and the historic environment, the sense of place and tranquillity, and the conservation of historic features when considering the design and location of new development and infrastructure and land management options, securing multiple benefits through the provision and management of high-quality green infrastructure networks.

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Appendix C: National Character Profile - 85 - The Brecks

National Character Area profile:

85. The Brecks

Supporting documents

Introduction & Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

Key characteristics

- A largely open, gently undulating landscape with a low-lying, dry plateau that rises to the north. Subtle long slopes lead to alluvial flats containing shallow, meandering wooded river valleys.
- The chalk solid geology lies close to the surface and is covered by thin deposits of sand and flint. The effects of repeated freeze and thaw in the tundra-like climate of the last ice age have produced intricate ground patterns, with patches of calcium-rich soils interspersed with acidic conditions.
- Remnants of collapsed pingos and other ground-ice depressions which formed in periglacial conditions are typically found in the valleys, and are characteristic features at Sites of Special Scientific Interest (SSSI) such as Thompson Common, East Walton Common and Foulden Common.
- Vast commercial conifer plantations form a forest landscape, unique in lowland England. The regular geometric shape and form and the repeated occurrence of plantations and shelterbelts unify the land cover pattern, forming wooded horizons and framing views into adjacent landscapes.
- Predominantly agricultural land use focused on arable production, with planned courtyard farmsteads and large, regular 18th- and 19th-century enclosure fields often clearly defined by Scots pine and beech shelterbelts or neat hawthorn hedges, indicative of large estate enclosure. The regular field layouts combine with long, straight, undulating roads to create a geometric landscape character.
- Outdoor pigs and intensive indoor and outdoor poultry-rearing units are also characteristic.
- Free-draining geology and soils with naturally low fertility support internationally important lowland heathland and mosaics of lowland acid and calcareous grassland that bring colour and textural variation to the landscape and provide a biodiversity-rich resource.
- Narrow and meandering lush shallow river valleys (some of which contain unusually fast-flowing streams) form a marked but limited contrast to the dry, extensively arable upland catchment which they drain. All flow westward and are fed by nutrient-poor calcareous groundwater and support important wetland habitats.
- A high concentration of important archaeological features, resulting from a long continuity of human settlement, include Neolithic flint mines, medieval churches, priories and rabbit warrens, 18th- and 19th-century designed parklands and estate villages, Second World War defence features and 20th-century abandoned settlements in the military training area known as the Stanford Training Area (STANTA).
- The main population centre is Thetford with road and rail links radiating out from the town. The settlement pattern is sparse with nucleated villages scattered along the river valleys. Farm buildings and churches have considerable impact, but elsewhere the landscape is very empty. Large military air bases are a feature.

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Appendix C: National Character Profile - 85 - The Brecks

National Character Area profile:

85. The Brecks

Supporting documents

Introduction & Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

The blue Viper's Bugloss on farmland in high summer.

Key characteristics continued...

- Traditional knapped flint, clunch (a form of impure chalk) and 'white' brick are characteristic building materials.
- Away from the main A-road transport corridors where traffic is consistently busy including the A11, A1065 and A134, the area remains still and peaceful. On the approach roads to Swaffham, Watton and Thetford, vertical structures, including communications masts and the Swaffham and North Pickenham wind turbines, dominate the landscape.

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Appendix D: National Character Profile - 46 - The Fens

National Character Area profile: **46. The Fens**

Supporting documents

Introduction & Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

Description

Physical and functional links to other National Character Areas

The area abuts a number of other National Character Areas (NCAs). To the east lie North West Norfolk and The Brecks NCAs. To the south-east rises the gently rolling East Anglian Chalk NCA and to the south-west is the undulating Bedfordshire and Cambridgeshire Claylands NCA. To the west rise the gently shelving slopes of the Kesteven Uplands and the South Lincolnshire Edge NCAs. To the north-west the woods and gravel workings of the Central Lincolnshire Vale NCA gradually slope down to the Lincolnshire fens, while due north the Lincolnshire Wolds NCA rises to create a dominant 'upland' horizon. The Steeping River marks the quieter north-east boundary to the Lincolnshire Coast and Marshes NCA. The land boundary of the Fens is typically drawn along a series of catchwater drains, dykes, canalised rivers and lodes. To the north-east the Fens are bounded by the North Sea.

Four main rivers, the Witham, Welland, Nene and Great Ouse, drain much of the surface water from the East Midlands across the Fens. The rivers often flow in canalised channels before discharging into the large Wash estuary. The rivers and their associated networks of ditches and dykes provide ecological networks and functional links to other NCAs.

Marine processes strongly influence the physical and biological character of the Wash. Marine sediments originating from the eroding nearshore seabed off central Lincolnshire and the Holderness coast of East Yorkshire predominate, although some accreted sediments originate from further north. While much of this sediment settles within the Wash, some moves seaward again to help supply the coastal structures along the North Norfolk coast.

Due to its low-lying landform, views to and from the neighbouring NCAs strongly reflect their geology, particularly the higher ground of the gently rolling East Anglian Chalk NCA to the south-east, the undulating Bedfordshire Claylands to the south-west, and to the west the gradually shelving slopes of the Kesteven Uplands and the South Lincolnshire Edge NCAs, while due north the Lincolnshire Wolds NCA rises to create a dominant elevated horizon. There are vast, open views of the sky throughout and wide, flat panoramic views, particularly over the mudflats of the Wash in the east.

Fenland farming is nationally important with, for example, a quarter of England's potatoes grown here and over one-third of English vegetables. Agriculture is the major source of employment, with approximately 27,000 people employed either permanently or seasonally/temporarily throughout the year. Nearly 90 per cent of the Fens were classified as either Grade 1 or Grade 2 agricultural land under the Provisional Agricultural Land Classification (ALC) survey of the late 1960s and early 1970s. Peat wastage will have reduced this since then.

