NORTH LINCOLNSHIRE LANDSCAPE CHARACTER ASSESSMENT

North
Lincolnshire
Council

Acknowledgements

JBA Consulting has prepared this report on behalf of North Lincolnshire Council.

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Contents

1. Introduction

North Lincolnshire is an area with a rich and varied character, shown through its cultural and natural heritage, unique geological and topographical features and landscapes of exceptional natural beauty.

From settlements dating back to the Iron Age, to the influences and legacy of the Roman Empire, one of earliest surviving suspension bridges, designed by a renowned engineer knighted for his work on London Bridge, to the engineering masterpiece that is the Grade I listed Humber Bridge.

Human settlement has been influenced by the varied geology of the Borough, not just in terms of the quality of the land for agriculture, or construction, but also through the varied landform and the area's relationship with the rivers and water management methods.

The ecology of North Lincolnshire is diverse and varied, with habitat ranging from estuary, river, farmland, woodland and urban, each contributing to the mix of species of flora and fauna found across the Borough.

The Borough's more recent story is one of development and employment and the challenges of providing for a modern society while maintaining a balance that preserves and enhances its rich heritage.

North Lincolnshire Council is currently preparing a New Local Plan which will guide decisions up to 2036 with one of the primary purposes to safeguard the environment and adapt to climate change. The Landscape Character Review provides an updated account of the condition and influences on the land within the Borough and will form part of the evidence base for the New Local Plan.

1.1 Scope & Brief:

JBA Consulting (JBA) were commissioned by North Lincolnshire Council (NLC) to undertake a review of the current North Lincolnshire Landscape Character Assessment, published on 13th September 1999 and produced by Estell Warren Landscape Architects.

The purpose of this review is to capture the changes to the landscape, across the Borough during the intervening 20 years, and reflect these in the descriptions of details and key characteristics of the Landscape Character Areas and Landscape Character Types where required.

In addition to this, there have been changes to the Government Agencies which were set up to protect and enhance the English countryside, and more recent documents have been produced which provide a high-level review of England's National Character Areas. Policies, priorities and best practice have also evolved, in terms of the way we manage the countryside for landscape and biodiversity enhancement.

The geology of North Lincolnshire has a significant impact on how the land has been used and developed by human influence. Whilst it is reasonable to assume there has been little change to the geology itself, our understanding and observations may have changed including terminology and classification. The British Geological Society (BGS) is a world-leading geological survey and global geoscience organisation, and changes or updates within this review have been made in line with those recommended by the BGS.

1.2 North Lincolnshire Local Plan 2017 - 2036:

At the time of writing, the emerging North Lincolnshire Local Plan is currently in Stage 4 of its development whereby a draft plan with supporting evidence will be published and stakeholder and community views sought.

The new Local Plan will be a single document, replacing the current North Lincolnshire Local Plan, the Core Strategy and the Housing and Employment Land Allocations Development Plan Documents, and will set out the Council's vision and objectives up to 2036. The policies and proposals will guide decisions and investment in development and regeneration and will address the needs and opportunities in relation to housing, the economy, community facilities and infrastructure. It will also serve as a basis for safeguarding the environment, adapting to climate change and securing good design.

The Local Plan should be aspirational but realistic, providing enough flexibility to change and should be based on sound evidence and as part of this, the

Landscape Character Review will form this evidence base.

The objectives of this Landscape Character Review are:

- To understand how and why the landscape of North Lincolnshire has evolved,
- To classify and describe the landscape character of North Lincolnshire,
- To identify factors that have influenced landscape change and to indicate forces for, and direction of, change in the future,
- To provide a baseline for monitoring future change in landscape character,
- To promote an appreciation of landscape issues within North Lincolnshire,
- To guide and influence those responsible for developing policies for North Lincolnshire.

Purpose of landscape guidelines:

- To identify priorities for action,
- To act as an aid to the decision-making of landowners, developers, and residents.

1.3 National and Regional Objectives:

There are several high-level objectives and initiatives established by the UK Government and their agencies or the European Union which have set out long term targets to which local authorities, such as North Lincolnshire, can contribute.

For the purposes of this review, an over-arching reference has been provided for each of the objectives:

- 25 Year Environment Plan,
- Landscape Review
- Environmental Land Management scheme,
- Nature Recovery Network,
- Net zero carbon,
- Natural capital and ecosystem services,
- Humber 2100+ Partnership.

1.3.1 25 Year Environment Plan:

The government's 25 Year Environment Plan sets out the goals for improving the environment, within a generation to leave it in a better state than we currently find it. There have been 10 targets identified by the government:

- Clean air,
- Clean and plentiful water,
- Thriving plants and wildlife,
- Reducing the risks of harm from environmental hazards,
- Using resources from nature more sustainably and efficiently,
- Enhancing beauty, heritage and engagement with the natural environment,
- Mitigating and adapting to climate change,
- Minimising waste,
- Managing exposure to chemicals,
- Enhancing biosecurity.

Goals within a selection of the targets are presented below:

Thriving plants and wildlife – this will be achieved through *a growing and resilient network of land, water and sea that is richer in plants and wildlife within a generation*.

This will be achieved on land and in freshwaters by, inter alia; *creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected site network, focusing on priority habitats as part of a wider set of land management changes providing extensive benefits*.

Increasing woodland in England in line with our aspiration of 12% cover by 2060: this would involve planting 180,000 hectares by end of 2042.

Enhancing beauty, heritage and engagement with the natural environment – which *will conserve and enhance the beauty of our natural environment, and make sure it can be enjoyed, used by and cared for by everyone.*

This will be achieved by, inter alia; *safeguarding and enhancing the beauty of our natural scenery*

and improving its environmental value while being sensitive to considerations of its heritage.

Making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing.

1.3.2 Landscape Review:

In response to the 25 Year Environment Plan, the government commissioned the "Glover Review" of designated landscapes. Key findings of relevance for North Lincolnshire included:

"More of our national landscapes are in the uplands and they lie more to the west of the country than the east." […]

"..we also found that the process of creating new or amending the boundaries of existing national landscapes needs to work faster and better. Ultimately, we think there should be a renewed vigour in the process for boundary changes, new designations and new types of designation which the new National Landscapes Service should take on."

These findings have clear implications for North Lincolnshire Council's aspirations to seek an extension of the Lincolnshire Wolds Area of Outstanding Natural Beauty into North Lincolnshire.

1.3.2 Environmental Land Management Scheme:

As part of the new Environmental Land Management scheme, 3 new schemes have been introduced which will reward environmental land management:

- Sustainable Farming Incentive,
- Local Nature Recovery,
- Landscape Recovery.

In addition to supporting the rural economy, farmers and other land managers will be financially rewarded if they enter into agreements to deliver the following targets from the 25 Year Environment Plan:

- clean and plentiful water,
- clean air,
- thriving plants and wildlife,
- protection from environmental hazards,
- reduction of and adaptation to climate change,
- beauty, heritage and engagement with the environment.

Farmers and other land managers will be paid to manage their land in an environmentally sustainable way through the scheme. The scheme consists of a set of standards, where each standard is based on a feature such as hedgerows or grassland.

1.3.3 Nature Recovery Network:

As part of the government's 25 Year Environment Plan, the Nature Recovery Network (NRN) aims to restore and enhance the natural environment. It will be managed by Defra (Department for Environment, Food & Rural Affairs) and Natural England and by bringing together partners, legislation and funding.

The aim of the NRN is to help nature to recover and increase the benefits it provides to both people and the economy by creating a national network of wildlife-rich places, connected across towns, cities and countryside. There are 3 major challenges, biodiversity loss, climate change and wellbeing which the establishment of the NRN will help the government to tackle.

1.3.4 Net zero carbon:

Following the passing of legislation by Parliament in June 2019, the government has committed to reducing the UK's net emissions of greenhouse gases by 100% by 2050 and becoming a 'net zero' emitter.

To achieve net zero, the government will have to balance out the amount of greenhouse gas emissions produced against the amount removed from the atmosphere. Working in tandem, the two different methods to achieve this are the reduction of existing emissions and the active removal of greenhouse gases.

Carbon dioxide makes up the bulk of the six major greenhouse gases and is principally emitted through the burning of fossil fuels. The sources of the other greenhouse gases include industrial processes and waste management, such as agriculture and landfill sites.

Decarbonising areas such as transport, homes and agriculture will be difficult where emissions have

remained largely unchanged since 1990. In that same period, steep emission reductions have been achieved in the energy-supply sector, particularly in more recent years as fossil fuels have been phased out and the use of renewables, such as wind and solar, has increased.

In 2021, Natural England published “Carbon storage and sequestration by habitat: a review of the evidence (second edition)”. This document attempts to compare the value of different habitats for the storage and sequestration of carbon. Key habitats for the sequestration of carbon include broadleaved woodland, scrub, peat bogs, fens, saltmarsh and grassland.

1.3.5 Natural capital and ecosystem services:

Natural capital is a key theme in the Government's 25 Year Environment Plan: A Green Future. Natural capital accounts are now produced by the Office for National Statistics.

Natural capital is defined as "…those elements of the natural environment which provide valuable goods and services to people, such as the stock of forests, water, land, minerals and oceans". As an approach it seeks to add to the perceived value of our natural environment by attributing a monetary value to these goods and services and then using these to put a partial value on the natural capital from which they are derived.

Natural capital has four basic categories (habitats, air, land and water) and consists of the environmental assets, such as minerals, soils and flora and fauna. These assets enable the ecosystem to function and, in turn, provide services which hold benefits for people and society. A focus on protecting the assets, over the services they result in, is considered to be a more sustainable approach for protecting nature as it considers the habitat as a whole rather than focusing on the parts that provide the services. As such, using assets has the potential to maximise the broad societal benefits of the natural environment while promoting the conservation of a functioning habitat.

The Natural Capital Committee (NCC) was an independent advisory committee which ran from 2012 to December 2020. It set out a natural capital asset based framework for assessing progress against the 25 Year Environment Plan.

1.3.6 The Humber 2100+ Partnership:

The Humber 2100+ Partnership brings together 12 local authorities, including North Lincolnshire, located around the Humber Estuary and its tidal rivers, which will be affected by the significant impacts of flooding and presents how the flood risk can be managed.

The local authorities are working in partnership with the Environment Agency and the Humber Local Enterprise Partnership to develop a new approach to managing tidal flood risk around the estuary and develop a new 100-year strategy.

The three potential strategic approaches which the partnership decided to evaluate further are:

Managing the tide, using a combination of improved flood defences, existing and additional flood storage, and occasional planned flooding of land. Improved resilience and changes to land use in some areas would also be required to adapt to rising sea levels and high tides.

Adapting to the tide, by continuing to improve or maintain defences in some areas, and changing land use in others, to allow defences to be deliberately altered or moved back in some locations over time. This would create greater capacity for flood storage and large scale planned flooding of land and allow us to respond to the fact that it may not be possible or safe to maintain or continue to raise defences where they are at present. This would be in combination with improved resilience across the estuary.

Keeping out the tide, by constructing a tidal surge barrier, most likely in the outer estuary. This would be a complex and long term option. Defences on the seaward side of the barrier would need to be improved, and there would be continued maintenance of defences inland of the barrier in combination with improved resilience across the estuary.

These three approaches are currently undergoing a thorough appraisal process. Depending on the approaches taken the results could mean significant changes to estuarine and river-valley landscapes in North Lincolnshire in the coming years.

1.3.7 Summary:

The recent work at Alkborough Flats, at the confluence of the Humber Estuary and the River Trent has helped to manage flood risk around the estuary while creating new habitat and preserving a spectacularly beautiful landscape.

Tidal waters were allowed to flood a large part of the site which not only contributed to reducing costs of flood defences elsewhere but now also plays a key role in capturing and storing carbon and helping to increase resilience to climate change.

This project should be seen as a benchmark for the region, and even nationally, in terms of what can be achieved when working collaboratively. It demonstrates how the landscape within North Lincolnshire can contribute positively to these high-level objectives and initiatives, while still delivering benefits to both wildlife and local communities.

Subsequent development within the Borough, and specifically where this Landscape Character Review is referenced as part of the planning requirement, should be able to demonstrate how it will contribute to these targets and goals.

1.4 Landscape Character Review:

Methodology

The approach to undertaking this review was to conduct an initial desk-based review of the 1999 Landscape Character Assessment, specifically the accompanying maps identifying the Landscape Character Areas (LCAR) and Landscape Character Types (LCT).

The 1999 Landscape Character Assessment is only available as scanned, black and white, copies of the original documents and in the case of the maps, an exercise to digitise these maps was undertaken so that they could be used within modern geographical mapping software, ArcGIS.

With the LCARs and LCTs digitised they could be used to overlay onto other digital maps and information sources to show the features and/or designations of interest, such as Ramsar sites and Listed Buildings.

The ability to produce maps at varying scales and with varying layers of information assisted the subsequent site visits which were undertaken to capture photographs and record field observations reflecting the landscape character at each location.

JBA Consulting has developed its own bespoke software, GISmapp, which is an iOS-based, location-aware data collection system, specifically designed for data collection and assessment of asset data. Linked to a centralised web server, it provides data synchronisation and a web-based mapping application for management and reporting.

The JBA Landscape team produced a template of landscape character field notes which was linked up to GISmapp and meant that notes could be recorded digitally and the location for each photograph captured using the Ordnance Survey coordinate system.

Each photograph can be identified by its location and date of its capture.

Multiple site visits were conducted across the North Lincolnshire study area between July and October 2018.

It should be noted that the key characteristics within a LCAR or an LCT are not necessarily present across the entire geographic area but that they are significantly present across a good proportion of it.

The photographs captured as part of the site visits are representative of types but may also serve as reference to monitor future change.

Information Sources

It is over 20 years since the previous character assessment was completed and it is not just the features of the landscape which may have changed but also the information which is available to support a review.

The sources, availability and format of information has changed how a landscape can be evaluated and interpreted, particularly as part of a desk-based analysis. The initial desk based sieving process of information is now much more multi-layered using specialist software such as ArcGIS and the mapping of a range of features covering Landscape, Ecological and Heritage designations.

There are a number of government bodies which produce and manage maps, documents and datasets (geospatial information), pertaining to both the natural and historical features of England; Natural England is the government's adviser for the natural environment in England, responsible for helping to protect and restore the natural world. Historic England is *the government's adviser on the*

historic environment, championing historic places and helping people to understand, value and care for them.

The British Geological Survey which has an open, interactive map which shows, amongst other features, active mines and quarries.

Sustrans has made available their ArcGIS dataset showing the routes which are part of the National Cycle Network. Information about the routes, including start and end points and distance of the route, is available on the Sustrans website.

North Lincolnshire Council has also provided ArcGIS datasets which show local ecological and heritage designations, including Local Nature Reserves, Historic Farmsteads ('extant' and 'partially altered'), Conservation Areas and the Isle of Axholme Historic Landscape. The map of the Public Rights of Way (PROW) network has also been provided which shows, amongst others, Footpaths and Bridleways.

Summary of information

- National & International Ecological designations – Natural England
- Agricultural Land Classification – Natural England
- National Character Areas – Natural England
- National Historical designations – Historic England
- Aerial Mapping – Google Earth, Bing, ESRI
- Side by Side georeferenced maps – National Library of Scotland
- Geoindex Onshore – British Geological Society
- National Cycle Network routes - Sustrans
- Local Designations - North Lincolnshire Council

2. The Landscape of North Lincolnshire

North Lincolnshire is home to 170,786 people (ONS Mid-Year Population Estimates (June 2016 – published June 2017) and the population is set to grow over the coming years. During the ten years between 2005 and 2015 it grew by over 8% and over the lifetime of the new Local Plan and beyond, trends predict that the population will increase by around 6% to reach 178,537 in 2039. The discovery of ironstone in the mid 19th century and the subsequent development of the iron and steel industry resulted in the rapid expansion of Scunthorpe from five small villages into a major urban settlement.

The Scunthorpe and Bottesford Urban Area has about 82,334 people, recorded on the 2016 census, and provides the bulk of housing and employment as well as education, leisure facilities and retail services.

The settlements of Barton upon Humber and Brigg are also significant, housing a further 15,000 people. The remainder of North Lincolnshire is mainly rural, the larger settlements being Broughton, Crowle, Epworth, Kirton in Lindsey and Winterton.

It should be noted that the Scunthorpe and Bottesford Urban Area were not classified within the 1999 Landscape Character Assessment and are not washed over by either an LCAR or an LCT. The other settlements within the Borough fall within an LCAR and an LCT, however they were not individually assessed, and no individual assessment will be conducted as part of this review.

North Lincolnshire covers around 85,000 hectares (328 square miles) almost 89% of which is in some form of agricultural use.

The Agricultural Land Classification, published by Natural England in 2011, identifies that 65% of the Borough is graded as either 1, 2 or 3 which is described as Excellent, Very Good, Good to Moderate respectively.

The settlement pattern is closely related to the underlying geology whereby a series of escarpments running north-south across the district (the Lincolnshire Edge, The Lincolnshire Wolds and Drift) are interspersed by the wide, flat river valleys of the Trent and Ancholme and are bounded to the north by the estuarine landscape of the Humber.

Settlements tend to be concentrated on the higher land of the escarpments or on the scarp foot springline, or on islands or ridges of higher land with river valleys, such as the Isle of Axholme or the spur of land within the Vale of Ancholme upon which Brigg now stands. Further settlement concentrations and industrial development are found on the southern shores of the Humber, banks of the River Trent and the North Sea coast.

2.1 General Landscape Character:

The district has a landscape character that is similarly related to its underlying geology. The bedrock geology of North Lincolnshire is relatively simple consisting almost entirely of Jurassic and Cretaceous rocks that dip regularly eastwards in continuous belts from north to south. The topography presents a correspondingly simple and regular arrangement, the limestone and chalk standing out as the west facing escarpments of the Wolds and the Lincoln Edge, separated by valleys underlain by Jurassic clays.

Much of the bedrock geology of North Lincolnshire is however overlain by glacial deposits of boulder clays, sands and gravels that add complexity to the overall picture and contribute local variation in landscape character. Extensive superficial deposits of sands and gravels, so called coversands, which derive from the Sherwood Sandstone further west beyond the Trent, have been blown in an easterly direction across the landscape to build up against the west facing escarpments and the area of Mercia Mudstone that forms the Isle of Axholme. To the north, the Humber has cut through the Cretaceous and Jurassic rock and has overlain the estuarine landscape with alluvial deposits.

Based on this pattern of underlying bedrock geology and resulting topography six Landscape Character Areas (LCARs) have been identified within North Lincolnshire, running from west to east across the Borough, reaching the coastline where the mouth of the Humber Estuary meets the North Sea, before returning west along the southern coastline of the Humber Estuary:

- Trent Levels
- Lincolnshire Edge
- Vale of Ancholme
- Lincolnshire Wolds
- Lincolnshire Drift

- Humber Estuary

Within Natural England's publication **An Approach to Landscape Character Assessment** (October 2014, Christine Tudor) the definition of Landscape Character Areas states "These are single unique areas which are the discrete geographical areas of a particular landscape type. Each will have its own individual character and identity, even though it shares the same generic characteristics with other areas of the same type."

Within North Lincolnshire, the changes between the lower lying LCARs and the upland ones tend to be well defined in the west and centre of the county, where the scarp slopes have a marked influence on landscape character. To the east of the Lincolnshire Wolds, the distinction between the LCARs becomes diffused where the gently graded dip slopes merge gradually with the estuarine/coastal lowlands.

2.3 National Character Areas:

England has been divided into areas with similar landscape character, called National Character Areas (NCAs). The resulting map subdivides England into 159 NCAs which follow natural rather than administrative boundaries and provide an overview of the differences in landscape character at the national scale.

The NCAs were produced and published by Natural England in 2013 with the profile for each NCA including a character description and an explanation of the influences and features which determine the character of the area. The profile also includes Statements of Environmental Opportunity (SEOs) which provide guidance on some of the more critical issues identified.

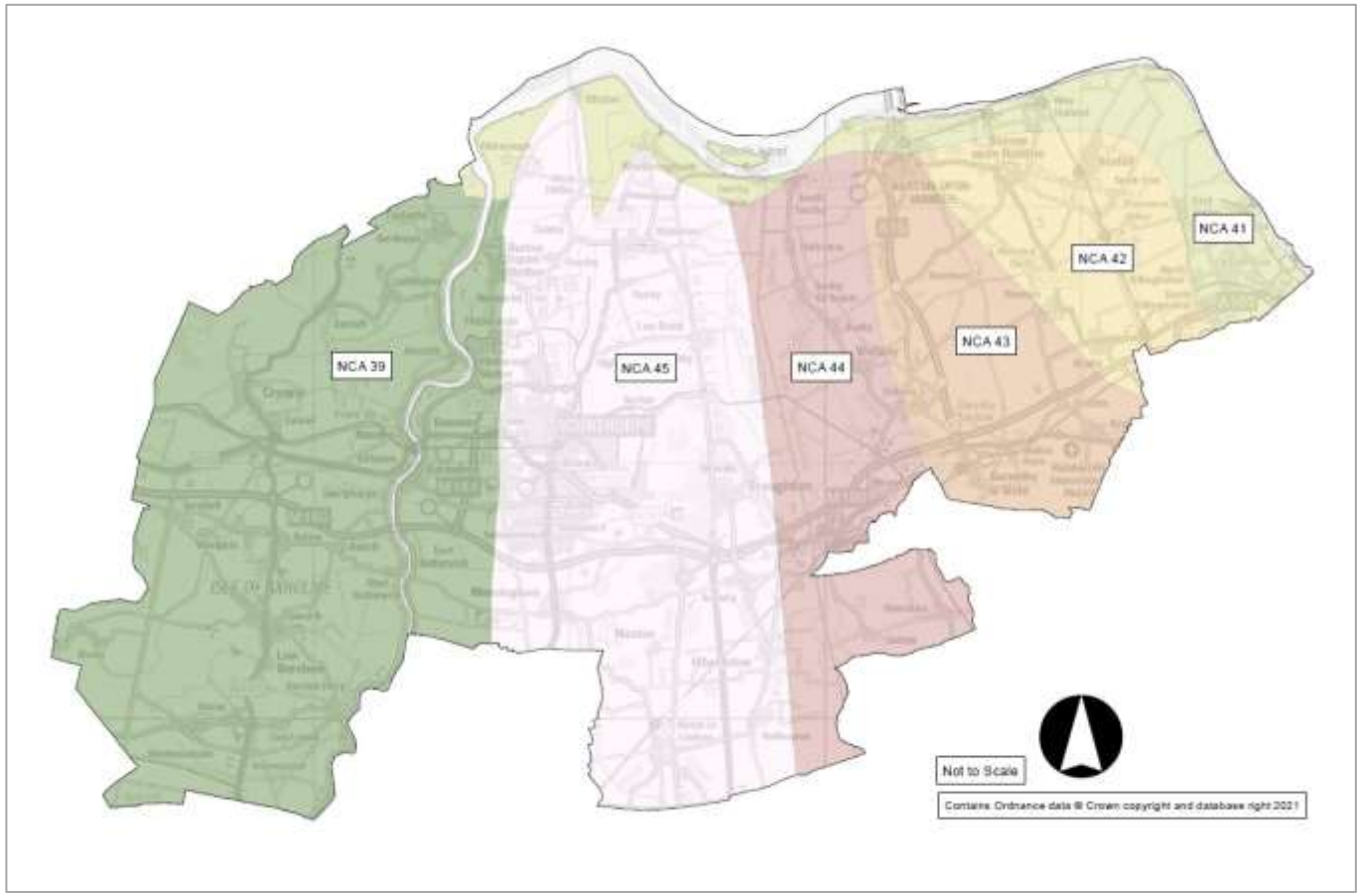

Figure 1 – National Character Areas in North Lincolnshire

Although the LCARs identified in North Lincolnshire may be washed over by more than one NCA, there is typically one NCA which covers the majority of the LCAR and reflects the key characteristics.

For the purposes of this document, it has been deemed sufficient to focus only on the primary NCA for each individual LCAR.

The NCAs which wash over North Lincolnshire are:

- NCA 39, Humberhead Levels
- NCA 41, Humber Estuary,

- NCA 42, Lincolnshire Coast and Marshes
- NCA 43, Lincolnshire Wolds
- NCA 44, Central Lincolnshire Vale
- NCA 45, Northern Lincolnshire Edge with Coversands.

National Character Areas	North Lincolnshire Local Landscape Character	
	Landscape Character Areas	**Landscape Character Types**
NCA 39, Humberhead Levels	Trent Levels	*Flat Drained Farmland |Flat Drained Treed Farmland |Flat Open Remote Farmland | Flat Wooded Farmland |Industrial Landscape | Open Island Farmland | Wooded Springline Farmland*
	Lincolnshire Edge	*Despoiled Landscape | Elevated Wooded Farmland |Steep Wooded Scarp Slope*
NCA 41, Humber Estuary	Trent Levels	*Flat Drained Farmland*
	Lincolnshire Edge	*Despoiled Landscape | Elevated Open Farmland | Elevated Wooded Farmland | Steep Wooded Scarp Slope*
	Humber Estuary	*Flat Drained Farmland | Flat Open Farmland | Industrial Landscape | Open Undulating Farmland | Waterfilled Claypits | Wooded Farmland*
	Lincolnshire Wolds	*Open Rolling High Farmland | Wooded Farmed Scarp Slope*
NCA 42, Lincolnshire Coast and Marshes	Lincolnshire Wolds	*Open Rolling High Farmland*
	Lincolnshire Drift	*Flat Open Farmland | Open Undulating Farmland | Wooded Farmland*
NCA 43, Lincolnshire Wolds	Vale of Ancholme	*Heathy Woodland | Open Undulating Farmland*
	Lincolnshire Wolds	*Open Farmed Scarp Slope | Open Rolling High Farmland | Wooded Farmed Scarp Slope*
	Lincolnshire Drift	*Open Undulating Farmland | Wooded Farmland*
NCA 44, Central Lincolnshire Vale	Lincolnshire Edge	*Elevated Open Farmland | Elevated Wooded Farmland*
	Vale of Ancholme	*Flat Valley Bottom Farmland | Heathy Woodland | Open Undulating Farmland*
	Lincolnshire Wolds	*Open Rolling High Farmland | Wooded Farmed Scarp Slope*
	Humber Estuary	*Flat Drained Farmland*
NCA 45, Northern Lincolnshire Edge with Coversands	Trent Levels	*Flat Drained Farmland | Wooded Springline Farmland*
	Vale of Ancholme	*Flat Valley Bottom Farmland*
	Lincolnshire Edge	*Despoiled Landscape | Elevated Open Landscape | Elevated Wooded Farmland | Farmed Urban Fringe | Heathy Woodland | Industrial Landscape | Open Farmed Scarp Slope | Open Undulating Farmland | Steep Wooded Scarp Slope | Wooded Scarp Slope | Wooded Undulating Farmland*

Figure 2 –National Character Areas in relation to landscape character of North Lincolnshire

2.3.1 NCA 39 Humberhead Levels:

The vast majority of the Trent Levels LCAR falls within NCA 39, with a small area to the north within NCA 41 and the south-eastern corner which is within NCA 45.

Key Characteristics of NCA 39, Humberhead Levels include:

- *A low-lying, predominantly flat landscape, with large, regular and geometric arable fields without hedges but divided by ditches and dykes, many of which form important habitats and key corridors for species movement.*
- *Much of the land is at or below mean high-water mark and maintained by drainage, with fertile soils giving rise to one of the most productive areas for root crops and cereals.*
- *Variations in underlying deposits create differences within the overall flat farmed landscape, including lowland raised mires and lowland heathland, many of which are of international ecological and historical importance.*
- *Sandy deposits give rise to lowland heath, which in places supports remnant birch and oak woodlands, with some conifer plantations.*
- *Important historic landscapes include the Isle of Axholme, with evidence of mediaeval open fields.*
- *Widespread evidence of drainage history, in particular the extensive drainage from the 17th century, revealed through canalised rivers, dykes, old river courses, canals, bridges and pumping stations.*
- *Views to distant horizons are often long and unbroken, with big expansive skies, and vertical elements like water towers, power stations and wind turbines are very prominent.*
- *Floodplains, washlands and traditionally grazed alluvial flood meadows (or ings) associated with the major rivers and canals that cross the Levels give rise to important wetland habitats, supporting large numbers of wetland birds and wildfowl, especially over winter.*
- *The waterlogged soils hold internationally important archaeological and palaeo-archaeological deposits.*
- *Despite settlements, motorways and main roads, there is still a sense of remoteness to be experienced on the Levels, in particular on Thorne and Hatfield Moors and along the Lower Derwent Valley*.

SEOs

- *SEO 1: Safeguard, manage and expand the wetland habitats, including the internationally important lowland raised bogs, the floodplain grazing marsh, reedbeds, wet pastures and watercourses, to protect and enhance biodiversity, contribute to landscape character, address climate change and reduce flood risks.*
- *SEO 2: Manage the agricultural landscape to retain its distinctive character and its productivity, while improving its contribution to biodiversity, the protection of vulnerable soils and palaeo-environmental evidence, and the water resource.*
- *SEO 3: Manage the landscape features such as semi-natural habitats and historic field patterns that reveal local variations in landscape character, often arising from underlying soils and history of drainage, to enhance people's understanding and enjoyment of the landscape.*
- *SEO 4: Protect the open and expansive character of the landscape, its cultural features and sense of remoteness, by ensuring that new development is sensitively located, accommodates green infrastructure, retains long views and makes a positive contribution to biodiversity.*

2.3.2 NCA 45 Northern Lincolnshire Edge with Coversands:

Much of the Lincolnshire Edge LCAR falls within NCA 45, apart from some very small areas which overlap with NCA 44 to the east, NCA 39 to the west, and NCA 41 to the north.

Key Characteristics of NCA 45, Northern Lincolnshire Edge with Coversands include:

- *Elevated arable landscape with a distinct limestone cliff running north–south, the scarp slope providing extensive long views out to the west.*
- *Double scarp around Scunthorpe of ironstone, and extensive areas of wind-blown sand, the Coversands, giving rise to infertile soils supporting heathland, acid grassland and oak/birch woodlands, with rare species such as woodlark and grayling butterfly.*
- *Underlying limestone supporting small areas of calcareous grassland.*
- *Few watercourses on the plateau, which lies between the rivers Trent and Ancholme which flow into the Humber.*
- *Productive soils on limestone plateau giving rise to a large-scale landscape of arable cultivation with extensive rectilinear fields and few boundaries of clipped hedges or rubble limestone, supporting birds such as grey partridge and corn bunting.*
- *Semi-natural habitats of acid and calcareous grassland and broadleaved woodland are small and fragmented, and often associated with disused quarries.*
- *Limited woodland cover, with patches of both broadleaves and conifers associated with infertile sandy soils, elsewhere occasional shelterbelts.*
- *Long, straight roads and tracks, often with wide verges; Ermine Street follows the route of a key Roman north–south route.*
- *Nucleated medieval settlement patterns following major routes, especially Ermine Street; sparse on higher land, with springline villages along the foot of the Cliff and some estates and parklands.*
- *Other development comprises the major settlements of Lincoln and Scunthorpe, with their prominent landmarks of the cathedral and steelworks, and several active and re-used airfields prominent on the ridgetop.*
- *Vernacular architecture and walling, especially in villages, of local warm-coloured limestone with dark brown pantiles.*
- *Several ground features, especially on the plateau, include prehistoric burial mounds, Roman artefacts and abandoned medieval villages*.

SEOs

- *SEO 1: On the limestone plateau, manage the high-quality farmland and maintain agricultural productivity, establishing networks of linking habitats to strengthen landscape character and enhance biodiversity, especially farmland birds, while also protecting the underlying aquifer, reducing soil erosion and improving soil and water quality.*
- *SEO 2: On the sandy soils of the Coversands, protect the distinctive dune formations and expand, buffer and connect the key habitats, providing access and interpretation where possible, and addressing climate regulation, soil erosion and water availability.*
- *SEO 3: Maintain the sense of place and the diversity of settlements and landscape features through expanding semi-natural habitats, managing the restoration of extraction sites, retaining the inspirational long views, ensuring that development is sustainable and well-integrated into the landscape, and providing more interpretation and access through good green infrastructure links.*
- *SEO 4: Protect and manage sites and features of historic, geological and geomorphological interest, such as sand dune formations and rock exposures, Roman roads, stone walls and vernacular architecture to strengthen sense of place and history, enhance biodiversity and improve understanding of how the landscape has developed over time*.

2.3.3 NCA 44 Central Lincolnshire Vale:

The majority of the Vale of Ancholme LCAR falls within NCA 44, with areas to the northwest and

southwest within NCA 45, as well as an area to the east NCA 43.

Key Characteristics of NCA 44, Central Lincolnshire Vale include:

- *A predominantly broad, low-lying, very gently undulating arable vale with a bedrock, chiefly of Jurassic mudstones and almost entirely covered by a variety of superficial deposits, largely of glacial till (boulder clay), and with the Wolds scarp providing an often prominent boundary to the east.*
- *Seasonally waterlogged loamy clay soils, grading to deeper calcareous loams towards the Wolds and contrasting with deep acidic sandy soils on the Fen Edge Gravels and the wind-blown Coversands.*
- *A landscape crossed by many streams flowing from the Wolds towards the heavily modified courses of the main rivers: the straight course of the canalised River Ancholme which flows north into the Humber and the similarly modified River Witham which flows south to The Wash.*
- *Woodland cover is variable with little on the central and northern clay soils, much more on the Coversands.*
- *Land used mostly as arable farmland with pasture on the heavier clays and around villages.*
- *In general, a regular pattern of medium to large-sized arable fields with hawthorn-dominant hedgerows enclosing most fields and with few hedgerow trees. Significant variation found on the Coversands and Fen Edge Gravels where field boundary trees are a feature, and on the flat land of the Ancholme Valley where rectilinear fields tend to be divided by ditches and dykes.*
- *Very limited semi-natural habitat, most being lost through drainage and commercial agriculture and forestry; however, significant remnants of lowland heath and acid grassland survive on the Coversands.*
- *Traditional building materials predominantly of brick and pantile reflecting the availability and suitability of local clay with stone from surrounding areas used in churches and high-status buildings. Large modern barns and outbuildings contrast with the established character.*
- *A deeply rural, tranquil landscape with sparsely distributed small nucleated settlements and isolated farmsteads linked by an extensive but sparse network of minor roads and tracks with few major roads.*
- *A variety of recreational assets including … the Viking Way long-distance footpath and waterborne recreation provided by the River Ancholme and some flooded gravel pits.*

SEOs

- *SEO 1: Restore natural watercourse and flood plain functionality within the Vale, ensuring no harm to archaeological assets, and seek habitat creation and linkages and land management changes through the area, to improve resilience and ecosystem capacity to regulate water quality, regulate water flow and reduce soil erosion. This will also enhance riverine character, recreational experience and ecological connectivity.*
- *SEO 2: Protect and enhance the rural character and tranquillity of the Vale, much valued for their contribution to sense of place, inspiration, and recreation. Ensure that new development is informed by local assessments, opportunity and mapping studies to help to minimise impact and maximise environmental gain through good design and appropriate screening, and promote green infrastructure links to ensure that the surrounding settlements have access to the many recreation assets which contribute to the health and wellbeing of both residents and visitors.*
- *SEO 4: Improve the environmental sustainability of agriculture within the Vale and enhance the capacity of natural ecosystems to support the long-term provision of food, improve soil quality, enhance water quality (especially in the Ancholme basin), provide habitat for pollinators, enhance*

farmland habitats and benefit climate regulation.

- *SEO 5: Protect and enhance the historic character of the Vale including the monastery sites, shrunken medieval villages, parklands and villages. Increase awareness of the richness of this resource, protect it from neglect and physical damage, and ensure that future development complements and enhances the sense of history*.

2.3.4 NCA 43 Lincolnshire Wolds:

Much of the Lincolnshire Wolds LCAR is within its namesake NCA 43, Lincolnshire Wolds, although almost a quarter of it falls within NCA 44 and as such, some of the Key Characteristics and SEOs from NCA 44 can also be attributed to it. There is a small area to the east, which is within NCA 42, and to the north which is within NCA 41.

Key Characteristics of NCA 43, Lincolnshire Wolds include:

- *Rolling chalk hills and a predominantly agricultural landscape with a pronounced scarp edge to the north and west affording panoramic views across the surrounding land.*
- *A diverse geology of chalk, sandy limestone, ironstone and clay gives rise to a combination of elevated plateau and deep-sided dales. Soils are generally shallow and lime rich with rich loamy soils associated with valley bottoms.*
- *Predominantly arable, but some pasture fields with rectilinear patterns and clipped hawthorn hedgerows. Farmland habitats are found together with farmland birds including skylark, linnet, yellowhammer, reed bunting, corn bunting, yellow wagtail, curlew, tree sparrow, grey partridge, bullfinch and turtle dove.*
- *Woodland is limited particularly to the north but there are occasional shelterbelts, hedgerow trees and scattered beech clumps.*
- *Isolated chalk and neutral grasslands typically on the steepest uncultivated slopes.*
- *Broad grass verges up to 20 m on some roads and historical tracks provide valuable species-rich linear habitats thought to be remnants of pre enclosure pastures.*
- *A historically and archaeologically rich landscape of small parklands and modest country houses, ancient trackways, west–east salters' roads, deserted or shrunken villages and prehistoric round and long barrows.*
- *A sparse settlement pattern of small market towns and small nucleated villages (often in sheltered valleys) and scattered farmsteads. The settlements are predominantly linked by west–east A roads linking to coastal areas.*
- *A diverse geology gives rise to a variety of building materials including brick, sandy limestone, sandstone and ironstone with churches built of local stone.*
- *Development of wartime airfields including Kirmington (now operating as Humberside International Airport), Elsham Wolds, Binbrook, Ludford and Kelstern.*

SEOs

- *SEO 1: Protect, enhance and promote the rolling chalk landscape of the Lincolnshire Wolds with its open plateaux, outstanding long views, enclosed valleys, important habitats and high sense of tranquillity. Improve opportunities to enhance people's access and enjoyment of the Wolds' special qualities and the natural beauty.*
- *SEO 2: Protect and manage the Lincolnshire Wolds' water resources and wetland habitats, including the Lincolnshire chalk aquifer, conserving the groundwater resource and biodiversity of the chalk streams by working in partnership to manage issues affecting water flow and quality at a catchment scale.*
- *SEO 3: Maintain sustainable and productive agricultural practices for the continued provision of food and for the important contribution that farming makes to the sense of place. Enhance farmland habitats and expand and connect semi-natural habitats such as species-rich grassland, woodland and*

hedgerows to benefit biodiversity, soil and water quality.

- *SEO 4: Protect and appropriately manage the area's rich historic environment and geodiversity for its contribution to local character and sense of identity and as a framework for habitat restoration. Ensure that the wide range of historic features and geodiversity assets are recognised, promoted and valued.*

2.3.5 NCA 42 Lincolnshire Coast and Marshes:

The majority of the Lincolnshire Drift LCAR falls within NCA 42, with an area to the southwest within NCA 43.

Key Characteristics of NCA 42, Lincolnshire Coast and Marshes include:

- *Flat coastal plain to the east, with dramatic skylines across great distances, rising gradually in the west to more undulating land at the foot of the adjacent Lincolnshire Wolds.*
- *Cretaceous Chalk underlies most of the area with later Quaternary sand, gravel and clay deposits laid down following glacial activity. Slowly permeable, seasonally waterlogged fine and fertile loamy soils.*
- *Land management has had a fundamental impact on the character of this area.*
- *Inland is a predominantly open, medium-scale agricultural landscape.*
- *Woodland and hedge cover is sparse but increases westwards towards the foot of the Lincolnshire Wolds.*
- *Rural areas have a mix of dispersed and nucleated settlement. Stone was used in particular for churches and high-status buildings.*

SEOs

- *SEO 2: Conserve and enhance the historic features and settlement character of the dispersed rural villages. Encourage a strategic approach to land use planning to conserve and enhance the historic landscape and heritage features, encouraging initiatives which contribute towards green tourism, enhance green infrastructure links, manage the pressures of flood risk and climate change, and ensure that infrastructure developments, such as offshore wind turbines do not contribute negatively to the character of the area.*
- *SEO 3: Ensure sustainable food production while enhancing and strengthening the network of farmland features; manage, expand, create and link habitats to benefit biodiversity, soil and water quality by promoting farming and forestry practices that are able to adapt to climate change.*

2.3.6 NCA 41 Humber Estuary:

The Humber Estuary LCAR is predominantly within its namesake, Humber Estuary NCA 41, apart from two small areas along the LCAR's inland southern edge, one which overlaps slightly into NCA 44 and NCA 45.

Key Characteristics of NCA 41, Humber Estuary include:

- *Expansive, flat, low-lying estuarine landscape dominated by the open water of the Humber, with an ever-changing character due to the weather and tides.*
- *Underlying bedrock of Cretaceous Chalk exposed as cliffs where the estuary cuts through between the Yorkshire and Lincolnshire Wolds.*
- *A predominantly reclaimed, formerly inter-tidal landscape with high-quality soils giving rise to productive arable farming, within large rectilinear fields with boundaries formed by dykes, drains and embankments, and with very little tree cover.*
- *Large, dispersed farmsteads and small villages on higher land are set within a quiet rural landscape.*
- *Internationally important estuarine, intertidal and coastal habitats, influenced by the constant processes of accretion and deposition forming mudflats, salt marsh, saline lagoons, sand flats and sand dunes, which support large numbers of breeding and*

overwintering birds, grey seals and lampreys.

- *Big skies and open views over the estuary, mudflats and salt marshes, where flood embankments allow, with views of extensive industrial installations especially on the south bank.*
- *Quiet rural areas and the estuary itself contrast distinctly with urban and industrial influences around Hull and around the major ports, especially on the south bank.*

SEOs

- *SEO 1: Protect and enhance the dynamic and inspiring estuarine and coastal landscape with its interrelated habitats of sand dunes, salt marsh, reed beds, saline lagoons and mudflats, extending the internationally important habitats and the wildlife dependent upon them, while addressing coastal squeeze, climate change and dynamic coastal processes.*
- *SEO 2: Encourage a strategic approach to the planning of land uses around the estuary to address the pressures of climate change and development, ensuring that natural processes continue to function, the estuary's biodiversity value is protected and enhanced, and its open and expansive character is retained. The farmland is low-lying and flat, with few hedgerows and occasional small woodlands sheltering the large farmsteads.*
- *SEO 3: Work with landowners and managers to incorporate more habitats and features into the farmed landscapes that improve biodiversity, address water quality and availability, and contribute to landscape character.*
- *SEO 4: Improve green infrastructure links between urban and rural areas, and seek opportunities for public enjoyment of the open, expansive landscape and its dynamic coastal features and wildlife.*
- *SEO 5: Protect, record and manage the cultural and historic landscape associated with the history of the area as a longstanding key communication and trading route.*

2.4 Local Landscape Character:

Having explored the relationship between the NCAs and the LCARs, the next step is to identify the Landscape Character Types (LCTs) which have been defined as part of the subdivision of the LCARs.

Within Natural England's publication An Approach to Landscape Character Assessment (October 2014, Christine Tudor) the definition of LCTs states "These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, historical land use, and settlement pattern."

In the case of North Lincolnshire, the LCTs are tracts of countryside at a more detailed level which have a unity of character due to particular combinations of landform, land cover, superficial geology, drainage, settlement pattern, infrastructure development, industrialisation or exploitation of land, agricultural and historic influences. The same LCT may occur in different LCARs but will be distinguished by the broader influences of bedrock geology, soils and land use history. The same LCT may also occur more than once within a single LCAR, in which case such types will have similar characteristics.

Trent Levels

Trent Levels is the largest of the LCARs and has been subdivided into 7 Landscape Types (LCTs), covering 10 individual geographical areas. The LCTs which occur more than once have a number corresponding to the geographical areas:

- Flat Drained Farmland
- Flat Drained Treed Farmland (2)
- Flat Open Remote Farmland
- Flat Wooded Farmland
- Industrial Landscape (2)
- Open Island Farmland (2)
- Wooded Springline Farmland

Lincolnshire Edge

This is the second largest LCAR, even though the Scunthorpe urban area is excluded, and contains the highest number of LCTs with 11, covering 15 individual geographical areas. The LCTs which occur

more than once have a number corresponding to the geographical areas:

- Despoiled Landscape
- Elevated Open Farmland (2)
- Elevated Wooded Farmland (3)
- Farmed Urban Fringe
- Heathy Woodland
- Industrial Landscape
- Open Farmed Scarp Slope
- Open Undulating Farmland (2)
- Steep Wooded Scarp Slope
- Wooded Scarp Slope
- Wooded Undulating Farmland

Vale of Ancholme

Within the Vale of Ancholme there are 3 LCTs covering 4 individual geographical areas:

- Flat Valley Bottom Farmland
- Heathy Woodland
- Open Undulating Farmland (2)

Lincolnshire Wolds

Lincolnshire Wolds contains 3 LCTs and is the only LCAR where all 3 only occur in one geographical area:

- Open Farmed Scarp Slope
- Open Rolling High Farmland
- Wooded Farmed Scarp Slope

Lincolnshire Drift

There are 3 LCTS covering 6 individual geographical areas within this LCAR:

- Flat Open Farmland (2)
- Open Undulating Farmland
- Wooded Farmland (3)

Humber Estuary

There are 6 LCTS covering 9 individual geographical areas within this LCAR:

- Flat Drained Farmland (3)
- Flat Open Farmland
- Industrial Landscape
- Open Undulating Farmland (2)
- Waterfilled Clay Pits
- Wooded Farmland

3. The Changing Landscape

The landscape of North Lincolnshire contains over 40km of shoreline along the Humber Estuary, and one of its major arterial tributaries, the River Trent, running through the heart of the Borough, as well as a significant amount of high grade agricultural land and a range of extractable natural resources including sand, gravel, chalk and iron ore.

The trade routes, land use and settlement which have evolved over many centuries reflects the original landscape's influence and how human influence has shaped the land, rivers, estuary and coast.

In more recent decades, the inherent diversity of landscape types has been eroded and changed by society which has placed increased demands and greater strain on the landscape and its resources.

Landscape change can occur in three ways:

- **Loss** of features that provide colour, interest, shape and scale, e.g. loss of hedgerows by field enlargement; loss of views; replacement of traditional agricultural buildings by modern 'off the peg' sheds; infill of open space within the rural villages.
- **Introduction** of new features. Such change is inevitable and can have either a positive, negative or neutral effect on the landscape. Features that might be introduced into the landscape are new housing, transmission lines, wind turbines, quarries, roads, new woodland, etc.
- **Decline** in quality or state of repair of features of the landscape, e.g. dereliction of the urban fringe; neglect of hedgerows; loss of a smooth rolling topography due to scrub invasion; introduction of standardised suburban styles to a previously architecturally diverse settlement.

3.1 Landscape Pressures:

The pressures on the landscape for the 21st century continue to move at the pace and magnitude of the 20th century, although the roots of these changes can be traced back to the Industrial Revolution of the 19th century.

The advances in technology and infrastructure have brought undeniable improvements in the quality and longevity of life but as humanity continues to grow and thrive, the demands for goods and services requires an ever-quicker solution and response. Some of the notable demands and changes within North Lincolnshire include:

- Increased demand for housing resulting in the expansion of settlements and loss of urban green space and potentially peri urban agricultural land,
- An increased demand in the requirement for household recycling facilities and disposal of non-recyclable waste has led to development of landfill sites in rural areas.
- Expansion of the existing areas of light and heavy industrialisation, not only along the banks of the River Trent and the Borough's eastern shoreline, but also on the fringes of settlement such as the northern edge of Brigg,
- Various types of new development in the countryside, including industrial redevelopment of wartime airfields, development or extension of quarries, construction of industrial style farm sheds, poultry farms etc; growth of housing and gentrification of property in certain villages,
- An increase in traffic and the construction of new, or improvement of existing, roads combine to result in visual impact, light and noise pollution,
- Continued expansion of services and facilities at Humberside International Airport, on the former RAF Kirmington airfield, providing passenger flights, cargo flights and a specialist helicopter service for the offshore gas storage and drilling operations in the North Sea.
- Intensification in agricultural use, farm amalgamation and a move away from pasture towards arable, with consequent loss of hedgerows, field and hedgerow trees, decline in the

condition of field boundaries, and significant loss of grassland habitats,

- Loss of woodland, including ancient woodland, to coniferisation or conifer / broadleaved mixes. Loss and decline in associated habitats such as lowland heathland and fringing grassland.
- Incongruous use of coniferous planting to create perennial windbreak and screening around medium and large-scale development.
- Loss of peatlands though extraction and water table lowering.
- Significant loss of heathland and acid grassland has occurred, in the region of 80-90% reduction since the 1920's, to agriculture, urban and industrial development.
- Increasing populations and a growth in leisure time have resulted in recreational pressure on the countryside and provision for such activities in a countryside setting.
- Disposal of industrial and human waste has resulted in air and water pollution. Air pollution is further exacerbated by emissions from an ever-increasing number of vehicles on the road network.
- Increased water consumption for industrial, agricultural and domestic purposes in an area of low rainfall has resulted in lowering of the water table. The consequence of this is the impact on wetland, other habitats and upon agricultural practices. Warping drains have been infilled and ploughed over in many cases.
- Pressure on water quality because of agricultural practices leading to increased surface and ground water pollution.
- Dereliction of land and its subsequent reclamation in certain areas has had a significant impact on the landscape.
- A growth in renewable energy production through the installation of wind turbines and photo-voltaic panels.
- Impact from the growth of wind farms and wind turbines which are an additional vertical intrusion to what is some areas an already cluttered skyline as a result of high voltage transmission lines and pylons, electricity distribution lines, telegraph poles, radio and telecommunications masts.
- Construction of coastal defences, flood embankments etc. have resulted in localised impacts, and the wider consequences of loss of river floodplains with resulting impoverishment of natural habitats.
- Continued extraction of aggregates, minerals and clay.

These demands will continue throughout the coming years and change is inevitable however it need not be detrimental; it is the nature of the change and the way in which it is managed that can help to lessen, or increase, the impact accordingly.

3.2 Significant Events:

In the intervening years, since 1999, there have been several significant developments which have had or will have an influence on the land use across England and specifically North Lincolnshire.

The turn of the Millennium brought with it several transformative projects in the area. The Waters' Edge Country Park is one of North Lincolnshire's success stories with the creation of ponds, reed beds, native woodland and wildflower meadows within the 86-acre site which supports a diverse range of flora and fauna. The site was a former quarry for brick and tile clay works, and more recently, a fertiliser factory, but unfortunately, these fertiliser materials and the associated chemicals contaminated the site. The old, contaminated soil was stripped back, layer by layer and moved off site and local topsoil from the nearby Far Ings Nature Reserve was imported. The first part of the country park opened to the public in 2003 and an innovative, sustainable green visitor's centre building was opened in 2006.

Millennium tree-planting projects led to woodland creation in several areas: notably Sawcliffe Hill, Central Park and the Steelworks around Scunthorpe.

2020 could be the most significant year of change in post war Britain which saw the United Kingdom leave the European Union (EU) against the backdrop of the Covid-19 pandemic and periods of national lockdown to try and curb the spread of the virus.

The departure from the EU officially happened on the 31st of December 2020 and despite the lengthy negotiations and trade agreements put in place, the ramifications of the departure may not fully manifest itself until several years after departure. Given North Lincolnshire's location as a trading port on the east coast of England, the effects and changes are likely to be felt at a regional and local level.

The government has also set out its long-term vision for tackling climate change and enhancing the natural environment through its 25 Year Environmental Plan and Nature Recovery Network initiative.

The Humber 2100+ Partnership is a more regional level initiative but is still trying to achieve the same goals as set out by the government and has already started to make a contribution to habitat creation, flood management and public amenity access.

The Partnership aims to prevent a repeat of the tidal surge which hit the east coast of England on 5 December 2013 and caused flood damage to around 400 homes and businesses.

Within North Lincolnshire, it was the village of South Ferriby which was the worst affected.

Flood defence and managed realignment works at Alkborough Flats, South Ferriby and Chowder Ness have led to a re-shaping of the coastline in localised areas.

The tragedy and loss due to the Covid-19 pandemic cannot be overstated and it has continued to impact on social interaction, the economy and local, national and international travel. During the periods of lockdown, people were encouraged to work from home where possible and during the peak period of England's national lockdown, in the spring of 2020, society took time to reflect and many people started to appreciate the value of the outdoors, reconnecting with nature and the role it can play in mental and physical wellbeing.

Enabling works for the Able Marine Energy Park at North and South Killingholme have led to the conversion of much former pasture at Killingholme Marsh to industry and hardstanding. Further developments are consented, stretching north two East Halton Skitter. New wetland habitat has been created over 90 hectares of arable land at Halton Marsh, to mitigate for impacts on wintering and passage birds. The creation of 100 hectares of similar grazing marsh habitats at Bonby Carrs, in the Vale of Ancholme demonstrates the potential for large-scale landscape and biodiversity enhancement in that area.

Changes in the structure and ownership of the Steelworks at Scunthorpe have led to changes in the management of the site and the landscape of the eastern fringes of the town, with the demolition of old structures. Such changes are likely to continue in the short to medium term

3.3 Pressures and Opportunities:

There are several matters which may present opportunities or pressures on North Lincolnshire's landscape during future decades. These are further detailed below:

Agricultural Practices

Some 89% of North Lincolnshire is in agricultural use. Any changes in agricultural practices and agricultural policy will therefore have an important impact on the countryside.

Recent policies and regulations have promoted environmental stewardship, animal welfare and hygiene, on-farm Health and Safety, and controlling the use of harmful chemicals and discharges on farms.

Agriculture is entering another period of transition as there is a requirement for continued improvements in productive efficiency, farming to deliver greater public goods, futureproofing to mitigate against concerns such as climate change and food security and for farm businesses to become more viable.

The climatic and weather context for every farm enterprise in England is undergoing change affecting growing seasons, pests and diseases, water resources and introducing new perils. In this same context, farmers will increasingly be required to mitigate for climate change with public and policy concerns already affecting markets for red meat and dairy. There will also be the challenges faced by the legacy of decisions (or non-decisions) regarding the UK's exit from the EU.

The Agriculture Bill was passed in November 2020 with the aim of boosting the industry after years of EU policy which was regarded as inefficient and overly bureaucratic and replaces the Basic Payment Scheme, which primarily rewarded farmers for the

amount of land farmed rather than rewarding them for any specific public benefits.

The Bill sets out how it will help farmers stay competitive, increase their productivity, support investment in new technology and seek a fairer return from the marketplace. Farmers and land managers will also be rewarded for 'public goods', such as thriving wildlife and soil health, as part of the Environmental Land Management (ELM) scheme which will contribute towards achieving the goals of the government's 25 Year Environment Plan and commitment to reach net zero emissions by 2050.

With these goals, and challenges in mind it is anticipated that targeted support can help to create more sustainable farming while simultaneously reducing the increasing trend towards expansion, diversification or specialisation.

A switch in focus towards benefitting the landscape and society through the delivery of public goods could see a surge in the re-instatement of new, or protection and enhancement of existing, features including watercourses, hedges, hedgerow trees and other important landscape features.

Farmers and land managers will be supported by the government's existing Direct Payments method as it is phased out by the end of 2027, creating an agricultural transition period which provides time for them to adapt to the new approach and consider which component of the new ELM scheme will work best for their farm.

Other alternative support will be available during this time, including productivity grants and with Countryside Stewardship schemes remaining open to new applications in the first few years of the agricultural transition period.

In previous years, the move towards increased agricultural production resulted in an increase in the number of industrial style farm buildings, because of the need to accommodate increasingly large machinery or the nature of the business e.g. poultry sheds. This has resulted in the construction of incongruous and poorly assimilated buildings within the landscape. Tighter planning controls should help to tackle this issue being repeated but it may also be the case that the as the ELM scheme starts to take effect, the demand for such large-scale buildings may reduce as the delivery of 'public goods' is targeted.

Another consideration, certainly in the case of poultry sheds and battery farming, is the public's demand for organic or free-range farm produce which has also increased over recent years. As part of the Agriculture Bill the government wants to further champion UK food production by improving the transparency and fairness in the supply chain and encourage change in the methods, welfare and conditions of farms and livestock practice. Retailers, and in particular supermarkets, provide consumers with a more informed choice through the information on their packaging creating a more demand led market which producers will need to respond to.

Urban and Village Growth

The North Lincolnshire Local Housing Needs Assessment was published in September 2019 and ascertained that the annual requirement for new homes in North Lincolnshire is a minimum of 419 new homes in North Lincolnshire each year, inclusive of all types and sizes of homes, including affordable housing and accommodation for specific groups of people.

Based on a projected population growth of 14% to 191,500 by 2035, a supply of approximately 15,000 new houses will be required to accommodate this increase.

This demand will inevitably place pressure on the urban fringe and on existing villages and could result in the requirement for the construction of new settlements and the need for new housing can be a major threat to the landscape, especially if it does not reflect local scale, materials, colour and style and is not sympathetically sited.

The Lincolnshire Lakes development will create one of the largest residential developments, in the whole of the UK, on land to the west of Scunthorpe, creating new building jobs plus thousands more as new businesses are created.

The new homes, a high-quality business park and office accommodation will be set within a unique lakeside setting comprised of several large artificially created lakes connected by water channels. A new M181 junction will also be created to improve access routes to the motorway and make the area more accessible.

The Lincolnshire Lakes Area Action Plan sets out the planning policy framework for the delivery of the development and over time there could be more

than 6,000 new dwellings across 6 new village settlements.

The Lincolnshire Lakes development will be on an area of current arable land within the Flat Drained Farmland Landscape Character Type, within the Trent Levels Landscape Character Area separated from Scunthorpe's western edge by the M181 and consideration will need to be given to avoid bridging this gap through subsequent large-scale developments.

Road Improvement and Access to the Countryside

The North Lincolnshire Local Transport Plan 2011 – 2026 sets out the vision for local transport goals to shape the future direction of transport within the Borough. Although it is predominantly a rural area, North Lincolnshire's transport network has routes of both international and national importance which also provide links for local people to key local hubs within, and regional centres outside of, the Borough.

The requirement of an efficient transport network is also crucial in supporting North Lincolnshire's economic development and encouraging investment within the region and the creation of jobs.

The Local Transport Goals for North Lincolnshire are:

- Facilitate economic growth by targeting transport improvements in key development areas and along key strategic network corridors.
- Reduce transport related carbon dioxide emissions and protect and enhance the natural and built environment through sustainable transport solutions.
- Improve transport safety and security relating to death or injury from transport, in order to contribute towards safer and stronger communities.
- Provide equal opportunities through improvements in accessibility to key local hubs and services by sustainable modes of transport.
- Enhance people's health and wellbeing through the promotion of healthy modes of travel and provision of a high-quality integrated transport system that contributes towards long term sustainable regeneration.

The requirements for safer, more sustainable travel and reduced dependency on motorised transport will continue to gather momentum as part of the government's 25 Year Plan. One such change will be the wider introduction of on-street electric vehicle charge points within towns and cities across the UK and the change in use of petrol stations as demand drops due to the phasing out of petrol and diesel based vehicles. The adaptation of existing routes and roads will need to limit the erosion of rural character and suggested factors to consider in future improvements to the road network include:

- Adherence to the Local Transport Goals in delivering major and moderate scale road schemes.
- The careful use of colour, materials and designs in hard landscaping, road furniture and soft landscape treatment.
- Attention to restoration of roadside landscapes and general landscape enhancement following improvements.
- Further consideration of impacts such as noise and night-time light pollution.

Tourism and Recreation

Tourism is the fifth largest export earner in the UK and the seventh largest international tourist destination ranked by visitor numbers and as such is important at a national level, in terms of foreign exchange earnings, and at a local level in terms of employment.

The UK coast is promoted for its character and its beaches, and on a regional level many visitors will pass through North Lincolnshire to reach such destinations on the east coast of Lincolnshire and Yorkshire.

Whilst tourism is not a major industry in North Lincolnshire, it is growing annually and there are a range of visitor destinations and attractions including the Humber Bridge, The Waters Edge Country Park and Visitor Centre, Far Ings National Nature Reserve, Thornton Abbey, John Wesley's birthplace at Epworth, Elsham Hall Gardens and Country Park, Normanby Hall Country Park, Gainsthorpe Medieval Village and the North Lincolnshire Museum and Art Gallery at Scunthorpe.

In addition to this there is a network of walking and cycling trails and various outdoor activities such as golf and fishing.

During the Covid-19 pandemic travelling abroad was restricted with many people choosing to holiday within the UK. Pre-pandemic statistics provided by the Tourism Alliance show that domestic tourism in the UK is largely composed of people in urban areas travelling to rural and seaside destinations, despite the growth in city-breaks, which creates £25bn worth of spend in these rural and seaside economies.

Although the UK is making good progress to vaccinate the adult population against Covid-19 and reduce the risk of transmission and infection, many other countries are still dealing with surging cases and repeated outbreaks. The continued restriction on overseas travel and the change in domestic tourism habits is likely to continue for an as yet unknown period.

There is an opportunity to adapt to the changes in domestic tourism including through the promotion of the North Lincolnshire countryside and shoreline, as well as its cultural and natural heritage assets. There is already a strong network of public rights of way which connect up with promoted long distance routes such as the Viking Way and the Peatlands Way.

The recently completed footpath and cycleway from Brigg to South Ferriby, along the River Ancholme, encourages residents and visitors to travel through the tranquil Ancholme Valley. Although there is only a small amount of nationally supported Sustrans cycle routes within the centre of North Lincolnshire, there are opportunities to expand this network across the Borough.

The opportunity to offer tourists a range of interesting and varied style of accommodation could encourage the re-development and restoration of derelict farm buildings or a sympathetic restoration within the more rural villages across the Borough.

Tourism and recreational pressures can increase the demand for development and offering a variety of activities and pursuits including off road vehicles, scrambling bikes, paintballing, mountain biking and horse riding. More passive recreational pursuits, such as walking, fishing, and boating carry less environmental impact in themselves, although they often carry with them requirement for parking, toilets, litter disposal etc.

More detailed research and evaluation of the tourism economy within North Lincolnshire is required to ensure that development is viable and that it is balanced and does not impact on the landscape and features which are in some cases part of the offering.

Forestry, Trees and Woodland

Woodland represents a small percentage of the landcover of North Lincolnshire, although there are extensive areas of woodland to the east and south east of Scunthorpe, creating a strong green spine around the A19, Ermine Street and over the M180. Covering an area of approximately 1000 hectares some of this woodland is ecologically designated as Ancient Woodland and / or SSSI (Sites of Special Scientific Interest) and creates an invaluable habitat for rare flora and fauna as well as usable public amenity.

The openness of the remainder of North Lincolnshire's landscape is very apparent although it is not completely devoid of trees and woodland as demonstrated by the areas of Carr woodland within the Ancholme Valley.

The Forestry Commission is the government department responsible for protecting, expanding, and promoting the sustainable management of woodlands with the goal of increasing the value of woodlands to society and the environment.

There are a number of current initiatives and incentives supporting the creation of woodland including the Countryside Stewardship scheme which provides funding for the creation and maintenance of new woodland which will help with local biodiversity, improving water quality, reducing flood risk and climate change mitigation or adaptation.

North Lincolnshire is in the "halo" area of the proposed Northern Forest, which will stretch from Liverpool to Hull. As a contribution to the Northern Forest project, North Lincolnshire Council has recently set a target of planting 172,000 trees: one for every resident in the Borough.

Although the notion of tree and Woodland planting can be perceived as predominantly within the countryside, the Urban Tree Challenge Fund (UTCF) aims to achieve greater tree planting in urban

areas. As part of an initiative linked to the Covid-19 pandemic and the acknowledgement of how green space and trees can support people's health and wellbeing, the UTCF provides funding to support the planting and establishment of trees and is targeted at projects that can provide the greatest environmental, social and economic benefits in our towns and cities, such as near schools, health centres and in areas with fewer trees and higher social deprivation.

Pressures on woodland areas include recreational pressures, particularly where this is uncontrolled such as within urban fringe woodland to the east of Scunthorpe, and also where managed recreational pursuits occur in a woodland setting, e.g. paintballing.

The use of native species in new woodland can bring ecological benefit for example where previously lost ecosystems can be reconstructed. The best example might be alluvial (or floodplain) forests; a nationally rare type but one which could be reconstructed in the Ancholme Valley and the Trent Levels. This could include the planting of the nationally rare native Black Poplar, very much at home within wetter soils and environments.

However, it should be recognised equally that exotic and naturalised species have made a very significant contribution to North Lincolnshire's landscape character, e.g. the pine woods of the Lincoln Edge, the beech/sycamore woodland of the Wolds, the Lombardy poplars of the Trent Levels. Equally, they can have a significant adverse impact such as shelterbelts of Cypress, which are common on the Isle of Axholme and in the Trent Levels.

Future plantings should use a wide diversity of species, to reduce the effect of new pests and diseases affecting any given species. A proportion of broadleaved species of more southerly zones may be used, to allow for the predicted effects of climate change.

Inappropriately designed landscaping can have, on occasions, a greater adverse impact than the development it is trying to screen and can in itself contribute to a weakening of local identity. Where associated with existing development, it should be influenced by planning control in order to avoid further weakening the local character and ensure that native species of local origin are used.

Communications, Infrastructure, Power Generation and Transmission

North Lincolnshire has power stations at Brigg, Killingholme and Keadby with extensive transmission routes connecting between these stations and with West Burton Power Station further south along the Trent in Nottinghamshire. Power lines are visually intrusive but careful siting and strategic consideration of alternative alignments or rationalisation of existing towers can reduce the effects.

The National Grid Company has an obligation to connect new power stations to the Grid system, which may result in the need to construct additional transmission lines. At present, there is considerable pressure from power companies for the construction of new power stations. Applications for power stations are considered in isolation from the application for the line to connect to the Grid, which may have far more significant environmental impact than the station itself. The continual need for upgrading the transmission system can also result in the need for further substations, which by their nature are normally sited in rural locations.

While it is difficult to mitigate the visual impact of transmission lines, careful siting following the National Grid Company's Holford Rules can minimise their impact. The use of underground cabling tends to be restricted to urban areas and is prohibitively expensive in all but the most sensitive rural locations. The impact of substations can be more readily mitigated, and the National Grid Company follows detailed guidelines on their siting and design. While such developments do bring inevitable impacts, the National Grid Company has amenity obligations to fulfil under the terms of the Electricity Act, and developments can bring with them significant opportunities for landscape enhancement, as has occurred as part of the development of the second 400kV line between Killingholme and Keadby.

North Lincolnshire will be at the "centre of the UK's decarbonisation strategy" with the construction of two low-carbon stations which will be developed at Keadby. The plants, known as Keadby 3 and Keadby Hydrogen, will create thousands of green jobs for the region and replace older carbon-based stations.

This will be the world's first hydrogen-fuelled power station and will be the UK's first power stations with carbon capture and storage technology. The plans are part of the UK's commitment to becoming

net-zero carbon by 2050 with both plants expected to be on line by the end of this decade.

Another development is the positive impact of renewable energy, such as wind and solar, which has contributed to a sharp reduction in greenhouse gas emissions as the use of fossil fuels for powering energy creation have been phased out.

Within North Lincolnshire, wind turbines have become more common place and need to be sited in locations where they will have the optimum yield from harnessing the wind which can be in quite prominent visual locations. Their height and turbine blades further add to the visual intrusion. Other issues that require consideration include topple distance, ecological impact, noise, light flicker and secondary effects, e.g. new transmission cabling and access roads.

There are already a number of solar farms which use ground-mounted photovoltaic panels, with the most prominent being on the open, west facing slopes of the Heathy Woodland Landscape Character Type, adjacent to Gadbury Wood. A further site, Little Crow Solar Park is also proposed directly to the east of the British steelworks, 2.5km north west of Broughton.

It is probable that there will be pressure to open up more sites and it will be necessary to balance the requirement for prominent sites with the need to protect landscape character and quality. Consideration should be given to brownfield sites and on the sites of existing industrial character.

With the present proliferation in telecommunications, demand for masts is likely to continue particularly in exposed elevated areas for example on the Elsham Wolds.

Quarrying, Extraction of Aggregates and Landfill

The economy of North Lincolnshire has historically benefited from various mineral resources. The development of Scunthorpe was dependent on ironstone extraction. At present, chalk quarries and clay, sand and gravel extraction sites are active. Jurassic limestone has also been important and continues to be extracted on a small scale. There are also reserves of oil, gas, ironstone, sand and gravel.

In more recent developments the mothballing of the Cemex site at South Ferriby has resulted in reducing the demand from the associated quarry at South Ferriby Quarry.

There are currently around 20 active quarries across North Lincolnshire and it is likely that pressures for quarrying will continue, with possible further pressure to utilise exhausted quarries for landfill or tipping of inert waste. An increasing pressure will be for the provision of facilities for aggregate recycling, which is likely to result in delay of the long term restoration of mineral sites.

Reserves of ironstone and oil are present to the east of Yarborough Gullet and may come under pressure for development in the future, once they become economic to extract. At Crosby Warren, there is ongoing oil extraction, and there may be pressure to extend the number of boreholes in the future or to develop oil production wells with their associated infrastructure.

Sand and gravel reserves at Flixborough and Haxey are likely to be exploited in the future to ensure an adequate supply of the material within North Lincolnshire and silica sand reserves at Messingham and Manton are likely to be exploited to ensure an adequate supply of the national resource. Clay reserves at Barrow Haven, Barton upon Humber and between Epworth and Owston Ferry will be safeguarded for future exploitation.

Selection of sites for new quarries is subject to environmental assessment and increasingly issues such as groundwater protection, protection of best and most versatile agricultural land, landscape protection, nature conservation and cultural heritage protection limits opportunities for development of new quarries or extension or infilling of existing quarries.

Whilst quarrying has impacts on landscape and visual amenity, the insensitive restoration of worked-out quarries can also be a problem, obscuring geological exposures of educational value and resulting in the destruction of plant communities that benefit from the exposed sand, chalk or limestone.

North Lincolnshire has an annual requirement for the disposal of more than 2 million tonnes of waste each year, the majority of which is landfilled. The Council is currently in the process of consulting on their plans to construct an Energy Recovery Facility (ERF) for recycling and waste disposal at

Flixborough, on the east bank of the River Trent, as part of the North Lincolnshire Green Energy Park.

Although the proposed location of the Green Energy Park at Flixborough is within the Landscape Character Type, Industrial Landscape, its setting and wider impact on the landscape will need careful consideration.

There are currently a number of safeguarded waste facilities within the Borough including landfill, metal recycling, transfer and treatment. National policy requires Local Plans to identify sufficient opportunities to meet the identified needs for managing waste in their area. This should be achieved by driving waste management up the waste hierarchy, provided this does not endanger human health or harm the environment.

Household waste recycling rates in England plateaued in 2013 having risen from around 11% in 2001 to about 45%. The government is determined to help local authorities and waste management companies act in the most sustainable and resource-efficient way possible including through the reduction of greenhouse gas emissions from landfill and through the greater efficiency of EFW plants.

The Landfill Tax is still in force as part of the government's environmental objective measures, to charge for waste disposal with the aim of minimising the amount of material produced and the use of non-landfill waste management options, which may include recycling, composting and recovery.

Given the amount of current landfill waste it is likely that there will continue to be a significant requirement for landfill opportunities but in the long term in line with the Council and the government's aims the requirement for future sites should reduce and avoid creating any further adverse effects on landscape character.

Coastal Process and Management

North Lincolnshire's location on the south bank of the Humber Estuary contributes to the diverse natural and built environment of the area providing an interesting and varied landscape, which in turn raises a number of environmental challenges.

The Humber tidal surge of December 2013, which caused major damage and devastation to South Ferriby and other villages is a stark reminder of the flood risk and climate change challenges facing North Lincolnshire and the Humber region.

The Humber 2100+ Partnership has developed a new approach to managing tidal flood risk around the estuary, exemplified by the recent work at Alkborough Flats, at the confluence of the Humber Estuary and the River Trent.

Tidal waters were allowed to flood a large part of the site which not only saved money on flood defences elsewhere, but now also plays a key role in capturing and storing carbon and helping to increase resilience to climate change.

The Alkborough Flats are a spectacularly beautiful landscape adjacent to the internationally designated sites of the Humber Estuary and the River Trent, and while the new approach has created a new habitat other schemes may not be so sympathetic.

Hard, land-based flood defences, which could damage sensitive ecosystems or create a barrier to the natural movement of habitats may create problems for wetland birds using shoreline feeding grounds and inland roosting sites.

Further threats to the shoreline may occur from dredging.

Oil spillages are an ongoing threat, and pressures for oil and gas exploration could be harmful to the environment.

Declining Water Resources

Much of the water supply within North Lincolnshire is associated with chalk and sandstone aquifers. Increased agricultural and industrial demand for water, coupled with predictions of climatic warming, will place greater demands on rivers and aquifers. Although partly regulated by abstraction consents, decline in groundwater may lead to further loss of springs and flushes, wet grassland, heathland and ecologically valuable vegetation. A reaction to this decline, in the form of farm reservoir construction, may have visual implications.

Protection and Enhancement of Natural Habitats

North Lincolnshire has numerous wildlife habitats, which range from the world class internationally important areas of the Humber Estuary and Crowle Moors, through to nationally and regionally

important wildlife and geological sites, and sites of particular local importance.

The existing habitat of Alkborough Flats supports a vast range of wildlife, including bittern, avocet, lapwing and marsh harrier and as a result of its role in managing tidal flood risk, species-rich habitats of reedbed, saltmarsh and wet grassland are already establishing.

A proposed new RSPB reserve on the west bank of the River Trent near Blacktoft Sands aims to create a new wetland habitat and is in the early stages of seeking planning approval to achieve this.

Ecological designations are an acknowledgement of the habitat's value and serve as a 'check point' which can often deter proposed development. The focus may switch to areas where existing habitats are not designated, and which have a perceived lack of value implied by the non-designation. This missing 'check point' may result in development and the loss of a habitat which had value and could have been enhanced with the right tools.

The Waters Edge Country Park and Far Ings Nature Reserve are not only successful examples of restoring despoiled landscapes but also a great way of engaging with the public and demonstrating the value of nature and the positive impact it can have on our lives and well-being. The restoration of other former extraction sites around North Lincolnshire, such as their transformation into fishing lakes or for water-based recreation, shows that we can make a positive contribution at a variety of scales. This retro-fit approach must not be seen as a green light to justify the continued degradation of the landscape and if we have the means and will to positively restore the landscape, then we should have a greater means and will to protect and enhance it.

The government's range of environmental targets, such as the 25 Year Plan, now provides the right tools to protect and enhance natural habitats and to go one step further and create new ones including within urban areas.

4. Trent Levels Landscape Character Area

The Trent Levels Landscape Character Area (LCAR) covers the western extent of North Lincolnshire. Defined by the county's administrative boundary to the west, and south, and to the east by the spring line at the foot of the scarp slope that forms the Lincolnshire Edge and neighbouring LCAR. Notable features are the estuarine mudflats and seasonally flooding meadows on the southern bank of the Humber Estuary, and the mouth of the River Trent which marks the northern extent of this LCAR.

The character area continues west to the edge of the raised mires and heathland associated with Thorne and Goole along the western edge of the administrative boundary between North Lincolnshire and Doncaster.

Most of the landscape character area comprises the low-lying floodplain areas around the River Trent, which extends south to north through this area to the Humber Estuary. There are two areas of elevated ground in this otherwise flat landscape, the larger of which is wholly within the Isle of Axholme Historic Landscape Character area, locally designated as an Area of Special Historic Landscape Interest.

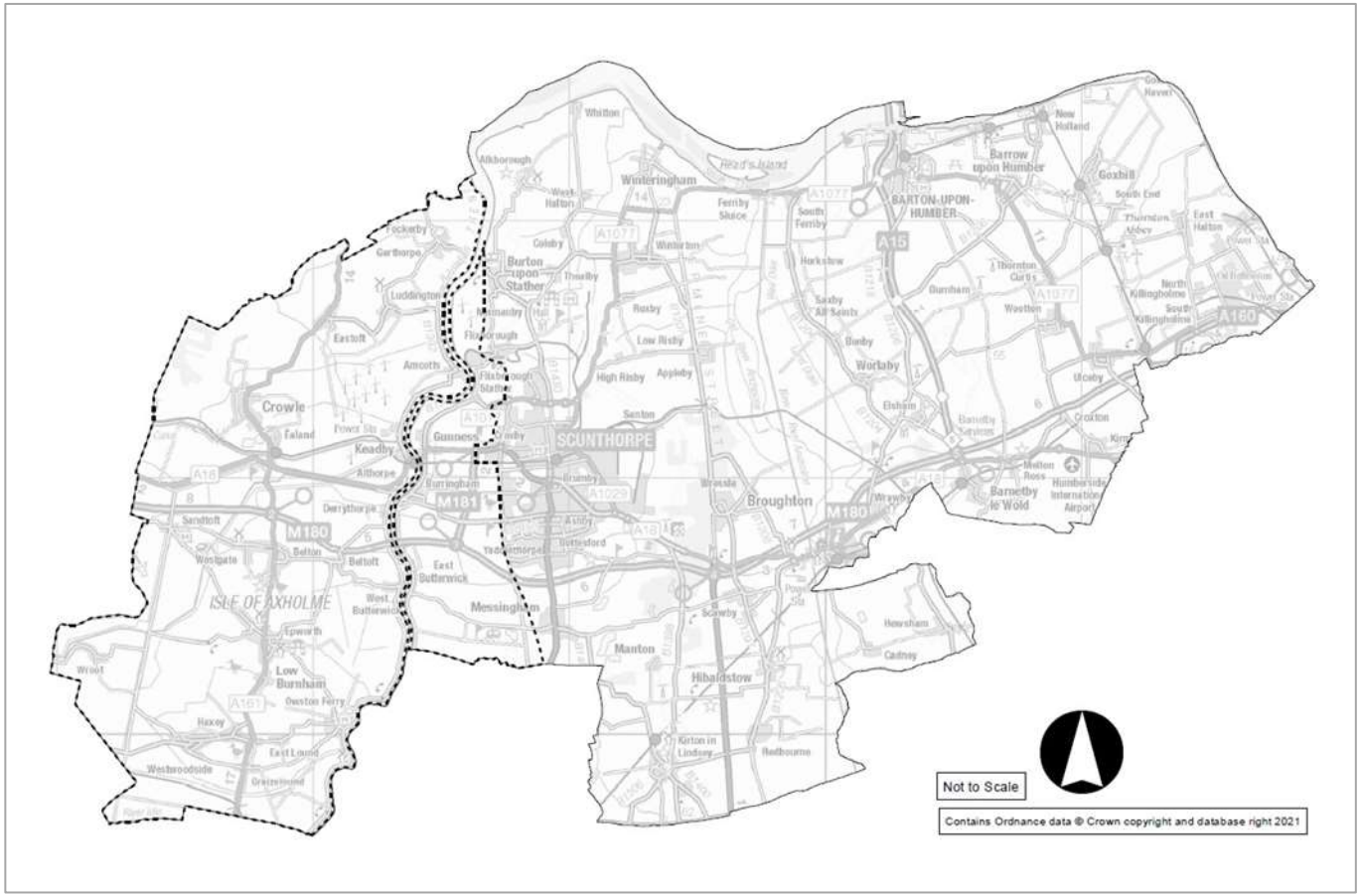

Figure 3 – Trent Levels

4.1 Key characteristics:

The Trent Levels LCAR consists of 7 individual Landscape Character Types (LCTs) over 10 separate geographical areas which gives an indication of the change across this predominantly low-lying landscape, some of which can appear abrupt and others more subtle and diffused. The key characteristics of note are:

- In the main, the Landscape is only 1 or 2m AOD and offers expansive views, although woodland blocks, rising ground, infrastructure and settlements create distant enclosure.
- Significant areas of arable land are graded as 'Very High' and 'High' in Natural England's Agricultural Land Classification system; the highest and second to highest grade. The remainder of the land is graded as, 'Good to Moderate'.
- Contains internationally and nationally important designated areas of ecological conservation.
- Contains the Isle of Axholme Historic Landscape Character area, a locally designated Area of Special Historic Landscape Interest. Three LCTs are partially within this designation, Flat Drained Farmland, Flat Drained Treed Farmland and Flat Wooded Farmland. A fourth LCT, Open Island Farmland, is wholly within this designation.
- A large open arable field structure defined by well-maintained drainage ditches. Hedgerow planting helps to define boundary areas in places; however, hedges are generally badly maintained and contain gaps.
- Farming intensification has led to the loss of hedgerows in places and the consequential breakdown of field structure.
- Open arable areas are occasionally punctured by small woodland copses, farmsteads, shelterbelts, overhead electricity pylons, wind turbines and well-treed settlements.
- Linear features dominate the area with long narrow local roads flanked by drainage ditches, rectilinear field patterns, shelterbelts, and field drainage systems.
- Major infrastructure features include overhead electricity pylons, Wind turbines and primary transport corridors including the M180 and A18 which provide vehicle access over the River Trent.
- Industrial features along the river create a chaotic landscape, especially when in close proximity.
- The River Trent is the major river within the LCAR (and the county) but there are several other waterways which cut through the area, including the Stainforth and Keadby Canal, River Torne and South Engine Drain.
- Larger settlements are found on higher ground or adjacent to the banks of the River Trent. The open floodplains are generally unpopulated with only small farmsteads and associated barns/sheds.
- The open floodplain areas illustrate the typical character of this landscape character area with tendencies for a more intimate landscape and enclosure to occur around settlements.
- The open floodplain areas illustrate the typical character of this landscape character area with tendencies for a more intimate landscape and enclosure to occur around settlements.

"Contains internationally and nationally important designated areas of ecological conservation."

4.2 Physical Influences:

The low-lying, mainly flat topography of the Trent Levels is the result of the glacially impounded Lake Humber, of the late Quaternary era. The water body deposited an even layer of sediment, in this case laminated clays, often reaching a depth of 20 metres over the underlying Triassic mudstone and sandstone.

The occasional, isolated areas of elevated ground have been formed by exposed areas of blown sand and Mercia Mudstone, the most distinct being the gently rising Isle of Axholme in the west of the area and a smaller area around the village of Crowle. The looser sandy soils common to the elevated ground have tendencies to support birch and oak woodland due to their lower fertility levels.

4.3 Historic and Cultural Influences:

There is evidence from beneath the peat of Thorne and Hatfield Moors to suggest the existence of a pre-Bronze Age forest, which was later replaced by raised mire as wetter conditions developed. It was because this landscape was so difficult to cultivate or inhabit that early settlement concentrated in the more elevated areas. By medieval times, the landscape structure was one of settlement and strip farming on the raised ground of the isles and river levees of the Trent and Ouse, with pasture on seasonally flooded areas and raised mires left permanently wetted.

Attempts to drain the land date back to Roman times. The main period of drainage came in the early 17th century when Dutch engineers demonstrated new techniques practiced in their homeland. Major river diversions and intricate drainage systems have given rise to the open, geometric field structure of today's floodplain landscape. The fertility of the land has also been dramatically improved by the practice of 'warping', where fields were seasonally flooded with tidal waters, depositing rich alluvial silt over the land. These practices have created areas of intensively farmed, high grade (Grades 1 and 2) agricultural land.

The modification of farming systems during the 20th century has seen the breakdown of some of the field structure in the area, giving rise to larger, more expansive fields. However, the medieval pattern of land use is still traceable in the grain of the present-day landscape despite large scale changes in the last 300 years. Areas of relict medieval open field are distinguishable from areas of land enclosed from the open fields in a piecemeal fashion (Early Enclosed Land) and common pastures which have been drained and subject to parliamentary enclosure (Recently Enclosed Land), with relict areas of raised mire and turbary.

The Isle of Axholme is an area of raised ground in this otherwise flat landscape and its attributes of medieval open strip fields, turburies together with enclosed land and the overall settlement pattern of the area make it unique within the country.

The area is known as the Isle of Axholme as it was originally bordered by four rivers and due to regular flooding was largely accessible only by boat. The area was subject to extensive draining in the 1620's (Miller 1997, 28) and modern farming practices introduced, however, many farmers on the Isle of Axholme itself, disregarded these modern developments and continued farming communally in strips (Miller 1997, 30). This led to a unique landscape which was largely devoid of the boundaries and enclosures seen in most of the country. Combined with the nature of the area as raised ground, the open landscape contrasts starkly with the surrounding areas of early and modern enclosed fields.

The area has been of importance for its well-preserved historic landscape and was noted as having one of the largest areas of preserved medieval strip fields in the UK (Miller 1997, 1), however the pressure of modern farming practices and development may have significantly altered this.

JBA Consulting's Archaeology and Heritage team has recently undertaken work to complete a high-level review of the Isle of Axholme Historic Landscape Character (HLC) study (Miller 1997) and the Lincolnshire HLC study (LCC 2011). The purpose this review is to assess the continuing validity of the HLC character areas and types, highlight areas of change within the council's Local Plan and to determine whether the documents should remain part of the Local Plan evidence base. At the time of writing the work is ongoing.

Older roads follow more winding routes across the area, following dry paths used in medieval times, whilst newer road networks take straighter more direct routes, either utilising slightly raised drainage lines lowering the risk of flooding, or following

rectilinear field boundaries. In many cases, the roads are characteristically flanked by well-maintained drainage ditches.

Major transport corridors, the M180, A18 and railways, have a distinct impact on this flat, open landscape. In many areas, their routes can be identified by large embankments and thick, linear tree and shrub planting.

The raised flood defence embankments along the banks of the River Trent and slightly elevated man-made water courses such as the Stainforth and Keadby Canal interrupt the views.

Overhead high voltage electricity transmission lines, towers and wind turbines, create significant vertical intrusion and visually dominate the floodplain areas adjacent to the river, their presence having the most impact in the areas surrounding Flixborough Stather, Gunness and Althorpe, where both settlements and industry hug the riverbanks.

Wind turbines are also influencing the views around the north west of the LCAR, although these are primarily from wind farms which are just outside of North Lincolnshire's administrative boundary.

4.4 Settlements and Buildings:

The pattern of rural settlements has been strongly influenced by the historic development of the landscape. Rural settlements are few, tending to crowd the elevated land in the west and the banks of the River Trent.

The open floodplain areas are host to occasional farmsteads with associated barns, usually of a modern vernacular, and scattered well-treed settlements, both puncturing the expansive views and adding variety to the landscape. On the raised landform, windmills, water towers and churches can be quite prominent landscape features especially when viewed from the flat open surrounding areas.

The local vernacular combines the use of red brick with either slate or clay pantile roof tiles. Modern developments have grown around the historic core areas, in places adopting the traditional building materials, however there is evidence of large agro-industrial buildings made from modern prefabricated materials associated with rural farmsteads. There are historic farmsteads scattered across this landscape with a number in their extant condition or with minimal alteration. Crowle and Epworth are the only settlements within the LCAR which have a designated Conservation Area.

Detached and semi-detached housing dominates many settlements; in areas such as Crowle bungalows have been a popular choice, reducing visual impact on the surrounding landscape. To the south of Crowle, is the hamlet of Tetley, where the extraction of clay for a Brick and Tile Works has created 7 individual lakes. The lakes are now part of the 7 Lakes Country Park site, a 120-acre seasonal and permanent holiday destination containing large static caravans and lakes for fishing and water sports. The site was established and developed at the start of the 2000s.

There is a trend throughout the area for smaller field sizes in the peripheral areas of settlements, resulting in the development of a more enclosed, and intimate landscape. Field trees, hedgerows and fragmented woodland have a greater presence giving settlements a visual dominance when viewed from the open arable areas.

4.5 Landcover and Wildlife:

Hedges were not a feature of the medieval open field system, and where these landscapes survive intact, hedgerows continue to be absent. In areas that were subject to enclosure, hedgerows were more common, but in many areas, they have since been removed as part of a process of field amalgamation, aiding the development of a large open field structure. Where they occur, hedges are either over clipped and gapped forming a loose boundary, or unmanaged with intermittent tree cover. A few small wooded copses occur in areas adjacent to farmsteads, along with characteristic shelterbelts of both deciduous and evergreen species. Important farmland bird communities have been recorded in the Isle of Axholme.

Tree cover increases in areas surrounding farmsteads and settlements, amplifying their presence compared to the more open surrounding landscape. Also, the subsequent establishment of motorway embankment planting also provides wildlife refuge and habitat.

There are few large-scale woodland blocks within the LCAR with the most noticeable extending along either side of the M180 to the north east of Belton. There are also areas of woodland around the parkland of Hirst Priory to the south of the A18 and along North Lincolnshire's administrative boundary to the west which create a sense of distant enclosure.

Crowle Waste or Moors is part of 'Thorne, Crowle and Goole Moors' a designated Site of Special Scientific Interest (SSSI) which is a national designation in England. Hatfield Moors is a separate SSSI, however both SSSIs are considered as one National Nature Reserve, by their title 'Humberhead Peatlands'. An NNR is a statutory nature reserve designated by Natural England, the National Trust or RSPB (in the case of England). Both sites are also designated as Special Area for Conservation (SAC) and Special Protection Area (SPA).

There are several SSSIs within the Trent Levels including Crowle Borrow Pits, Epworth and Haxey Carr turbaries, and the Hatfield Chase Ditches which includes Folly Drain and South Engine Drain. Many of the other drains, canals and the three rivers in the LCAR have a rich aquatic flora and qualify as Local Wildlife Sites.

The internationally designated SAC and Ramsar site of the Humber Estuary extends as far down the River Trent as Keadby Bridge at Gunness. This same extent is also a designated SSSI.

4.6 Connectivity:

There is a well-established network of Public Rights of Way (PROW) across this LCAR, with a greater number of routes in the area south of the M180. The Peatlands Way, a promoted long-distance footpath, is a looped route which is well connected to the PROW network to the north and south of the M180.

The Peatlands Way passes through several villages within this LCAR, including Epworth and Crowle, as well as the Humberhead Peatlands National Nature Reserves, as the route passes between North Lincolnshire and the neighbouring administrative area of Doncaster. It also passes through Isle of Axholme Area of Special Historic Landscape Interest.

There are currently no designated National Cycle Networks within this LCAR though local cycle routes have become established along the disused Isle of Axholme Light Railway and along the Stainforth and Keadby Canal.

4.7 Landscape Strategy:

The overall strategy for the Trent Levels is one of enhancement to repair and restore features that have become lost to agricultural intensification as well as limiting the expansion of the industrial areas, associated energy transmission network and the further proliferation of wind turbines. In addition to the above, the following should also be considered:

- The transport corridor across the centre of the Trent Levels remains an intrusive feature but in the intervening decades has become more accepted as a feature within the landscape. In the case of the M180, its raised embankments provide valuable habitat in addition to that of the wider character area. Biodiversity enhancement should be encouraged through initiatives across the area, including on features such as the M180 embankments and former quarry sites.
- Ecological designations should be regularly monitored to ensure that they are not being affected or eroded by development or other activities within or near to these valuable habitats. North Lincolnshire Council maintains a network of Local Wildlife Sites (LWS), selected in accordance with objective criteria. The LWS network should be resurveyed and reviewed every 5-10 years, with any newly discovered qualifying sites being added at that stage.
- Tree planting around new developments, for screening or shelterbelt, should be from native species of local origin with a proportion of species from more southerly zones to provide adaptation to predicted climate change. Any plantings should be supported by a robust management and maintenance scheme to ensure that full establishment is achieved. Where existing tree planting is not of local provenance then a programme of gradual replacement should be encouraged.
- Consideration should be given to strengthening the existing footpath network, for example using technology and downloadable maps and information onto mobile devices. These maps can highlight the existing historical and ecological assets and features of interest within the Trent Levels which would raise awareness of their value and perhaps promote a sense of ownership and safeguarding within the local community.

5. Trent Levels - Flat Drained Farmland

This Landscape Character Type (LCT) consists of flat, open farmland and is the largest LCT within the Trent Levels extending from the northern edge of the county's administrative boundary to the south, following the course of the River Trent which bisects it from north to south. Contained to the east by the spring line of the Lincolnshire Edge escarpment, the area extends over the River Trent to the west. In some instances, the flood plain continues westward at the same low level for around 5km until the land begins to rise towards the Isle of Axholme in the south west and around Crowle in the north west.