The Fens play host to several major transport links. The East Coast railway mainline cuts across the south-western corner and there are east–west rail passenger and freight lines running through the area. Major roads include the A47, the A16 and A17, among numerous other A roads which form transport corridors across the landscape. Other major infrastructure, such as power stations, major gas and electrical distribution networks, either supply surrounding NCAs or the Fens are supplied by them.

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Appendix D: National Character Profile - 46 - The Fens

National Character Area profile:

46. The Fens

Supporting documents

Introduction & Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

Distinct areas

- Open coastal marshes
- Drained coastal marshes
- Settled inland fens
- Open inland fens

Key characteristics

- Expansive, flat, open, low-lying wetland landscape influenced by the Wash estuary, and offering extensive vistas to level horizons and huge skies throughout, provides a sense of rural remoteness and tranquillity.
- Jurassic clays are overlain by rich, fertile calcareous and silty soils over the coastal and central fens and by dark, friable fen peat further inland. The soils are important for agriculture, which is hugely significant for the rural economy in the Fens. There are over 4,000 farms in the Fens; enough wheat is grown here annually to produce a quarter of a million loaves of bread and one million tons of potatoes are grown here. In addition to traditional vegetables, exotics such as pak choi are now cultivated. Some 40 per cent of England's bulbs and flowers are also produced in the Fens.
- The Wash is the largest estuarine system in Britain, supporting internationally important intertidal and coastal habitats influenced by constant processes of accretion and deposition, forming salt marsh and mudflats and providing habitats for wildfowl, wading birds and other wildlife, including grey seals and approximately 90 per cent of the UK's common seals. It also provides important natural sea defences and plays a key role in climate change regulation. Flood storage areas on the Nene, Cam, Lark and Ouse washes also provide significant biodiversity interest. True fen mainly occurs at remnant conservation sites, such as Baston or Wicken Fen.
- Overall, woodland cover is sparse, notably a few small woodland blocks, occasional avenues alongside roads, isolated field trees and shelterbelts of poplar, willow and occasionally leylandii hedges around farmsteads, and numerous orchards around Wisbech. Various alders, notably grey alder, are also used in shelterbelts and roadside avenues.
- The predominant land use is arable – wheat, root crops, bulbs, vegetables and market gardening made possible by actively draining reclaimed land areas. Associated horticultural glasshouses are a significant feature. Beef cattle graze narrow enclosures along the banks of rivers and dykes and on parts of the salt marsh and sea banks.
- Open fields, bounded by a network of drains and the distinctive hierarchy of rivers (some embanked), have a strong influence on the geometric/rectilinear landscape pattern. The structures create local enclosure and a slightly raised landform, which is mirrored in the road

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Appendix D: National Character Profile - 46 - The Fens

National Character Area profile: **46. The Fens**

Introduction & Summary | Description | Opportunities | Supporting documents: Key facts and data | Landscape change | Analysis

Key characteristics (continued)

network that largely follows the edges of the system of large fields. The drains and ditches are also an important ecological network important for invertebrates, fish including spined loach, and macrophytes.

- The area is very rich in geodiversity and archaeology, with sediments containing evidence for past environmental and climate changes and with high potential for well-preserved waterlogged site remains at the fen edge, within some of the infilled palaeo-rivers and beneath the peat.
- Large, built structures exhibit a strong vertical visual influence, such as the 83 m-high octagonal tower of 'Boston Stump' (St Botolph's Church), Ely Cathedral on the highest part of the Isle of Ely dominating its surrounding fen, wind farms and other modern large-scale industrial and agricultural buildings, while drainage and flood storage structures and embanked rail and road routes interrupt the horizontal fen plain.
- Settlements and isolated farmsteads are mostly located on the modestly elevated 'geological islands' and the low, sinuous roddon banks (infilled ancient watercourses within fens). Elsewhere, villages tend to be dispersed ribbon settlements along the main arterial routes through the settled fens, and scattered farms remain as relics of earlier agricultural settlements. Domestic architecture mostly dates from after 1750 and comprises a mix of late Georgian-style brick houses and 20th-century bungalows.

Wisbech North Brink - the tidal River Nene and inland port.