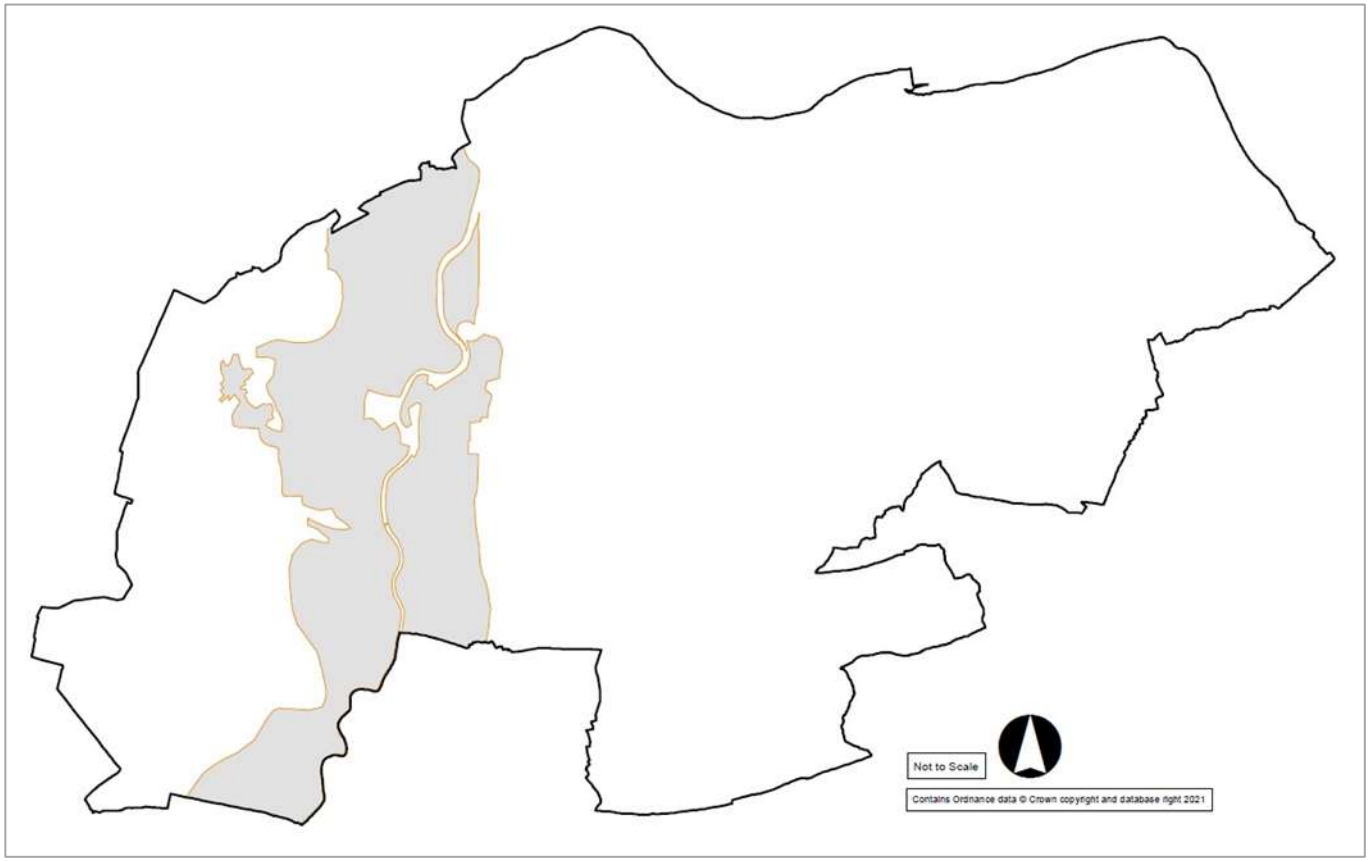

Figure 4 – Flat Drained Farmland

5.1 Key Characteristics:

- Expansive, open and level, low-lying farmland, essentially only 1 or 2m AOD, located to the west and east banks of the River Trent.

- The northern reach of the River Trent is an internationally designated SAC and Ramsar site, and nationally designated SSSI.

- The west bank of the Trent and south of the A18, as far down as Warping Drain, Graizelound, is washed over by the Isle of Axholme Area of Special Historic Landscape Interest.

- Raised flood protection embankments flank the River Trent on both banks. Intensively farmed arable crops dominate much of the area. Very few boundary hedgerows, where hedgerows occur, they have a tendency to be tightly clipped and fragmented. Frequent dikes and drains, dividing fields, many of which are recognised as Local Wildlife Sites, due to their diverse aquatic flora.

- Pockets of strip farming survive on the west bank of the river and are characteristically open as these areas have never been planted with hedgerows.

- Scattered pockets of grassland and grazing marsh occur in locations such as Gunness Common, Butterwick Hale and Common and Keadby wet grassland.

- Tree cover is very limited with small enclosures and shelterbelts surrounding farmsteads and settlements. Occasional field trees have a large impact, breaking the expansive views across the landscape.

- Away from the banks of the River Trent, settlements are mostly well treed; from a distance it is the tree cover that defines the presence of settlements within the open landscape, rather than the buildings themselves.

- A small number of large farmsteads puncture the open views across the heart of the floodplain.

- The central belt across the LCT is bisected by a network of transport infrastructure including the M180, A18, rail network and the Stainforth and Keadby Canal which all contribute to the sense of distant enclosure with their raised, vegetated embankments.

- Local roads tend to be located to the edges of the area adjacent to the rising land in the west or follow the meandering path of the River Trent, with only small tracks and local lanes crossing the open floodplain. Most roads are edged by the characteristic field drains that contribute to the linear structure of the landscape character area.

- The rising scarp slope creates visual enclosure to the east. The locally elevated landform creates distant enclosure to the west.

- High voltage transmission cables and towers are a dominant feature of the floodplains, particularly where multiple routes from the north, south and east converge on the Power Station at Keadby.

- Numerous windfarm developments extend across the farmland to the north of the Power Station as well as an area to the east of the river, just north of Flixborough.

- Wind turbines form a semi-contiguous horizon of turbines due to them being more densely located in specific areas.

- Areas of industrial and wharfeside development along the banks of the Trent instil a chaotic influence on the landscape, especially when in close proximity.

Figure 5 – View west from flood embankment, Northfield Lane

"Expansive, open and level, low-lying farmland, essentially only 1 or 2m AOD, located to the west and east banks of the River Trent."

5.2 Physical Influences:

The glacially impounded Lake Humber has resulted in the deposition of laminated clays in places reaching depths of 20 metres which have been deposited over the underlying Mercia Mudstones, creating the flat low-lying areas associated with the River Trent floodplains. The seasonally flooded landscape has been extensively modified by modern farming practice and watercourses contained by engineered flood defence schemes. The draining of the landscape has exposed some of the most fertile soils in the region, where in the past fertility was improved through the Dutch practice of warping. Large scale modern farm units have predominated resulting in the almost total loss of landscape structure, leaving the open floodplain areas lacking in tree and hedgerow cover.

5.3 Landscape Strategy:

The strategy for this whole LCT is to enhance the remaining landscape structure through the monitoring of farming practices, particularly where agricultural intensification will weaken the existing character. Development should be in scale and sensitively located to minimise the impact on the open character, with appropriate shelterbelt screening of deciduous species of local provenance which can also enhance and support the biodiversity of the area. The opportunities to enhance the biodiversity in general should also be considered and explored, not just as part of new shelterbelt screening.

Consideration should be given to also designating the Isle of Axholme Historic Landscape Character area as an 'Area of High Landscape Value'.

5.4 Landscape Guidelines:

As part of this LCT is within the Isle of Axholme Area of Special Historic Landscape Interest, one of the primary guidelines for this LCT, where applicable, is to refer to the range of reports, studies and drawings on the Isle of Axholme Historic Landscape Character (HLC) to determine the appropriate approach.

JBA Consulting's Archaeology and Heritage team has recently undertaken work to complete a high-level review of the previous studies conducted by Keith Miller (1997) and Lincolnshire County Council (2011).

This range of information can help to inform where the integrity of the HLC is still intact.

The additional guidelines for Flat Drained Farmland are presented below:

- Pro-actively monitor and support farming activities in the Isle of Axholme historic landscape character area to prevent further erosion of the remaining historical features to maintain its historical open aspect and lack of field boundaries.
- Adopt a similar approach for farming activities in the areas of riverside strip farming and early enclosed land to support their respective historical features.
- Apply tighter restrictions on small scale development in the areas of historic landscape character to prevent the encroachment of structures such as portal framed sheds and outbuildings as well as 'hard' property boundaries.
- Where it is in keeping with the existing landscape structure, hedgerow and occasional tree planting, using native deciduous species of local origin, should be encouraged to reinforce the character without damaging the open characteristics.
- The use of native deciduous species of local origin for hedgerow and proportionate tree planting, should also be considered around settlements, to enhance the existing, or as part of a programme to gradually replace those species which are not in keeping with the character.
- The planting of ornamental evergreen species should be strongly discouraged as shelterbelt planting, as should the practice of planting rows of white or Lombardy poplar. The latter is ineffective in screening farmsteads, or other built form within the landscape, and both seem to accentuate the feature. There may also be little biodiversity or habitat value of these species when compared with the species of local origin.
- Prevent development which is not sited within existing farmstead and agro-industrial areas and prevent the

encroachment and expansion of existing village and hamlet development boundaries into the LCT.

- Surviving areas of riverside strip farming systems should be preserved and protected from inappropriate development. In such areas, tree and hedgerow planting is inappropriate and requests to plant it should be considered and justified.
- Although no less intrusive, the M180 is now an accepted feature within the landscape which can also provide distant enclosure. The raised embankments, with established areas of vegetation and mature trees, can provide valuable habitat for a range of species. Consider a programme of habitat surveys to confirm its ecological value and enhance it through appropriate additional tree planting and establishment of vegetation.
- Restrict the expansion of existing wind farms, or the establishment of new ones, within this LCT.
- Across the minor road network of the area, avoid new hedgerow planting along roadside areas which impact on the landscape's generally open character. Where appropriate, consideration should be given to intermittent roadside tree planting which creates a more diffused screen without detracting from the open character. Northfield Lane, to the north of Amcotts is a good example of this approach.
- Where possible, areas of riverbank and peripheral rough grazing should be managed and planted to encourage wildlife and ecological potential. Ensure maintenance and survival of linear drainage ditches and dikes and where possible, a diverse range of aquatic and emergent plant species should be encouraged through sensitive management to maintain important ecological and wildlife habitats. Farmland bird habitats, plants for pollinators and other arable conservation options should be targeted along field margins and drainage features, to provide more habitat that is better connected.
- Actively promote the international and national ecological designation of the River Trent, incorporating viewing points and footpath routes along section of the flood embankment crest.
- Promote the historical, ecological and recreational value of this character type through the use of technology and downloadable information and maps, onto mobile devices, which can be used in conjunction with the existing PROW network.
- Management of existing woodlands should generally favour locally native species. However, a proportion of broadleaved species from more southerly zones should be permitted to allow for climate change adaptation. The latest Forestry Commission guidance should be applied at the time of planting.
- Future climate change and sea-level rise will bring about changes in the ways that we manage the risk of flooding. The Environment Agency's emerging Humber 2100+ Strategy is likely to put forward areas where land may need to be allowed flood occasionally, or even annually in the future. In the longer term, larger areas of intertidal coastal habitat will be created. In this LCT, opportunities should be sought to deliver large-scale wetland habitat creation, natural flood risk management and carbon sequestration and storage in support of the new strategy. Wherever possible important historic landscapes should be conserved and strengthened, with wetlands being prioritised outside these areas.
- In the area covered by the Lincolnshire Lakes Area Action Plan, all development, habitat creation and landscaping must be carried out in accordance with the Lincolnshire Lakes Strategic Design Guide, dated November 2016, or subsequent adopted updates to that document.

6. Trent Levels - Flat Drained Treed Farmland

This LCT extends along the south western edge of North Lincolnshire's administrative boundary and which by default also defines the extents of the Trent Levels LCAR. To the north it extends a short distance beyond the A18 and to the south it is contained by the tree lined banks of the River Idle Mother Drain which is also serves as a section of the southern administrative boundary. The eastern edge is contained by the rising farmland on the western side of the Isle of Axholme.

A small 'satellite' area is located around the village of Eastoft, which is located to the north east of Crowle.

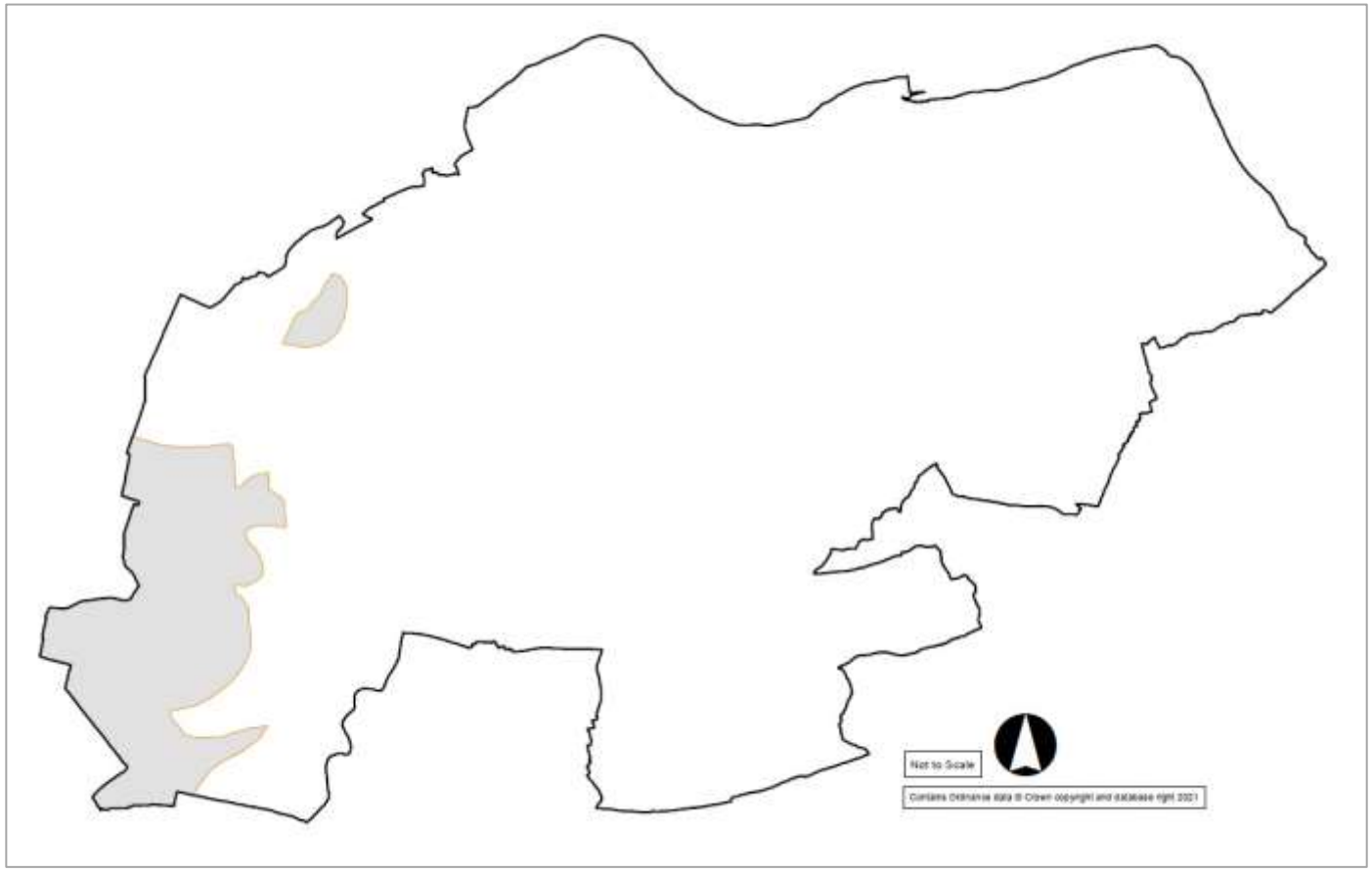

Figure 6 – Flat Drained Treed Farmland

6.1 Key Characteristics:

- Level and expansive arable landscape, largely the product of recent enclosure which is generally open albeit with longer range views contained through landform and tree cover.

- Views along the distinctive, long straight roads in the southern part of the LCT are open and not contained by roadside vegetation or field boundaries. Woodland and trees outside of the county's administrative boundary to the west provide a strong sense of enclosure in that direction.

- There is localised enclosure around settlements, particularly around Eastoft, and farmstead areas generally.

- The gently rising land of the Isle of Axholme, to the east, creates a sense of distant enclosure on the southern part of the LCT. The eastern edge of the southern part of this LCT is washed over by the Isle of Axholme Area of Special Historic Landscape Interest.

- Large regular field structure with little hedgerow planting but relatively frequent boundary and field trees and woodland copses. Small pockets of early enclosed land and turbary landscape.

- SSSI designations on Epworth and Haxey turbary landscape, as well as on Haxey Grange Fen and the Hatfield Chase Ditches. There are no designations within the LCT around Eastoft.

- Occasional small woodland blocks, predominantly of deciduous species, across both parts of the LCT. The large wooded area of Hatfield Moor on the western boundary lends a strong influence locally and encloses views in that direction. Hatfield Moor is located outside of North Lincolnshire's administrative boundary.

- Distinctive long straight roads, slightly elevated, with drainage ditches running parallel, often on both sides of the road are a strong feature of the southern part of the LCT; Although there are drainage ditches parallel to the roads around Eastoft, the roads are more sinuous in alignment.

- Field boundaries generally indistinct or defined by ditches, occasionally more visibly defined by unmanaged gapped hedgerows, field boundary trees and raised berms associated with drainage dikes.

- A limited number of farmsteads, including Historic Farmsteads (both extant and altered) are scattered throughout the area, often combined with large agro-industrial buildings of a prefabricated portal framed design.

- Currently active aggregate extraction site at Greenholme Bank Quarry, north west of Westwoodside and a former extraction site at Langholme Farm, although both are well screened by tree and shrub cover.

Figure 7 – View south along Idle Bank

"Distinctive long straight roads, slightly elevated, with drainage ditches running parallel, often on both sides of the road are a strong feature of the southern part of the LCT."

6.2 Physical Influences:

A combination of glacial alluvium and localised pockets of peat cover this flat landscape which is dominated by large intensively farmed arable fields. The naturally rich soils of the area have been enhanced through the process of warping during the last century, increasing fertility levels and creating high grade agricultural land. This landscape is largely a product of recent enclosure, although small pockets of early enclosed land, allotment areas and turbary provide variety. With the continual draining and intensification associated with modern farming practices, a landscape lacking structure and distinguishing features has developed. Unlike the neighbouring Flat Drained Farmland LCT, this LCT has managed to retain small areas of woodland, and occasional boundary and copse tree cover which can contain longer range views and provide a sense of enclosure.

6.3 Landscape Strategy:

The strategy for this landscape is to maintain its vegetated structure by strengthening existing hedgerow and tree planting, with native deciduous species of local origin, where this will not be detrimental to the area's open character.

In addition to this, farming practices should be monitored, particularly where agricultural intensification will weaken the existing character. Also, where possible, work with the neighbouring local authorities to the west and south west of the administrative boundary to support the integrity of the woodland and treed areas which form such a distinctive feature for this character type.

A further consideration is to designate the Isle of Axholme Historic Landscape Character area as an 'Area of High Landscape Value'.

6.4 Landscape Guidelines:

Due to its presence within the Isle of Axholme Area of Special Historic Landscape Interest, one of the primary guidelines for this LCT is to refer to the range of reports, studies and drawings on the Isle of Axholme Historic Landscape Character (HLC) to determine the appropriate approach.

JBA Consulting's Archaeology and Heritage team has recently undertaken work to complete a high-level review of the previous studies conducted by Keith Miller (1997) and Lincolnshire County Council (2011).

This range of information can help to inform where the integrity of the HLC is still intact.

The additional guidelines for Flat Drained Treed Farmland are presented below:

- Ensuring that continual farming intensification does not further destroy landscape structure; particular attention should be paid to the areas of moorland allotments, early enclosed land and turbaries.
- Restricting insensitive development within turbary landscapes and encourage redevelopment of redundant buildings. Conserve turbary cottages. Investigate water level management of turbaries and other remnant moorland areas.
- Protecting the distinctive features of small areas including hedges and ditches and field pattern.
- Hedgerow planting is not a dominant structural element of this landscape, however where present should be protected and strengthened. It is important that remaining boundary hedges are conserved, especially HLC zone boundary hedges in order to reflect the difference between the character of the medieval open fields, Early Enclosed Land and Recently Enclosed Land.
- Seek to enhance and conserve existing landscape features such as hedgerows, small areas of woodland cover, field drainage ditches etc. without damaging the loosely open character. Where possible, a diverse range of aquatic and emergent plant species should be encouraged through sensitive management of drains and rivers. Farmland bird habitats, plants for pollinators and other arable conservation options should be targeted along field margins and drainage features, to provide more habitat that is better connected.
- Any further development of establishment of recreational sites, especially those associated with areas of open water, should be accompanied by an agreed management plan to create a balance between wildlife and

Figure 5 – View south along Idle Bank

recreation requirements and ecological development.

- Restricting tree planting to areas of existing cover and to areas adjacent to settlements. The use of native deciduous species of local origin should be actively encouraged. Many areas of boundary tree planting lack interspersed shrub cover, which would add visual diversity and greater wildlife potential.
- Reflect the existing patterns of cover through limited, new woodland planting with species of local origin, primarily deciduous. A proportion of broadleaved species from more southerly zones should be permitted to allow for climate change adaptation. The latest Forestry Commission guidance should be applied at the time of planting. Woodland planting should be targeted towards areas surrounding large farmsteads and industrial landscapes, particularly the Sandtoft Airfield site in the north of the area. Small areas of woodland cover should aim to further integrate built development whilst maintaining open views.
- Encouraging a programme to replace non-native and incongruous tree planting with species of local origin.
- Review the existing, long established woodlands and consider selective felling and restocking to encourage a more diverse range of species of varying age.
- Where possible the development of farm buildings and agro-industrial barns should be confined to existing farmstead areas, taking on the local vernacular and suitably landscaped into their setting.
- Monitor the areas of local and national ecological designation, particularly where public access is possible, to ensure that human interaction does not start to impact upon and degrade them.
- The distinctive character of the straight rural roads, predominantly in the south of the character type, is typified by the well-maintained drainage ditches on either side and the lack of boundaries in the adjacent arable farmland, which should be conserved and maintained.
- Promoting the historical, ecological and recreational value of this character type through the use of technology and downloadable information and maps, onto mobile devices, which can be used in conjunction with the existing PROW network.

7. Trent Levels - Flat Open Remote Farmland

This LCT is on the north-western shoulder of North Lincolnshire with the county's administrative boundary defining its boundary. The diffused eastern boundary runs north from the A18 and along the western and northern edge of Crowle before following the route of the A161 out past Eastoft. The area extends south to a further weakly defined boundary which merges gradually into Flat Drained Treed Farmland directly north of the A18.

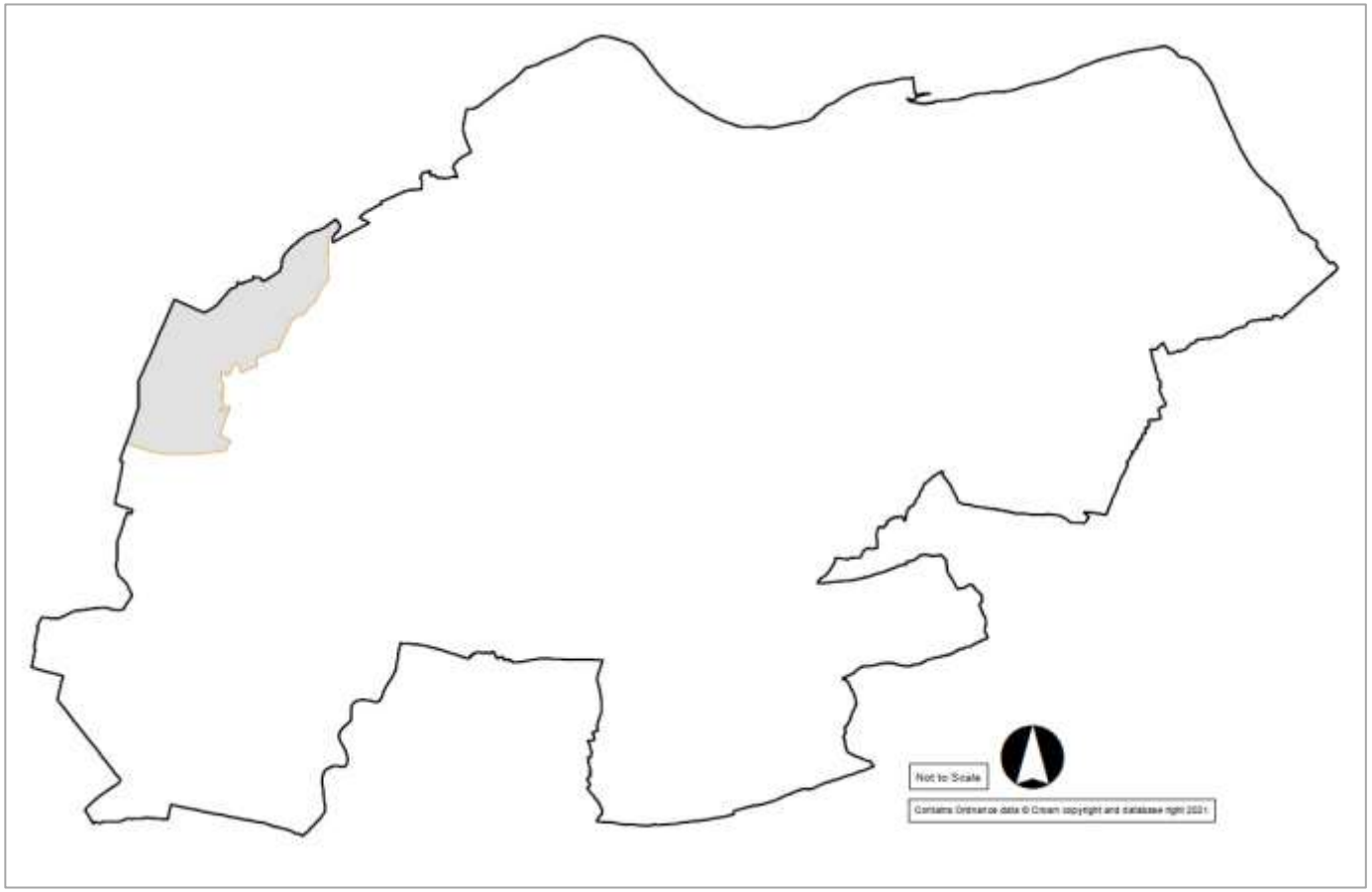

Figure 8 – Flat Open Remote Farmland

7.1 Key Characteristics:

- This level and low-lying area of mostly large arable fields has a varying sense of openness as it runs from north to south.
- To the north of Eastoft, there are more expansive views in all directions as tree and hedgerow cover is almost completely absent. The fields have well-maintained drainage ditches which form intricate networks throughout the fields, but do not have a strong visual presence.
- Continuing south, the treed farmland around Eastoft starts to contain views to the east, which are then enclosed by the settlement of Crowle and the rising land immediately beyond it.
- The enclosure to the east is mirrored by enclosure to the west, created by the woodland of Crowle Waste or Moors, its neighbour Thorne Waste or Moors and the blocks of mixed species woodland around Medge Hall.
- Just south of Medge Hall, the railway line and canal run east to west across the LCT and due to their elevated position above the surrounding landscape, and intermittent treed embankments, create enclosure.
- The LCT continues south beyond the canal and railway line and views once again become more expansive.
- There are very few roads crossing the area and only a few farm tracks cross the open fields which limit vehicular access around the area. The road network is much more noticeable on the north-eastern edge of the LCT and within the southern part on the Dirtness Levels.
- Crowle Waste or Moors and Thorne Waste or Moors are internationally designated ecological sites, afforded SSSI, SPA and SAC status. They are also part of the wider Humberhead Peatlands National Nature Reserve. These lowland raised bogs have suffered greatly in the past through drainage and industrialised peat extraction. However, peat extraction has now ceased, and the sites are being restored through scrub control and the management of water levels.
- Areas of the medieval strip farming system, forming part of the Moorland Allotments (known as the Crowle Ribbons) can be seen in areas surrounding Crowle and Crowle Common. This farming system in which areas of former peat extraction were converted to strip farming is associated with the edge of raised mires (in this case Crowle Waste or Moors) and results in a characteristic landscape.
- The local road north west from Crowle, Moor Road, is part of the Peatlands Way route and footpath users can continue on into Crowle Waste or Moors and through to Thorne Waste or Moors and beyond.
- As the LCT starts to diffuse into its southern neighbour, Flat Drained Treed Farmland, the characteristics start to overlap, as the straightened road of Jacques Bank is flanked by drainage ditches which link into a network of well-maintained drainage ditches through the arable farmland.
- The landscape has been defined as remote, although this now feels to have been eroded due to the significant vertical intrusion of the windfarm to the west of Medge Hall. This windfarm crosses over the administrative boundary between North Lincolnshire and Doncaster.
- Two large windfarms to the north west, Goole Fields and Twin Rivers, although outside of North Lincolnshire's administrative boundary, create further vertical intrusion and erosion of the remoteness in this corner of the county.
- Prior to the erection of wind turbines, the high voltage transmission lines and pylons, running parallel to the railway line, would have added height to a low-lying landscape in which horizontal elements tended to be more dominating.
- A water treatment works and large prefabricated agro-industrial barns are found in the areas surrounding Crowle and in the case of the latter, also on the Dirtness Levels. Some tree planting (often pine) has been used to screen these structures however they still combine with the backdrop of the predominantly modern settlement to create visually intrusive features.

Figure 9 – Encroaching Wind Turbines near Medge Hall

"The landscape has been defined as remote, although this now feels to have been eroded due to the significant vertical intrusion of the windfarm to the west of Medge Hall."

7.2 Physical Influences:

This flat arable landscape of laminated clays and alluvial deposits boast rich and fertile soils, which have benefited in the past from the agricultural influences of warping and intensive draining. The field system of moorland allotments has created a characteristic landscape to the edge of the raised mire areas. Agricultural intensification has led to significant hedgerow loss as well as the construction of agro-industrial barns.

The Humberhead Peatlands NNR, which incorporates Crowle Waste or Moors, creates a distinct boundary to the west through its woodland and vegetation. The elevated alignment of the railway line and canal creates a distinct, albeit false boundary to the south, as the LCT continues beyond this for another mile or so before it diffuses weakly.

The settlements of Crowle and Eastoft create a sense of enclosure along the eastern edge, which in the case of Crowle is re-inforced by the distinct rising landform just beyond it to the east.

7.3 Landscape Strategy:

The strategy for this landscape is to ensure that where the character is open it remains intact and that where it is enclosed by settlement or transport infrastructure these do not influence, or encroach, any further. Such development will also erode the sense of remoteness which has already happened near Medge Hall through the erection of wind turbines and efforts should be made to resist any further installations.

7.4 Landscape Guidelines:

The guidelines for Flat Open Remote Farmland are presented below:

- Ensure that continual farming intensification does not further destroy landscape structure; particular attention should be paid to the areas of moorland allotments, early enclosed land and turbaries.
- Areas of moorland allotments, early enclosed land and turbaries should be conserved and protected from insensitive development.
- Implement water level management plans for turbaries and remnant moorland areas to ensure their survival. Where possible, wetland habitats around the lowland raised bogs should be created, to provide a hydrological buffer and to deliver on the “Lawton” principles of more habitat, in bigger patches of better quality that is ecologically connected.
- New hedgerow planting should look to reinstate historic field boundaries, in particular zone boundaries, in areas where hedgerow removal is still in evidence. Farmland surrounding the north west of Crowle shows the distinct pattern of the moorland allotment medieval strip farming system; this important landscape feature should be conserved and reinstated where possible adding diversity to the surrounding large open fields structure.
- Tree planting should be encouraged around farmstead areas and the large settlement of Crowle to the south. The use of deciduous species of local origin should be actively encouraged.
- A programme to replace existing non-native and incongruous tree planting, with species of local origin, around Crowle should be encouraged.
- The future development of industrial complexes and modern agricultural buildings should be resisted as this will further erode the sense of remoteness and the sense of openness.
- Further wind turbine installations should also be resisted for the reasons given above.
- Monitor the areas of ecological designation, particularly where public access is possible, to ensure that human interaction does not start to impact upon and degrade them.
- The characteristic well-maintained drainage ditches of this landscape should be conserved and enhanced for ecological benefit. Where possible, a diverse range of aquatic and emergent plant species should be encouraged through sensitive management of drains and rivers. Farmland bird habitats, plants for pollinators and other arable conservation options should be targeted along field margins and drainage features, to provide more habitat that is better connected.
- Promoting the historical, ecological and recreational value of this character type through the use of technology and downloadable

information and maps, onto mobile devices, which can be used in conjunction with the existing PROW network.

- The pattern of small tracks crossing this area should be conserved and attempts to improve such routes should be resisted where it would affect their character.

8. Trent Levels - Flat Wooded Farmland

This small and narrow LCT originates from the south west of Crowle, around the western edge of the 7 Lakes Country Park, before widening slightly and continuing south to take in Hirst Priory and Belton Grange. Around Mosswood Grange it follows the sweep of the M180 in a south easterly direction, briefly washing over the motorway to include the woodland on the land north east of Belton.

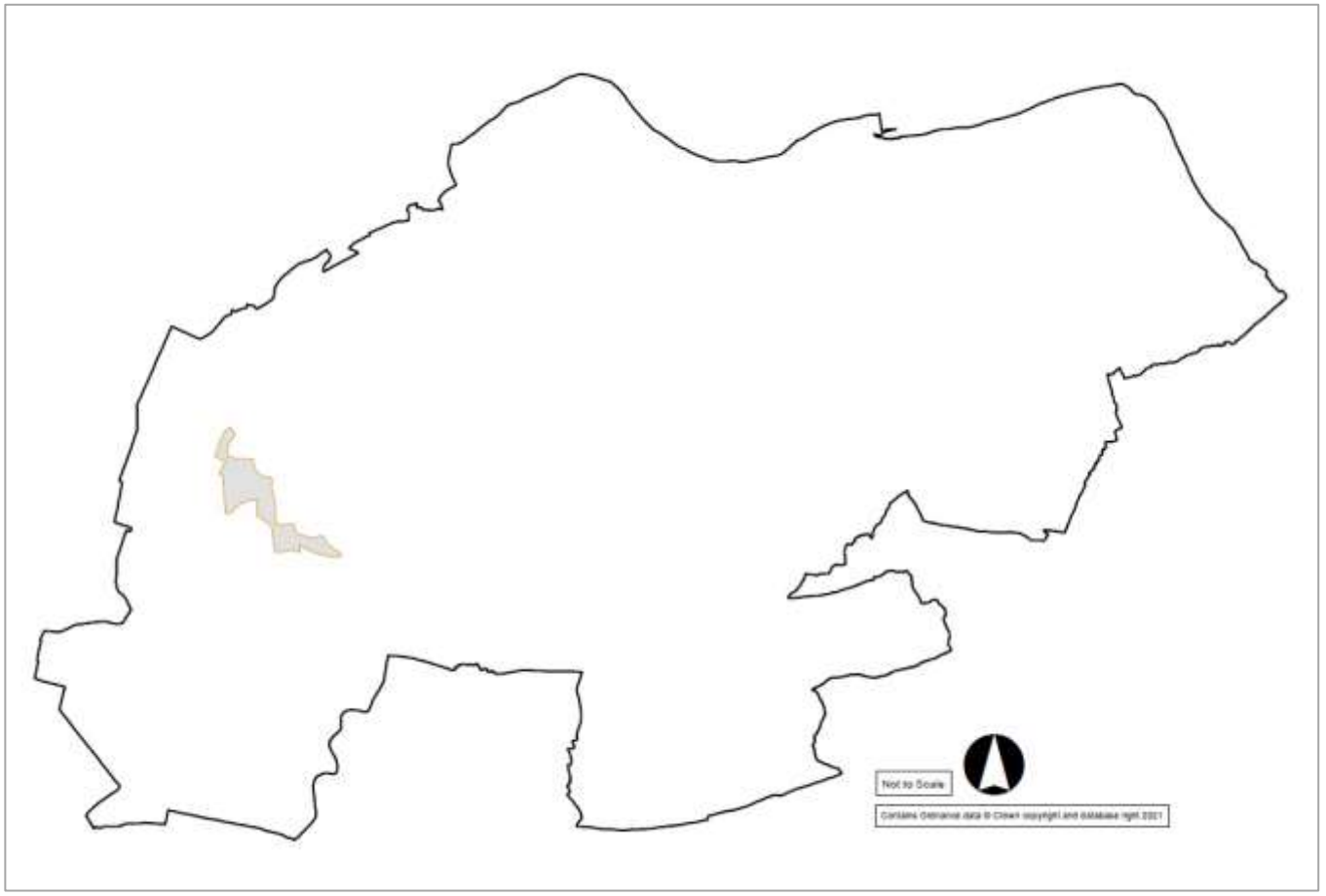

Figure 10 – Flat Wooded Farmland

8.1 Key Characteristics:

- Enclosed farmland area dominated by small pockets of predominantly deciduous woodland of mixed age.
- Medium sized arable fields with little hedgerow planting; where hedgerows occur, they are either tightly clipped and patchy, or overgrown and unmanaged with intermittent tree cover.
- Significant transport infrastructure across such a small area as the South Humberside Main Line railway, A18 and M180 all cut across it in an east to west orientation, with the A161 running north to south.
- Remnants of earlier transport infrastructure are also briefly present, with the north to south alignment of the former Crowle to Belton railway line embankment located between Hatfield Waste Drain and the M180.
- Several large man-made waterways cross the LCT, with the Stainforth and Keadby Canal in the north, Hatfield Waste Drain just south of the A18 and the River Torne, South Engine Drain and Folly Drain to the south of Hirst Priory.
- A section of South Engine Drain, and the whole of the Hatfield Waste Drain are part of the Hatfield Chase Ditches SSSI. Many of the other drains are Local Wildlife Sites
- Hatfield Waste Drain also forms the northern boundary of the Isle of Axholme Area of Special Historic Landscape Interest and almost 70% of this LCT is within this designated area.
- The Peatlands Way footpath runs through the centre of this LCT and is well connected to the surrounding PROW network.
- More recent areas of woodland have become established on the embankments of the M180, notably around junction 2, although the pine and birch planting is less consistent with the landscape character.
- The maturing of woodland around the 7 Lakes Country Park, to the south west of Crowle, has a more notable presence in this part of the LCT.
- Tree lined avenues are a distinctive feature of the area, flanking roads, major drainage channels and former railway corridors.
- Areas of parkland at Hirst Priory and Temple Bellwood lend a strong influence to this LCT. In such areas tree cover includes a wider variety of species**.**

Figure 11 – View north west, just north of the M180

"Enclosed farmland area dominated by small pockets of predominantly deciduous woodland of mixed age."

8.2 Physical Influences:

A continuation of the mudstone and blown sand outcrop from the elevated land to the south has encouraged the growth of agricultural land uses more suited to less fertile soils. Much of this land was enclosed at an early stage.

Generally, the woodland blocks are angular or rectangular in shape with some unchanged for over 100 years, representing the oldest remaining woodlands in North Lincolnshire, west of the River Trent. Others are remnants of larger woodland areas removed as part of the development of North Lincolnshire, including the route of the M180 or development of the golf course at Hirst Priory. The remaining blocks still combine to enclose a mixture of pasture and grassland with interspersed medium sized open arable fields. The tree lined avenues also create enclosure across the area.

This area has also benefited from significant drainage engineering similar to that seen in the neighbouring floodplain areas but does not take on the intensively farmed appearance of such areas.

8.3 Landscape Strategy:

Enhance the existing landscape components of this semi-enclosed area of arable farmland, parkland and village fringe. Consider the established motorway embankment tree planting as part of the fabric of this wooded landscape, which can provide screening, enclosure and valued habitat. A further consideration is to designate the Isle of Axholme Historic Landscape Character area as an 'Area of High Landscape Value'.

8.4 Landscape Guidelines:

Due to its presence within the Isle of Axholme Area of Special Historic Landscape Interest, one of the primary guidelines for this LCT is to refer to the range of reports, studies and drawings on the Isle of Axholme Historic Landscape Character (HLC) to determine the appropriate approach.

JBA Consulting's Archaeology and Heritage team has recently undertaken work to complete a high-level review of the previous studies conducted by Keith Miller (1997) and Lincolnshire County Council (2011).

This range of information can help to inform where the integrity of the HLC is still intact.

Other guidelines include:

- Enhance the existing structure of farmland through the replacement of lost hedgerow planting and the management and reinforcement of existing tree and hedgerow cover.
- Protect the fabric of the historic landscape of Hirst Priory and Temple Bellwood parkland landscapes, including buildings, garden features, planting and any features that predate the parkland, which make a strong contribution to local landscape character.
- Tree lined avenues are a common feature within this LCT and efforts should be made to maintain and replant and infill areas of lost roadside tree planting further enhancing the strong linear planting features of this area.
- Promote the management and restructure of excessively even aged woodland cover. Thinning and restocking of native species should seek to improve habitat diversity and shrub cover.
- New woodland planting should be of local origin to create consistent landscape character in terms of scale and size and to prevent incongruous planting, such as ornamental evergreen species and white poplar. A proportion of broadleaved species from more southerly zones should be permitted to allow for climate change adaptation. The latest Forestry Commission guidance should be applied at the time of planting.
- A programme to replace any existing non-native and incongruous tree planting, with species of local origin should be encouraged.
- The use of local origin species should also be applied to industrial and agricultural development, which must have substantial screening and shelterbelt to integrate it into the landscape.
- The raised embankments of the M180 have established areas of vegetation and mature trees, which could be further developed to support the treed nature of this LCT. Although the species may not accord with those typically

found within the LCT, they can provide valuable habitat for a range of species. Consider surveying this habitat to confirm its ecological value and enhance it through appropriate additional tree planting and establishment of vegetation.

- Where possible, a diverse range of aquatic and emergent plant species should be encouraged through sensitive management of drains and rivers. Farmland bird habitats, plants for pollinators and other arable conservation options should be targeted along field margins and drainage features, to provide more habitat that is better connected.
- Monitor the areas of local and national ecological designation, particularly where public access is possible, to ensure that human interaction does not start to impact upon and degrade them.
- Promoting the historical, ecological and recreational value of this character type through the use of technology and downloadable information and maps, onto mobile devices, which can be used in conjunction with the existing PROW network.

9. Trent Levels - Industrial Landscape

Two distinct areas of industrial activity are present on both banks of the River Trent, with the first one on the east bank around Flixborough Stather snaking south to Grove Wharf. The second one is predominantly on the west bank around Keadby and Keadby Power Station and then crosses the river at Keadby Bridge covering Gunness both north and south of the bridge. The distance between the two areas on the east bank is less than 1km from Grove Wharf to the north of Gunness.

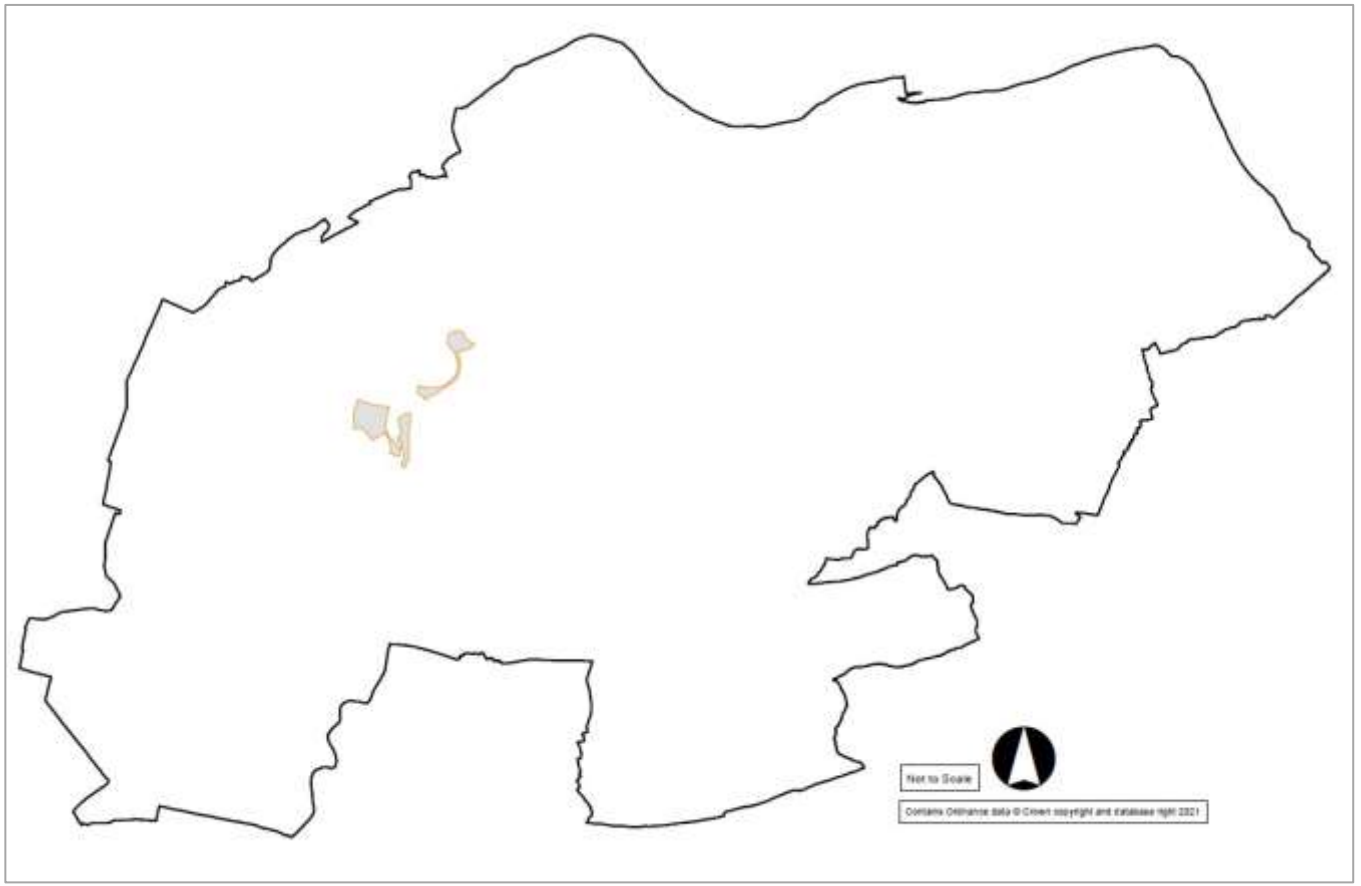

Figure 12 – Industrial Landscape

9.1 Key Characteristics:

- The riverside industrial areas are visually prominent from a distance. The residential areas only really become noticeable once inside the LCT.
- A hard, enclosed landscape with a distinct change in scale and height of structures has been created with few softening features. Views from within industrial areas are generally confined by adjacent structures, including the flood embankments on the riverbank.
- Views from the top of the flood embankments along the river's course or out towards the more open surrounding landscape, help to break down the confinement of this claustrophobic landscape.
- The industrial character of the area is strengthened by the convergence of several transmission lines on Keadby Power Station north of Althorpe, as well as Keadby Wind Farm to the north of the power station itself.
- Wind Turbines on farmland to the north, on both banks of the river, feel visually associated with this LCT, although they are within the neighbouring Flat Drained Farmland. The distinction between the two neighbouring LCTs is diffused.
- The use of building materials such as concrete, prefabricated steel and wire mesh fencing contribute to the industrial feel. Attempts to soften the appearance of these features through planting has achieved mixed results.
- The associated wharves and shipping provide close range interest and dockside cranes are visible at a distance.
- The southern edge of the Humber Estuary SAC, Ramsar and SSSI, international and national ecological designations, extends along the River Trent as far as Keadby Bridge.
- Significant heritage within the LCT includes the Grade II listed Keadby Bridge, more formally known as the King George V Bridge. The bridge is a rolling lift bridge which carries a double track railway line and the A18.
- The nearby Keadby Lock, a tidal canal lock permitting access to the Stainforth and Keadby Canal is also Grade II listed and a Scheduled Ancient Monument.

Figure 13 – View towards Flixborough Industrial Estate

"The associated wharves and shipping provide close range interest and dockside cranes are visible at a distance."

9.2 Physical Influences:

Located to the west of the major settlement area of Scunthorpe and in the locality of the A18, M180, rail terminals and the navigable waterway of the River Trent, a small area of concentrated industry has grown around Keadby, Althorpe, Gunness and Flixborough Stather. The growth of industry from the Scunthorpe area has spread and influenced the growth of major transport networks capable of handling large amounts of industrial transportation.

Built on the site of a former coal-fired power station, operating from 1952 to 198, Keadby Power Station was commissioned in 1996 and at the time of writing is owned by Scottish and Southern Energy (SSE). SSE also owns Keadby Wind Farm which is England's largest onshore wind farm, commenced in 2012 and in operation in 2014.

The nearby presence of industry and networks of energy provision will continue to influence the growth of industry in this area.

Consultation is ongoing regarding plans to construct an Energy Recovery Facility (ERF) at Flixborough, on the east bank of the River Trent, as part of the North Lincolnshire Green Energy Park.

9.3 Landscape Strategy:

Aim to contain the expansion of this industrial area and reduce the existing impacts on the surrounding landscape through enhancement of the peripheral areas. Should the proposed North Lincolnshire Green Energy Park go ahead it would present an ideal opportunity to create a flagship development in terms of materials and assimilation within the landscape and inadvertently guide any future developments within this LCT. This will help to soften the visual impact of the port related activities when viewed from new settlements in the proposed Lincolnshire Lakes area.

9.4 Landscape Guidelines:

Efforts should seek to contain this area and any new industrial developments should be of a suitable size and located accordingly to minimise impact.

Other guidelines include:

- The more common screening approach of a linear strip of large evergreen species should be resisted and more deciduous species, of local origin, should be used to create pockets of tree cover. A robust maintenance and management schedule should also be put in place to ensure that the trees establish and flourish.
- Seek to retrospectively mitigate impacts of previous industrial development with the approach identified above.
- New industrial constructions should be built from materials which complement the surrounding landscape and dissipate somewhat when viewed from a distance.
- Tree planting, of local origin, should also be encouraged around settlements to improve their eventual assimilation with the surrounding landscape but also to create a visual barrier from the industrial surroundings and help to diffuse noise and light. Inappropriate planting should be actively discouraged.
- A programme to replace any existing non-native and incongruous tree planting, with species of local provenance should be encouraged.
- Although arguably less appealing than the other LCTs within the Trent Levels, there are still features and assets of high historical and ecological value which should not be overlooked. Although the PROW network has a limited presence, consideration should still be given to promoting the recreational value of this character type through the use of technology and downloadable information and maps, onto mobile devices, which can be used in conjunction with the wider PROW network.

10. Trent Levels - Open Island Farmland

This landscape type of gently rising land occurs in two distinct geographical areas with a larger area, to the south of the M180, extending between Belton in the north and Haxey in the south.

The smaller area is to the north of the M180, commencing adjacent to the Stainforth and Keadby Canal, running north past the eastern edge of both Ealand and Crowle, before returning to the lower lying surrounding landscape adjacent to the A161 on the fringes of Crowle.

The larger area is entirely contained within the Isle of Axholme Historic Landscape Character area, a locally designated Area of Special Historic Landscape Interest reflecting the areas importance for its well-preserved historic landscape including preserved medieval strip fields.

The larger area measures on average 3km in width and rises up to around 30 metres in height above the surrounding floodplain. It is a densely populated area in relation to its size, mainly due to the raised topography providing safety from flooding in times of early settlement. The second area is less densely populated although some of the settlement of Crowle extends up the western flank.

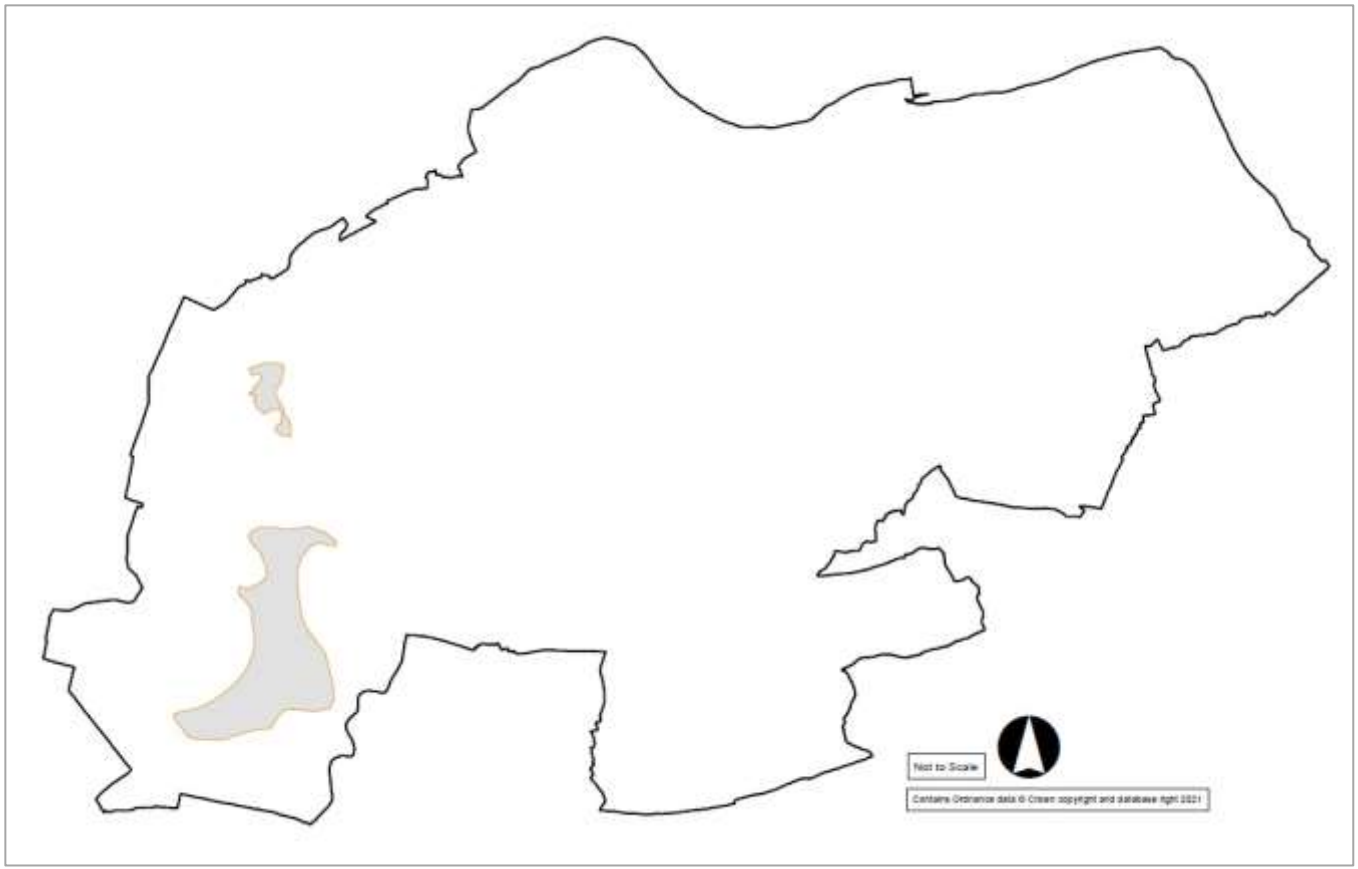

Figure 14 – Open Island Farmland

10.1 Key Characteristics:

- Open arable fields flowing across a gently undulating, rounded landform with localised hillocks and ridges, creating an island of elevated land within the flat landscape.

- The area is probably the most diverse local landscape type within the Trent Levels, combining open elevated views across the arable landscape with more intimate enclosed pockets of historically important land surrounding the settlements.

- There is visual evidence of the medieval strip farming system common to the land surrounding many of the elevated settlements although much of the structure of these systems has been lost to farm intensification and e.g. fencing of strips to provide pastures for horses.

- The larger of the two areas within this LCT is entirely contained in the Isle of Axholme Area of Special Historic Landscape Interest.

- The smaller part of the LCT has no large areas of settlement on the top or along its eastern slopes. Crowle and Ealand are located along its western edge and previous development of Crowle now covers the north west shoulder of this part of the LCT.

- The embankment of the former railway line from Crowle to Haxey Junction runs through both parts of the LCT. A 1.6km section of the embankment, just to the north of Haxey, forms part of the Axholme Line Local Nature Reserve.

- In other areas, linear strips of deciduous and often inappropriate evergreen planting highlight the route of the former railway; inappropriate plantings of e.g. Leylandii are also found along the boundaries of individual strip fields.

- Church towers, windmill towers and water towers are repeating structures within this area, puncturing the mostly unbroken skyline.

- A line of high voltage pylons and transmission lines, heading north to Keadby Power Station, run through the south eastern part of the larger of the two areas and stay in close proximity to the eastern edge throughout. These influence the elevated views out from the LCT towards the east.

- The larger area has a dense network of PROW connecting into the lower lying surrounding areas to the north, west and south. The smaller area has very few footpaths, however both areas are traversed by the Peatlands Way footpath.

- Expansive views across the surrounding low lying areas from the higher ground within this LCT.

- Former aggregate extraction such as at Low Melwood, although currently inactive, were located in areas of topographical depression keeping their visual intrusion to a minimum. The Belton Household Recycling Centre is similarly located and screened by small woodland blocks.

- The sandy free draining land does not require the intricate drainage systems common in the surrounding areas, their absence contributing to the distinctive character of the Isle.

Figure 15 – View west from Coney Garth

"The area is probably the most diverse local landscape type within the Trent Levels, combining open elevated views across the arable landscape with more intimate enclosed pockets of historically important land surrounding the settlements."

10.2 Physical Influences:

Being the earliest settled land, the elevated area of the southern part of the LCT, is associated with the Isle of Axholme and is rich with historic influences, some of which are still in evidence. The landscape structure of the Isle is one of a core area of surviving medieval open fields and a larger area of Early Enclosed Lands which have experienced considerable hedgerow loss.

Both areas of this LCT are influenced by the exposed outcrops of Mercia Mudstone and mudstone with areas of blown sand which offer a range of free draining soils that are considered Grade 2 and 3 under today's Agricultural Land Classification (ALC) method.

Agricultural practice has had a marked influence upon this landscape, breaking down historic field structure and leaving tree cover limited to settlements and occasional woodland. The combination of historic influences and the well-developed tree cover surrounding the settlements creates a well-structured intimate landscape.

10.3 Landscape Strategy:

The strategy, especially for the larger southern part of this LCT, is one of conserving the remaining features and assets found within the Isle of Axholme Area of Special Historic Landscape Interest such as the medieval open fields and enhancement of enclosure pattern within the Early Enclosed Land zone to restore the distinction and transition zone between the Isle and surrounding levels.

In the northern part of this LCT, further encroachment of development up its western edge needs to be resisted.

A further consideration is to designate the Isle of Axholme Historic Landscape Character area as an 'Area of High Landscape Value'.

10.4 Landscape Guidelines:

Due to it being entirely within the Isle of Axholme Area of Special Historic Landscape Interest, one of the primary guidelines for this LCT is to refer to the range of reports, studies and drawings on the Isle of Axholme Historic Landscape Character (HLC) to determine the appropriate approach.

JBA Consulting's Archaeology and Heritage team has recently undertaken work to complete a high-level review of the previous studies conducted by Keith Miller (1997) and Lincolnshire County Council (2011).

This range of information can help to inform where the integrity of the HLC is still intact.

The medieval strip system farming areas common to the settlements on the elevated land of the Isle of Axholme are of cultural and heritage importance. Their presence should be conserved and enhanced so as to:

I. Retain open character by avoiding development and enclosure.
II. Enhance and restore historically important hedges along zone boundaries.
III. Encourage retention and restoration of strip farming through linear cropping, crop variability between strips and differential strip orientation.
IV. Maintain distinct network of roads, lanes and paths, which have not been rationalised by enclosure.
V. New tree planting, using species of local origin, should be encouraged to further assimilate settlements with the surrounding landscape, without damaging the character of the historically important farmland areas.

Other guidelines include:

- Shelterbelt tree planting is a common and striking landscape feature in this area and a programme to replace any existing non-native and incongruous tree planting, with species of local origin, should be encouraged.
- Where possible historic hedgerow boundaries should be reinstated and careful attention should be paid to the correct use of boundary materials in the strip farming areas so not to damage historical value.
- In areas of open, intensively farmed agricultural land, hedgerows should be reinforced and replanted where there is evidence of removal. Small areas of woodland cover require thinning and replanting of native species to improve age and species diversity.
- Areas of mineral extraction should remain confined to low-lying land with

- strategic planting blocks reducing visual impacts from elevated ground.
- It is important to conserve the pattern and structure of these early settlements, ensuring new development is well sited and use of materials follow local vernacular. Where possible the introduction of new agricultural buildings should be restricted to lower lying areas, concentrated around existing farmstead curtilages.
- Shelterbelt planting for any new development should be of local origin to create consistent landscape character.
- Farmland bird habitats, plants for pollinators and other arable conservation options should be targeted carefully within the historic landscape structure, to provide more habitat that is better connected.
- With limited local and national ecological designations across the LCT, consider a review of other known ecologically important areas which may benefit from local designation.
- Promoting the historical, ecological and recreational value of this character type through the use of technology and downloadable information and maps, onto mobile devices, which can be used in conjunction with the existing PROW network.

11. Trent Levels - Wooded Springline Farmland

A thin strip of predominantly arable farmland located at the foot of the Lincolnshire Edge escarpment, due west of Scunthorpe and Messingham. This narrow strip is orientated north to south and is bisected by the M180; to the north of the motorway, it is contained by the M181 to the west and Scotter Road to the east.

As it crosses the M180, the area widens slightly to the east and washes over North Moor Road (a continuation of Scotter Road which changes its name south of the M180) and continues on for approximately 3km south towards the North Lincolnshire administrative boundary, following the foot of the escarpment to the east before diffusing into the neighbouring Flat Drained Farmland to the west.

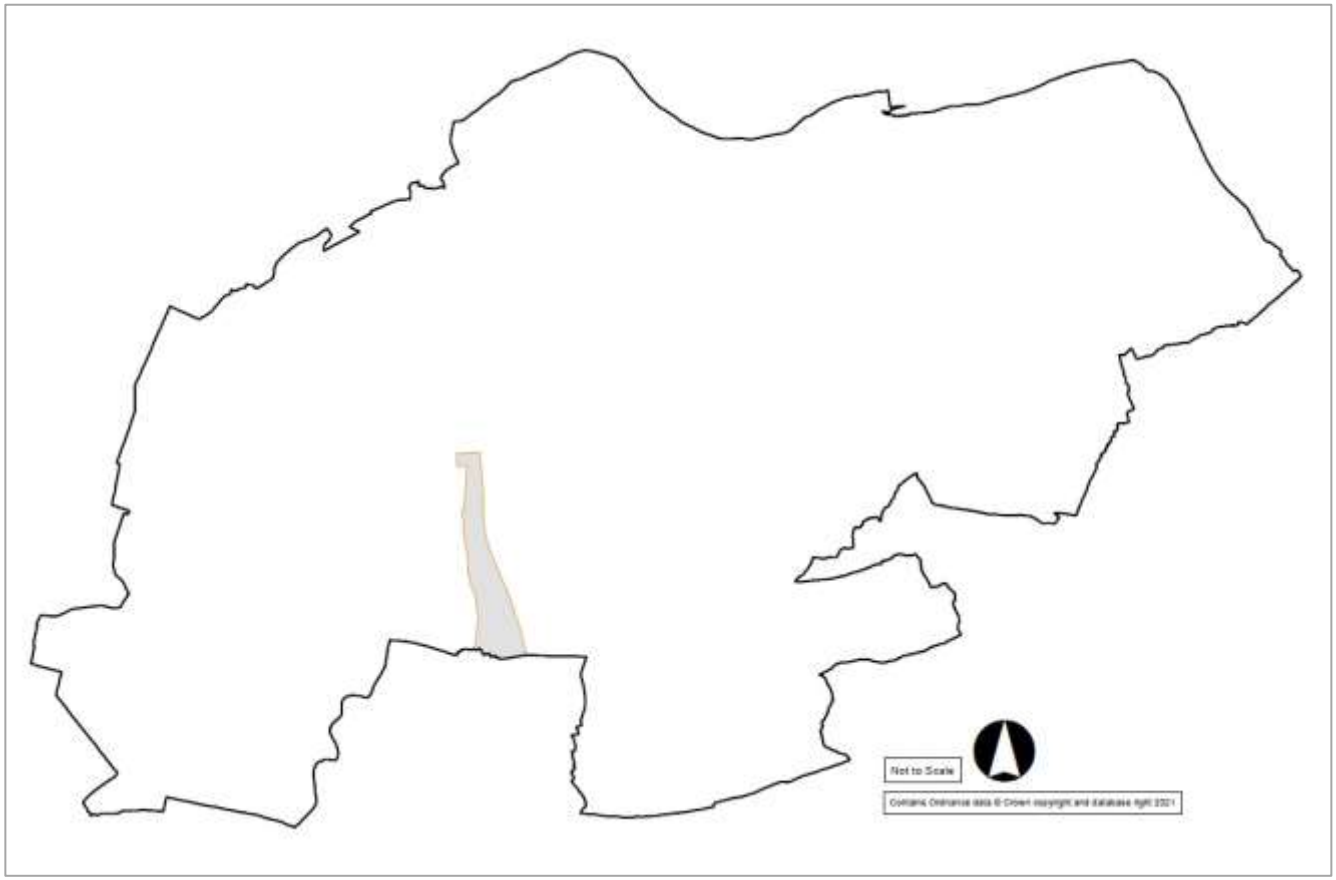

Figure 16 – Wooded Springline Farmland

11.1 Key Characteristics:

- Well defined woodland blocks, principally of pine and birch, breaking down into more fragmented areas of tree cover intermixed with heathland scrub and acid grassland.

- Farmland is of a similar open nature to the landscape to the west, a mixture of arable and pasture, with boundaries defined by wooded areas, characteristic drainage ditches and occasional low clipped gapped hedgerows.

- There is little tree cover within open arable areas creating a contrast with fringe woodland cover.

- Within the northern section, views to the east are enclosed by a combination of woodland blocks, rising land and settlement. The views to the west are more open however these are interrupted by the raised embankments of the M181 and M180 which limit views to the west and south respectively.

- Within the section to the south of the M180, views are short and enclosed to the east by the rising land of the escarpment and wooded blocks. To the west and south, broad, expansive views are available between areas of woodland across the low-lying floodplain areas.

- The area is scattered with small pockets of open water, some naturally occurring and some the result of historical aggregate extraction. These bodies of water have attracted recreational pastime use such as fishing lakes and caravan sites. The commercial value of these has encouraged the upkeep and retention of the surrounding woodland and habitat.

- Adjacent to the local road, Black Bank, is Messingham Heath, an area of heath and woodland between Newstead and Carcar Farm, which is a designated SSSI.

- Historically, settlement was limited to a few farmsteads which had a tendency to be screened from open areas by woodland planting. Despite the presence of the M181, Brumby Common West, to the very north of the area, retains much of the woodland blocks defined on historic maps and has not suffered from encroachment of development.

- An urban fringe characteristic encroaches the land adjacent to Scotter Road defining the eastern edge of suburban Scunthorpe. In this area woodland is used for informal recreation and has suffered from the impacts of erosion and littering.

- Immediately south of Brumby Common West, there has been significant residential and retail development around the Scotter Road and Burringham Road junction, resulting in the loss of both arable land and woodland.

- Although residential development has been restricted to the north of the M180, there have been other changes in land use including Sewage Treatment Works, large agro-industrial buildings, garden centres and a golf course.

Figure 17 – View to the south east from West Common North Road

"Farmland is of a similar open nature to the landscape to the west, a mixture of arable and pasture, with boundaries defined by wooded areas."

11.2 Physical Influences:

As a result of the juxtaposition between the free draining escarpment and the impeded drainage associated with the underlying alluvial deposits and laminated clays, a landscape has evolved in which springs, drainage ditches and standing waterbodies play an important role.

The area is influenced from both agricultural use and aggregate extraction, with an active sand quarry at North Moor Road to the south west of Messingham. The residential and commercial edge of Scunthorpe also has an influence along the area's eastern boundary.

Recreational and commercial areas have developed around many of the areas of open water, surrounded by woodland, which combine with large open arable fields to create a distinct transitional landscape between the steeper scarp slopes and the flat open Trent Levels.

Significant settlement and development have occurred within the area north of the M180, in a landscape which previously contained scattered farmsteads. Urban fringe land uses include sewage treatment works, retail developments, caravan sites, fishing lakes, garden centres, golf courses as well as large agro-industrial buildings.

11.3 Landscape Strategy:

The continued encroachment of settlement and commercial use into the surrounding woodland, open areas and arable farmland needs to be prevented as it is likely to erode the landscape character found in this small but active area.

The habitat and green infrastructure network west of Scotter Road should be strengthened and maintained as a landscape buffer between the edge of Scunthorpe and the proposed new villages of Lincolnshire Lakes to the west.

11.4 Landscape Guidelines:

The guidelines for Wooded Springline Farmland are presented below:

- Prevent the further spread of the urban edge which has resulted in the loss of woodland and arable land.
- Attention should be paid to the urban fringe areas to the east of the area. Areas of woodland, acid grassland, heath and scrub require strict management for public recreation and to stop urban littering and degradation already in existence.
- Enhance and conserve the balance between woodland cover, grassland and open arable fields with limited boundary tree and hedgerow planting.
- The predominantly open structure of the fields is similar to those in the adjacent flat drained farmland to the west; limited planting should be encouraged to reinstate hedgerows and areas of field tree planting without being detrimental to the area's open character.
- Existing woodland requires selective thinning and restocking to improve diversity of age and species structure.
- Native species of local origin should be planted in new woodland areas to provide consistency with surrounding landscape. However, a proportion of broadleaved species from more southerly zones should be permitted to allow for climate change adaptation. The latest Forestry Commission guidance should be applied at the time of planting.
- Smaller areas of tree planting should be targeted around agro-industrial farm complexes and small pockets of industry softening their appearance in the surrounding landscape.
- Conserve the well-maintained drainage ditches following the rectilinear field structure. Particularly in areas adjacent to woodland cover, aquatic and emergent plant species should be encouraged through sensitive management adding ecological and wildlife diversity to this intensively farmed area.
- It is vital that where existing areas of ecological and wildlife importance are not already designated, either locally or nationally, consideration should be given to designate them as a means of safeguarding. Initiatives to restore, re-create, connect and positively manage wildlife habitats should be encouraged. Where development is permitted within this LCT, then a net gain in biodiversity value should be sought by adding to, and improving the management of, semi-natural habitats.
- Tree planting should be encouraged along the base of the engineered embankments of the M180; planting areas should replicate existing tree cover to assist integration of the road whilst lowering the

visual impact of the major transport corridor.

- Any further development of establishment of recreational sites, especially those associated with areas of open water, should be accompanied by an agreed management plan to create a balance between wildlife and recreation requirements and ecological development.
- New recreational sites should be situated within thicker woodland areas to reduce impacts on surrounding landscape, or where it will not be to the detriment of the open character, screened by new woodland or trees.
- For any new development, screening through the use of trees should be included as part of the proposal. The trees should be of local origin and accompanied by a robust maintenance and management schedule to ensure that the trees establish and flourish. However, a proportion of broadleaved species from more southerly zones should be permitted to allow for climate change adaptation. The latest Forestry Commission guidance should be applied at the time of planting.
- Promote the historical, ecological and recreational value of this character type through the use of technology and downloadable information and maps, onto mobile devices, which can be used in conjunction with the existing PROW network.

12. Lincolnshire Edge Landscape Character Area

The Lincolnshire Edge Landscape Character Area (LCAR) is an elevated area of predominantly arable farmland orientated north south and sandwiched between the lower lying Trent Levels and Ancholme Valley, to the west and east respectively.

Extending from North Lincolnshire's southern administrative boundary, near Kirton in Lindsey, the LCAR wraps around Scunthorpe's eastern boundary, and continues north to Whitton at the Humber Estuary.

Within this area we find scarp slopes, woodland blocks, urbanisation and post industrial landscape combining with arable farmland to create a complex and varied landscape. Although Scunthorpe itself is not included within the Landscape Character Assessment document, the iron and steel infrastructure along its eastern edge have influenced the landscape character found in this zone.

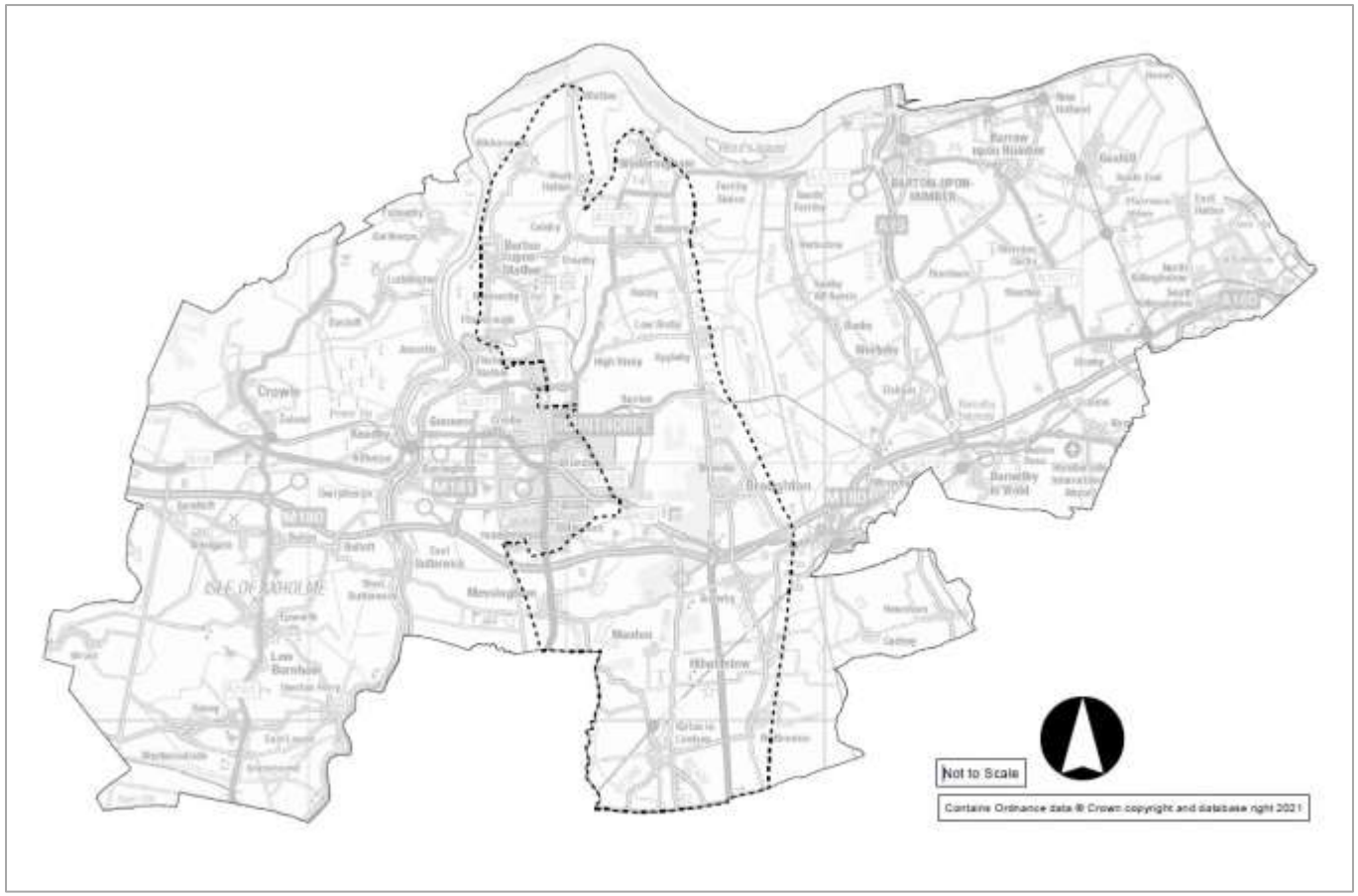

Figure 18 – Lincolnshire Edge

12.1 Key characteristics:

The Lincolnshire Edge LCAR consists of 11 individual Landscape Character Types (LCTs) over 15 separate geographical areas, which gives a further indication of the complex and varied land use across this landscape, some of which is reflected by the range of LCT sizes. The key characteristics of note are:

- A mainly arable elevated landscape with two locally distinctive scarp slopes orientated north south, with the smaller one on the north-east edge. The larger is more centrally located, originating in the south of the LCAR and passing Scunthorpe to the east.
- The elevation of the landscape ranges from 20m in the south east to 60m AOD on the north-west shoulder of the LCAR, with the latter offering expansive views to the west.
- Scunthorpe and the iron and steel infrastructure on the north east of the town contribute a strong industrial influence when in the immediate surroundings and further afield when visible.
- Active and inactive ironstone quarries and gullets, associated with the iron and steel industry, also contribute to the industrial influence. To the north of Kirton in Lindsey there is active quarrying for limestone and around Messingham and Cleatham for sand and clay extraction.
- Large areas of elevated open farmland along the eastern edge offer expansive views over the Humber Estuary, Humber Bridge and Ancholme Valley.
- Overall, it is a complex, diverse and elevated landscape which in addition to the open views and industrial influence contains large areas of deciduous woodland, plantation woodland, scarp slopes and historic villages born of the region's agricultural revolution.
- Significant areas of arable land are graded as 'High' in Natural England's Agricultural Land Classification (ALC) system; the second to highest grade. Much of the remaining land is graded as, 'Good to Moderate'.
- Farmland characterised by open, rectilinear fields and few boundaries. Where enclosure is still present, a mixture of discontinuous hedgerows, shelter belts and trees.
- Nationally and regionally important designated areas of ecological conservation value, including the coversands area of heath, blown sand habitats and conifer woods.
- Contains one of the largest, almost uninterrupted, blocks of woodland in the ceremonial county of Lincolnshire forming a notional green spine in the centre of North Lincolnshire. A sizable amount of this woodland is designated as Ancient Woodland.
- Major infrastructure features include overhead electricity pylons, wind turbines and primary transport corridors including the M180 and A18, and railway lines.
- On the eastern edge is the historically significant Roman road, Ermine Street, orientated on a north-south route.
- Nationally and regionally important designated areas of heritage conservation importance including several close to Ermine Street and the deserted medieval villages at Gainsthorpe and Sawcliffe, which are Scheduled Monuments.

"Overall, it is a complex, diverse and elevated landscape which in addition to the open views and industrial influence contains large areas of deciduous woodland, plantation woodland, scarp slopes and historic villages born of the region's agricultural revolution."

12.2 Physical Influences:

The entire area is underlain at depth by the Triassic mudstones, which continue westwards under the Trent and Ouse lowlands. However, the first, western escarpment rising out of the Trent floodplain is formed of Scunthorpe Mudstones containing some ironstone and limestones. The second escarpment, further east, is formed of Lias Group mudstones with the economically important Pecten ironstones, the exploitation of which led to the expansion of Scunthorpe during the latter part of the Industrial Revolution. This distinctive topographical feature is known as the Lincoln Edge, with its western secondary scarp slope known locally as 'The Cliff'. These Jurassic mudstones and limestones tend to be only lightly covered by glacial and fluvio-glacially derived superficial deposits and generally give rise to fertile (ALC, High) brown earth soils which lend themselves to arable cropping, although pockets of poorer clay drift and blown sand support only pasture.

Important elements of the superficial geology are the coversands, i.e. blown sands. These occur in various small pockets throughout but are most marked east of Scunthorpe. The free- draining nature of the sandy brown earths derived from these sands render repeated arable cropping difficult without high inputs of fertiliser. As a result, there has been extensive planting with Scots pine. This has allowed natural regeneration of birch and subsequently oak to occur in some heathland areas. In certain areas heathy vegetation persists, particularly at Risby Warren and Manton and Twigmoor Warrens.

12.3 Historic and Cultural Influences:

The Lincolnshire Edge has seen recurrent patterns of settlement since prehistory. However, the Romans were the first civilisation to make a very visible impact on the landscape. The Humber Estuary was a northern frontier of the Roman Empire for some 20 years (AD 50 to 70), before a northward push was made. This led to the development of Ermine Street (now the B1207) which carried trade to the ferry at Winteringham. This ferry point on the Humber Estuary has been an important crossing since pre-Roman times and indeed the discovery of a number of craft, many still in good condition, mostly at North Ferriby, has resulted in a re- interpretation of the area's pre-history. The 'Ferriby Crafts' have an international significance and provide further evidence as to the historical importance of the Lincoln Edge as a vital north-south route way.

The next visible impact came with medieval farming and expansion of villages on the Edge. The practice of warrening, an old form of rabbit farming for meat and skins, was established in late medieval times on the sandy soils, e.g. at Broughton and Risby Warren. The principal period of enclosure came in the mid to late 18th century which resulted in extensive planting of the thorn hedgerows that are present throughout the Edge landscape today, although there has been much loss and neglect of hedgerows in areas of open and elevated farmland.

The most significant landscape change came with the Industrial Revolution and the economic need for ironstone. This was extensively quarried north of Scunthorpe, and the town rapidly expanded with the growth of the Ironworks and the amalgamation of its five constituent villages. Scunthorpe thus became the centre of the transport and power generation infrastructure which today is evident principally as a west-east transport corridor following the A18/M180, the parallel railway corridor to the north, and the electricity transmission pylons extending eastwards from the Keadby Power Station.

With the gradual demise of the iron and steel industry came a period of extensive dereliction, the scars of which are still evident today, particularly north of Scunthorpe. The local economy was regenerated at the end of the 20th century, through use of simplified planning controls and industrial zoning, but this has not been without impact on the landscape, in the form of large structures with little relationship to the wider rural landscape.

As well as the physical impact of the ironstone quarries (or gullets), other minerals have been extracted, e.g. sands and gravels, from fluvio-glacial deposits, local pockets of alluvium, blown sand and limestone from deeper quarries. On previously developed land around quarries and former steelworks, important open mosaic habitats have developed supporting a wide diversity of plants and invertebrates.

Away from Scunthorpe itself, rural influences are quickly re-asserted, with most farmland found on

the elevated easterly dip slopes of the Jurassic limestones and to the south of Scunthorpe and the M180.

An equally visible human influence was the establishment, largely post-war, of coniferous plantations on the blown sand deposits. This probably reduced the extent of heathland in these areas to below ecologically viable limits, although some heathy fauna persists on remnant heaths and along road verges, and birch and oak are regenerating naturally.

12.4 Settlements and Buildings:

Despite its exclusion from the Landscape Character Assessment, Scunthorpe has a strong influence on the Lincolnshire Edge LCAR due to its hard edge of built form, with few mitigating features, in a region with a strong rural influence. Scunthorpe's hinterland to the east and north is particularly intrusive through industrial activity and to the south through light industrial, commercial and residential development.

Beyond Scunthorpe's urban centre, the pattern of settlements is more traditional and relates to the agricultural evolution of the region. Larger villages such as Burton upon Stather, Messingham and Kirton in Lindsey are nucleated in arrangement and have a strong local character. Parish churches, usually with a tower, many of which are listed buildings, combine with soft red brick and pantile roof tiles on traditional housing and cottages and intimate street arrangements to create attractive village centres, some of which are designated as a conservation area.

Much of the attraction of established rural villages derives from the mix of architectural styles they demonstrate, where styles, sizes, arrangements, and details vary. Traditional building materials include limestone with red brick detailing which pre-dates the extensive use of red Barton clay for bricks. However, from the mid-19th century red brick and pantiles became dominant. Village expansion around Scunthorpe continued through the 20th century using a variety of styles, including the continued use of the red brick and pantile vernacular.

12.5 Landcover and Wildlife:

In the south of the Lincolnshire Edge Landscape Character Area, the traditional and well-hedged landscape remains relatively unaltered by agricultural intensification. However, across the remaining rural areas, hedgerow enclosure has been extensively lost through agricultural intensification and, where present, hedges are often discontinuous, poorly managed and include few trees.

Much of Scunthorpe's eastern and northern edge is blighted by current and former industrial activity with several active quarries. Where previously exploited, the former rural landscape structure has been lost and left a degraded and unattractive appearance, although the designation of quarry SSSIs and several Local Nature Reserves around the northern edge is testament to how these areas can recover with time and the appropriate conservation management. Pressures on the landscape do remain, including the installation of wind turbines and construction of large-scale poultry farming sheds within this area.

Just to the north of these more recent additions is Normanby Hall Country Park, built in 1825, and set amongst 300 acres of parkland, woodland, duck ponds, deer park and a municipal golf course.

Risby Warren contains an exceptional inland dune system and is one of the largest land based designated SSSIs (Site of Special Scientific Importance) in Lincolnshire. There are acidic and calcareous grassland, heath, scrub and planted conifers occurring across these dunes with richer, deeper soils dominated by bracken and occasional blowouts of exposed sand. The overall effect is of a mosaic of vegetation with characteristic species including sand sedge (*Carex arenaria*) and buck's thorn plantain (*Plantago coronopus*) on the exposed sand, with heather (*Calluna vulgaris*), bent (*Agrostis capillaris*) and sheep's fescue (*Festuca ovina*) where it grades into acidic grassland / heath. The coversands heaths represent one of the most important areas in Greater Lincolnshire for heathland, acid grassland and associated species. The Coversands Heath Project, which ran from 2003 to 2008 secured the recreation and restoration of such habitats in this area but management of these habitats remains difficult due to the pressures of habitat succession and competing land uses. On the exposed limestone bedrock are species-rich calcareous grassland communities e.g. tor-grass (*Brachypodium pinnatum*) and carline thistle (*Carlina vulgaris*). This calcareous mix is found both extensively in heathy woodland and more localised in other landscape character types such as the elevated and open farmland, where underlying

bedrock Jurassic limestone is exposed, e.g. in quarries. Where flushes have occurred around base-rich openings on the escarpment, a rich flora has developed on the wooded escarpment north of Scunthorpe.

Secondary scrub has invaded various landscape types mostly on abandoned or unmanaged land. On the blown sands of the heathy woodland, the scrub is birch-dominated (*Betula pubescens*) with some sycamore, oak and hawthorn. On the exposed and abandoned substrates of the ironstone workings, a similar scrub has developed but with a higher proportion of willows (*Salix caprea* and *Salix cinerea*) and silver birch (*Betula pendula*).

Woodland blocks remain locally prominent landscape elements and nationally important habitats with the largest tract of continuous woodland in North Lincolnshire, covering approximately 550 hectares, located to the south, west and north of Broughton. These blocks are further complemented by other smaller areas of woodland within the LCAR including on Broughton Common, Risby Warren, Appleby Carrs and north of Appleby.

Within the woodland around Broughton are several areas of designated Ancient Woodland with additional designations at Burton Wood, on the Lincolnshire Edge north-west scarp, as well as Brumby Wood on the west of Scunthorpe. This LCAR is effectively a stronghold of ancient woodland within North Lincolnshire with just one additional small area in the county, some way to the east in the Lincolnshire Wolds LCAR.

The importance of this woodland is further emphasised by several SSSI designations, including Broughton Far Wood where small pockets of oak and alder woodland persist in undrained flushes and seepage and Manton and Twigmoor SSSIs which exhibit some of the finest wet heathland in the area. On clay overlying limestone, dominant tree species reflect the higher base content of soils, e.g. ash, sycamore, field maple and wych elm. These species are found in longer-standing hedgerows over most of the elevated and open farmlands.

Some of the more important species of fauna associated with the area are nightjars, woodlarks and some rare invertebrates, generally restricted to heathy woodland situations and woodland flowers and buzzards and nuthatch in the rustic wooded areas of Broughton and Appleby.

12.6 Connectivity:

The Lincolnshire Edge LCAR has a well-established network of Public Rights of Way (PROW) throughout including those around the Humber Estuary and within the woodland around Broughton. Further access through this woodland and that south of the M180 is enabled through permissive paths and in the case of Risby Warren and Greetwell by the open access land in place.

Sustrans' National Cycle Network Route 169 runs through the western side of Scunthorpe, from Manor Park in the south through to Normanby Hall in the north and is locally known as The Ridgeway.

This route was designed to link communities together, providing better access for everyday journeys to schools, local shops and workplaces.

Sustrans' website indicates that there are plans to link the Ridgeway from Normanby Hall through to Winterton to the north west.

There is also a range of self-guided walks and cycling routes are promoted regionally through the Council's website.

12.7 Landscape Strategy:

The strategy for the Lincolnshire Edge is to retain the woodland blocks and ensure that they are not lost or encroached upon through development. Ancient Woodland should be sensitively managed and wherever possible, plantations on ancient woodland sites (PAWS) should be restored to semi-natural woodland. The restoration of former industrial land should prioritise the establishment of open mosaic habitats and woodland to connect into the outlying areas, strengthen North Lincolnshire's green core and soften the current degraded hard edge.

There will undoubtedly also be pressure to prioritise this land for housing, commercial and agricultural development to meet the area's growth and demands. In these circumstances, effective green buffers and wildlife corridors should be integral to proposed developments and be masterplan led. In addition to the above, the following should also be considered:

- Large agro-barn and commercial units should be sensitively sited and screened to prevent the replacement of existing incongruous structures being replaced with similarly incongruous development.
- Appropriately sized and specimen tree planting around new developments, for purposes of screening or shelterbelt, should be from native species of local origin and supported by a robust management and maintenance scheme to ensure that full establishment is achieved. Where existing tree planting is not of native species of local origin then a programme of gradual replacement should be encouraged.
- The demand for the extraction of various natural resources, through quarrying and drilling is likely to continue and sites should be carefully selected following full feasibility and capacity studies. This approach should also be applied for the expansion of industrial areas, associated energy transmission networks and installation of wind turbines. In particular, wind turbines should only be considered in the areas proposed in the Local Plan. In the more rural areas, agricultural intensification and amalgamation of fields should be limited and restoration of former field hedgerow boundaries encouraged.
- The M180 corridor across the centre of the Lincolnshire Edge LCAR remains as an intrusive feature but benefits from enhanced screening to that of the neighbouring LCARs through the woodland to the north and south of the motorway. Either side of this, the motorway's treed embankments should be monitored and managed to continue providing valuable habitat through the clearance and replacement of species, where necessary, to establish diversity in age structure and species. Additional biodiversity enhancements should be considered and encouraged, through initiatives across the area, including on former quarry sites and areas highlighted in the Biodiversity Opportunity Map.
- Ecological designations should be regularly monitored to ensure that they are not being affected or eroded by development or other activities within or near to these valuable habitats. Opportunities for creating new designations at a local level should be considered and explored.
- The Statements of Environmental Opportunity (SEO) 2, referenced in National Character Area profile 45, refer to protecting the Coversands, its sandy soil, distinctive dune formations and expand, buffer and connect the key habitats, providing access and interpretation where possible, and addressing climate regulation, soil erosion and water availability. Opportunities include *Maintaining and expanding mosaics of heathland with pockets of mire and wet heath, dry acid grassland and oak/birch woodland and introducing management where necessary to improve their biodiversity and their resilience to climate change, while also improving infiltration of rainwater* and *Seeking opportunities to remove conifer plantations from areas where heathland or dry acid grassland could be restored, finding suitable compensation planting sites elsewhere*.

- Consideration should be given to supporting the existing footpath network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the existing historical and ecological assets and features of interest within the Lincolnshire Edge which would raise awareness of their value and promote a sense of ownership and surveillance within the local community.
- The proposed cycle link through to Winterton should be further explored and developed. In the case of pedestrian and cyclist access over the M180, links between New Forest Plantation to the north and High Wood to the south, using safer, motorised vehicle free, route should be evaluated and developed.

13. Lincolnshire Edge - Despoiled Landscape

This LCT is located along the north and north east edge of Scunthorpe and extends northwards, along the foot of the Lincoln Edge, including the western edge of Winterton and as far as the village of West Halton. The LCT was once the site of large-scale ironstone extraction, associated steel works and a network of railway lines servicing the quarries and bulking plants.

There are several scattered farmsteads which remain from the previous industrial period and have been retained as part of the landscape as it has been altered. In addition, areas of woodland and tree cover has endured the industrial era, specifically Sheffield's Plantation located on Sheffield Hill, part of the Lincoln Edge landform.