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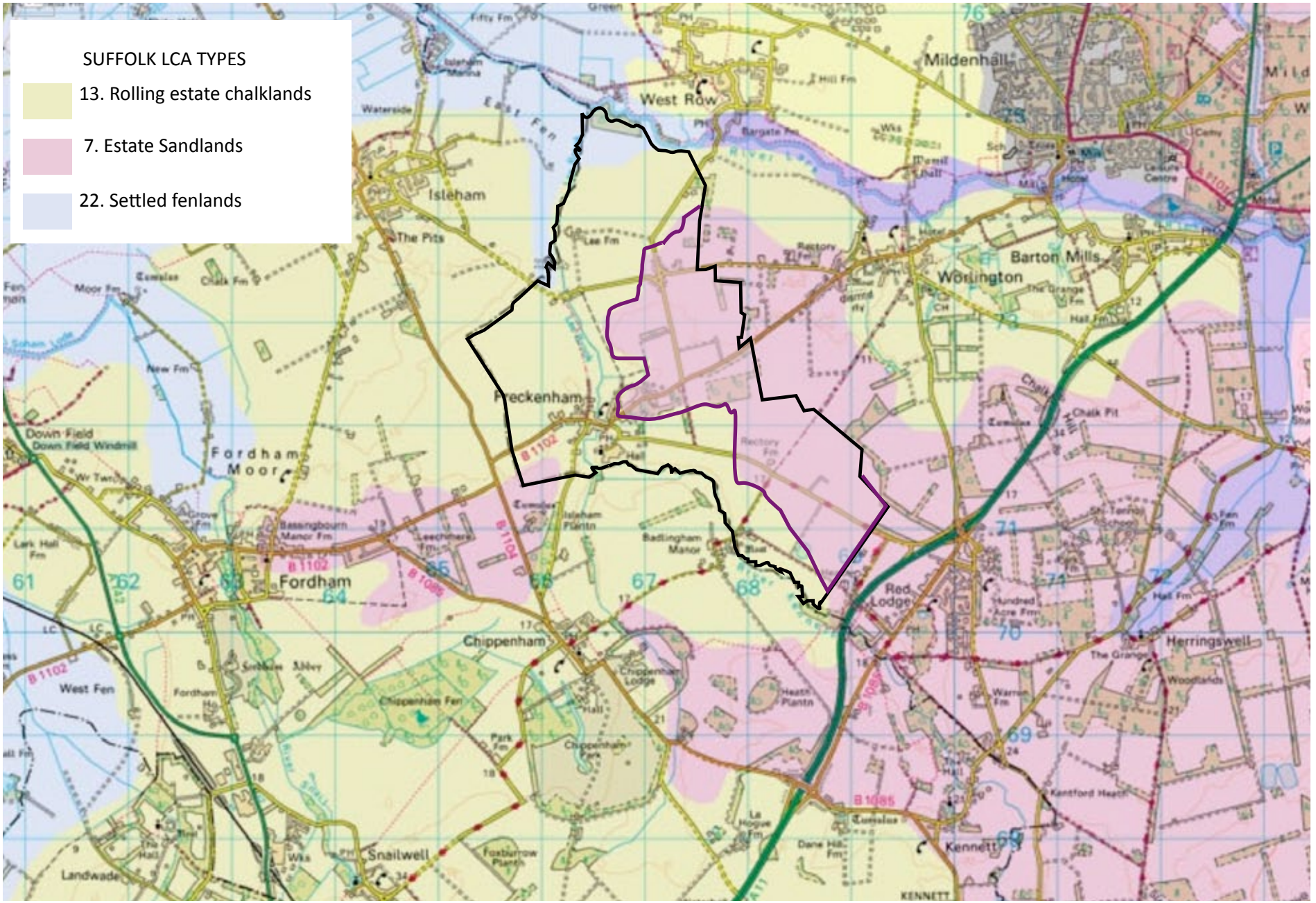
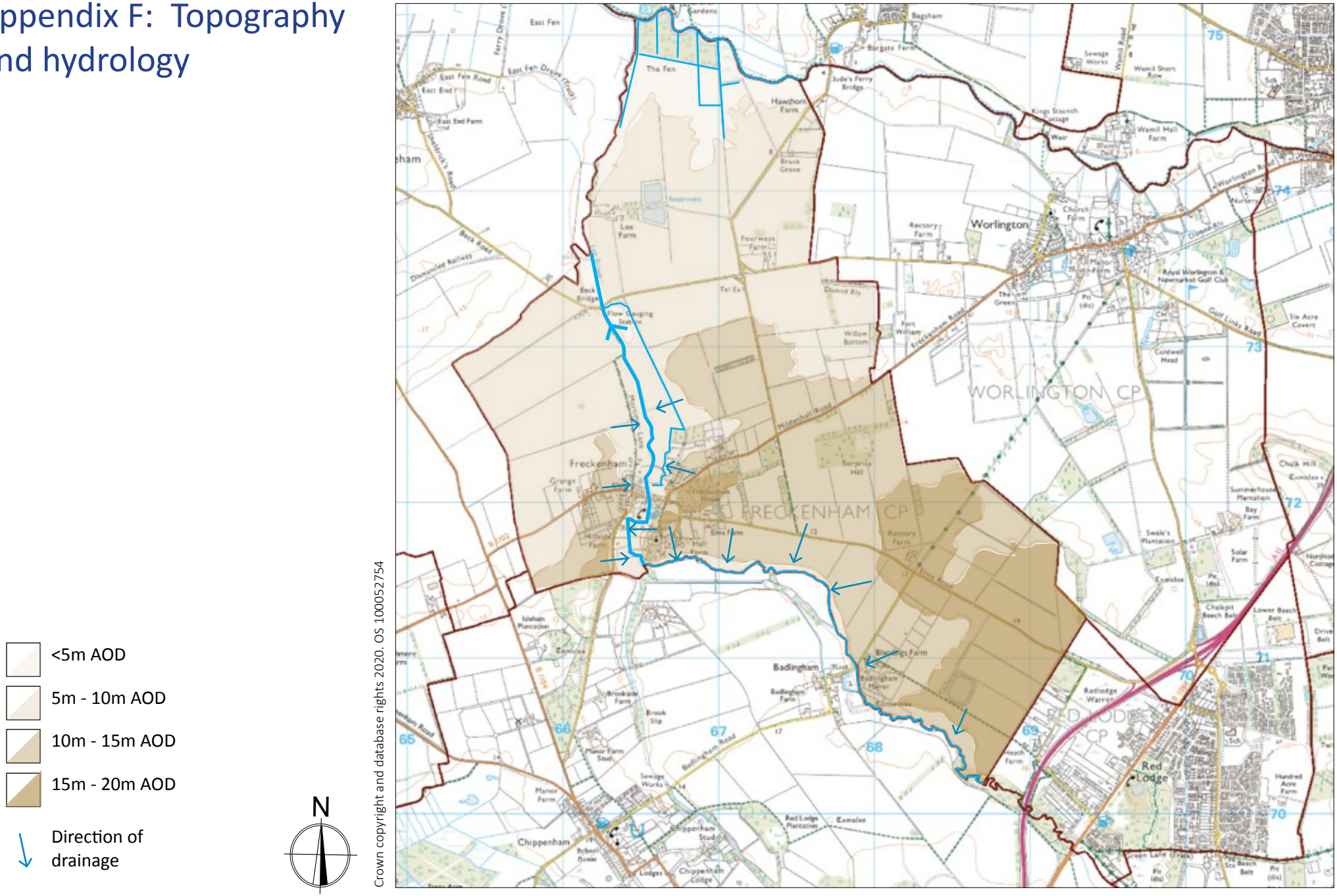
Appendix E: Suffolk Landscape Character Assessment map