The Lincoln Edge is a localised steeply rising feature which runs along the eastern edge of the LCT as far north as Winterton which, along with the wider area, is formed from Scunthorpe mudstone with Frodingham ironstone.

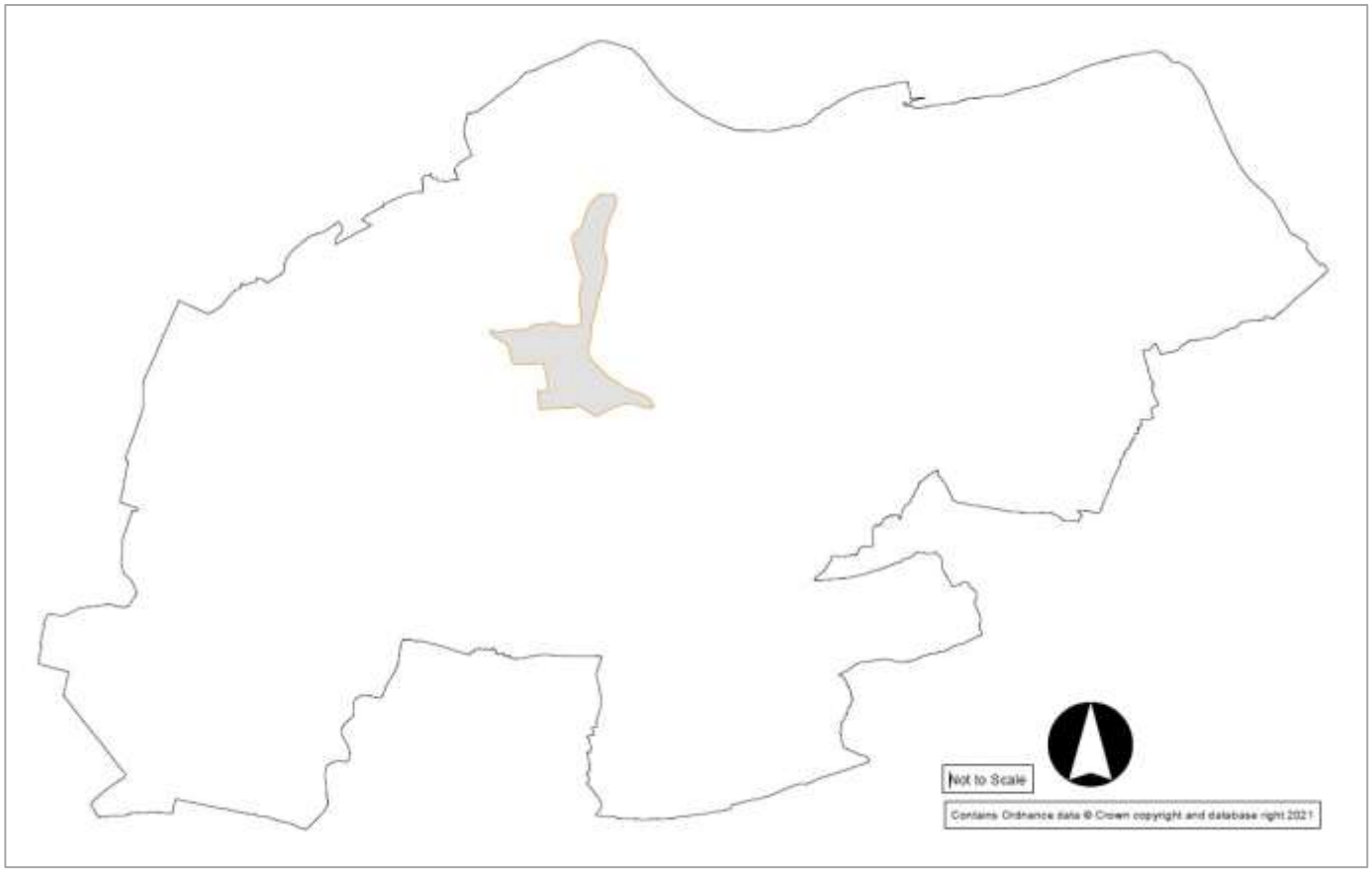

Figure 19 – Despoiled Landscape

13.1 Key Characteristics:

- Falling from the higher ground to the west, the localised landform of this LCT levels off slightly before meeting the Lincoln Edge escarpment on its eastern edge, in some cases climbing sharply by around 30-40m.
- The small watercourse of Halton Drain follows the foot of the Lincoln Edge.
- Former industrial site which underwent a significant period of quarrying and extraction to obtain ironstone as part of the region's large steel production industry.
- Numerous open cast quarries, locally known as ironstone gullets, are located along the escarpment slope to the north east of Scunthorpe and these quarries have been progressively restored.
- The buildings and infrastructure from this era to the north of Scunthorpe have long since been demolished and The Foxhills Industrial Estate and Normanby Enterprise Park have been developed on the reclaimed land. The estates have established significantly in the last 20-30 years consisting of portal framed buildings and light industrial units of varying size and scale which are visually intrusive.
- Areas of farmland have been reclaimed although with no strong distinguishing field boundaries.
- Local and ecological interest provided by several attractive waterbodies which have developed within the former quarrying sites and offer water based recreational activities. The riparian vegetation is dominated by birch and willow.
- Away from the waterbodies, vegetation and tree cover has regenerated on the reclaimed and derelict land. Some areas of tree cover have remained largely unaltered such as Sheffield's Plantation.
- Several restored sites have been designated as Local Nature Reserves such as Sawcliffe, Conesby Quarry and Phoenix. A separate part of Conesby Quarry, Yorkshire East, has been designated as a SSSI.
- A large area of former quarry on the site of Crosby Warren, to the west of Risby Warren has been significantly restored with the formation of waterbodies and establishment of woodland.
- On previously-developed land around quarries and former steelworks, important open mosaic habitats have developed supporting a wide diversity of plants and invertebrates.
- Archaeological interest within the LCT is provided by the Money Field Roman site Scheduled Monument at Dragonby.
- High voltage transmission cables and towers running across the LCT from east to west provide vertical visual intrusion.
- The eight wind turbines at Bagmoor wind farm adds further vertical visual influence.

Figure 20 – View towards the north west from A1077, Winterton Road.

"Areas of farmland have been reclaimed although with no strong distinguishing field boundaries."

13.2 Physical Influences:

The LCT reflects historical human activity, driven by the area's formation from Scunthorpe mudstone with Frodingham ironstone, which was quarried extensively for use in the iron and steel industry.

With the decline of the industry, the area has been partially reclaimed to create a mixed landscape of farmland, heathland, amenity and habitat waterbodies, naturally regenerating scrub and woodland. In some cases, derelict quarries provide geological interest through the ready access to ironstone and limestone deposits.

The larger built form and infrastructure has also changed over time as heavy industry has been replaced by industrial estates, energy transmission corridors and clean energy capture and supply.

13.3 Landscape Strategy:

The strategy for this LCT is to continue with the enhancement of the former industrial sites to create a strong ecological resource and landscape of good public amenity use and value. If not already in place, a restoration programme and masterplan led approach should be implemented for the parts of the LCT where some heavy industry is still present, such as in the south east at Crosby Warren.

13.4 Landscape Guidelines:

The guidelines for Despoiled Landscape are presented below:

- There is significant scope for landscape enhancement and opportunities to extend, improve and connect developing areas of woodland and wetland, and opportunities should be sought for re-creation of former habitats such as heathland.
- Provide greater public access across the restored areas of the site to promote its landscape and amenity value. Only areas where risks have been assessed such as those from contamination or ground instability should be considered.
- The ironstone 'gullets' reflect the industrial history of the area, as well as its geological history, and opportunities to promote this should be considered as part of the promoted public access.
- Identify habitats for designation and ensure that existing ones are being restored and positively managed. Woodland planting proposals should seek to increase the tree cover and the diversity of species along the escarpment.
- Restrict the expansion of existing wind farms, or the establishment of new ones, within this LCT.
- Ensure that any future expansion of the Industrial Estates does not encroach onto nor impact upon the neighbouring Local Nature Reserves and that any development is suitably well assimilated into the landscape through appropriate tree planting of native species of local origin.
- Where possible, open mosaic habitats on previously developed land (brownfield habitats) should be maintained and enhanced. Where development threatens such habitats, then compensatory habitat should be created and maintained, to ensure habitat connectivity for grayling, wall and small heath butterflies and other invertebrates,
- Work with Sustrans to establish the suggested new cycle network link to Winterton from Route 169. The use of the existing bridleways within this part of the LCT would provide a route where motorised vehicle use is limited.

14. Lincolnshire Edge - Elevated Open Farmland

This is the largest LCT within the Lincolnshire Edge LCAR and comprises of two separate geographical areas both on the eastern boundary as it slopes gradually down to the neighbouring Vale of Ancholme LCAR.

The smaller of the two areas is located to the north east of Scunthorpe and washes over both Winterton and Winteringham. The larger area starts around Scawby, just south of the M180, and continues south to North Lincolnshire's administrative boundary, washing over Hibaldstow, Redbourne and the periphery of Kirton in Lindsey.

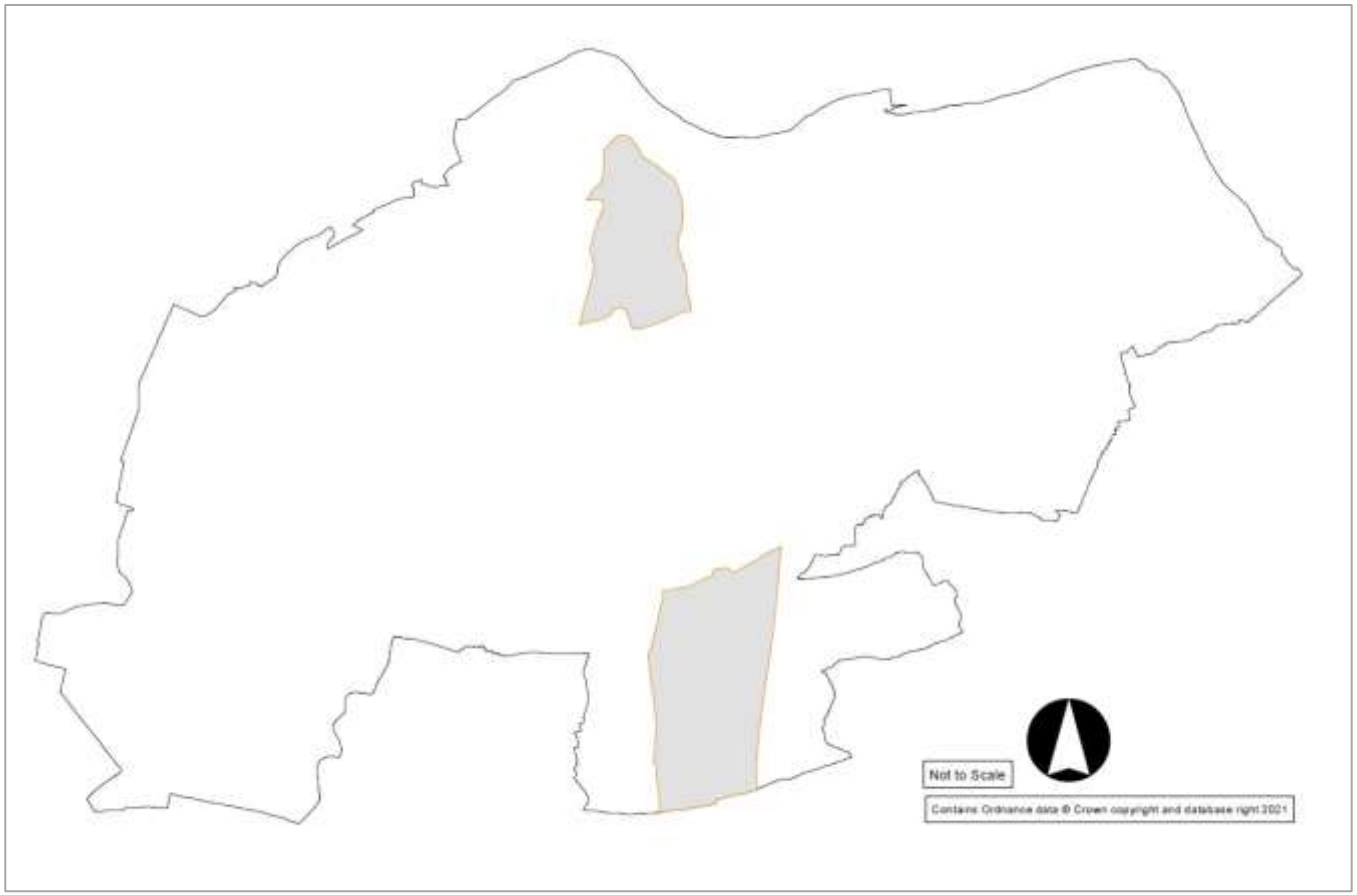

Figure 21 – Elevated Open Farmland

14.1 Key Characteristics:

- Exposed, open landscape with gently undulating terrain descending to the east.
- Extensive views to the east emphasised by the predominantly open character of the farmland and elevated vantage points.
- High grade arable farmland with large scale fields, some of which are expansive and open and others with filtered views due to established boundary field trees.
- Most of the arable land lacks distinctive field boundaries due to either substantial hedgerow loss or intensively clipped remnant hedgerow. This creates a 'fragmented' feel to the area, further exacerbated by its exposure.
- The northern area contains only a few very small woodland blocks. The southern area incorporates a large woodland block to the north west corner with Frequent linear woodland blocks towards the south east, around Redbourne.
- Several former quarries are designated SSSIs, located along the B1398, on the west side of the southern area, as it runs between Greetwell and Kirton Lindsey. There are no ecological designations in the northern area.
- There is a large area of active extraction, landfilling and motorsorts at the Kirton Lindsey Quarry on both sides of the B1398, to the north east of Kirton in Lindsey.
- Local settlements contain a mixture of local building materials and styles deriving from a diversity of building periods.
- There is a high number of historic farmsteads including over 50% which are still in their original condition with the others showing as only partially altered.
- The Roman road, Ermine Street, is a prominent feature within the landscape with its associated ancient settlements.
- Conservation Areas designated in Winteringham, Winterton, Scawby and Redbourne.
- Significant cultural heritage in the southern area with the site several Scheduled Monuments including the nationally important site of Gainsthorpe Village, regarded by Historic England as one of the best preserved and visually impressive medieval rural settlements in England.

Figure 22 – View east from a local road, off A1077 Mere Lane.

"Extensive views to the east emphasised by the predominantly open character of the farmland and elevated vantage points."

14.2 Physical Influences:

This plateau which dips gently towards the east is derived from Middle Jurassic Lincolnshire limestones overlain by clay and silt with pockets of sand and gravel. The high grade agricultural land is capable of supporting extensive arable farming resulting in agricultural intensification. This has had a significant impact on the landscape contributing to the existing pattern of large scale fields and a lack of field boundaries.

14.3 Landscape Strategy:

Landscape strategies should be employed which, whilst seeking to protect and restore remaining landscape elements, offer scope for landscape enhancement, principally through hedgerow renewal and management, combined with tree planting initiatives that include hedgerow trees and new woodland blocks.

14.4 Landscape Guidelines:

The guidelines for Elevated Open Farmland are presented below:

- Seek to conserve the existing village distribution and character by limiting insensitive rural settlement expansion and inappropriate infill of open space by re-using existing redundant buildings and ensuring that new buildings complement the local character.
- Any limited expansion of residential development into this area from Winteringham, Winterton or Kirton in Lindsey should be carefully planned, with detailed landscape and biodiversity management plans to help to assimilate the development into the surrounding countryside.
- Restrict alteration or extension of farmsteads where it does not reflect the existing character of the building.
- Limit the construction of large-scale structures, such as agro-barns. New development should be sited to minimise skyline interruption and visual intrusions in an otherwise open landscape where views out to both the adjacent ridgelines and across the lower Ancholme Valley are important.
- Seek to increase the percentage cover of woodland. New woodland should be of a geometric arrangement, acting as shelterbelts, wherever possible linked to established woodland blocks. Careful siting should seek to ensure that wider views are not lost but framed.
- Encourage the retention of hedgerows in the landscape and introduce initiatives to replace discontinuous sections of hedgerow. Hedges should be managed sensitively to ensure that their robust well-maintained structure is continued.
- Trees introduced into hedgerows and the composition of new woodland should match those already represented in the area. Predominantly native broadleaved species such as small-leaved lime, hornbeam and wild cherry should be used, occasionally complemented by more exotic species such as Norway maple.
- Seek to protect mature trees and shelterbelts occurring around rural settlements, particularly where they provide shelter and a sense of proportion and balance to the built environment.
- Where shelterbelt planting is incongruous or non-native, a programme to replace with native species of local origin should be encouraged.
- Ensure that the restoration of mineral extraction sites includes the establishment of priority habitats, notably heathland and acid or calcareous grassland, where possible, and introduce management so that the sites make a positive contribution to biodiversity value and to local landscape character, providing access where possible.

15. Lincolnshire Edge - Elevated Wooded Farmland

This LCT comprises of 3 separate geographical areas, the largest of which is on the north-western shoulder of the LCAR around Normanby, Burton upon Stather and Alkborough. The second area follows the eastern boundary of the Lincolnshire Edge LCAR, around Appleby extending westwards to Dragonby. The third, and smallest, area is also on the eastern boundary, between Broughton and Scawby and washes over the M180 and A18.

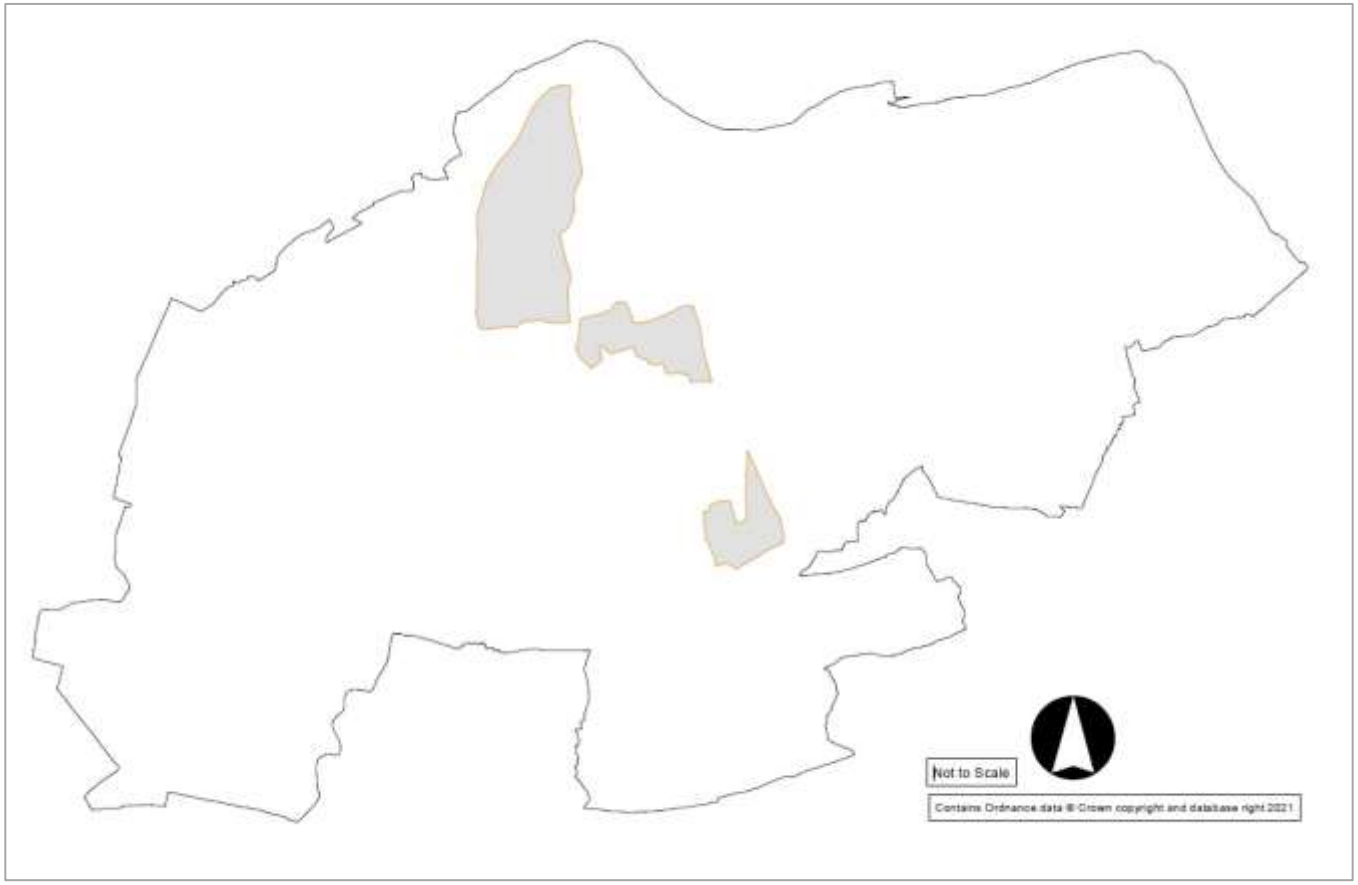

Figure 23 – Elevated Wooded Farmland

15.1 Key Characteristics:

- A rolling upland landscape with large scale fields which are mostly well contained by landform and deciduous and coniferous woodland blocks and hedgerows with trees.
- Due to the elevated location, there are also extensive and long range views across the neighbouring lower lying areas.
- The high-grade arable farmland has resulted in some hedgerow loss through field enlargement and amalgamation.
- The containing influence of woodland blocks is not just limited to those found within the Elevated Woodland Farmland LCT but is also provided from neighbouring LCTs.
- Alkborough offers extensive views to the north west, over the Humber Estuary and west, over the River Trent. Views over the latter are also possible from Burton upon Stather.
- There are no statutory ecological designations within this LCT.
- Around Appleby, and along Ermine Street, there are views eastward over the Ancholme Valley.
- Settlements have a strong, rural character with use of traditional building materials, predominantly local brick and limestone with both pantile and slate roofs.
- Conservation Areas designated in Alkborough, Burton upon Stather, Normanby and Appleby.
- Sawcliffe Medieval village to the west of Appleby and Countess Close and Julian's Bower turf cut maze at Alkborough are Scheduled Monuments.
- Cultural heritage is further enhanced by numerous listed buildings with the Grade I listed Normanby Hall and Church of Saint John the Baptist at Alkborough of note.
- The Roman Road, Ermine Street, runs to the west of Appleby and is a prominent feature within this area of the LCT, with its associated ancient settlements.
- Public amenity, local cultural and natural heritage at Normanby Hall Country Park provide local interest. The Country Park is a Local Wildlife Site.
- The Bagmoor wind farm located adjacent to Normanby Hall creates man made vertical visual influence.
- Other significant man-made influences are the high voltage transmission cables and towers running across the LCT from east to west, to the south of Alkborough, and the M180 and A18 south of Broughton.

Figure 24 – View east from Whitton Road, north of West Halton

"A rolling upland landscape with large scale fields which are mostly well contained by landform and deciduous and coniferous woodland blocks and hedgerows with trees."

15.2 Physical Influences:

Formed on Scunthorpe mudstone with Frodingham ironstone and limestones, and overlain by coversands and glacial sand and gravel, these areas lie on the gently undulating dip slopes of the Lincolnshire Edge escarpments. These areas have fertile Grade 2 soils that are used for arable farming. Agricultural intensification has, however, led to some hedgerow loss through field enlargement, resulting in the large scale field pattern evident today.

15.3 Landscape Strategy:

Landscape guidelines should seek to protect and, where appropriate, locally enhance the existing rural character, by conservation and management of existing woodland and hedgerows.

15.4 Landscape Guidelines:

The guidelines for Elevated Wooded Farmland are presented below:

- Seek to conserve village character and form by limiting insensitive expansion and excessive infill of open spaces. Existing buildings should be re-used, or traditional building materials utilised, and local architectural styles followed.
- Protect and manage existing woodland blocks and hedgerows with trees and re-establish hedgerows where loss is evident.
- Limit further field amalgamation and encourage the extension of woodland blocks where possible, whilst respecting the historic environment, remnant acid grassland and other priority habitats.
- Ensure that the sense of intimacy and enclosure is maintained through vegetation cover.
- Where strong open views occur, due to the LCT's elevated position, ensure that they are retained and promoted.
- Protect and promote the rich and varied cultural heritage in the LCT.

16. Lincolnshire Edge - Farmed Urban Fringe

This LCT occupies a small area around the south west and south of Scunthorpe, immediately adjacent to the residential areas of Yaddlethorpe and Bottesford which contain its northern edge. On plan, its western extent is a medium sized area which then becomes narrow and constrained by a combination of the M180 and the rising farmland of its neighbouring LCT, Open Undulating Farmland, which form its southern edge. The western edge of Farmed Urban Fringe is contained by Scotter Road South with the A159, Messingham Road running north to south through the centre of it. Its eastern edge diffuses into the afore mentioned neighbouring LCT.

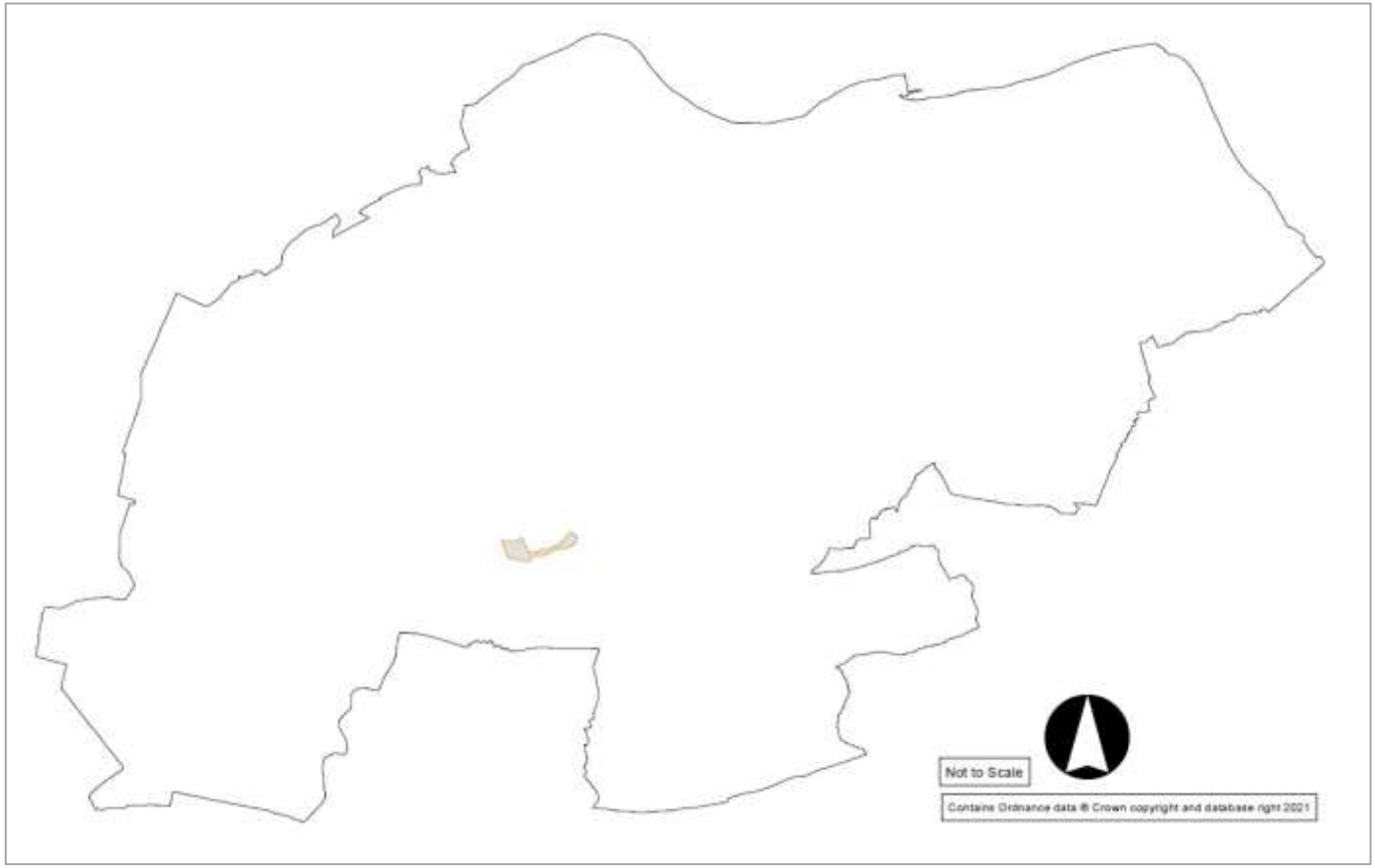

Figure 25 – Farmed Urban Fringe

16.1 Key Characteristics:

- Agricultural land which is flat and low lying in the west and then gently rising as it heads to the east. Strong influence of urban conurbation throughout.
- Intimate scale landscape with localised topography, residential development and the road network limiting longer range views.
- Primarily arable land with occasional areas of pastoral land.
- Bottesford Beck runs through the landscape from north east to south west on its route west to the River Trent.
- Generally small-scale fields scattered with derelict farm buildings and untidy sheds and fences. Field boundaries defined by intermittent and overgrown hedgerows and scrubby trees.
- Former extraction sites such as Yaddlethorpe Brick Yard, now Yaddlethorpe Fishing Ponds, are well assimilated into the landscape with established trees and woodland.
- The shipping container storage facility, off Scotter Road South, intrudes into the landscape through its height and mix of colours.
- Vegetation across the landscape is intermittent with some re-establishment of trees around the former site of Southfield Farm, however most of the tree cover is on the periphery in the form of residential amenity planting or embankment planting on the M180 and A159.
- There is a good network of PROW routes for such a small area which offer good public amenity and exercise value.
- Where adjacent to the PROW routes, Bottesford Beck offers further amenity and ecological value, as does the remnant block of woodland, Holme Wood, to the east.
- There are no statutory ecological or heritage designations within this LCT.

Figure 26 – View north east from local access track near Scotter Road South

“Primarily arable land with occasional areas of pastoral land.”

16.2 Physical Influences:

This LCT lies on Scunthorpe Mudstone with Grade 3 agricultural soils creating a mix of arable and pastoral use. In the west there has been some historical quarrying for brick clay and gravel extraction, with the former re-purposed and the latter filled in. The course of Bottesford Beck has seemingly formed a barrier to further expansion of housing development.

Due to its proximity to Scunthorpe and the road network, it marks the transition between urban conurbation and the nearby farmland with influences of both elements present.

16.3 Landscape Strategy:

Further encroachment or development within this landscape should be restricted and its value as both public amenity and agricultural use enhanced and retained.

16.4 Landscape Guidelines:

The guidelines for Farmed Urban Fringe are presented below:

- Ensure that the area is maintained for public access and as a buffer between Scunthorpe and the M180.
- Seek to assimilate both existing incongruous development and derelict farm buildings with appropriate tree planting of native species of local origin.
- Seek to develop a cohesive character for this area through the development of hedgerows and shelterbelts to improve the existing field pattern.
- Embellish the public amenity use within the area by opening up greater access to Bottesford Beck within a habitat network of woodland, grasslands, ponds and wetlands.
- Seek to enhance Bottesford Beck in terms of water quality, ecological status, natural processes and visual appeal.

17. Lincolnshire Edge - Heathy Woodland

Located east of Scunthorpe, this LCT commences at High Wood, to the south of the M180, and follows the alignment of the B1207, Ermine Street north for approximately 8km before deviating towards the north west to wrap around Risby Warren. It contains the bulk of the woodland blocks which forms part of the wider notional green spine of North Lincolnshire. It is rich in ecological value and interest.

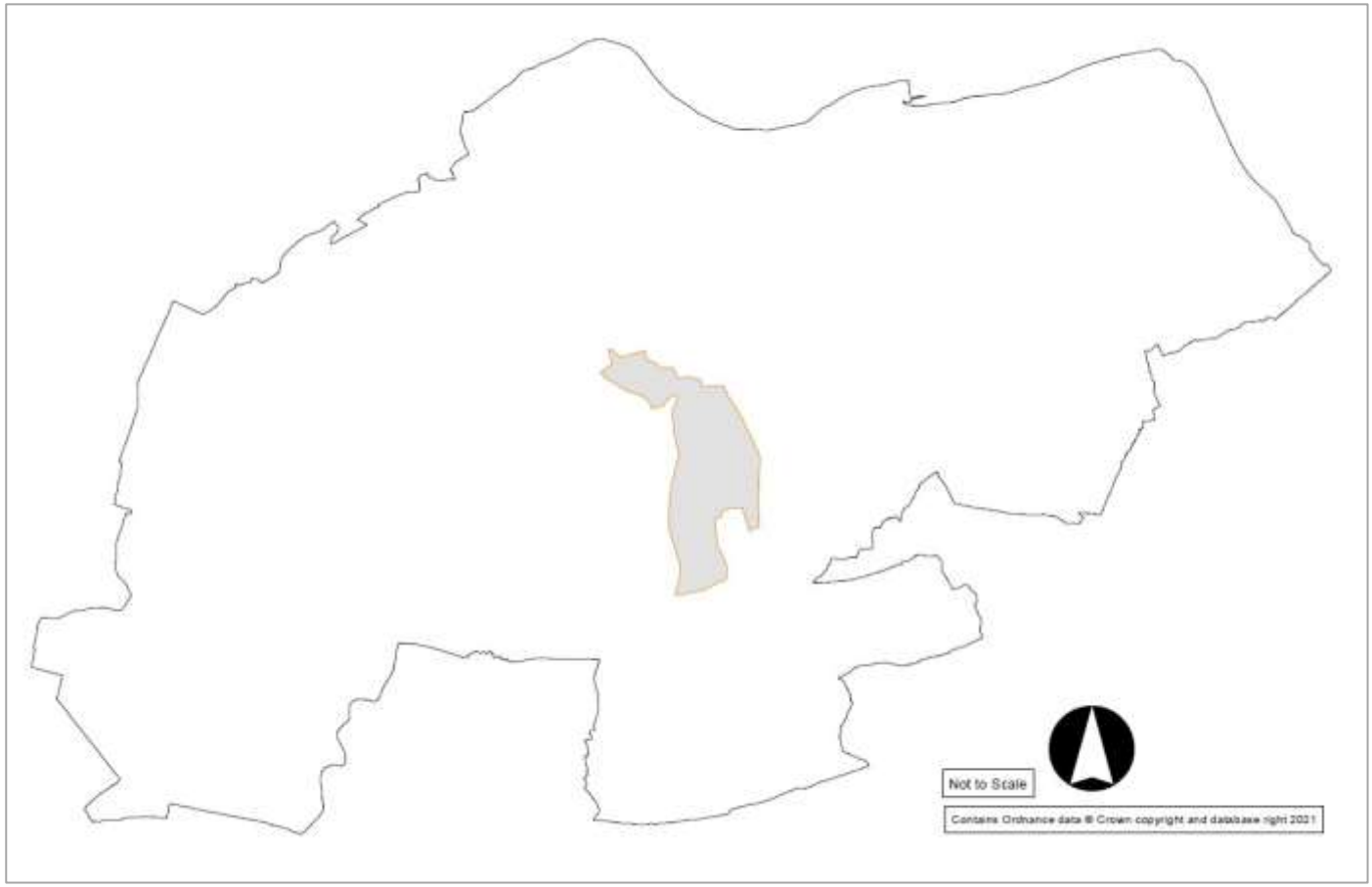

Figure 27 – Heathy Woodland

17.1 Key Characteristics:

- Elevated, gently undulating landscape of deciduous and coniferous woodland containing areas of open scrub and heathland.
- It represents a strong central spine of diverse woodland blocks, covering approximately 890 hectares, which are important on a local, regional and national scale in what is predominantly an agricultural landscape.
- Attractive character, intimate and enclosed, within the woodland contrasting with more open heath areas.
- Contains three SSSIs at Broughton Far Wood, Broughton Alder Wood and Risby Warren.
- Risby Warren is one of the largest land based SSSIs within the whole ceremonial county of Lincolnshire. It supports breeding woodlark and grayling butterflies, along with waxcap fungi and uncommon plants such as purple milk vetch and the unusual moonwort.
- There is also a large area of Ancient Woodland at Far Wood, Spring Wood and Gadbury and Lundimore Woods. A small area of the designation at Far Wood overlaps with the SSSI at Broughton Far Wood.
- Views out of this LCT are generally restricted by vegetation, including screening of the industrial and urban features to the west, on the edge of Scunthorpe.
- Local historical interest provided by Ermine Street, a Roman road that bisects the woodland.
- High voltage transmission cables and towers are present across the LCT, providing vertical visual influence but are generally more noticeable across the open areas of Risby Warren.
- A large area of Photo-Voltaic panels, covering approx. 75 hectares, has infilled the gap to the west of Gadbury and Lindomore Wood.
- The M180 is well screened and buffered by the woodland block of the New Forest Plantation on the north side and High Wood to the south.

Figure 28 – View south towards Risby Warren SSSI from Risby Road

"Risby Warren is one of the largest land based SSSIs within the whole ceremonial county of Lincolnshire. It supports breeding woodlark and grayling butterflies, along with waxcap fungi and uncommon plants such as purple milk vetch and the unusual moonwort."

17.2 Physical Influences:

Middle Jurassic Lincolnshire limestones with coversands or blown sand is an important element of the superficial geology in this area of the Lincolnshire Edge Landscape Character Area. The sandy brown earths derived from these sands are relatively infertile without regular applications of fertiliser and are classified as Grade 3 Agricultural Land. There has been extensive planting with Scots pine and natural regeneration of sycamore, birch and oak in areas of open heathland.

17.3 Landscape Strategy:

This landscape has significant importance at a local, regional and national level in terms of both its ecological designations and also for its unique visual and recreational use. Landscape guidelines should seek to conserve this landscape whilst providing opportunities for localised amenity enhancement.

17.4 Landscape Guidelines:

The guidelines for Heathy Woodland are presented below:

- Ongoing monitoring and management of all the ecological designations.
- Consideration should be given to designate this LCT as an 'Area of High Landscape Value'.
- Implement or update existing woodland management plans to maintain structural diversity. This may require selective felling, re-stocking and long-term retention using appropriate species and management techniques. Ancient Woodland should be sensitively managed and, wherever possible, plantations on ancient woodland sites (PAWS) should be restored to semi-natural woodland.
- Implement a management plan to ensure that the open spaces blend with heathland and woodland in an effort to increase the ecological connectivity of heath, wood and wetland habitats.
- In areas of not-native plantation or species-poor scrub and bracken, consideration should be given to the restoration of lowland heathland and acid grassland.
- The establishment of new and improved linkages for both pedestrians and cyclists through the woodland which could link with routes directly into Scunthorpe or east to the cycleway along the River Ancholme (in the neighbouring Landscape Character Area).
- Review the connectivity of the PROW to establish wider green corridor linkages.
- Restrict infilling of gaps around, and between, the woodland with the development of either residential, agricultural or commercial uses.

18. Lincolnshire Edge - Industrial Landscape

This area of active iron and steel works is located immediately to the east of Scunthorpe with the A1029, Brigg Road forming the LCT's western edge. It is contained to the east by the rising land of the Lincoln Edge scarp and to the south by the route of the A18 with its northern extent diffusing into the neighbouring Despoiled Landscape LCT.

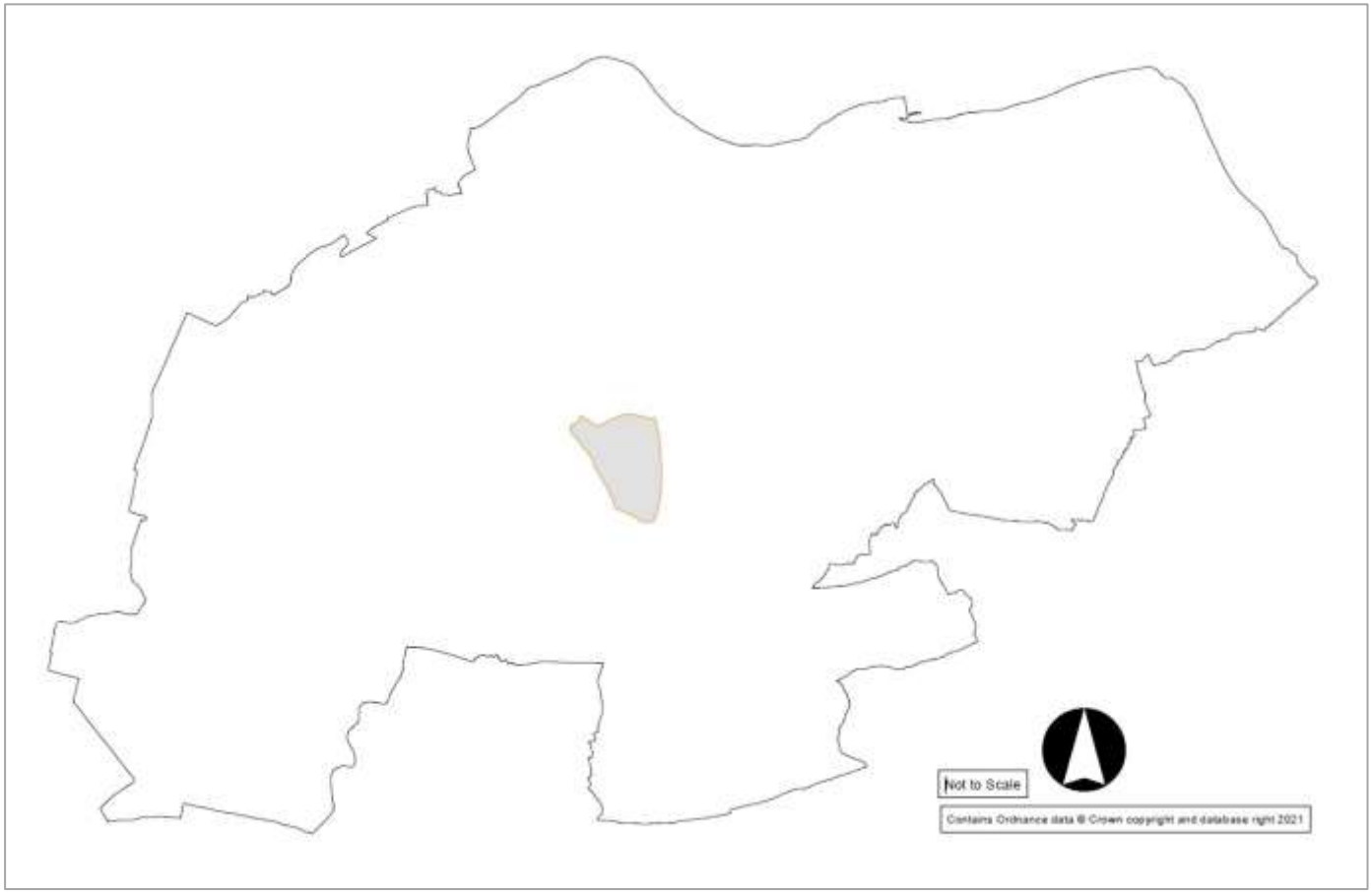

Figure 29 – Industrial Landscape

18.1 Key Characteristics:

- Flat, bleak, predominantly hard landscape overwhelmed by large scale industry and unmanaged land.
- Areas of high enclosure provided by density and scale of industry, ranging to openness with views across expanses of brownfield land.
- Along its western edge there is some boundary trees and vegetation which break up some of the views to the east.
- On its eastern edge, tree and hedgerow cover has established well to screen views to the west when using the PROW network.
- Along the southern edge (Mortal Ash Hill) significant screening using broadleaved trees has been planted since 2000.
- Complex character exaggerated by lack of cohesive structure. Area dominated by industry and associated infrastructure, i.e. roads, railway lines, security fencing, electricity poles, etc.
- There are no statutory heritage or ecological designations present within this LCT. However, on previously developed land around quarries and the steelworks, important open mosaic habitats have developed, supporting a wide diversity of plants and invertebrates and protected species.
- The PROW network is contained to the north-eastern edge, near to the small settlement of Santon.

Figure 30 – View west from Footpath near Dawes Lane, Santon

"On its eastern edge, tree and hedgerow cover has established well to screen views to the west when using the PROW network."

18.2 Physical Influences:

The location of the Scunthorpe iron and steel works was determined by the availability of quarried ironstone, north of the town. The growth of the iron industry during the Industrial Revolution led to Scunthorpe becoming an industrial power generation and transport infrastructure centre. The subsequent contraction of the iron and steel industry has resulted in the legacy unused quarries, landfill sites and derelict buildings evident today along with the resurgence of nature in disturbed or unmanaged areas.

18.3 Landscape Strategy:

The continued use of this landscape for iron and steel activity could continue for several more decades although the nature and layout of facilities may change as the region moves towards a zero-carbon economy. In anticipation of an accelerated pace of change, a positive landscape and biodiversity management plan should be agreed to try to integrate and re-invigorate this LCT.

18.4 Landscape Guidelines:

The guidelines for Industrial Landscape are presented below:

- Where possible, open mosaic habitats on previously developed land (brownfield habitats) should be maintained and enhanced. Where development threatens such habitats, then compensatory habitat should be created and maintained, to ensure habitat connectivity for grayling, wall and small heath butterflies and other invertebrates.
- Active industrial sites should be encouraged to investigate potential for unification and landscaping techniques to mitigate their overall visual impact. The immediate improvements could be rationalisation and upgrading of perimeter fence security systems to include hedges, shelterbelts and screen planting of native species of local origin.
- Prospective major developers should undertake detailed environmental assessments or environmental reports as part of their planning applications. In keeping with EIA regulations these assessments should in particular look at impact avoidance measures and opportunities for mitigation including site planning technical measures, aesthetic and ecological measures. Such measures should seek to relate to the surrounding landscape or offer a vision for the re-appraisal of the wider landscape setting. Where possible opportunities should be taken to create enhanced, enlarged and connected blocks of priority habitat.
- Where it would not harm open habitats, structural woodland planting should be used to provide screening, biodiversity enhancement and dust suppression.

19. Lincolnshire Edge - Open Farmed Scarp Slope

A thin strip of open farmland running along the easterly escarpment of the Lincoln Edge, commencing on the North Lincolnshire administrative boundary it extends north as far as the hamlet of Manton, incorporating Kirton in Lindsey as it does so.

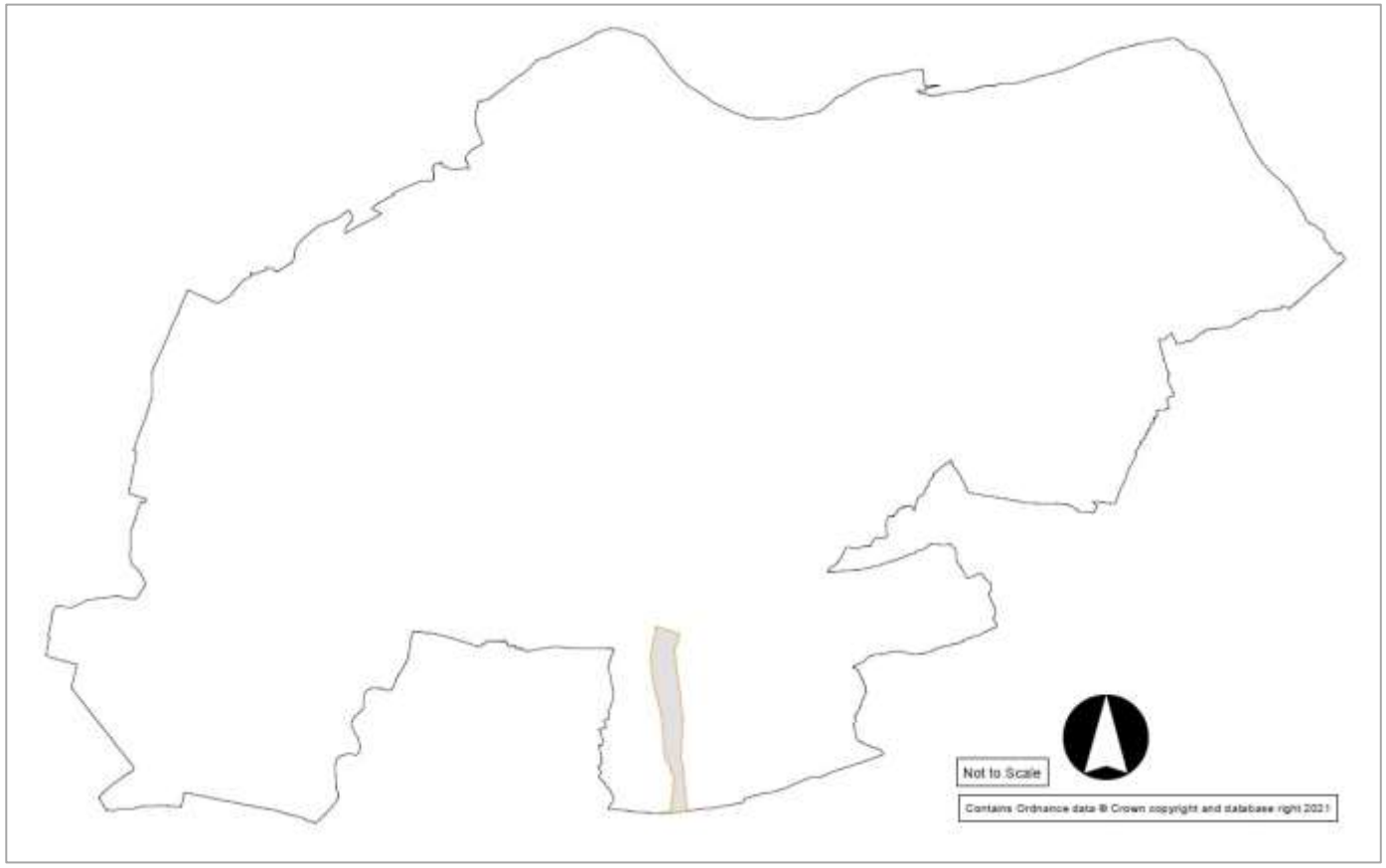

Figure 31 – Open Farmed Scarp Slope

19.1 Key Characteristics:

- Broadly sinuous, gently undulating west facing scarp slope, which rises in parts to a height of around 70m above the gently undulating terrain to the west.
- Intensively farmed landscape with medium scale arable fields.
- Lack of field boundaries due to hedgerow loss, but existing hedgerows are significant, well established and often supported with field trees.
- Groups of trees and shelterbelts are a significant feature particularly towards the top of the slope. Individual trees are generally found scattered amongst the fields.
- A rural feel within this LCT despite its proximity to Kirton in Lindsey as the rest of the area has limited settlement.
- The busier B roads tend to be along the edge of the LCT with only a number of small local roads running across it.
- There is a good PROW network which connects out into the surrounding countryside.
- Cultural heritage is provided by the Conservation Area at Kirton in Lindsey and the Listed Buildings within it. To the north there is a cluster of Listed Buildings at Cleatham Hall which has historical ownership links to the family of Charles Darwin.
- There are no ecological designations within this LCT.

Figure 32 – View to the south from Sand Lane

"Groups of trees and shelterbelts are a significant feature particularly towards the top of the slope. Individual trees are generally found scattered amongst the fields."

19.2 Physical Influences:

The geology at the top of the scarp slope is Grantham Formation and Northampton Sand and at the toe of the slope it is Charmouth Mudstone, Marlstone Rock and Pecten Ironstone. The Grade 3 Agricultural land makes arable farming feasible on this west facing scarp slope.

19.3 Landscape Strategy:

General landscape policies should seek to conserve existing, and restore lost, boundary hedgerows and in-field trees which will enhance the farmed appearance this locally prominent scarp slope.

19.4 Landscape Guidelines:

The guidelines for Open Farmed Scarp Slope are presented below:

- Seek to conserve the character of Kirton in Lindsey by limiting both insensitive town expansion and excessive infill of important open space.
- Concentrate on re-use of existing buildings and ensure any new buildings utilise traditional building materials, where possible, and follow local architectural styles.
- Conserve views to escarpment skyline by avoiding the prominent siting of new structures in elevated positions.
- Seek to prohibit the siting of new mineral extraction sites along the scarp slope. Advance planting should be carried out to mitigate possible visual impacts of quarry sites considered essential close to the escarpment. Those already existing should considered for landscape restoration in order to reduce their visual impact.
- Protect and manage all veteran trees and remnants of aged woodland, spring-line and ditch vegetation and identify opportunities for the re-creation of these features.
- Seek to conserve and enhance existing tree cover along the escarpment and develop the prominence of all primary hedgelines through renewal, management and the arrangement of hedgerow trees. The alignment of hedges, mostly perpendicular and parallel to slopes, should be maintained and enhanced.
- Augment existing tree cover by encouraging medium-scale woodland planting on more elevated and rising ground. However, skyline or ridge planting should be avoided.
- New woodland and shelterbelts should comprise native broadleaf species, with a proportion of broadleaf species typical of more southerly zones, to allow for the effects of climate change. Coniferous plantations should be avoided, and medium-term management policies implemented to re-structure those present to contain a greater percentage composition of deciduous trees.

20. Lincolnshire Edge - Open Undulating Farmland

This area consists of two separate geographical areas, both of which are along the western boundary of the Lincolnshire Edge LCAR and are parted by a combination of North Lincolnshire's administrative boundary and the Wooded Undulating Farmland LCT which sits between them. The larger area sits to the south and south east of Scunthorpe, straddling the M180, culminating just south of Messingham at the administrative boundary. The smaller area has the administrative boundary on both its western and southern edge and is contained to the east by the toe of the Open Farmed Scarp Slope LCT.

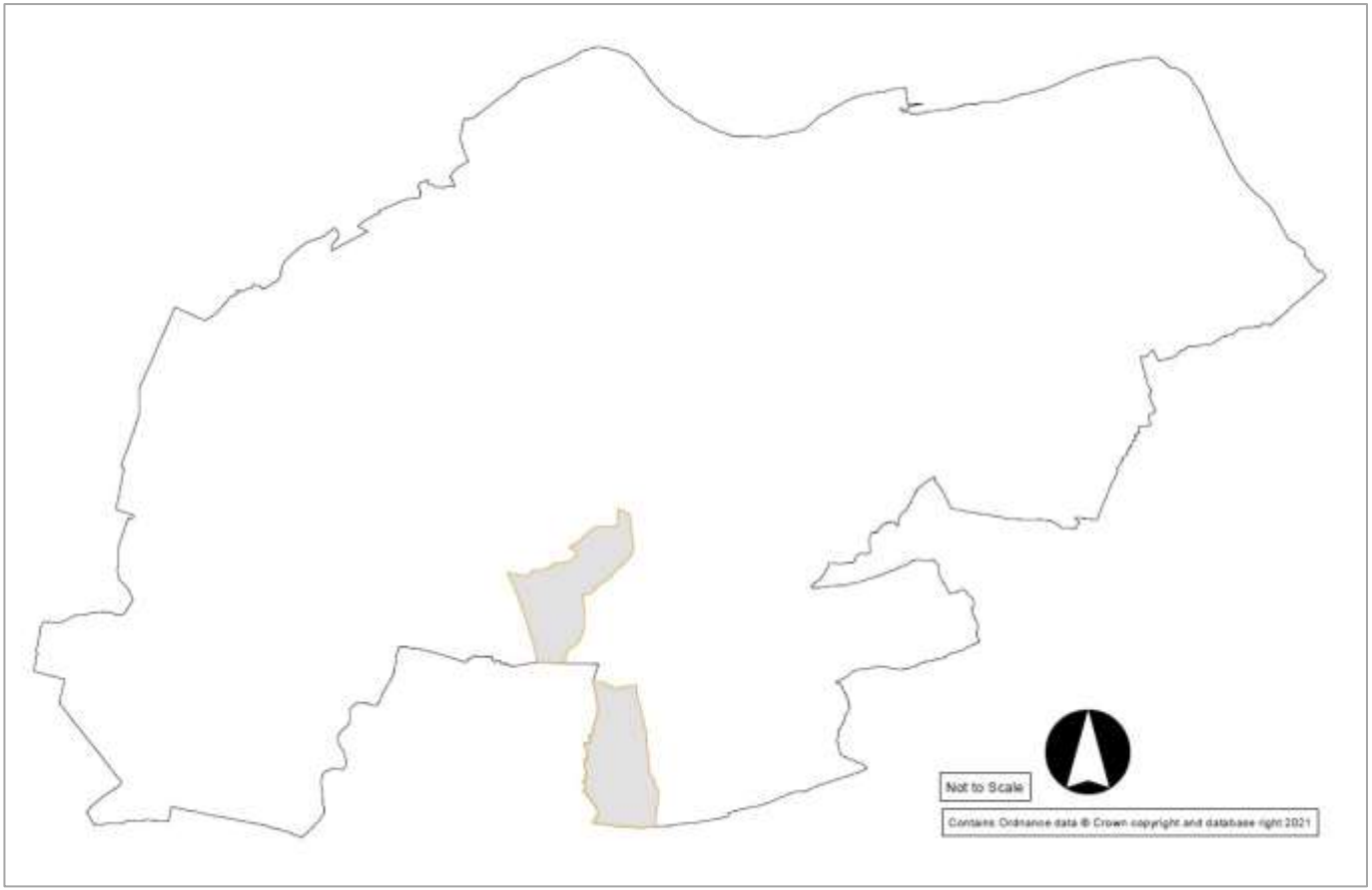

Figure 33 – Open Undulating Farmland

20.1 Key Characteristics:

- Broad, gently undulating landscape, including a shallow scarp slope.
- Mainly arable farmland with pasture areas and some evidence of farm diversification, e.g. pig farming, poultry farming, wetlands.
- Evidence of hedgerow loss giving rise to an overall lack of cohesive field boundaries.
- Enclosure provided by shelterbelts, woodland copses, both in and outside of the LCT, and hedgerow remnants.
- Traditional farm buildings scattered throughout the area with some recorded in their original condition and others only slightly altered. Several are also Listed Buildings.
- Ashbyville, at the northern tip of the larger area, is designated as a Local Nature Reserve on a former iron ore extraction site.
- Watercourses and drainage ditches more evident in the smaller of the two areas to the south.
- The south area also feels quieter and more rural with only B Roads and smaller local roads traversing it.
- The larger area to the north is busier and less rural due to its proximity to the southern edge of Scunthorpe and the influence of the M180 and A169.

Figure 34 – View north from Holme Lane bridge over the M180

"Mainly arable farmland with pasture areas and some evidence of farm diversification, e.g. pig farming, poultry farming, wetlands."

20.2 Physical Influences:

The area is based on Charmouth Mudstone with Pecten Ironstone and Scunthorpe Mudstone with Frodingham ironstone and limestones to produce a gently undulating landscape. Overlying sand and gravel give rise to Grade 3 agricultural land which has led to some farm diversification from arable to livestock farming.

20.3 Landscape Strategy:

Seek to initiate policies of restoration and local enhancement in this agricultural lowland landscape of gently undulating terrain.

20.4 Landscape Guidelines:

The guidelines for Open Undulating Farmland are presented below:

- Expansion of Scunthorpe south of Bottesford Beck would harm this landscape and should be avoided. Any limited expansion of residential development into this area from Messingham or Kirton in Lindsey should be carefully planned, with detailed landscape and biodiversity management plans to help to assimilate the development into the surrounding countryside.
- The continuing trends of agricultural intensification, i.e. hedge removal and woodland loss, should be discouraged and management plans introduced to conserve these elements.
- Management plans should consider hedgerow renewal and repair, woodland planting and management and grass verge management to counter localised degradation of landscape structure.
- Existing hedgerows, woodland and hedgerow trees should be protected from further losses.
- Where new woodland planting can be delivered it should be of a small to medium scale, typically between 1 and 3 hectares, to reflect the size, scale and composition of existing woodland structure within this LCT.
- Tree and woodland planting should predominantly be of native mixed deciduous composition with a proportion of broadleaf species typical of more southerly zones, to allow for the effects of climate change.
- Re-creation and restoration of neutral and acid grassland habitats should be encouraged- notably around Holme and Messingham.
- The architectural integrity of villages should be preserved in any developments. Infill should only be considered if sensitive to existing built forms and arrangements and ideally would utilise existing buildings.
- The redevelopment of the former RAF base, just to the south-east of Kirton in Lindsey, should accord with the architectural integrity of the village.
- Where possible, the restoration of traditional smaller scale agricultural landscapes around rural settlements should be encouraged. Hedgerow planting, field sub-division, planting of trees and, wherever possible, creation of public open space, should be considered to soften settlement edges.
- Most watercourses flow westward towards the River Trent, becoming increasingly modified for flood defence and land drainage purposes. These ditches offer nature conservation potential and, wherever possible, should be modified and managed to improve their habitat diversity.

21. Lincolnshire Edge - Steep Wooded Scarp Slope

Located on the edge of the north western shoulder of the Lincolnshire Edge LCAR, this narrow strip of well vegetated steep scarp slope is known locally as `The Cliff'. It commences to the south of the village of Flixborough before running around the western side of the village and heads north to Burton upon Stather. It briefly runs alongside the River Trent, before gently arcing around to the north east, past Alkborough and culminating at Whitton, by the Humber Estuary.

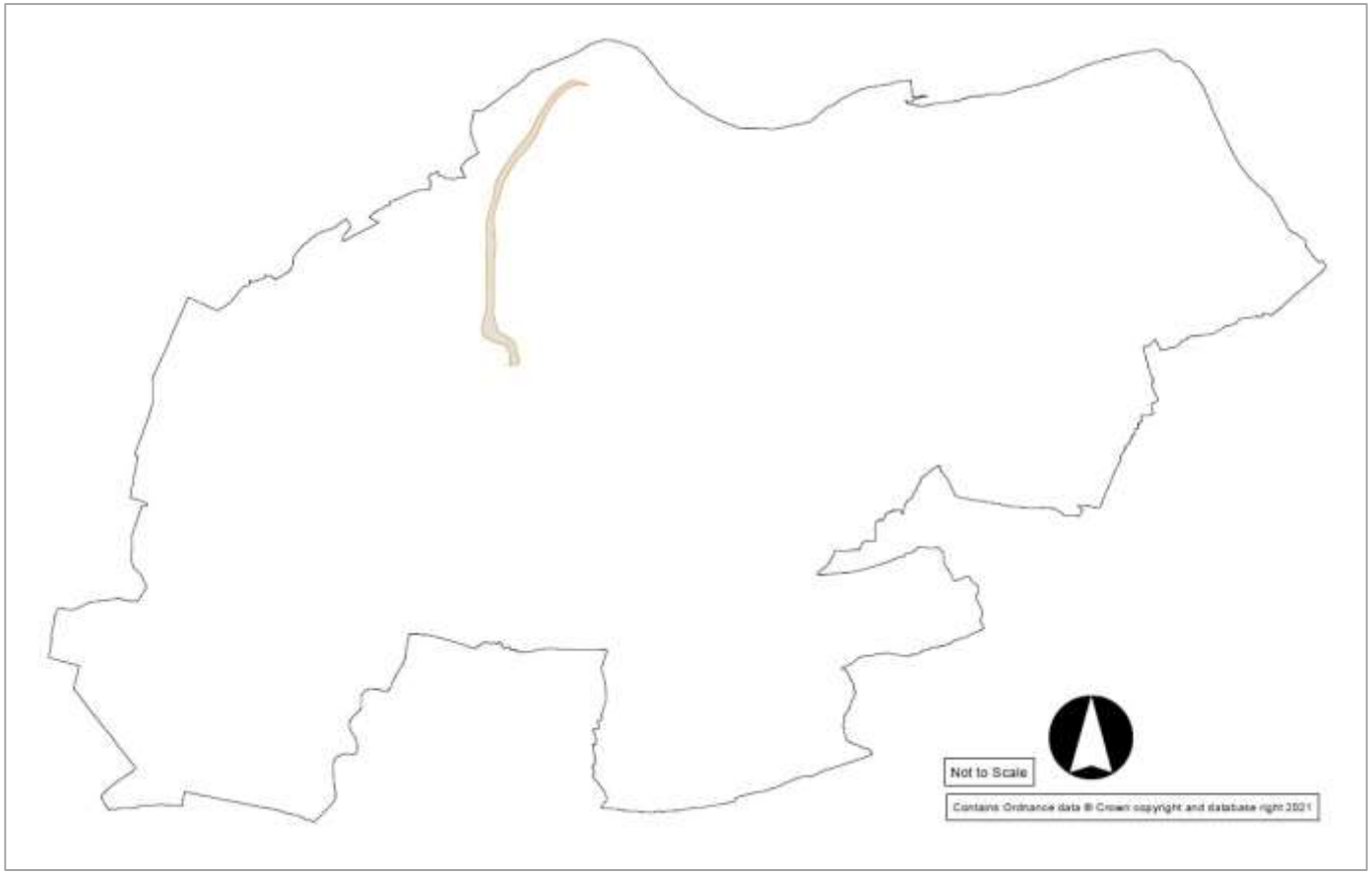

Figure 35 – Steep Wooded Scarp Slope

21.1 Key Characteristics:

- A prominent, west facing, steep scarp slope rising from around 2m AOD in the Trent Levels and climbing up to 60m AOD at the top of the scarp in less than 300m.
- Extensively wooded slope, interspersed with small areas of pasture, scrub and rough grass.
- There is a low amount of agricultural activity within the LCT due to the quality of the agricultural land, which is Grade 3 between Flixborough and Burton upon Stather and bookended by non-agricultural land in the south and Grade 4 to the north.
- Long-ranging views across the Trent Levels from the top of the slope as well as across the confluence of the River Trent, Ouse and Humber.
- A landscape is generally of intimate scale and well enclosed by vegetation, with only a handful of local roads and tracks which run up and down the scarp.
- The steeper areas of the scarp has no significant built development with settlement mainly confined to the top, except for the route down to Burton Stather, located on the banks of the Trent.
- On the shallower northern end, where the scarp tapers down to the Humber Estuary it runs through the centre of Whitton.
- At the southern end there are industrial estates on the periphery of the LCT with Flixborough Stather to the west and Foxhills Industrial Estate to the south and south east. In the case of the former, the railway line snakes its way through the LCT as it heads east.
- The PROW network similarly follows the local roads and tracks. Pedestrian routes tend to stick to the periphery of the woodland blocks rather than cut through them.
- The large linear woodland block of The Cliff is immediately to the north of Burton upon Stather with the similarly sized and shaped Burton Wood to the south. There is also an unnamed A medium sized linear block to the south west of Whitton.
- Ecologically rich slope with mosaic of woodland, scrub and neutral grassland habitats tha are well-connected.
- Designated Ancient semi-natural woodland at Burton Wood.
- Additional ecological designations also include Phoenix Local Nature Reserve at the very southern end of the LCT, as well as at the toe of the scarp, north of Burton upon Stather, where a mile stretch overlaps on to the River Trent which is part of the Humber Estuary SSSI.
- Cultural heritage within the LCT is in the form of the Flixborough Saxon nunnery and site of All Saints medieval church Scheduled Monument site, just south of Flixborough.
- A much smaller Schedule Monument is located at Alkborough for Julian's Bower turf cut maze, which although just outside of the LCT is associated with the promoted viewpoint at the top of the scarp slope.
- There is also some overlap with the Conservation Areas at Alkborough and Burton upon Stather.
- The settlement edges of Alkborough and Burton upon Stather provide visual interest where houses, interspersed with vegetation, cling to the top of the slope face.

Figure 36 – View west from Julian's Bower at Alkborough

"Long-ranging views across the Trent Levels from the top of the slope as well as across the confluence of the River Trent, Ouse and Humber."

21.2 Physical Influences:

Formed from Scunthorpe Mudstone containing some ironstone and limestone with coversands, giving rise to a mix of soil quality, some of which is not practical for agricultural use. This quality along with the steepness of the slope has made farming impractical with likely low yields and as a result, the slope face has been left to nature, undisturbed with areas of rough grass, scrub and woodland.

21.3 Landscape Strategy:

Seek to conserve and enhance the ecological diversity and intimate wooded character of this prominent scarp slope by sympathetic management techniques.

21.4 Landscape Guidelines:

The guidelines for Steep Wooded Scarp Slope are presented below:

- Ancient and long-established semi-natural woodland requires careful management in accordance with Forestry Commission guidance.
- Promote the conservation and enhancement of habitat diversity by encouraging rejuvenation of woodland and hedgerows and providing habitat links where feasible.
- Encourage the retention of open areas providing valuable rough grass and scrub transition zones.
- Designate this LCT as part of an Area of High Landscape Value.
- Maintain the scarp slope in its existing visual context i.e. preserve the existing skyline and restrict new buildings and structures.
- Prevent any further encroachment from settlement, particularly around the west of Flixborough.
- Prevent the southern end of the LCT from becoming surrounded by new or expanding Industrial Estates.
- At Phoenix Local Nature Reserve, open mosaic habitats on previously developed land (brownfield habitats) should be maintained and enhanced.

22. Lincolnshire Edge - Wooded Scarp Slope

This LCT commences just to the north of the small hamlet of Manton and continues north for approximately 9.5km stopping at Santon Lane, near Santon, east of Scunthorpe. It is predominantly a narrow strip, running along part of the Lincoln Edge scarp slope, but about halfway along its length it expands to the west to wrap around the woodland blocks at Sweeting Thorns and Low Wood. Near Scunthorpe, the neighbouring LCT to the west is Industrial Landscape, which brings a strong influence of heavy industry and development. On its eastern side it is adjacent to the Heathy Woodland LCT and combines with it to contribute to the wider, notional, green spine of North Lincolnshire.

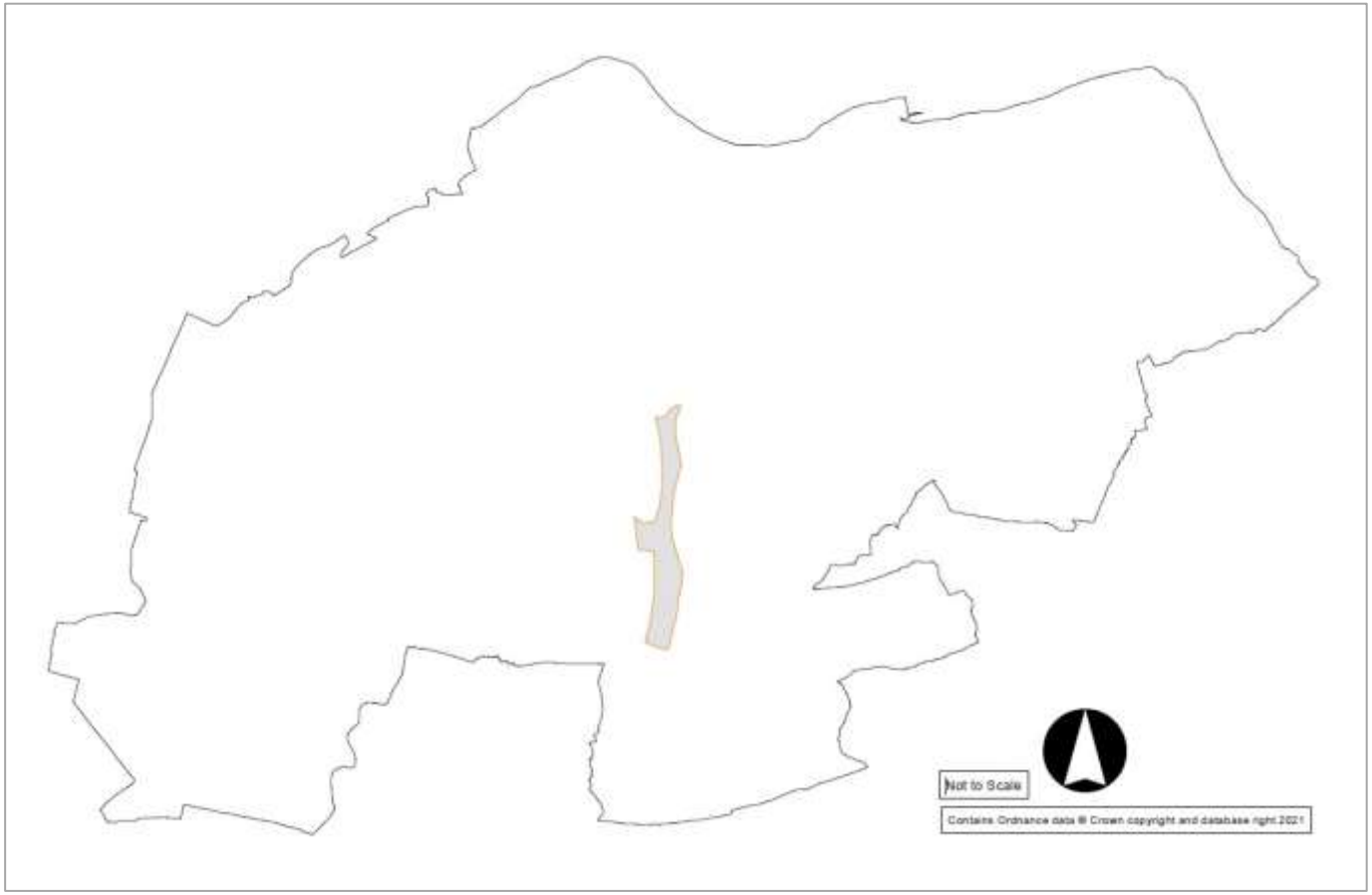

Figure 37 – Wooded Scarp Slope

22.1 Key Characteristics:

- Sinuous west facing scarp slope, running north to south, overlain by coversands, which are well wooded with small areas of arable farmland, pasture, scrub and acid grassland.
- Significant areas have been left to nature, resulting in mainly deciduous woodland with birch, pine, larch, oak, gorse and rhododendron.
- There is greater woodland cover in the southern extent of the LCT as far as the M180. North of this point the scarp slope becomes much more open.
- Correspondingly, the landscape is well enclosed and of intimate scale to the south and where vegetation is limited, views towards Scunthorpe are extensive.
- Residential development is limited within this LCT with only a handful of hamlets and some scattered individual properties.
- Despite the lack of residential influence there is significant road infrastructure in the form of the M180 and A18 running through the LCT, with several more local roads doing likewise.
- High voltage transmission cables and towers run north to south through the northern extent of the LCT, providing strong vertical visual influence.
- More detracting visual influence, in this northern extent, is provided by the neighbouring Industrial Landscape.
- In the neighbouring Heathy Woodland LCT, a large area of Photo-Voltaic panels, covering approx. 75 hectares, is located on the open scarp top, immediately to the east of the historic Ravensthorpe Village.
- Due to the lack of residential development, receptors will typically be users of the PROW network and permissive paths within the woodland.
- Ravensthorpe Village is a significant contribution to the Cultural heritage within the LCT through the associated Medieval Village Scheduled Monument and the Grade II Listed Raventhorpe Farmhouse.
- The LCT has important natural heritage value not only as part of the wider, notional, green spine of North Lincolnshire, but also due to the 3 SSSIs designations found at Manton and Twigmoor woods.

Figure 38 – View east towards the LCT, from Holme Lane bridge over the M180

"Sinuous west facing scarp slope, running north to south, overlain by coversands, which are well wooded with small areas of arable farmland, pasture, scrub and acid grassland."

22.2 Physical Influences:

The geology at the top of the scarp slope is Grantham Formation and Northampton Sand and at the toe of the slope it is Charmouth Mudstone, Marlstone Rock and Pecten Ironstone. The agricultural land in the LCT is a mix of Grade 3 and Non-agricultural, which combined with the scarp slope has discouraged significant agricultural activity from establishing and consequently allowing the slope face to become well wooded.

22.3 Landscape Strategy:

Seek to conserve the wooded character of this escarpment feature whilst also developing local opportunities to plant new woodland and hedgerows and encourage ecological diversity. This LCT should be considered as one with its neighbour, Heathy Woodland, and be given status as the green spine of North Lincolnshire and tree loss and incongruous development resisted.

22.4 Landscape Guidelines:

The guidelines for Wooded Scarp Slope are presented below:

- Where possible, screen the PROW network where routes are detrimentally influenced such as the footpath between Broughton and Ravensthorpe Village, which runs directly north of the area of photo-voltaic panels.
- This screening approach should also be considered for the footpath route from West Wood towards Santon Wood where the views open up over the eastern industrial and urban edge of Scunthorpe.
- Seek to conserve, enhance and encourage further tree cover along the scarp slope and also the development of hedgerows, particularly where linking with woodland blocks, to maximise possibilities for habitat linkage and wildlife dispersal.
- Promote woodland and hedgerow management to re-structure excessively even-aged woodland and ensure the continuation of valuable habitat resources.
- Promote the management of heathland and acid grassland- particularly around Greetwell and in Sites of Special Scientific Interest and Local Wildlife Sites.
- Aim to increase the thicket shrub content of woodland edges to increase habitat potential and visual diversity.
- Designate this LCT as an Area of High Landscape Value.
- Any new planting or management of woodland should ensure that the woodland blocks maintain a close relationship to landform. For example, most woodlands are situated as skyline features or as geometric shelterbelt plantations across the whole slope.
- Where appropriate, promote informal recreation facilities by increased provision of woodland trails, parking places, viewpoints and picnic sites.
- To maintain the visual context of the escarpment scenery that is visible over an extensive area, new buildings or development should be restricted wherever possible.

23. Lincolnshire Edge - Wooded Undulating Farmland

This relatively small LCT is located to the east of Messingham in a mainly rural setting with a good proportion of medium sized, mixed species, woodland blocks. Quarrying is still active with some of the exhausted quarry sites now attaining national ecological designation. The eastern edge of the LCT lies at the foot of the Lincoln Edge escarpment, with its south western edge defined by North Lincolnshire's administrative boundary. The northern edge just reaches across the M180 stopping at Holme Lane.

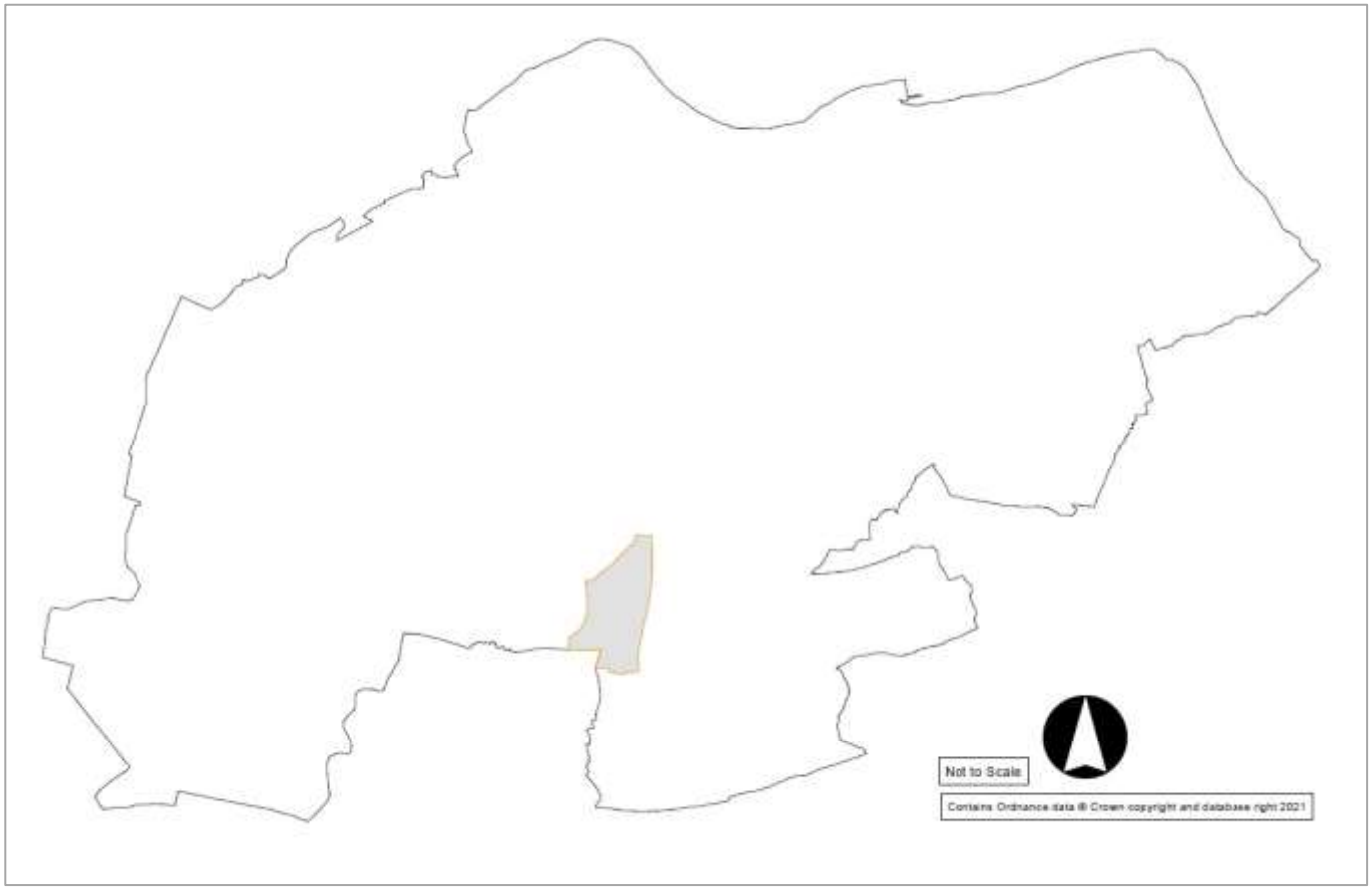

Figure 39 – Wooded Undulating Farmland

23.1 Key Characteristics:

- Rolling, mainly arable farmland of rural character with medium size fields.
- There is a good proportion of medium sized, mixed woodland blocks across this landscape, some of which are part of the larger woods found in the neighbouring Wooded Scarp Slope LCT to the north-west.
- Views vary between being well enclosed and quite open.
- Enclosure is provided by mixed woodland blocks and shelterbelt planting. Of particular note is Black Walk Nook which is located across the whole of the southern edge.
- Field boundaries defined by hedgerows, both maintained and overgrown with hedgerow trees. However, evidence of some loss and neglect in places due to field enlargement.
- Evidence of farm diversification with the presence of pig and poultry farms.
- Natural Heritage interest, with the designation of two areas as SSSI, at Manton and Twigmoor Woods to the north east and the Messingham Sand Quarry, with flooded sand and gravel extraction pits, to the south west of the LCT.
- The currently active Messingham Quarry site is located a little further to the east of the former site and has consent to expand to the north. Other parts of the LCT show evidence of historic quarrying, indicated by medium sized waterbodies.
- Settlement within the LCT is limited with no villages or hamlets present. There are a number of Historic Farmsteads scattered throughout with the majority showing as slightly altered from their original built structure.
- Significant visual influence from infrastructure is present across the LCT due to the M180 in the north and the high voltage transmission cables and towers, running east to west, in the south. Brigg Road also provides a lesser influence across the centre of the LCT.
- In more recent years, a solitary wind turbine has been installed.

Figure 40 – View south from Brigg Road showing the north east edge of the Messingham Sand Quarry SSSI

"Natural Heritage interest, with the designation of two areas as SSSI, at Manton and Twigmoor Woods to the north east and the Messingham Sand Quarry, with flooded sand and gravel extraction pits, to the south west of the LCT."

23.2 Physical Influences:

The geology at the top of the scarp slope is Grantham Formation and Northampton Sand and at the toe of the slope it is Charmouth Mudstone, Marlstone Rock and Pecten Ironstone. The agricultural land in the LCT is a mix of Grade 3 and Non-agricultural, which combined with the scarp slope has discouraged significant agricultural activity from establishing and consequently allowing the slope face to become well wooded.

23.3 Landscape Strategy:

Seek to conserve the wooded character of this escarpment feature whilst also developing local opportunities to plant new woodland and hedgerows and encourage ecological diversity. This LCT should be considered as one with its neighbour, Heathy Woodland, and be given status as the green spine of North Lincolnshire and tree loss and incongruous development resisted.

23.4 Landscape Guidelines:

The guidelines for Wooded Undulating Farmland are presented below:

- Where possible, screen the PROW network where routes are detrimentally influenced such as the footpath between Broughton and Ravensthorpe Village, which runs directly north of the area of photo-voltaic panels.
- This screening approach should also be considered for the footpath route from West Wood towards Santon Wood where the views open up over the eastern industrial and urban edge of Scunthorpe.
- Seek to conserve, enhance and encourage further tree cover along the scarp slope and also the development of hedgerows, particularly where linking with woodland blocks, to maximise possibilities for habitat linkage and wildlife dispersal.
- Promote woodland and hedgerow management to re-structure excessively even-aged woodland and ensure the continuation of valuable habitat resources.
- Promote the management of heathland and acid grassland- particularly around Greetwell and in Sites of Special Scientific Interest and Local Wildlife Sites.
- Aim to increase the thicket shrub content of woodland edges to increase habitat potential and visual diversity.
- Designate this LCT as an Area of High Landscape Value.
- Any new planting or management of woodland should ensure that the woodland blocks maintain a close relationship to landform. For example, most woodlands are situated as skyline features or as geometric shelterbelt plantations across the whole slope.
- Where appropriate, promote informal recreation facilities by increased provision of woodland trails, parking places, viewpoints and picnic sites.
- To maintain the visual context of the escarpment scenery that is visible over an extensive area, new buildings or development should be restricted wherever possible.

24. Vale of Ancholme Landscape Character Area

The Vale of Ancholme Landscape Character Area (LCAR) is predominantly low lying, drained arable land with scattered areas of Carr woodland which gives way to an area of coniferous woodland on the rising land around Elsham to the east and an area of open undulating farmland around Brigg, Wrawby and Cadney to the east and south east.

The northern edge of the LCAR extends to the southern edge of the village of South Ferriby, and 2.7km inland from the Humber Estuary, from where it extends for some 23km to the southern edge of North Lincolnshire's administrative boundary. It is contained to the east by the steeply rising ground of the Lincolnshire Wolds' escarpment and to the west by the more gently rising ground of the Lincolnshire Edge dip slope.

In parts, at its widest point the LCAR is 6km wide, however, south west of Brigg, such is the alignment of the administrative boundary it squeezes the width to just 0.8km wide. The boundary widens again around Cadney and Howsham before briefly narrowing as it reaches the southern edge of the administrative boundary.

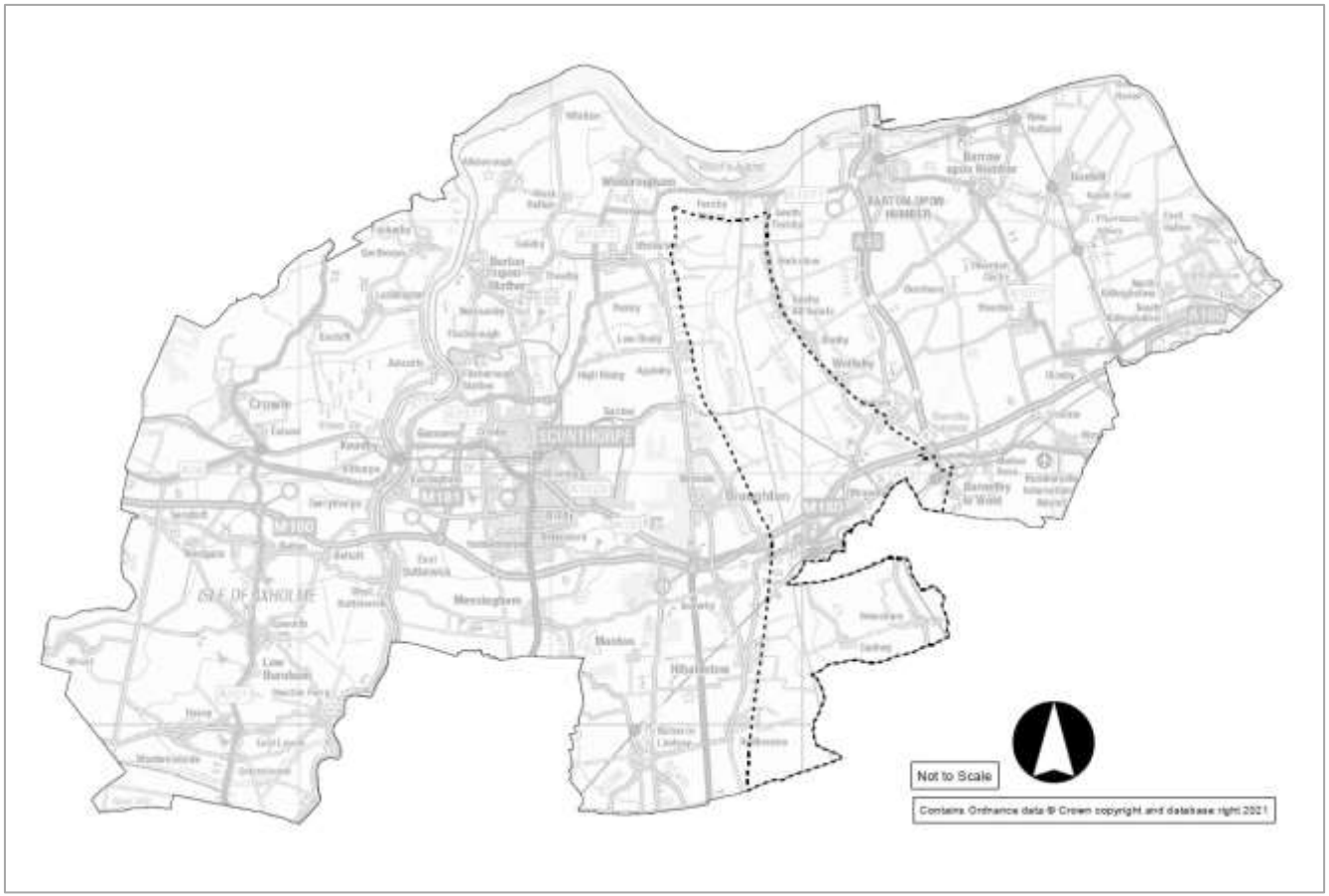

Figure 41 – Vale of Ancholme

The larger areas of urban settlement are located around Brigg and Wrawby, with much smaller settlement at Cadney and Howsham. Settlement across the rest of the LCAR is scattered and remote.

24.1 Key characteristics:

The Vale of Ancholme LCAR consists of 3 individual Landscape Character Types (LCTs) with the Flat Valley Bottom Farmland LCT covering 80% of the area. The key characteristics of note are:

- Broad, low-lying arable vale, contained by rising ground of the Lincolnshire Wolds scarp slope and less distinctively to the west by the dip slope of the Lincolnshire Edge.
- In the south eastern edge of the LCAR the landform rises to 50 m AOD in some parts.
- A strong sense of tranquillity due to the mixture of wide-open spaces across the low-lying land, surrounding enclosure, lack of settlement and woodland blocks.
- The canalised, north-south orientated channel of the New River Ancholme is a central feature within the landscape, with the meandering route of the Old River Ancholme still present.
- Long recorded history of human settlement and interaction to adapt the old river and land for livestock and cultivation.
- Areas of Carr woodland are located across the low-lying arable land with mixed plantations and lowland heathland on the 'blown drift' coversands on the rising landform towards Elsham.
- The predominant land use is agricultural with intensive large arable fields. Remnant hedgerows and artificially drained soils are typical on the lower lying land with retained and well managed hedgerows on the undulating farmland.
- Much of the land around both rivers is low lying at 1m above sea level, and has a propensity to flood, which explains the lack of significant habitation within the valley.
- The town of Brigg is the largest area of settlement and is located on localised higher ground and outside of the floodplain.
- The local road network is restricted to the periphery with only local access routes leading to the river. Vehicular crossings of the Ancholme are not possible despite the number of original bridges which continue to span the river.
- Six of the bridges are listed structures and significantly contribute to the heritage of the LCAR.
- Scheduled Monuments, Historic Farmsteads and the Conservation Area in Brigg further contribute to the Cultural Heritage of the LCAR.
- The arable land is graded as 'Good to Moderate' in Natural England's Agricultural Land Classification (ALC) system.
- Contribution to a significant natural heritage habitat through the presence of deciduous woodland, mixed woodland, lowland heathland, areas of coastal and floodplain grazing marsh, rivers, and drainage channels.
- In the summer, the area supports good breeding populations of protected and priority wetland and farmland birds. The area also provides refuge and food in the winter for many species of birds.
- Water Voles and Otter are amongst the mammals which have a strong presence in the area.
- Wrawby Moor SSSI is a nationally and regionally important designated area of ecological conservation importance, containing coversands creating an area of heath, blown sand habitats and silver birch woodland.
- The New River Ancholme provides wildlife and amenity value, for both land and water-based activities.
- The river provides a strong linear route for both pedestrians and cyclists and is currently undergoing development to create The Ancholme Valley Way.
- Major infrastructure features include overhead electricity pylons, the M180 and railway lines.