Appendix F: Topography and hydrology



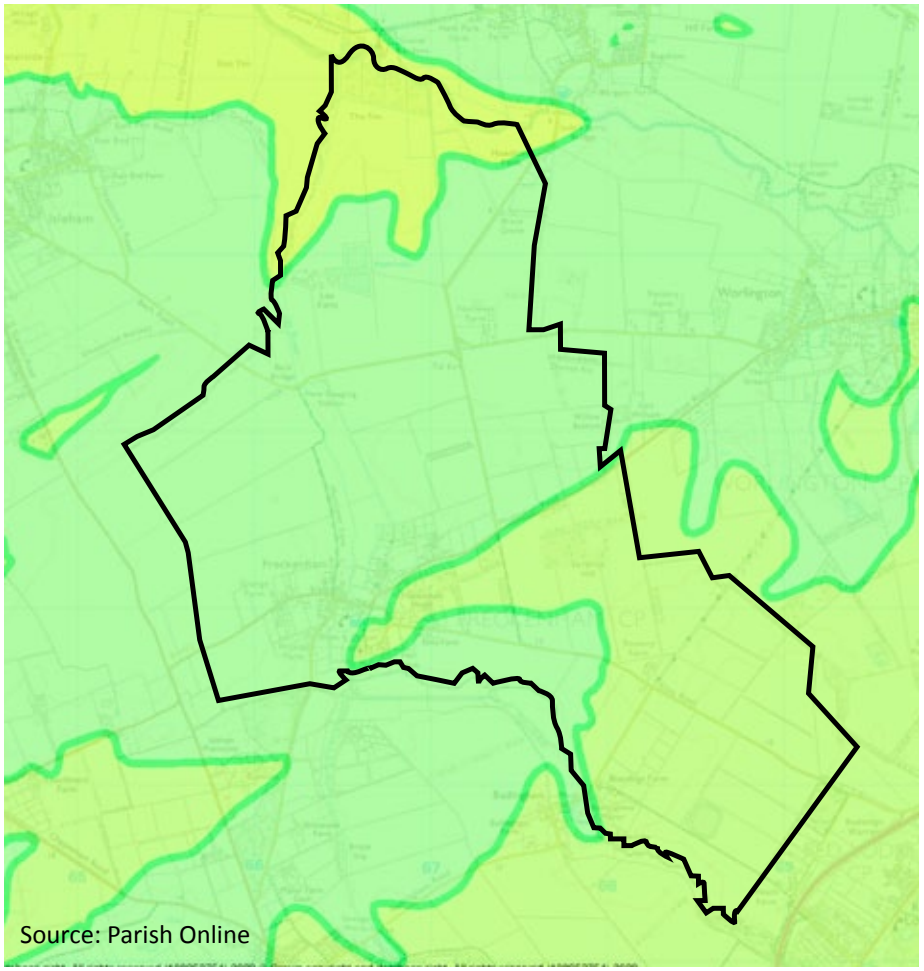
Appendix G: Geology and Soils

GEOLOGY:

Text from British Geology Survey online map viewer.

Zig Zag Chalk Formation - Chalk. Sedimentary Bedrock formed approximately 94 to 101 million years ago in the Cretaceous Period. Local environment previously dominated by warm chalk seas.

Holywell Nodular Chalk Formation And New Pit Chalk Formation (undifferentiated) - Chalk. Sedimentary Bedrock formed approximately 90 to 101 million years ago in the Cretaceous Period. Local environment previously dominated by warm chalk seas.



Source: Parish Online

SOILS:

Soilscape 3:
Shallow lime-rich soils over chalk. Free draining and loamy

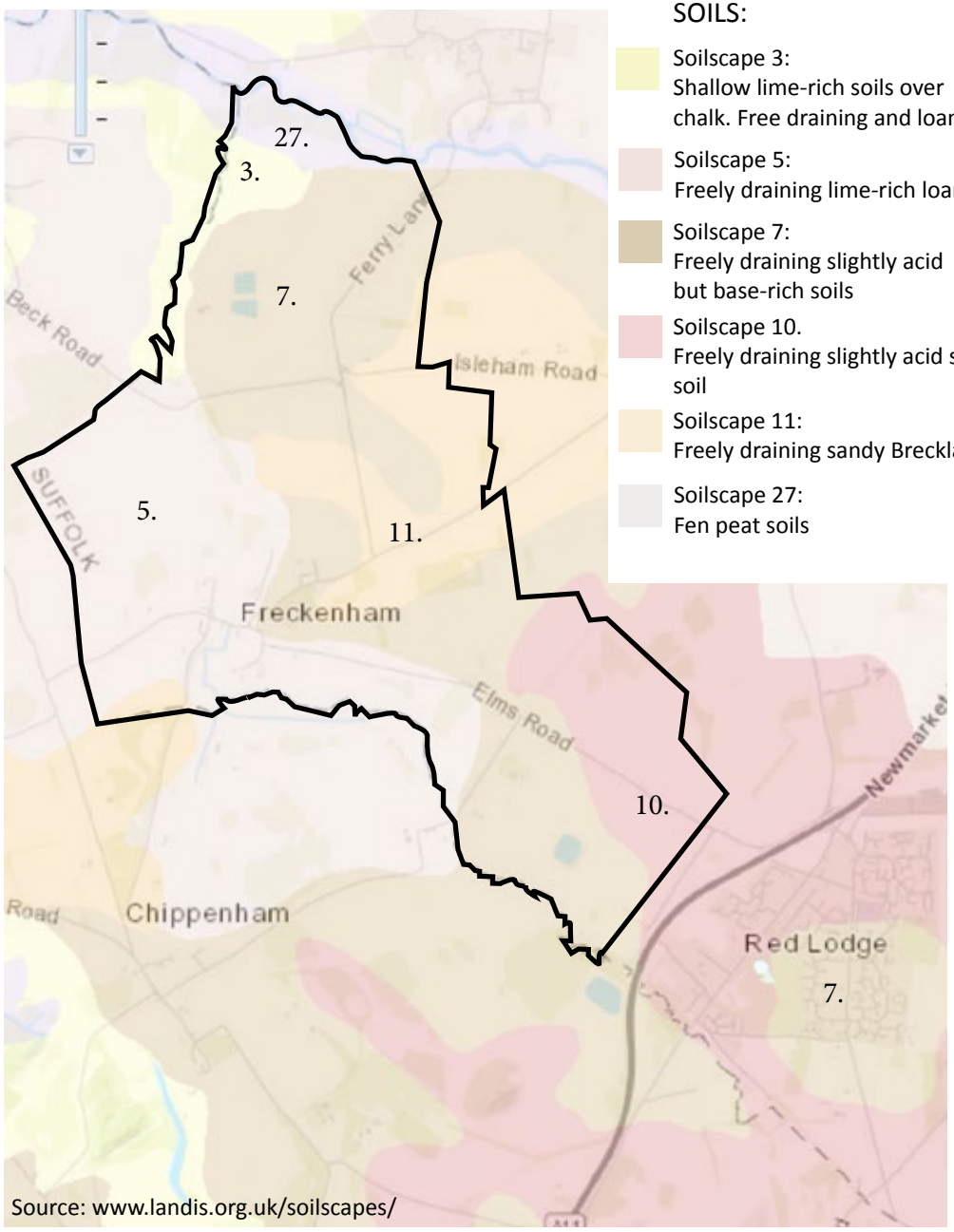
Soilscape 5:
Freely draining lime-rich loamy soils