"Long recorded history of human settlement and interaction to adapt the old river and land for livestock and cultivation."

24.2 Physical Influences:

The Ancholme Valley, also known as the Lincoln Clay Vale or Mid Clay Valley, has evolved from erosion of the soft upper Jurassic clays and is heavily mantled by Quaternary superficial deposits, occasional glacial till and more extensive estuarine alluvium. The latter were mostly deposited during the sea level transgressions in the immediate post-glacial period. The estuarine alluvium, together with pockets of boulder clay, created the generally flat topography of the valley.

The superficial deposits gave rise to heavy gleyed clay and were extensively modified by artificial drainage from the mid 18th century onwards, when the New River Ancholme and many of its tributaries were canalised and a series of rectilinear drainage ditches were constructed. This increased the fertility of the land, to what is defined by today's standards as Grade 3 'Good to Moderate' and is predominantly used for arable crops and some pasture. The practice of `warping', which was extensively carried out in the Trent and Ouse lowlands, to the west, is notably absent from this area.

An important element of the superficial drift geology is the coversands i.e. deposits of blown sands. Extensive tracts of these occur along the eastern edge of the valley abutting the escarpment slope of the Lincolnshire Wolds. The free-draining nature of the sandy brown earths derived from the blown sands, render repeated arable cropping difficult without high inputs of fertiliser. As a result, there has now been extensive planting of the area with Scots pine, which has allowed natural regeneration of birch and subsequently oak to occur in unplanted or failed woodland glades.

24.3 Historic and Cultural Influences:

The River Ancholme has been used by humans since at least 800 BC, confirmed by the discovery of a Bronze Age Sewn Plank Boat at Brigg, in 1888 which was subsequently re-excavated in 1974. The 3,000-year-old relic is more commonly known as the "Brigg Raft" and is only one of two on display in the country at Brigg Heritage Centre. Prior to human intervention, the river would have meandered through a flat-bottomed landscape with Carr woodland. The word Carr is derived from the Old Norse 'kjarr' meaning a swamp, although the underlying landscape would more typically have been Fen. Subsequent livestock management during the early periods of settlement would have adapted some of the area into floodplain grazing marsh.

Rivers offered well-defined and attractive areas for settlement, as well as providing trade and communication routes and settlements such as Brigg developed at important river crossing points. The name of 'Brigg' comes from bridge, which the growing town soon acquired, and gained market charter in 1236. It remained a prosperous market town throughout the medieval period and rivers continued to provide important trade and communication routes as lowkey pottery and agricultural activities flourished. Patents covering improvements to the river are known from 1287 onwards and major change occurred in 1635, when a newly straightened channel was constructed from Bishopbridge to South Ferriby.

For much of its length, the Old River Ancholme is now a simple field drain, but still retains a sense of its former size as it runs through Brigg from the south. The addition of the new canalised route on the west of the town is re-joined by the old river from the east as they merge to the north of Brigg. The route of the two rivers have created a sizeable island of 85 ha, on the west of Brigg, known as 'Island Carr'.

The canalised river was reasonably profitable as a trade route following its completion in the 1820s, although the arrival of the railway within the area had an impact on this, trade picked up towards the end of the century, and was further boosted in the 1930s by cargoes of sugar beet. By the 1970s all the river's use as a trade route ceased above Brigg, before stopping completely in the 1980s. The upper section was almost derelict by then but was restored and dredged in 2004. Although the canalised river was completed by John Rennie the Younger in 1820, it was his father, John Rennie the Elder who initiated further improvements in the early 1800s.

John Rennie the Elder was a Scottish civil engineer who designed many bridges, canals, and docks of great significance, including Waterloo Bridge and London Bridge. His son, John Rennie the younger, completed the work for London Bridge in 1831, for which he was knighted. He designed Horkstow Bridge which was completed in 1836, enabling passage across the New River Ancholme at Horkstow, which is the earliest known suspension bridge and remains substantially as designed today.

Many of the original bridges which cross the river are only accessible by small local roads and have escaped modernisation due to their separation from the road network and have not been replaced or improved to handle increased traffic. There are six listed bridges along the reach, from Horkstow Bridge in the north to Hibaldstow Bridge in the south.

24.4 Settlements and Buildings:

Brigg remains an important market town and the only significant settlement in the LCAR. The development of local brick and tile manufacturing in the mid-18th century had a significant influence on the area's architecture and vernacular, contributing to the present-day dominance of Barton clay red-brick built housing with pantile roofs.

The original centre of Brigg, which is located on either side of the Old River Ancholme, is now a Conservation Area containing a dense cluster of listed buildings and structures, with some buildings dating back to the 16th century. Brigg has historically acted as a bridging point in the valley and together with the adjacent village of Wrawby, both of which benefit from the slightly elevated position over the central low-lying areas of the area where settlements are generally absent.

Brigg is nucleated in form with the two principal railway and road crossings, M180 and A18, concentrated on the surrounding land. Wrawby has developed at the junction of the roads from Brigg to Barton and from Brigg to Barnetby le Wold. It is less nucleated in form with some ribbon development extending out along these roads.

Much of the remaining valley is accessible by minor roads only, which do not offer vehicle crossing over the river and consequently, Historic Farmsteads in the valley, particularly in the north, are remarkably dispersed. Most of the Historic Farmsteads survive in an altered condition, with a couple near Worlaby to the east, survive in their extant condition.

Typically, the older brick-built farmhouses are surrounded by a cluster of more modern barns and outbuildings constructed from a variety of materials, such as timber, concrete, corrugated steel and, less commonly, brick. Most of these more modern structures are highly visible even where located close to established, mature shelterbelts.

Elsham Hall Gardens and Country Park, located on the eastern edge of the LCAR, 3km north east of Wrawby, includes the Grade II* listed Elsham Hall which dates to the 1760s, with the associated 19th century orangery also Grade II* listed. The Park and Gardens were opened as a Country Park in 1970 and the gardens include a large medieval carp lake and stew pond, and a 19th century coach house and stables are Grade II listed.

Other, older settlement is represented through the Scheduled Monuments of Thornholme Augustinian priory at Appleby Carrs.

24.5 Landcover and Wildlife:

The Old River Ancholme meanders through the landscape although it is the New River Ancholme that stands as the most prominent feature, carving and adapting the LCAR and central to the landscape in the valley and provides the perfect haven for the local wildlife.

The New River Ancholme has maintained a distinctly rural character, dominated by arable cultivation, isolated farms and woodlands. The Carr woodland contributes to a diverse natural landscape. The New and Old Rivers are relatively species-rich in terms of aquatic plants. Along with several tributary drains, they have been selected as Local Wildlife Sites.

The river is popular with anglers and is a well-stocked and diverse lowland river containing roach, bream and perch amongst others. The majority of the river is ideal for pleasure fishing in the summer months however the fish migrate to the sheltered and slightly warmer waters around Brigg in winter, moving upstream to spawn in spring before moving back to cover most of the river in summer.

In the summer, the Ancholme Valley supports good breeding populations of protected and priority wetland and farmland birds including kingfisher, barn owl, marsh harrier, Cetti's warbler, reed bunting, skylark, tree sparrow, linnet and lapwing. In winter, areas of grassland provide valuable hunting grounds for short-eared owls and hen harriers, whilst arable fields and stubbles support large feeding flocks of pink-footed geese, lapwings and golden plover associated with the internationally important Humber Estuary. In terms of mammals, the valley is a stronghold for water voles, otters, brown hares, badgers and several species of bat.

The Priority Habitat Inventory, a spatial dataset describing the extent and location of habitats of principal importance, records numerous areas of Deciduous Woodland and Coastal and Floodplain Grazing Marsh along the valley bottom, as well as areas of Lowland Fens and lowland heathland around Elsham Hall Gardens and Country Park.

As a result of agricultural intensification, few hedgerows remain on the valley floor but where present, the hedges are often in poor condition being discontinuous and gapped. This arrangement of hedgerows aligned to watercourses contributes to their ecological importance, offering improved conditions for habitat development and wildlife dispersal. Hedgerow cover is generally more common and of better quality on elevated land.

The LCAR retains a positive sense of place and uniqueness through its low-lying condition and the fact that it is well contained by the rising landscape immediately to the east and west; once outside of the North Lincolnshire administrative boundary, the underlying geology significantly widens and it its appearance as a valley becomes broader and less distinctive.

24.6 Connectivity:

The primary Public Rights of Way (PROW) route within the Vale of Ancholme LCAR is the footpath adjacent to the River Ancholme which runs practically the full length of the river, from north to south, and is currently being adapted to also accommodate cycling access. In the northern half of the LCAR there are no connections to the wider PROW network, however the local roads which run perpendicular to the river continue to facilitate pedestrian and cycle access to the wider area.

Around Brigg and to the south, the wider PROW network is better connected between the surrounding areas and the river.

There is also a range of self-guided walks and cycling routes available on the Council's website.

24.7 Landscape Strategy:

The Ancholme valley would benefit from enhancement to improve landscape unity and structure and the following should be considered:

- Traditional landscape elements such as Carr woodland and hedgerows need to be re-instated to reverse losses as a result of the intrusive level of agricultural management. Localised strategies need to soften the impact of intrusive elements and instigate habitat creation.
- Consideration of NFM (Natural Flood Management) measures within the floodplain of the Ancholme Valley and also on the scarp slopes to the east and west, to help mitigate the impact of climate change, reduce flood risk, improve water quality and to make more space for nature. There is a considerable body of evidence to demonstrate how integrated catchment management change, working with natural processes, implementing a range of NFM measures and partnership working, can all contribute to reducing local flood risk and deliver multiple benefits.
- The strategy for the Vale of Ancholme is to retain and enhance the areas of woodland and ensure that they are managed to establish diversity in age, structure and species.
- Development around farmsteads should be encouraged to accord with the materials of the original structure, or to suitably compliment them. They should also be sensitively sited and screened to assimilate them within the landscape.
- The Statements of Environmental Opportunity (SEO) 2, referenced in National Character Area profile 44, refer to habitat creation and regulating water quality. Opportunities include:

1. *Where feasible, creating areas of wet grassland and other wetland habitats along watercourses, such as in the Ancholme Valley, to improve water quality and support the wildlife of the Humber Estuary.*
2. *Planning to adapt to the impacts of sea level rise which is likely to reduce the extent of freshwater habitat around the Humber in the longer term; and seeking opportunities to positively adapt by establishing a variety of wetland habitats within the Ancholme flood plain – where feasible – to partially compensate for loss.*

- Particular target habitats include floodplain grazing marsh, reedbed and wet woodland.
- Consideration should be given to supporting and expanding the existing footpath network, for example using technology and downloadable maps and information onto mobile devices. These maps can highlight the existing historical and ecological assets and features of interest within the Vale of Ancholme which would raise awareness of their value and perhaps promote a sense of ownership and safeguarding within the local community.
- Monitor the condition of the bridges which span the Ancholme and prevent any structural degradation to these important historical assets and links.

25. Vale of Ancholme - Flat Valley Bottom Farmland

This LCT accounts for 80% of the Vale of Ancholme LCAR and as such mirrors how the northern edge of the LCAR extends to the southern edge of the village of South Ferriby before continuing south for 23km towards the southern edge of North Lincolnshire's southern administrative boundary. The western boundary of Flat Valley Bottom Farmland runs uninterrupted for the full extent from north to south. It is locally disrupted on its eastern boundary by the coversands area around Elsham Hall and the undulating farmland areas around Brigg, Wrawby and Cadney.

Although not always visible from within the LCT, both the old and new alignments of the River Ancholme are the primary feature within the landscape as this has influenced settlement and cultivation of the land through the millennia resulting in the landscape experienced today.

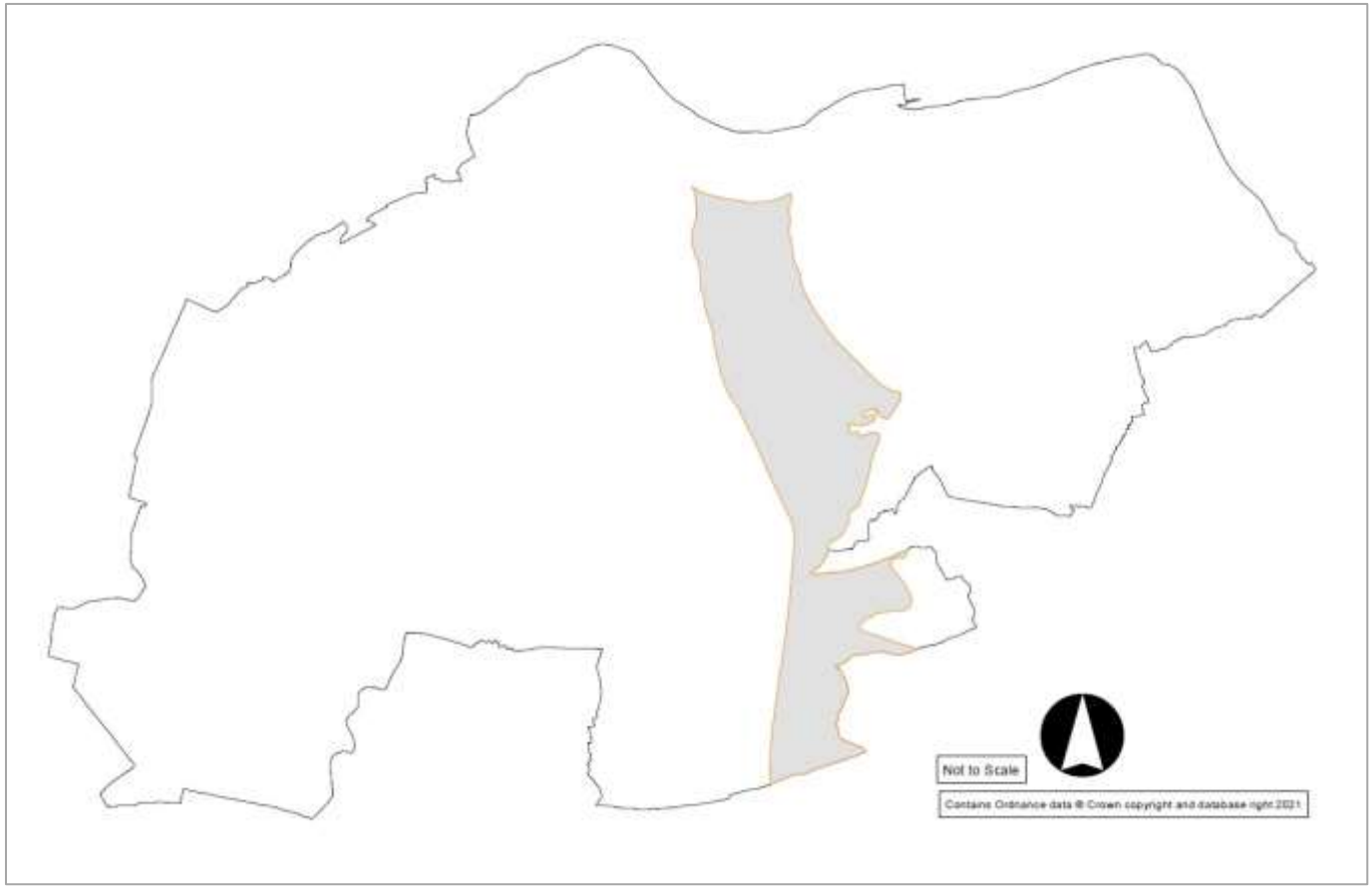

Figure 42 – Flat Valley Bottom Farmland

25.1 Key Characteristics:

- Flat broad, low lying, river valley floor which is around 1m AOD. Millennia of human settlement and land management has resulted in a network of artificially drained Carrs, and large arable fields with blocks of Carr woodland.

- The northern half of the LCT is contained by the gently rising slopes of the Lincolnshire Edge to the west and the steeper slopes of the Lincolnshire Wolds to the east. South of the M180 the valley starts to widen, and the sense of containment dissipates.

- A strong sense of tranquillity due to the mixture of wide-open spaces across the low lying land, surrounding enclosure, lack of settlement and woodland blocks.

- Large rectilinear fields relate to the pattern of the well-maintained drainage dykes, forming strong linear patterns. These often mark field boundaries and emphasise the uniformity of the landscape.

- Hedgerow field boundaries are predominantly remnant or absent altogether.

- The New River Ancholme is a central feature within the landscape although not always visible once you are immersed within the low lying landscape.

- The network of bridges across the river provides a vantage point relative to the low lying land and the canalised nature of the river offers long range views along the watercourse.

- Limited settlement within the lower lying central part of the LCT with occasional traditional villages visible along both the lower slopes to the east and west. Larger settlement, such as at Brigg is visible on land that rises from the floodplain.

- Farmsteads are dispersed, particularly in the north, with typically older brick farmhouses surrounded by a cluster of modern barns and outbuildings constructed from a variety of materials.

- A limited network of remote, straight minor lanes, the majority running in an east-west orientation, emphasise the linear pattern. Vehicular access across the river is not possible from these minor lanes which are for local access only.

- Many of the bridges crossing the river originate from the time when the canalisation work was completed in 1820. Six bridges are listed structures and significantly contribute to the cultural heritage of the both the LCT and LCAR.

- Woodland cover is much more prevalent to the north of Brigg, particularly in the parishes of Broughton, Appleby and Saxby All Saints, with noticeably less to the south west of Brigg and east of Hibaldstow. Some recent plantations around Cadney provide an exception to the general rule.

- Intermittent semi-natural vegetation along the canalised River Ancholme and also along the roadside as individual mature trees.

- Although not statutorily designated, there is wide range of important habitats throughout the LCT, including the arable field margins, floodplain grazing marsh, reedbed, woodland blocks, watercourses, farm ponds and reservoirs.

- In places, the meanders of the old river divert from the canalised course of the `new' river, creating pockets of intensively productive agricultural land between.

- Transportation corridors, such as the M180 and the railway can have a visual influence when in proximity, however their further-reaching presence is well screened by the intervening woodland blocks.

- At the northern end of the LCT, visually intrusive elements include the South Ferriby cement works, when looking north towards the Humber, and the high voltage transmission cables and towers, which run east to west across the valley floor.

- Additional cultural heritage is represented by the Scheduled Monuments at Appleby Carrs and Castlethorpe House with the former dated around 1148 and showing buried and earthwork remains including the church and cloister. The latter is a well-preserved complex of earthwork remains of buildings and other features. Acknowledged as an area of some importance during the Medieval period when both King Edward I and King Edward II held court at the moated manor house.

- The New River Ancholme provides amenity value for both land based and aquatic activities. The footpath along the riverbank is part of the PROW network and is currently undergoing development to accommodate both pedestrians and cyclists on what is known as 'The Ancholme Valley Way'.

Figure 43 – View south from Saxby All Saints bridge on the New River Ancholme

"The network of bridges across the river provides a vantage point relative to the low lying land and the canalised nature of the river offers long range views along the watercourse."

25.2 Physical Influences:

Estuarine alluvium and pockets of boulder clay are responsible for the generally flat topography of this broad valley and reasonably fertile soil. Prior to human intervention, the river would have meandered through a flat-bottomed landscape with Carr woodland on an underlying fen landscape. Subsequent livestock management during the early periods of settlement would have adapted some of the area into floodplain grazing marsh. Early settlement favoured elevated land and left the floodplain relatively remote. Extensive modifications to watercourses and farm intensification are responsible for the landscape evident today.

25.3 Landscape Strategy:

The strategy for this LCT is to adapt to the effects of climate change and sea-level rise, whilst enhancing and maintaining the range of existing habitats, both land based and aquatic, which are found here. The Ancholme Valley supports important flora and fauna and provides refuge for wetland birds attracted by the internationally important Humber Estuary to the north. This will need to be balanced with the amenity value of the valley.

25.4 Landscape Guidelines:

The guidelines for Flat Valley Bottom Farmland are presented below:

- Enhance and maintain the range of existing land based and aquatic habitats. Pockets of land between the Old and New River Ancholme could be used to create marginal ecosystems.
- Explore the potential opportunities for wetland grazing, reedbeds, washlands and new salt and freshwater habitats.
- Consideration should be given to designate this LCT as an 'Area of High Landscape Value'.
- Encourage the planting of more mixed deciduous woodland in strategic areas that will not compromise the essentially open character, which has its own habitat value. Concentrating planting in the most wooded parishes of Brigg, Broughton, Appleby, Saxby All Saints and Cadney cum Howsham will help to achieve this.
- Seek a naturalistic distribution of wet woodland along watercourses including water-tolerant species such as willow, alder and native black poplar to re-create Carr-type vegetation.
- Create strategically located woodland blocks concentrated near to areas with intrusive impacts i.e. transport corridors and transmission lines.
- Promote the management of existing woodland blocks to ensure their survival. Seek to diversify the structure, species, and age of woodland by techniques such as selective felling, restocking, and coppice rotation.
- Seek to maintain mature trees and shelterbelts associated with farmsteads and encourage further planting around new and existing farm complexes.
- Seek to increase the number of isolated roadside trees, particularly surrounding traditional villages.
- Management and replacement incentives should be encouraged to develop the presence of hedgerows in the scenery, maintaining and infilling remnants. Give priority to hedgerows nearer villages, with fewer hedgerows in the open carrs nearer the rivers.
- Seek to increase the cover of hedgerow trees near transmission lines where extending existing woodland would be unachievable or unsuited to the local scene.
- Encourage new farm buildings to be sited close to existing farmsteads and to reflect the materials, detail and scale of the traditional buildings. Where possible screen with native species of local origin. Also consider the inclusion of farm ponds and reservoirs.
- Necessary new roads or improvements should seek to reflect the distinctive pattern of existing roads and lanes in the design of new alignments. The distinctive road pattern and pattern of small lanes should be protected with proposals to develop alternative crossings across the valley resisted.
- Incentives to utilise crops that are more drought-resistant, and to increase the organic matter within soils, could reduce likely stresses on the groundwater.
- Expand the PROW network to link up with the existing routes in the neighbouring

higher ground to the east and west. Incorporate cycle routes into this expansion.

26. Vale of Ancholme - Heathy Woodland

Heathy Woodland covers a small area of land south west of the village of Elsham which is predominantly covered by mixed plantation woodland. This LCT gently rises from the Flat Valley Bottom Farmland LCT onto the lower slopes of the Lincolnshire Wolds around Elsham Hall Gardens and Country Park and Wrawby Moor.

The M180 runs through the LCT close to its southern boundary. The B1206, Barton Road and a section of railway line also run through the LCT's western edge.

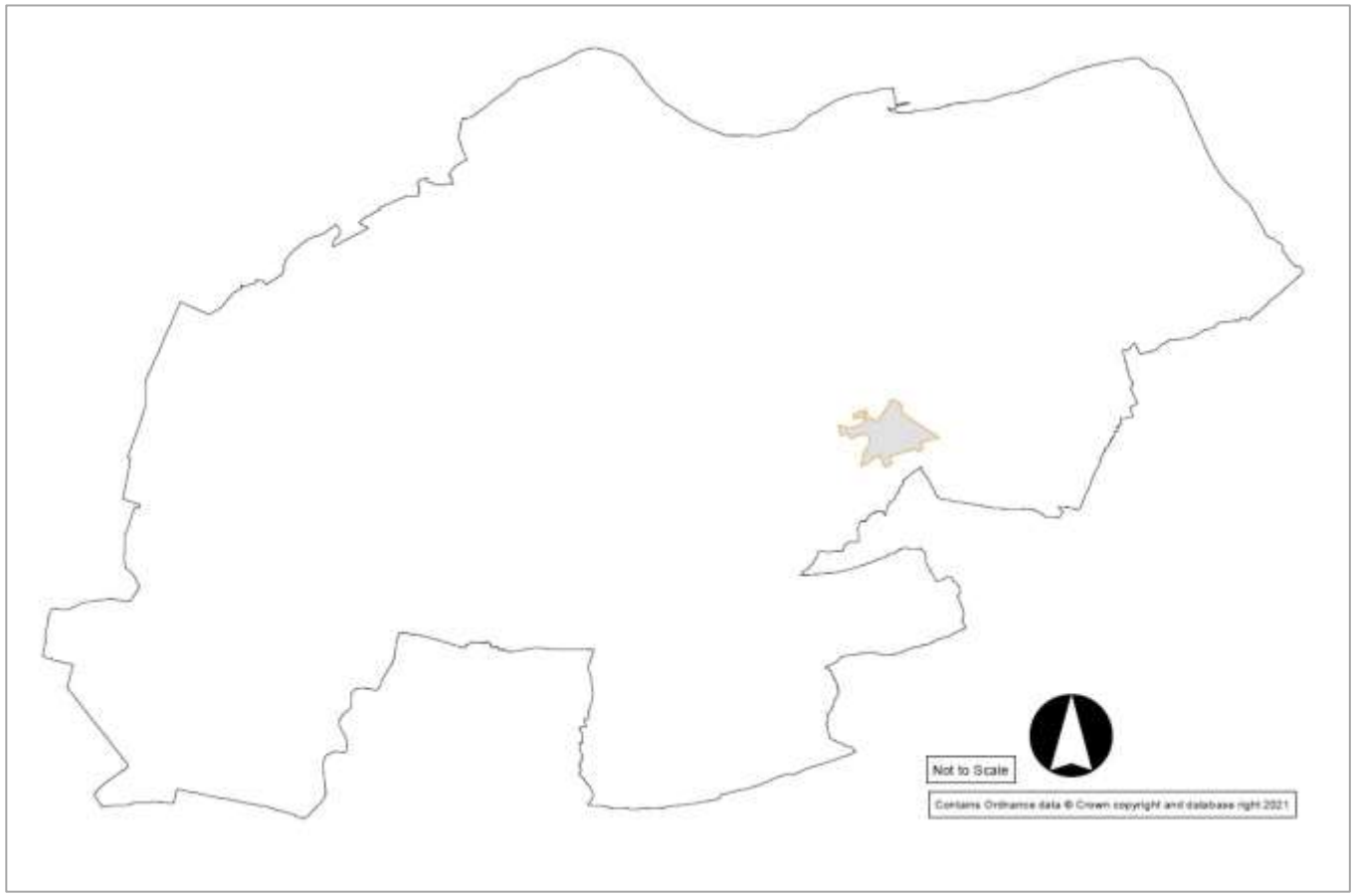

Figure 44 – Heathy Woodland

26.1 Key Characteristics:

- Gently rising lowland contained by the Wolds scarp to the north east and the rising ground of Wrawby Moor to the south.
- Significant areas of woodland cover within such a small LCT including Southside Plantation and Tweedmoor Plantation.
- Landform and wooded cover within the area and on scarp give sense of enclosure. The area is unified and peaceful.
- Settlement is limited to a few scattered farmsteads and Elsham Hall.
- Although Elsham Hall is a private residence, the outbuildings and associated gardens and wildlife areas offer tourist and recreational facilities.
- Predominantly coniferous plantation with pockets of open heath and pasture on low grade farmland surrounding Elsham Country and Wildlife Park; large patch of remnant heath at Wrawby Moor showing succession to birch scrub.
- Elsham Golf Club, established in 1900, contains small woodland blocks and scattered trees across its course, which contribute to the range of tree cover present in this LCT.
- Plantations tend to be in blocks of similar species, mainly Corsican and Scots pine.
- The western edge around Elsham Carrs is arable land. Hedgerow trees are present with post and wire fence delineating fields.
- The M180 is significantly screened by the woodland which is located on both sides of the motorway and is for the most part unintrusive.
- Cultural heritage is provided by the range of listed buildings and structures, most of which are associated with Elsham Hall and in the grounds of Elsham Country and Wildlife Park.
- Ecological designation is provided by Wrawby Moor SSSI relating to the coversands community where heathland has been invaded by Birch Woodland.
- As part of the PROW network, a footpath runs north across Wrawby Moor and into the woodland to the south of the LCT. This route has safe pedestrian access over the M180 and offers good onwards connections through the woodland to both the Ancholme Valley and the Lincolnshire Wolds.

Figure 45 – View west from Barnetby Lane looking over Southside Plantation and Elsham Hall Gardens and Country Park

"Landform and wooded cover within the area and on scarp give sense of enclosure. The area is unified and peaceful."

26.2 Physical Influences:

This tract of Coversands overlies Jurassic and glacial clays, resulting in very deep and acidic soils. This has given rise to heathland that has been extensively lost to coniferous woodland, mixed plantation woodland and arable land. Although settlement is limited throughout this LCT, heathland has also been lost because of the establishment of Elsham Hall and the Elsham Hall Gardens and Country Park.

26.3 Landscape Strategy:

Landscape strategies should be employed which seek to conserve the landscape, whilst providing opportunities for localised enhancement to find a balance between open heathland, mixed plantation woodland and continued amenity use.

26.4 Landscape Guidelines:

The guidelines for Heathy Woodland are presented below:

- Consider the use of species such as Scots pine, pedunculate oak, hornbeam, rowan, alder and silver or downy birch to develop and progressively convert the woodland blocks to more broadleaved woodland to improve appearance and increase diversity and wildlife value.
- Consideration should be given to designate this LCT as an 'Area of High Landscape Value'.
- Seek to restore and extend heathland communities in feasible areas such as east and west of Wrawby Moor into adjacent birch woodland, in peripheral areas of and within coniferous plantations. Techniques such as minimal soil-strip and inoculation of `heath' flora are being used as methods to re-create lowland heath ecosystems.
- Consider limited grazing using hardy breeds of livestock to create the largely open conditions with sufficient structural variation to support a range of heathland species.
- Seek to restore heathland within plantation on unproductive areas such as frost hollows or boggy, low lying compartments or within non-planted land that are currently used as rides, fire-breaks or amenity areas.
- Also seek opportunity to establish heathland species along the M180 road verge and railway verge.
- Encourage the management of open spaces within woodland to prevent succession of birch. Where possible, the open spaces should blend with heathland and woodland to increase the area and connectivity of heath, wood and wetland vegetation.
- Ensure that recreational use on existing, and restored, heaths is limited to defined paths to prevent trampling and disturbance.
- Consideration should be given to supporting the existing footpath network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the value of the lowland heath habitat.
- Consider enhancing the footpath route across the M180 to accommodate both pedestrians and cyclists and create links to 'The Ancholme Valley Way'.

27. Vale of Ancholme - Open Undulating Farmland

This LCT consists of two separate areas on the rising land at the eastern edge of the Vale of Ancholme LCAR which are split into a north and south area by the North Lincolnshire administrative boundary. The northern area lies immediately to the east of Brigg and wraps around Wrawby, Wrawby Moor and part of Barnetby Le Wold. The southern area contains the small hamlets of Cadney and Howsham.

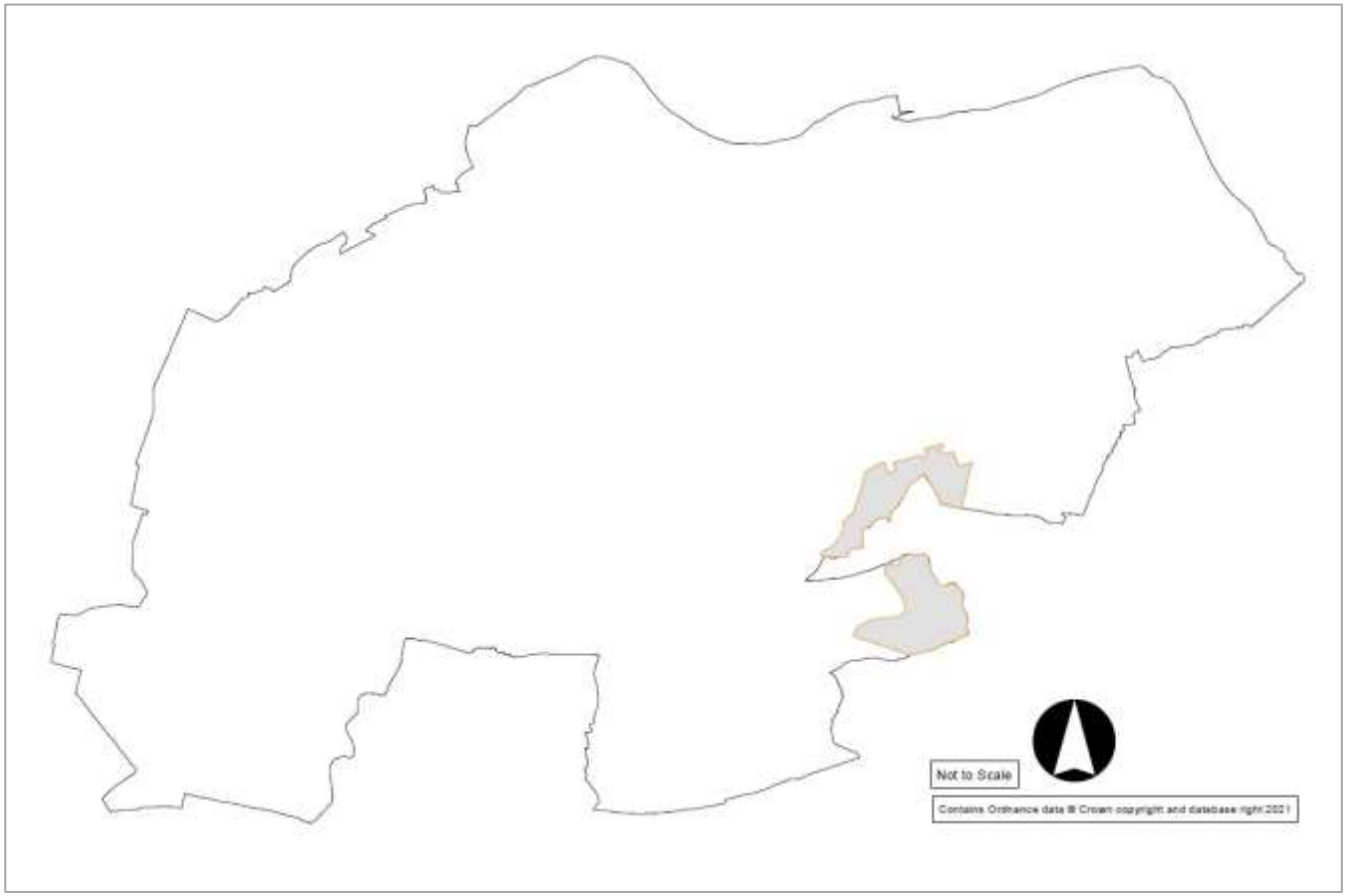

Figure 46 – Open Undulating Farmland

27.1 Key Characteristics:

- Open, undulating arable landscape with a relative sense of elevation over the valley floor located to the west and north.
- Field boundaries are well managed, clipped hedgerows apart from those close to the A18/ M180 junction.
- The higher land of the Lincolnshire Wolds and large wooded area surrounding Elsham, to the north east, give a sense of visual containment for the northern area of this LCT.
- Although there are two woodland blocks present in the northern area, visual containment through woodland is 'borrowed' from the neighbouring Heathy Woodland LCT to the north.
- Woodland blocks have a greater presence in the southern area, along its eastern edge and provide a sense of enclosure in that direction. Views to the west are more open although some containment is provided through woodland which is 'borrowed in' from the neighbouring Flat Valley Bottom Farmland LCT.
- The woodland blocks, for example Park Wood, east of Howsham, are predominantly of broadleaved species,
- Larger settlement is often prominent and interrupts the open character for example around Brigg, Wrawby and Barnetby le Wold in the northern area.
- With smaller scale settlement present in the south, the interruption is less prominent.
- Historic Farmsteads are scattered throughout the LCT with most recorded as partially altered although several are recorded as extant.
- Cultural heritage is further represented through the presence of Grade I and Grade II listed buildings and structures.
- In the northern area, railway and road routes are visually prominent in the open landscape. The M180 is intrusive when viewed next to flat valley bottom, as it passes near to Brigg. When viewed from east of Wrawby it is more visually contained by the woodland around Wrawby Moor.
- In the southern area the railway routes are along the eastern edge of North Lincolnshire's administrative boundary with the high voltage transmission cables and towers representing the prominent feature, running east to west across the LCT.
- There are no statutory ecological designations within this LCT.
- There is an active sand and gravel quarry at Kettleby Parks Farm Quarry to the south west of Barnetby Le Wold.
- The PROW network covers much of the LCT. Of note is the footpath which runs north across Wrawby Moor and has safe pedestrian access over the M180 and offers good onwards connections to both the Ancholme Valley and the Lincolnshire Wolds.
- The PROW network in the southern area has connections from Howsham and Cadney which link to Cadney Bridge and 'The Ancholme Valley Way'.

Figure 47 – View north from A18, Melton Road, east of Wrawby

"Although there are two woodland blocks present in the northern area, visual containment through woodland is 'borrowed' from the neighbouring Heathy Woodland LCT to the north."

27.2 Physical Influences:

The narrow ridge in the northern area rises quite quickly around the A18 to 50m AOD above the Ancholme Valley floodplain. The southern area rises gently to 30m AOD around Howsham. The underlying boulder clay and topography have given rise to soils that have been suitable for intensive farming. The elevated land has for millennia offered a convenient crossing point of the valley. The concentration of transportation corridors along the ridge, including the M180 and the A180 as well as the growth of Brigg is a modern-day reflection of this.

27.3 Landscape Strategy:

Seek to enhance traditional landscape elements such as the higher coverage of hedgerows, hedgerow trees and occasional woodland blocks. It is important to maintain the medium-scale landscape of slightly smaller field sizes and enhance its relative sense of elevation.

27.4 Landscape Guidelines:

The guidelines for Open Undulating Farmland are presented below:

- New woodland planting should generally be discouraged other than to assimilate transport corridors and edges of settlements into the local scenery.
- Peripheral planting should be broadleaved species, contiguous in nature and connected to primary hedgerows, hedgerow trees or existing blocks of woodland.
- Promote the management of existing woodland blocks to ensure their survival. Seek to diversify the structure, species, and age of woodland by techniques such as selective felling, restocking, and coppice rotation.
- Ensure that the Historic Farmsteads are preserved in their current condition and minimise alterations or changes which are detrimental to their appearance.
- Encourage new farm buildings to be sited close to existing farmsteads and to reflect the materials, detail and scale of the traditional buildings. Where possible screen with native species of local origin to integrate intrusive buildings.
- Seek to improve the visual presence of hedgerows in the landscape by encouraging replacement of discontinuous hedgerow sections and management of existing hedgerows, with priority given to the visually prominent, degraded fields near to the A18/ M180 junction.
- Encourage the development of trees in hedgerows, particularly along roadsides and settlement edges and close to electricity distribution lines to soften the scene and provide local enclosure.
- Maintain and protect the open space between settlements, for example between Brigg and Wrawby, to avoid coalescence.
- Avoid future development on the most elevated land that would be visually intrusive on the skyline.
- Consider enhancing the footpath route across the M180 to accommodate both pedestrians and cyclists and create links to ‘The Ancholme Valley Way’. Consider a similar approach for the footpath routes around Cadney.

28. Lincolnshire Wolds Landscape Character Area

The Lincolnshire Wolds Landscape Character Area (LCAR) is a large, elevated area of sweeping and rolling terrain which extends from North Lincolnshire Council's administrative boundary in the south towards the Humber Estuary in the north. Much of the LCAR is within National Character Area 43, Lincolnshire Wolds and it shares similar characteristics with the Lincolnshire Wolds AONB (Area of Outstanding Natural Beauty). The similarities include large, open arable plateaux of rolling hills, chalk escarpments, isolated valleys and scattered stands of beech and sycamore woodland. The landscape is sparsely settled with many villages, including those recorded from Medieval times, archaeological sites on the plateau (e.g. tumuli, barrows) and isolated modest country houses and historic farmsteads scattered throughout.

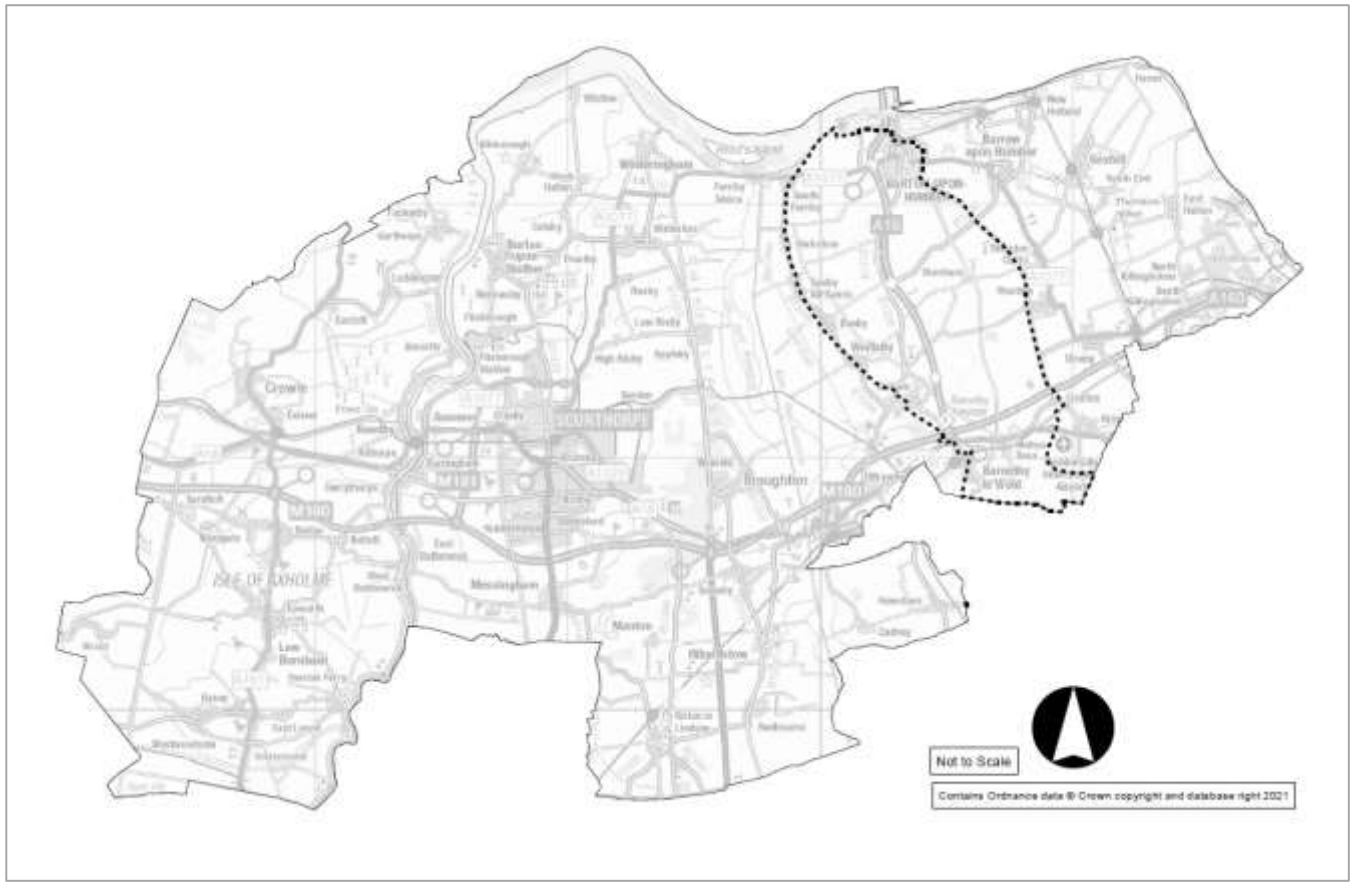

Figure 48 – Lincolnshire Wolds

The LCAR's western edge is clearly defined escarpment, rising from the low-lying lands of the neighbouring Vale of Ancholme LCAR. On its northern edge, it extends to the Humber Estuary around Barton Cliff before returning inland and wrapping around the large settlement of Barton-Upon-Humber. Its eastern side forms a plateau of low rolling hills which gently dip to the Lincolnshire Drift LCAR where its eastern edge is delineated by Barton Road.

28.1 Key characteristics:

The Lincolnshire Wolds LCAR consists of 3 individual Landscape Character Types (LCTs). The key characteristics of note are:

- Rolling upland arable landscape of cohesive identity dissected by gently graded dales with scattered stands of beech and sycamore woodland.
- The arable land has developed on chalky soil and has resulted in the formation of very high-quality arable land.
- Large rectilinear, late enclosure fields with clipped and degraded hedgerows and few hedgerow trees. Field amalgamation has led to hedgerow loss in places.
- Water courses, field drainage ditches and areas of natural water retention are absent due to the free draining nature of the chalk.
- Pronounced scarp slopes along the north western and western edge rise to a height of 100m AOD over a distance of 0.6km.
- The elevation affords panoramic views over the surrounding landscape; west across the Vale of Ancholme, north towards the Humber Estuary and east over the adjacent Lincolnshire Drift LCAR.
- The scarp slopes are characterised by a mixture of woodland and farmland.
- Settlement on the Wolds top is primarily limited to scattered historic farmsteads, many of which are still in their extant condition. The size and nature of recent development at Barton-Upon-Humber, to the north east of the LCAR, is a notable exception.
- Small blocks of woodland and shelterbelts, often associated with isolated farmsteads, punctuate the otherwise open escarpment.
- Woodland cover is generally sparse, but the trees and woods remain an important component of the landscape. The open skies and long views add to the character, creating an area recognised as a place of tranquillity and inspiration.
- Settlement along the western edge is primarily at the foot of the scarp slope. The springline villages between Horkstow and Worlaby have significant cultural heritage associated with them.
- Additional settlement along the foot of the scarp slope includes Elsham and Barnetby le Wold, with the latter contained within its own Landscape Character Type.
- Ecological designations represented by the South Ferriby Chalk Pit SSSI to the north west of the LCAR. Low Wood, Barnetby is designated as Ancient Woodland.
- Elsham Chalk Quarry, a former extraction site, and sections of road verges along the old drovers' roads are designated as Local Wildlife Sites, supporting the last vestiges of calcareous grassland that would once have been a common habitat in the area.
- Good regional and national connectivity in the form of the National Cycle Network Route 1 and the Viking Way long distance footpath.
- Many old drovers' roads cross the LCAR and offer a more relaxed means of exploring the Wolds and provide a valuable roadside habitat, with their wide, grassy verges bordered by hedgerows.
- Major infrastructure features include overhead electricity pylons, Elsham Wolds Industrial Estate and the primary transport corridors of the A15 and the A180.