Soilscape 7:
Freely draining slightly acid but base-rich soils

Soilscape 10.
Freely draining slightly acid sandy soil

Soilscape 11:
Freely draining sandy Breckland soils

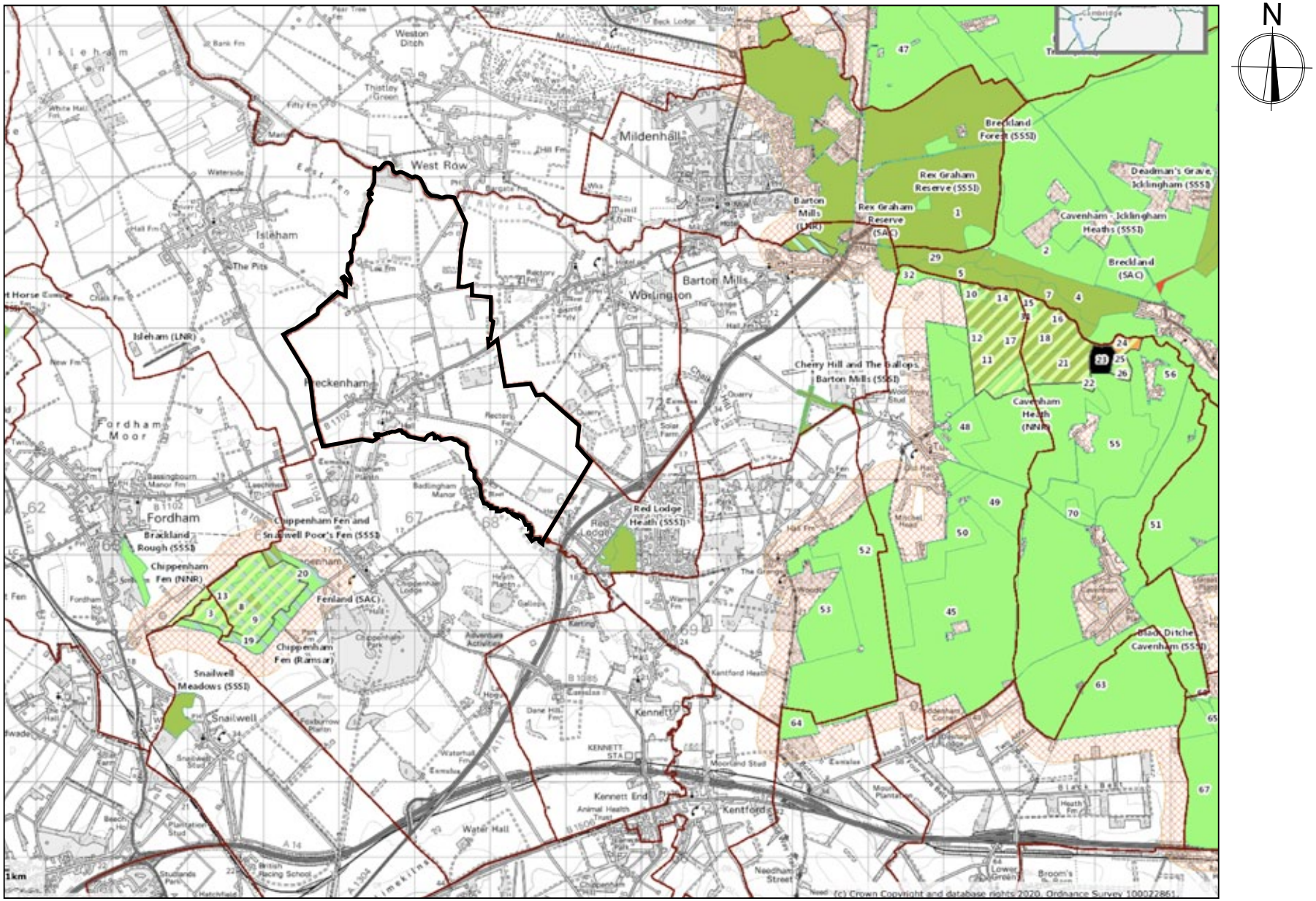
Soilscape 27:
Fen peat soils



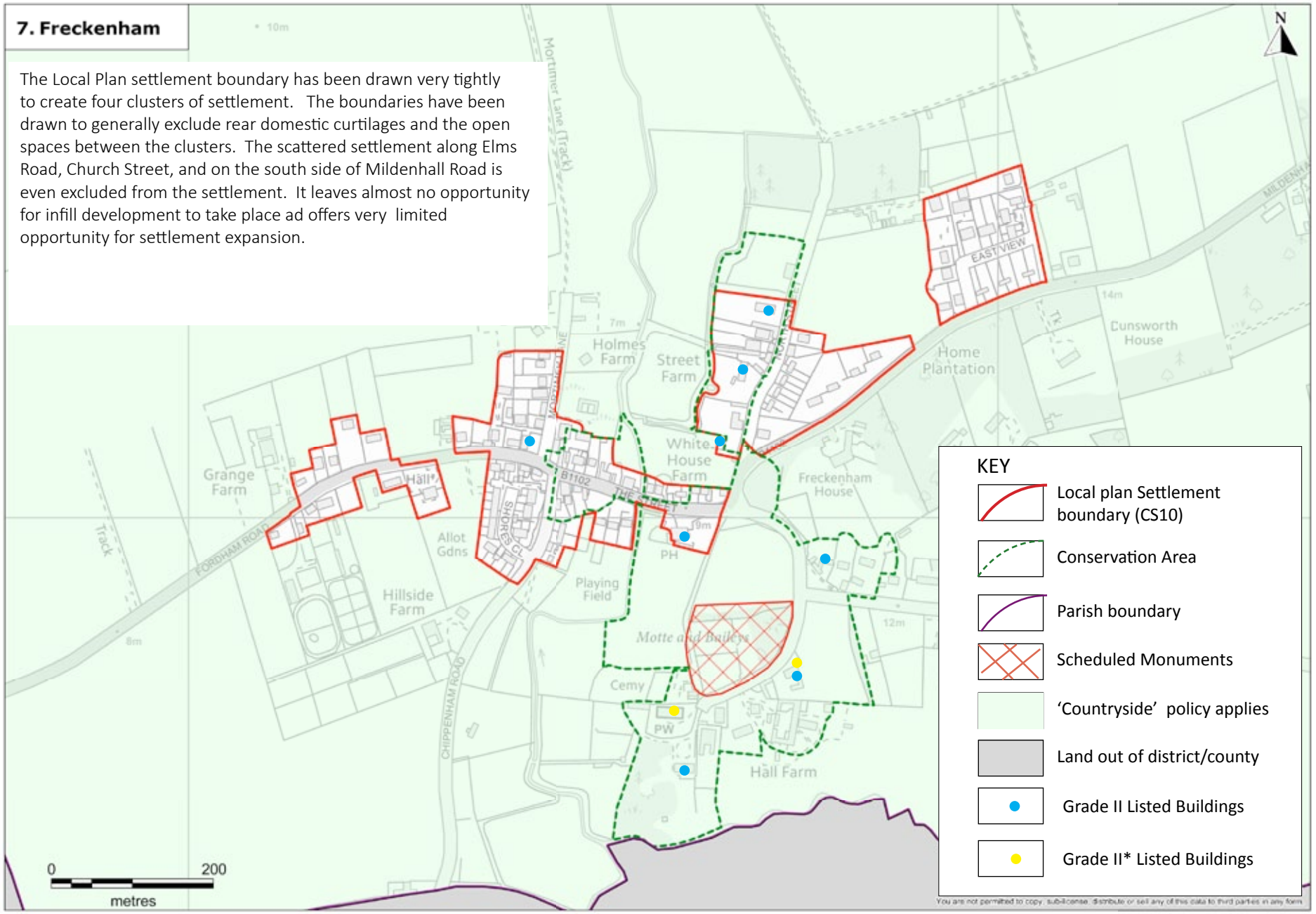
Source: www.landis.org.uk/soilscapes/

Appendix H: Ecological sites

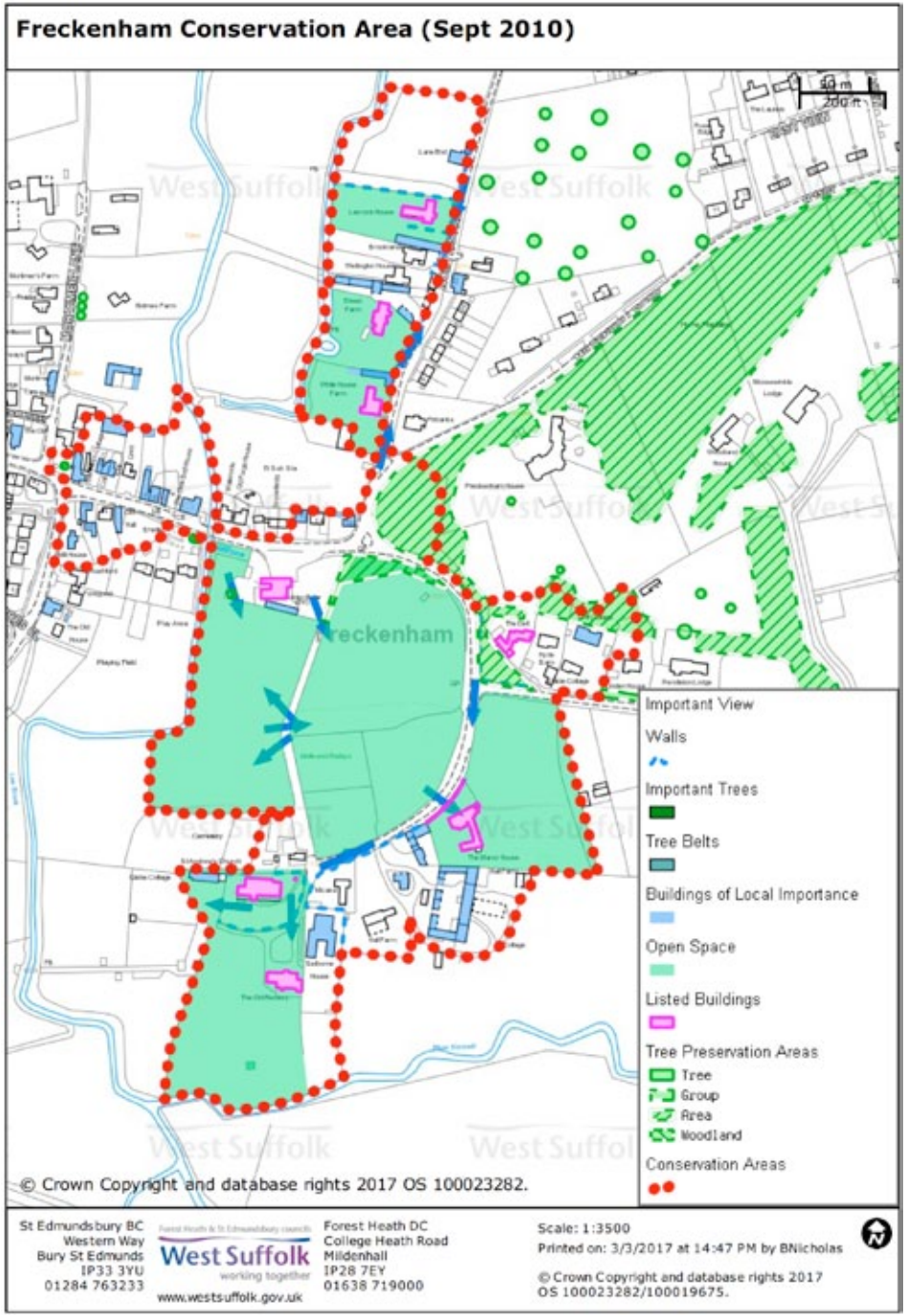
Source: https://magic.defra.gov.uk/



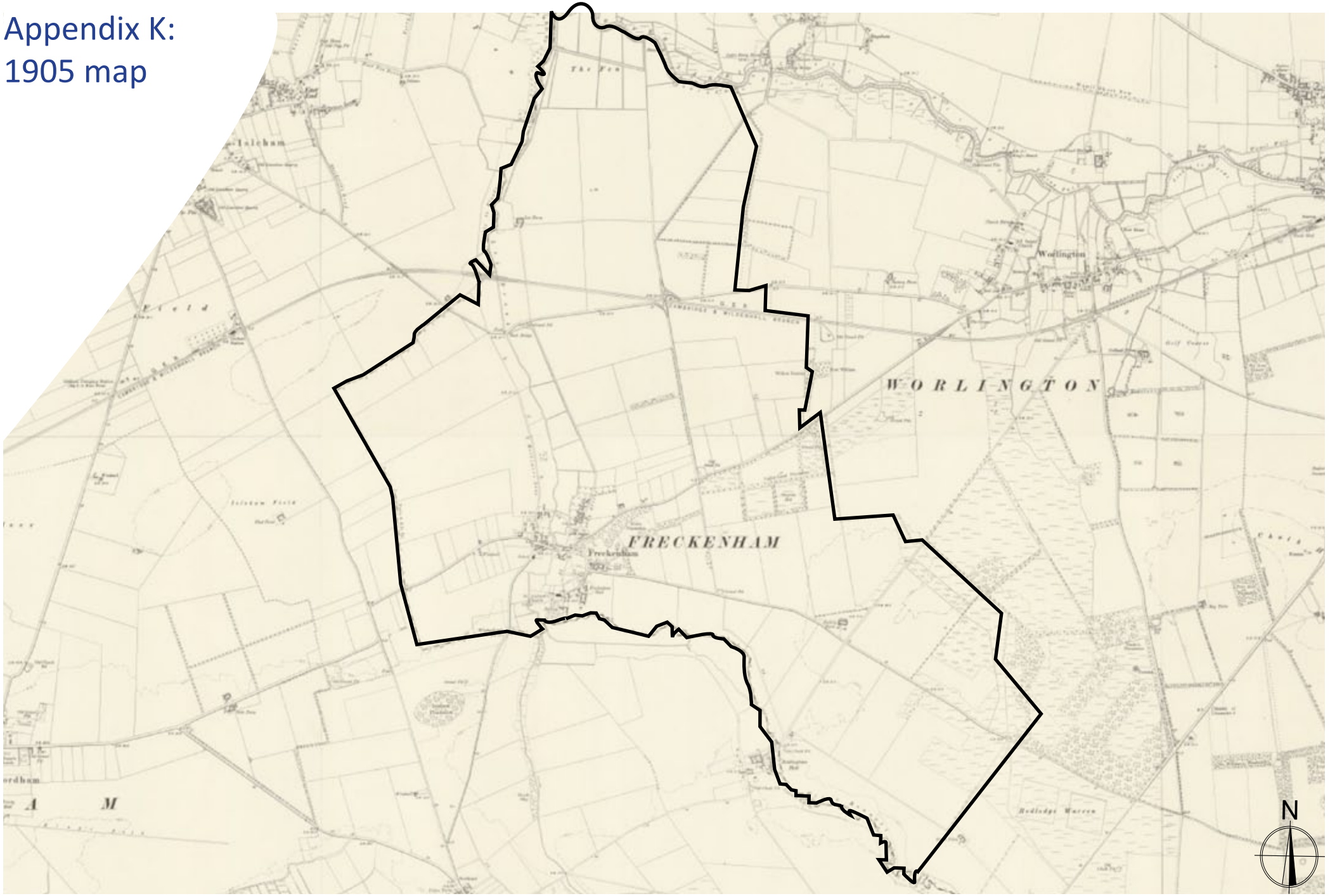
Appendix I: Local planning designations & Heritage features



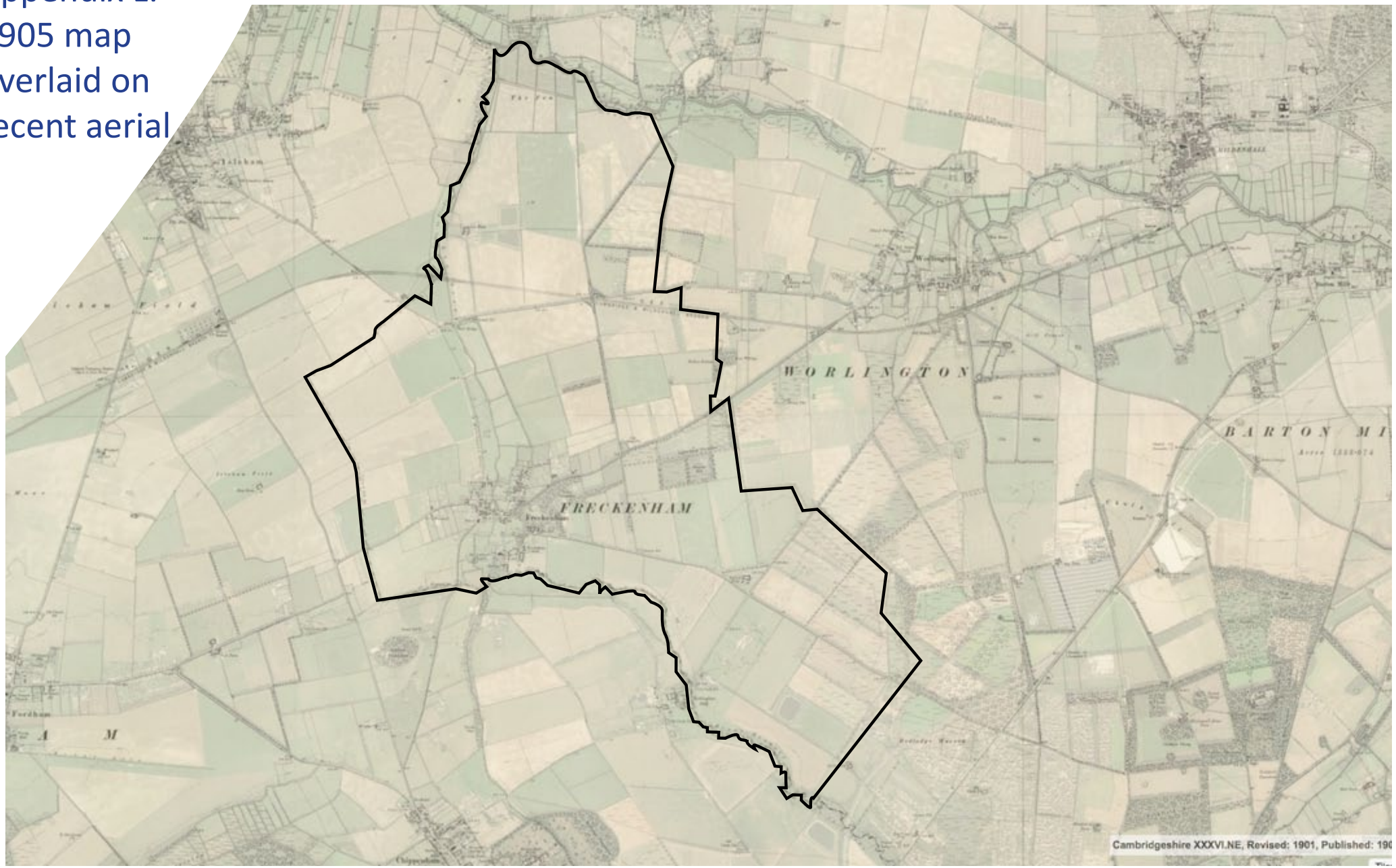
Appendix J: Conservation Area Appraisal map (2017)



Appendix K: 1905 map



Appendix L: 1905 map overlaid on recent aerial



Appendix M: SHELAA map 2020