"Woodland cover is generally sparse, but the trees and woods remain an important component of the landscape. The open skies and long views add to the character, creating an area recognised as a place of tranquillity and inspiration."

28.2 Physical Influences:

A substantial layer of chalk covers the Wolds within North Lincolnshire, which is approximately 50 metres thick and due to this, along the lower escarpment slopes and in the deeper valleys, underlying Cretaceous sands, clays and ironstones outcrop to affect the overlying soils, vegetation and land use.

During the last glaciation, ice did not extend across the Wolds however the intensity of previous glaciations and climatic and periglacial conditions led to a softening and rounding of the hills. Following de-glaciation, complex fluvioglacial and aeolian processes operated extensively across the Wolds. In the west, aeolian sands banked up against the Wolds escarpment whilst, in the east, a complex depositional environment of lakes, rivers and deltaic spillways washed across the Wolds dip slope leading to the accumulation of sands and gravels in the eastern valleys, many of which were over-deepened during this period.

The complexity of the area's bedrock geology and superficial deposits is reflected in the overlying soil and land use patterns. Escarpment tops consist of chalky soils which are graded as 'excellent' and 'very good' within Natural England's agricultural land classification framework. This soil delivers high arable cropping and yields, whilst on the scarp slope and valley sides, the Jurassic rocks give rise to deeper, more varied soils. Local pockets of boulder clay result in heavy, seasonally waterlogged soils, more suited to pasture. The deposits of windblown sand produce sandy, brown earth soils. The free-draining nature of such areas render repeated arable cropping difficult without high inputs of fertiliser.

The active quarries at South Ferriby in the north west (which straddles across two of the LCTs) and Melton Ross in the south east, are long since established and have been extracting chalk for use in the production of building materials such as cement and bricks.

The South Ferriby quarry is intrinsically linked with the Cemex cement works to the west of South Ferriby village not only through the nature of the resource and its intended use but also through the conveyor belt which runs directly between the quarry and the cement works. At the time of writing, production at the works has been halted and the site mothballed with discussions ongoing regarding the decommissioning of the conveyor.

Most parishes have disused chalk pits, some of which are designated as Local Geological Sites. Pits at Bonby, Worlaby and Elsham support chalk grassland flora and are managed as community open space.

28.3 Historic and Cultural Influences:

The Lincolnshire Wolds have seen recurrent patterns of settlement over several thousand years. During prehistoric times, the Wolds were extensively cleared of trees and many defensive, burial and boundary structures were put in place. Unfortunately, few of these sites are visible due to repeated cultivation of the land.

Settlement in Roman, Anglo-Saxon, and Danish periods is evidenced by roads, place names and the presence of medieval villages. The Domesday survey records that by 1086 much of the Wolds was under arable cropping, under the open field system. From the 12th century, many villages were deserted, due to changes in land-use, plague, and population movements. Most of the visible evidence of these villages has now been lost, except to the trained eye.

Parliamentary Enclosure patterns and 20th century agricultural intensification have had a significant influence on the Wolds landscape, contributing to the dominance of large fields bounded by low hawthorn hedgerows.

The old drovers' roads which criss-cross the area are historic routes once used for driving livestock to market and their presence underlines the agricultural heritage of the North Lincolnshire Wolds. Although they are nowadays sealed roads and accessible to vehicles, their narrow width and wide grass verges with neat managed hedgerows set them apart for the more modern, faster routes available for road users.

Completion of the Humber Bridge in 1981 resulted in more direct and quicker transport links between south and north Humberside (now North Lincolnshire and East Riding of Yorkshire respectively) and a shift away from the Humber ferry services and the gridlocked road network to the south and west of the Wolds. Designated as an approach road for the bridge, the A15 was widened and upgraded in the late 1970s to facilitate quicker access to the crossing point.

28.4 Settlements and Buildings:

The Wolds' top is predominantly sparsely settled with scattered historic farmsteads several which are extant or only partially altered from their original built form. The largest and most significant settlement on the Wolds' top, and in the LCAR itself, is the town of Barton-upon- Humber. Although no Roman settlement has been recorded in the town, settlement dates to the late 5th century. The centre of the town is designated as a Conservation Area and has a proliferation of listed buildings and structures.

The large farmsteads scattered within the elevated farmland are a characteristic feature and have a strong visual presence. Often farms are situated in isolated locations, with their buildings clustered around the original, usually brick built, 19th century farmhouse and protected by groups of trees or shelterbelts. Farms often include grain silos, which are highly visible due to their size and the open nature of the landscape.

Villages along the foot of the scarp slope are a characteristic of settlement within the LCAR. Many of the springline villages, along the north western edge, are picturesque and historic dating back to medieval times. Horkstow is one such example with the remains of a Roman villa adjacent to Horkstow Hall dated around 300 AD. The villages are shielded and secretive thanks to its woodland shelter and hedges and mature trees in and around the built form. Construction materials such as limestone, chalk, brick and pantile combine with attractive village arrangements that include ponds, greens, irregular outlines and a diversity of building sizes.

The Elsham Wolds Industrial Estate is a prominent feature on the Wolds' top and is located on the site of the former RAF Elsham Wolds airfield.

28.5 Landcover and Wildlife:

The characteristic clipped thorn hedgerows of the Wolds are largely products of the 18th century Enclosure Period. Localised field amalgamation and agricultural intensification has led to removal of hedgerows in some areas. Hedgerow neglect is more common, where over-enthusiastic clipping and lack of hedgerow management has led to hedges becoming discontinuous, with resultant loss of field boundary definition.

Hedgerow trees and avenues are not a common feature of the Wolds landscape. However, due to the openness of views and rolling nature of the landscape, where they are present, trees often play an enhanced compositional role in the scene. Although woodland cover is limited, the tall and mature shelterbelts are compositionally important, often marking out farmsteads, following skylines, and emphasising the rolling terrain.

Woodland is limited to occasional small blocks almost exclusively of a recent planted origin, dominated by broad-leaved species such as ash, wych elm, pedunculate oak, hazel and hawthorn.

The Priority Habitat Inventory records that approximately 90% of the woodland on the scarp slope is Deciduous Woodland, with a few small areas of Lowland Calcareous Grassland mixed in.

The Lincolnshire Wolds have been intensively farmed and the extent of semi-natural habitat is very limited. The habitats that remain of interest are chalk grassland, pockets of ancient or long-established woodland and wet flushes. Such habitats are very restricted in size and occurrence. Recolonisation of exposed chalk faces in old quarries, road and rail cuttings and thin-soiled road verges, has led to the development of valuable lowland calcareous grassland flora in some areas.

Around Elsham, on the west facing scarp slope, the varied geology produces an intimate mix of areas of chalk springs, flushes, marshes, neutral grassland and acid grassland, which support locally interesting and varied flora. Surveys carried out in the early 2000s revealed that most of the chalk springs along the western scarp support invertebrate species of local and national importance.

Elsham Chalk Quarry is no longer active and has been designated a Local Nature Reserve and is managed by the community in partnership with North Lincolnshire Council. There are also designated Local Geological Sites at Elsham Chalk Pit and Elsham Sandstone Quarry.

The verges adjacent to the old drovers' roads are valued habitats and have been designated as Local Wildlife Sites which are positively managed. The road verges of Middlegate Lane, which stretches along the top of the Western scarp slope, supports some of the most species rich remnants of calcareous grassland in Northern Lincolnshire.

The arable fields of the northern Wolds are a stronghold for declining farmland birds, including corn buntings and grey partridge. In the winter,

skeins of thousands of pink-footed geese fly daily from their roosts on Read's Island, in the Humber, to the wide-open fields of the Wolds, where they can feed whilst scanning the horizon for predators.

The mixed terrain of the scarp slope provides sanctuary for an assortment of wildlife including Pink-footed goose, Rooks, Jackdaws, Barn owl, Sparrowhawk, Shelduck and Corn buntings.

28.6 Connectivity:

The Lincolnshire Wolds LCAR has a good well-established network of Public Rights of Way (PROW) some of which overlap with the northern section of 'The Viking Way' long distance footpath. The Sustrans' National Cycle Network (NCN) route 1.

The Viking Way route runs from Oakham in Rutland to the Waters' Edge Country Park in Barton-upon-Humber. Within the LCAR it overlaps with the PROW network before branching off towards the Horkstow Wolds, skirting the edge of South Ferriby and then along the estuary shoreline towards Barton-upon-Humber.

Sustrans' National Cycle Network Route 1 is a national route which runs in sections from Dover up to the Highlands of Scotland and the route through the LCAR, between Barnetby le Wold in the south and Barton-Upon-Humber in the north, is part of the larger regional section which runs from Lincoln to the Humber Bridge. The old drovers' road serves as part the route that runs north from Melton Ross via Burnham to Barton-Upon-Humber.

There is also a range of self-guided walks and cycling routes are promoted regionally through the Council's website.

28.7 Landscape Strategy:

The landscape of the Lincolnshire Wolds is vulnerable to change through insensitive development or inappropriate land management and the overall strategy for planning and management is therefore one of conservation and enhancement, to support North Lincolnshire Council's ambitions for the extension of the Lincolnshire Wolds AONB into this area. The following should be considered:

- Maintain the character and habitat of the old drovers' roads and protect from engineering improvements that would be insensitive to that character.
- Encourage the conservation, restoration, replacement and management of all primary hedge lines, particularly in prominent, or historically significant situations, i.e. along roadsides or parish boundaries.
- Protect existing hedgerow trees, and replant in selected locations, taking care to reflect the existing sparse pattern of these trees which is characteristic of the open landscape.
- Development around farmsteads should be encouraged to accord with the materials of the original structure, or to suitably compliment them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Ensure that there is a robust and appropriate restoration scheme for the South Ferriby quarry should the extraction there cease on account of the mothballing of the Cemex site.
- The extension of existing extraction sites, or the creation of new, should be carefully selected following full feasibility and capacity studies.
- Consider the siting of new development, vertical structures or quarries, which can be highly intrusive within the open landscape. Ensure that there is a robust plan in place to assimilate it within the landscape, either through screening or, in the case of quarries through an acceptable restoration plan.
- Retain and enhance the areas of woodland and ensure that they are managed to establish diversity in age, structure and species. A proportion of non-native tree and shrub species should be selectively removed to encourage the development of native species.
- The existing extent and general arrangement of woodland and shelterbelts is distinctive and should be maintained and any new woodland planting should reflect the existing pattern, species and scale so that its relationship with skylines and farmsteads is harmonious.
- Integrate the incongruous features associated with the major road corridors, transmission lines, industrial estates, quarry sites, through planting and hedgerow repair appropriate to that character. Intermittent tree planting may diffuse their appearance as opposed to completely screening them which and helps to retain the open nature of the LCAR.
- Local Wildlife Sites should be regularly monitored to ensure that they are not being affected or eroded by development or other activities within or near to these valuable habitats.
- Consideration should be given to supporting the existing footpath network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the existing historical and ecological assets and features of interest within the Lincolnshire Wolds which would raise awareness of their value and promote a sense of ownership and surveillance within the local community.
- The existing cycle route is on a north – south alignment and consideration should be given to creating more east-west links which opens access to the Vale of Ancholme and Lincolnshire Drift.

29. Lincolnshire Wolds – Open Farmed Scarp Slope

This Landscape Character Type (LCT) is a small area of scarp slope comprised of arable farmland located to the east of the village of Barnetby le Wold, although the part of the village located along the foot of the slope sits just inside of the LCT. The eastern boundary, and top of the slope, is denoted by a local road, Bigby Road/Melton Ross Road, with the northern boundary formed by the railway line. The southern boundary is defined by North Lincolnshire's administrative boundary. In neighbouring West Lindsey, the LCT continues into the "North-West Wolds Escarpment."

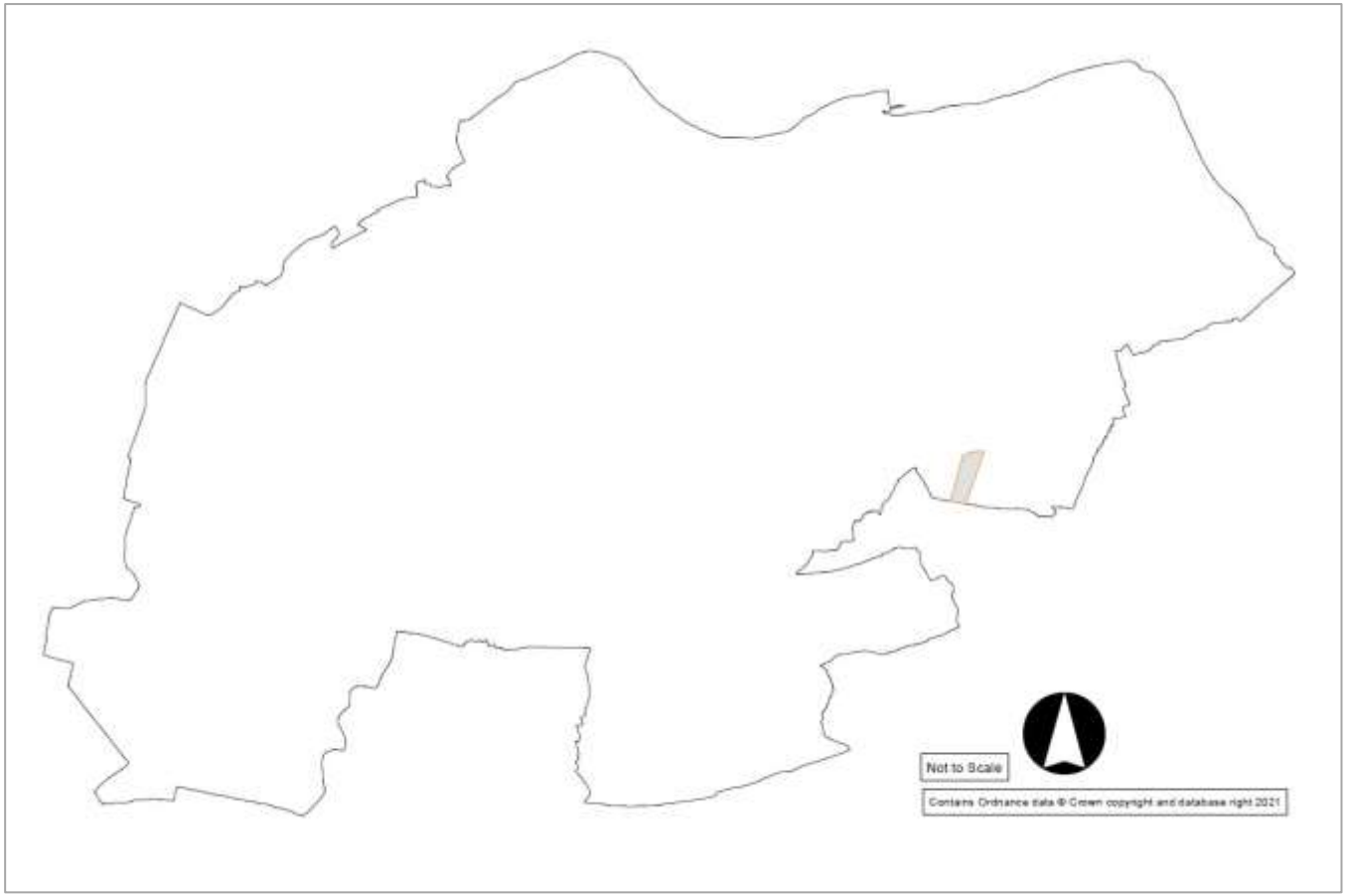

Figure 49 – Open Farmed Scarp Slope

29.1 Key Characteristics:

- Sloping and open arable farmland rising to around 60m AOD, offering occasional elevated views across the open undulating farmland to the west.
- The eastern edge of Barnetby le Wold, which is the original area of the village's settlement, extends partially up the scarp slope and into the LCT.
- This area contains a cluster of listed buildings and structures, the only ones in the village, which provide cultural heritage interest. The Grade I listed Church of St Mary is originally of Saxon origin.
- The village extends westwards onto the valley floor and has elements of settled development.
- Views from within the village towards the scarp slope and top are occasionally interrupted by residential properties.
- Bigby Road/Melton Ross Road, located at the top of the scarp slope, is a narrow local road with adjacent grass verges of Local Wildlife Site quality, hedgerows and outgrown field trees.
- Views from Bigby Road/Melton Ross Road are filtered through gaps in the vegetation, typically at fields access and gateways.
- Regular pattern of medium sized fields the majority of which are bounded by clipped hedgerows. In some instances, the hedgerow is gapped or lost to field amalgamation.
- Occasional small blocks of deciduous woodland and outgrown hedgerow trees are present on the scarp slope. There are no statutory ecological designations within this LCT.
- Several local footpaths, cut across the arable land and offer open views, interrupted occasionally by intervening buildings and trees.
- The PROW network links up with The Viking Way which runs along the valley floor, just outside of the LCT.
- Sustrans' National Cycle Network Route 1 runs along Bigby Road/Melton Ross RoadStreet.
- Some visually intrusive features such as railway line and wooden telegraph poles carrying low voltage transmission lines.

Figure 50 – View south east towards the scarp top from the A18

"Regular pattern of medium sized fields the majority of which are bounded by clipped hedgerows. In some instances, the hedgerow is gapped or lost to field amalgamation."

29.2 Physical Influences:

The scarp slope is in marked contrast to the character of the escarpment top, due to the underlying geological influences. The higher-grade agricultural land on the chalk escarpment top gives way to deeper alluvial clays on the scarp slope which are of a lower grade although arable farming has been successfully established.

29.3 Landscape Strategy:

The strategy for this LCT is to protect and locally enhance the farmed escarpment character by strengthening existing hedgerows and re-instating previously removed hedgerows as well as managing the woodland blocks.

29.4 Landscape Guidelines:

The guidelines for Open Farmed Scarp Slope are presented below:

- Seek to conserve village character and form by limiting insensitive expansion. Village expansion should preferably re-use existing buildings or, where this is not possible, utilise traditional building materials and follow local architectural styles.
- Conserve the appearance of the scarp and escarpment skylines by avoiding the prominent siting of new structures.
- Seek to prohibit the siting of new mineral extraction sites in an escarpment setting. Although not visible, Kettleby Parks Farm quarry is currently active and located in the valley floor to the west. This is within a wider area of extraction sites some of which are outside of North Lincolnshire's administrative boundary.
- Encourage the conservation and enhancement of tree cover around villages and farmsteads using species of local origin with a small proportion of species from more southerly zones, to allow for the effects of climate change.
- Supplement existing tree cover through medium-scale woodland planting on rising ground, avoiding skyline or ridgeline locations.
- Encourage the conservation, replacement and management of all primary hedgerows including the re-planting of hedgerow trees. The existing alignment and siting of hedges on the slopes, should be maintained.

30. Lincolnshire Wolds – Open Rolling High Farmland

This is the largest LCT within the Lincolnshire Wolds LCAR and corresponds with the area known as the “Wolds Top”. It is an elevated area of sweeping and rolling terrain which extends from North Lincolnshire Council’s administrative boundary in the south towards the Humber Estuary in the north. Its western edge is the Wooded Farmed Scarp Slope of the Wolds escarpment, rising from the low-lying lands of the neighbouring Vale of Ancholme LCAR. On its northern edge, it extends to the Humber Estuary around Barton Cliff before returning inland and wrapping around the large settlement of Barton-Upon-Humber. Its eastern side forms a plateau of low rolling hills which gently dip to the Lincolnshire Drift LCAR where its eastern edge is delineated by Barton Road.

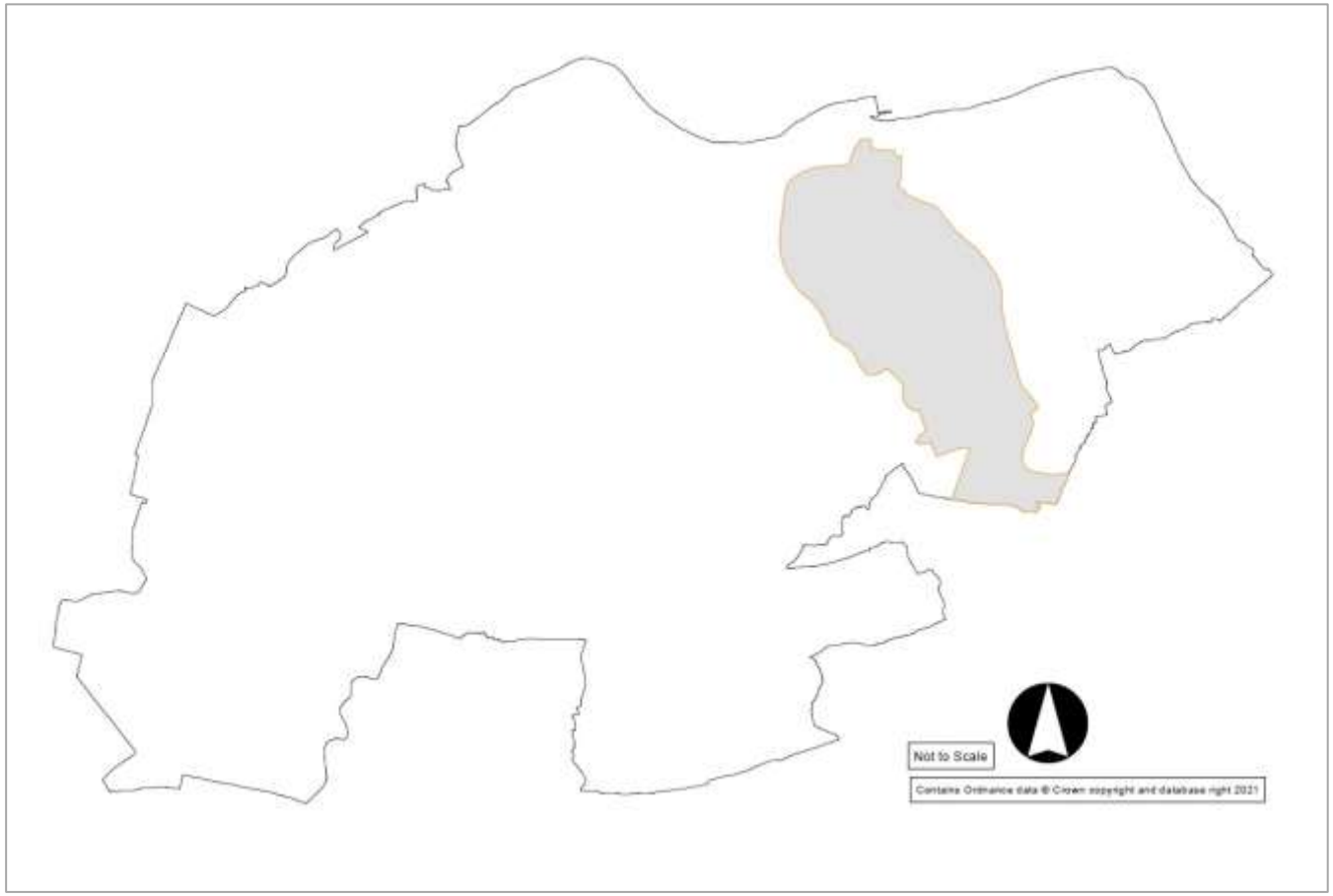

Figure 51 – Open Rolling High Farmland

30.1 Key Characteristics:

- Elevated, open and expansive, rolling high grade arable landscape, dissected in places by gently graded dry valleys.
- Elevation up to 100m AOD in the west of the LCT falling to 30-40m AOD as the terrain gradually descends towards the east.
- Large fields often lacking boundary definition with occasional clipped hedgerows defining some field boundaries.
- Occasional blocks of mainly deciduous woodland, but few hedgerow trees.
- Settlement on the escarpment top is limited to isolated farmsteads surrounded by shelterbelts of trees. Many of the farmsteads are recorded as historic with several still in their extant condition.
- Areas of modern industrial development in large 'sheds', often sited in exposed locations.
- Transmission lines prominent, wooden pole lines and occasional radio / mobile phone transmission masts a significant feature within the open landscape.
- Traffic prominent where the main roads sweep across the open landscape.
- The South Ferriby Chalk Pit is still active and is a designated geological SSSI, located to the north west of the LCT. Low Wood, north of Barnetby le Wold and west of Melton Ross, is designated as Ancient Woodland.
- Sections of road verges along the old drovers' roads are valued habitats and have been designated as Local Wildlife Sites by North Lincolnshire Council and are positively managed. Several old village chalk pits have been designated as Local Geological Sites.
- Good regional and national connectivity in the form of the National Cycle Network Route 1 and the Viking Way long distance footpath.
- Many old drovers' roads cross the LCAR and offer a more sedate means of exploring the Wolds and provide a valuable roadside habitat.
- Open long-distance views out particularly from northern and eastern boundaries where there is an abrupt change in slope providing vantage points from which to view the Humber Bridge and Estuary, and the Vale of Ancholme.

Figure 52 – View south from the A1077 near Barton Grange

"Elevated, open and expansive, rolling high grade arable landscape, dissected in places by gently graded dry valleys."

30.2 Physical Influences:

The rolling landscape of the escarpment top is the product of climatic and peri-glacial conditions following the last ice age, which has led to a softening and rounding of the hills. The area is covered by a thin layer of chalk, whose soils are recognised as of the highest quality in Natural England's Agricultural Land Classification and lend themselves to arable cropping. In the past, there would have been much larger areas of grazed pasture, with a significant extent of calcareous grassland. Limited settlement on the top which is primarily limited to scattered historic farmsteads.

Parliamentary enclosure patterns and 20th century agricultural intensification have had a significant influence on the landscape, contributing to the dominance of large fields bounded by low hawthorn hedgerows, and a sparsity of semi-natural habitats.

30.3 Landscape Strategy:

The landscape of the Lincolnshire Wolds is vulnerable to change through insensitive development or inappropriate land management and the overall strategy for planning and management is therefore one of conservation and enhancement, to support North Lincolnshire Council's ambitions for the extension of the Lincolnshire Wolds AONB into this area.

The combination of expansive views and areas of enclosed and intimate character, created by the woodland blocks both on the Wolds top and the scarp slopes, should be maintained.

30.4 Landscape Guidelines:

The guidelines for Open Rolling High Farmland are presented below:

- Consideration should be given to designate this LCAR as an 'Area of High Landscape Value'.
- Maintain the character and habitat of the old drovers' roads and protect from engineering improvements that would be insensitive to that character.
- Development around farmsteads should be encouraged to accord with the materials of the original structure, or to suitably compliment them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Ensure that there is a robust and appropriate restoration scheme for the South Ferriby quarry should the extraction there cease on account of the mothballing of the Cemex site.
- Consider the siting of new development, vertical structures or quarries, which can be highly intrusive within the open landscape. Ensure that there is a robust plan in place to assimilate it within the landscape, either through screening or, in the case of quarries through an acceptable restoration plan.
- Retain and enhance the areas of Ancient and long-established woodland and ensure that they are managed to establish diversity in age, structure, and appropriate species.
- Encourage the conservation, restoration, replacement and management of all primary hedgelines, particularly in prominent, or historically significant situations, i.e. along roadsides or parish boundaries.
- Protect existing hedgerow trees, and replant in selected locations, taking care to reflect the existing sparse pattern of these trees which is characteristic of the open landscape.
- The existing extent and general arrangement of woodland and shelterbelts is distinctive and should be maintained and any new woodland planting should reflect the existing pattern, species and scale so that its relationship with skylines and farmsteads is harmonious.
- Integrate the incongruous features associated with the major road corridors, transmission lines, industrial estates, quarry sites, through planting and hedgerow repair appropriate to that character. Intermittent tree planting may diffuse their appearance as opposed to completely screening them which and helps to retain the open nature of the landscape.
- Local Wildlife Sites and Local Geological Sites should be regularly monitored to ensure that they are not being affected or eroded by development or other activities within or near to these valuable habitats such as the chalk grassland in dry valleys and road verges.

- Avoid inappropriate tree planting in chalk pits and road verges. Seek opportunities for the recreation and restoration of species-rich calcareous grassland where geology and soils are conducive.
- In arable landscapes, promote the uptake of arable conservation options to benefit farmland birds, pollinators and scarce arable plants.
- The existing cycle route is on a north – south alignment and consideration should be given to creating more east-west links which opens access onto the Vale of Ancholme and Lincolnshire Drift.

31. Lincolnshire Wolds – Wooded Farmed Scarp Slope

This LCT commences to the north around Barton-Upon-Humber and along the western edge of the Lincolnshire Wolds LCAR, extending as far south as the M180 near to Elsham. Its western edge is prominent as it rises sharply from the low-lying lands of the neighbouring Vale of Ancholme LCAR.

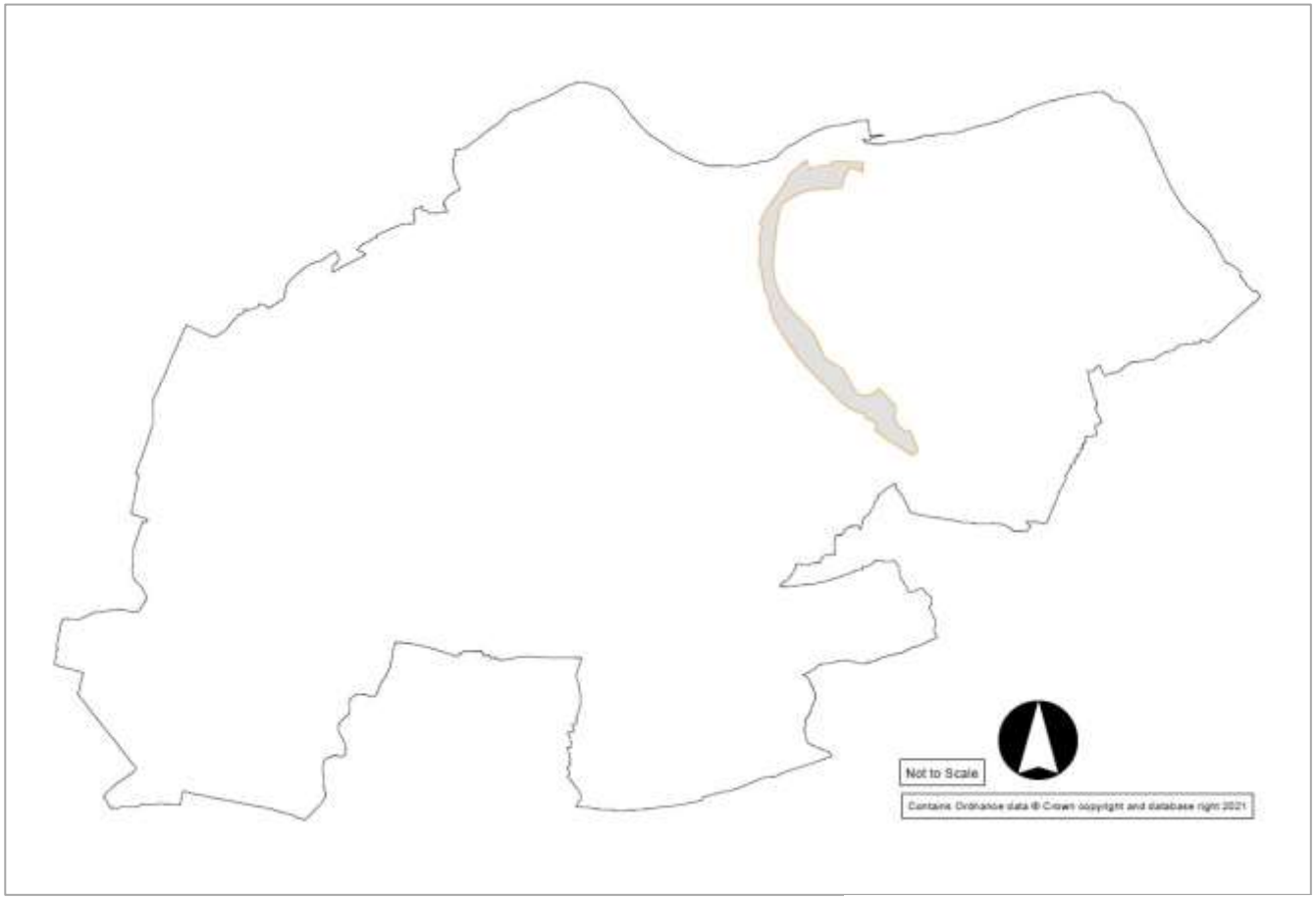

Figure 53 – Wooded Farmed Scarp Slope

31.1 Key Characteristics:

- Abrupt slope between the Ancholme Valley and the scarp top where its steepness starts to diminish south of Elsham.
- The slope rises sharply from the valley bottom up to 90m AOD where the elevation change can occur over as little as half a kilometre, as it does at the village of Saxby All Saints.
- Medium scale varied landscape, part-enclosed and part-open, comprising a mixture of arable and pasture farmland, hedgerows with hedgerow trees, deciduous woodland, dry valleys, springline settlement and quarries.
- The villages of the springline settlement, South Ferriby, Horkstow, Saxby All Saints, Bonby and Worlaby, are collectively known as The Low Villages and are recorded in the Doomsday book and originate from the Medieval Period. The village of Elsham, 2 miles south of Worlaby, is also recorded in the Doomsday book and was the location of a 12th century Augustinian Priory.
- The distance between all 6 villages is only 7 miles within which there are 44 listed buildings, extant historic farmsteads, and Scheduled Monuments.
- One such Scheduled Monument is the remains of a Roman villa at Horkstow which yielded the Horkstow Roman Mosaic pavement (now housed in Hull Museum) which dates to around 300 AD.
- Saxby All Saints is the largest of 16 Conservation Areas within North Lincolnshire and the village is practically unaltered since the 17th century.
- The scarp top is largely open and offers extensive views to the west, north west and north but is in places punctuated by individual trees and woodland.
- Slope becomes hummocky and undulating in places and is smoothly graded in others.
- Woodland occurs in sinuous, linear strips that follow the contours of the slope.
- Evidence of hedgerow decline, hedgerow planting and tree planting in certain locations.
- There are a few small areas of Lowland Calcareous Grassland on the scarp slope. Around Elsham the varied geology produces an intimate mix of areas of chalk springs, marshes, lowland calcareous grassland, neutral grassland and acid grassland, all of Local Wildlife Site quality.
- There are also designated Local Geological Sites at the disused Elsham Chalk Pit and Elsham Sandstone Quarry. Most parishes have disused chalk pits, some of which are designated as Local Geological Sites. Pits at Bonby, Worlaby and Elsham support chalk grassland flora and are managed as community open space.
- The South Ferriby Quarry is currently still active and is a designated SSSI (The quarry straddles both this LCT and the neighbouring Open Rolling High Farmland LCT). In 2018 the rare, fossilised parts of a Pliosaur, a large marine predator, dating back to the Jurassic period, some 155 million years ago were discovered in the quarry.
- The road verges of Middlegate Lane support some of the most species rich remnants of calcareous grassland in Northern Lincolnshire.
- Surveys carried out in the early 2000s revealed that most of the chalk springs along the western scarp support invertebrate species of local and national importance.
- Vehicular access is primarily along the B1204 along the springline of the scarp. Middlegate Lane at the top of the scarp, and the few routes which run between the scarp top and bottom, are quiet and narrow local roads, like the old drover's roads.
- Good PROW network along the Humber Estuary to the north of the LCT but elsewhere is quite limited. The Viking Way long distance footpath runs along the scarp top near Horkstow Wolds.
- Intrusive features concentrating in certain areas, such as the transmission lines crossing the scarp at Horkstow, the quarry, conveyor and views towards the cement works at South Ferriby, and the M180 crossing the scarp slope south of Elsham.

Figure 54 – View north west from Middlegate Lane on the scarp top above Worlaby

"The scarp top is largely open and offers extensive views to the west, north west and north but is in places punctuated by individual trees and woodland."

31.2 Physical Influences:

The scarp slope of the Wolds is in marked contrast to the character of the escarpment tops, due largely to their underlying geological influences. Whilst the escarpment top is overlain by chalk, on the scarp slope this gives way to deeper, more varied soils. Local pockets of boulder clay give rise to heavy, seasonally waterlogged soils, more suited to pasture, while the chalkier soils lend themselves to arable farming.

Villages have developed over the centuries along the scarp slope springline, which has also led to the development of pockets of marsh vegetation. Associated with each village is a manor house or hall, each with its own parkland, which lend a well-treed character to the springline villages. Saxby All Saints is shielded and secretive, thanks to its woodland shelter of hillside plantations, hedges and mature trees intricately linked in and around the village.

31.3 Landscape Strategy:

Landscape guidelines should seek to protect and, where appropriate, locally enhance the existing diverse characteristics of the scarp slope and springline villages.

31.4 Landscape Guidelines:

The guidelines for Wooded Farmed Scarp Slope are presented below:

- Seek to conserve 'spring-line' village character and form by limiting both insensitive expansion and infill of important village open space. Concentrate on re-use of existing buildings and ensure that any new buildings follow established architectural styles.
- Encourage the conservation and enhancement of tree cover around existing settlements. Protect and encourage conservation and enhancement of areas of parkland.
- Protect and promote the rich and varied cultural heritage in the LCT.
- Maintain the character of the local roads and protect from engineering improvements that would be insensitive to that character.
- Discourage new mineral extraction or waste disposal within a scarp slope setting.
- Avoid inappropriate tree planting in chalk pits and road verges. Seek opportunities for the recreation and restoration of species-rich calcareous grassland where geology and soils are conducive.
- Ensure that there is a robust and appropriate restoration scheme for the South Ferriby quarry should the extraction there cease on account of the mothballing of the Cemex site.
- Consider the siting of new development, vertical structures, or quarries, which can be highly intrusive within the open landscape. Ensure that there is a robust plan in place to assimilate it within the landscape, either through screening or, in the case of quarries through an acceptable restoration plan.
- Promote woodland management to re-structure excessively even-aged woodland. Seek to increase the shrub content of woodland edges to increase habitat and visual diversity.
- Any new planting or management of woodland should ensure that the characteristic sinuous form and existing relationship to landform is maintained. Species should reflect native composition.
- Encourage the thickening and infilling of hedgerows and, where possible, link with woodland blocks to maximise possibilities for habitat linkage and wildlife dispersal. Protect and replant hedgerow trees.
- Conserve views of the scarp and skyline by prohibiting the prominent siting of new structures.
- Conserve pockets of pasture and seek to secure management agreements that will enhance their floristic diversity. Seek to protect pockets of scrub and conserve chalk spring invertebrates and spring-line marsh communities.
- Where there are strong open views over lower lying areas occur, due to the LCT's elevated position, ensure that they are retained and promoted.
- Consideration should be given to supporting the existing footpath network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the existing

historical and ecological assets and features of interest across the scarp slope.

- Establish new links to the PROW network which connects westwards over the neighbouring Ancholme Valley.

32. Lincolnshire Drift Landscape Character Area

The Lincolnshire Drift Landscape Character Area (LCAR) is a medium-large area of gently undulating, predominantly agricultural land, consisting of both arable and pastoral use. The landform descends northwards and eastwards towards the lower lying flat coastal plain, from the elevated Wolds top. The Lincolnshire Wolds LCAR forms the western boundary, which follows the alignment of Caistor Road / Barton Road, before briefly wrapping around Humberside International Airport and becoming the B1211 as it crosses the A180. Its northern boundary encompasses the settlements of Barrow upon Humber and Goxhill with its eastern boundary mirroring that of the National Character Area 42, Lincolnshire Coast and Marshes. The southern boundary is defined by North Lincolnshire's southern administrative boundary.

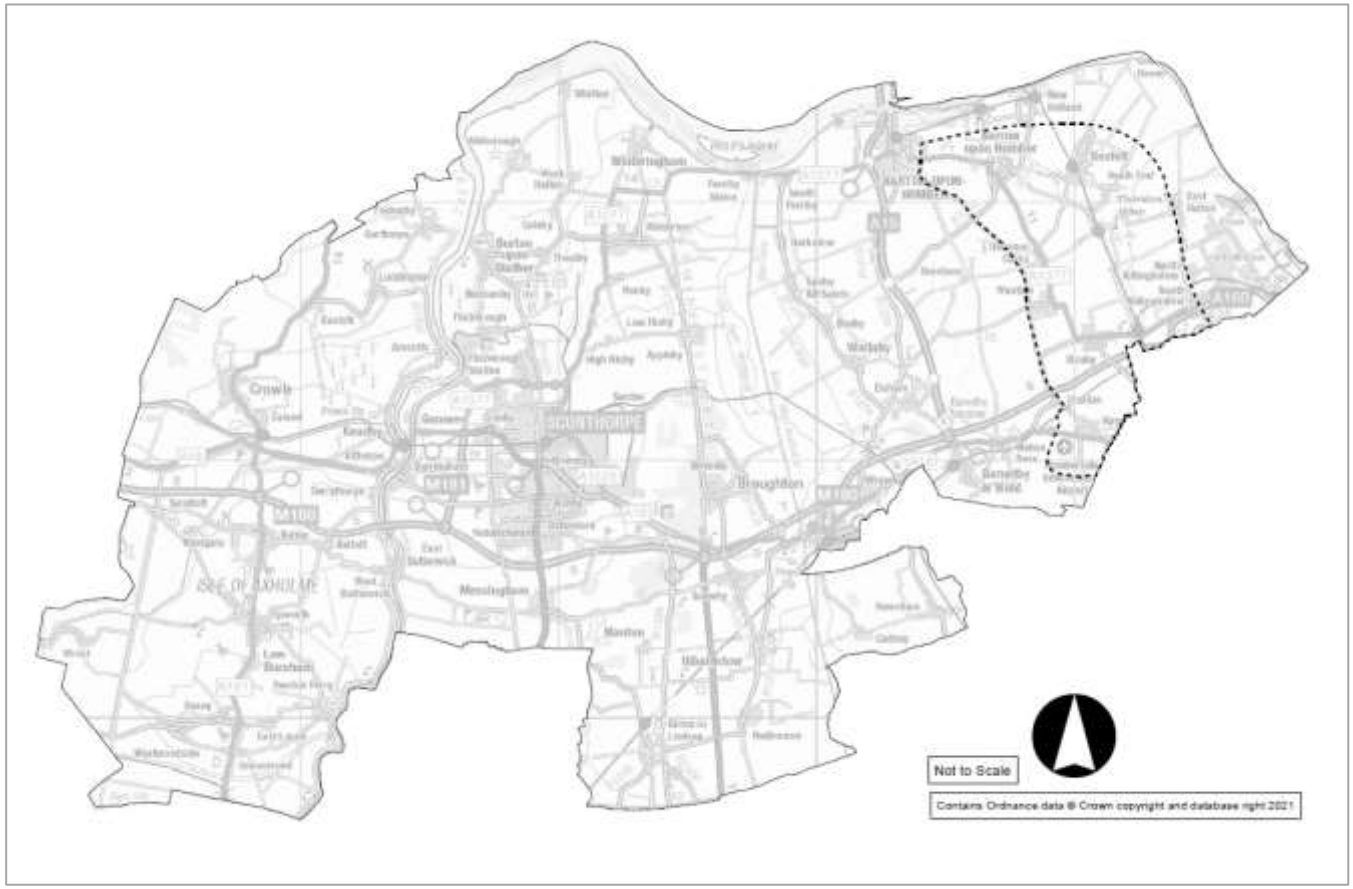

Figure 55 – Lincolnshire Drift

32.1 Key characteristics:

The Lincolnshire Drift LCAR consists of 3 individual Landscape Character Types (LCTs) over 7 geographical locations. The key characteristics of note are:

- Gently undulating agricultural landscape with topography dipping from the higher Lincolnshire Wolds in the west to the flat landscape of the Humber to the north and east.
- Open, expansive landscape where existing woodland blocks have an enhanced visual presence which contribute an important compositional role and provide local variation of scenery.
- The high quality of the agricultural land continues into this LCAR from the neighbouring Wolds to the west. The lower lying land to the east, around Goxhill and North Killingholme, is of a good quality.
- The undulating nature of the terrain has resulted in both arable and pastoral land use due to the mix of areas with both good draining soils and ones with impeded drainage.
- Settlement is dispersed with larger settlements such as Barrow upon Humber and Goxhill to the north of the LCAR with smaller scattered settlement, such as Wootton and Ulceby, to the south. Historically, the local vernacular is typically brick with pantile or occasionally slate roofs.
- Large scale rectilinear intensively farmed fields with pockets of smaller-scale historic landscape.
- Clipped hedgerows, some degraded due to farm amalgamation.
- Open landscape punctuated by medium-sized woodland blocks which become more common in central and southern regions.
- The woodland blocks are predominantly of deciduous species with some blocks containing a mix of plantation and deciduous species around Kirmington and associated with the Brocklesby Park estate.
- Trees tend to be concentrated around farmsteads and settlements and are occasionally found within hedgerows.
- Strong presence of historic farmsteads throughout the LCAR with many surviving in their extant condition or only partially altered.
- Strong Cultural Heritage across the LCAR, notably through the presence of Brocklesby Park (Registered Park and Garden) and Thornton Abbey Augustinian monastery.
- Ecological designation is represented by the Kirmington Pits SSSI to the north of Kirmington. The woodland within the Brocklesby Park estate is defined as Wood Pasture and Parkland, which is Natural England's record of historic land management and designed landscapes.
- Landscape is degraded in many places with urban influences and when looking eastwards, the influences of large-scale industry detract from the rural scene.
- Regional connectivity in the form of the PROW network is stronger in the north east and south west of the LCAR, with few to no connections along the western boundary.
- Major infrastructure features include overhead electricity pylons, railway lines, Humberside International Airport and the primary transport corridor of the A180.

"Strong presence of historic farmsteads throughout the LCAR with many surviving in their extant condition or only partially altered."

32.2 Physical Influences:

Although underlain by the Cretaceous chalk deposits that dip eastward from their outcrop along the Lincolnshire Wolds, the parent materials of the Lincolnshire Drift are predominantly glacial boulder clay, gravels, and sands. Deposited by North Sea ice during the last glaciation, this till is 20 metres thick in places. The groundwater in the chalk is under great artesian pressure. Where there is an opening in the clays from the chalk to the surface and there is enough pressure, the groundwater emerges to create a Blow well. Blow wells are only known to exist in North-eastern Lincolnshire.

Soils derived from the glacial till form extensive tracts of generally fertile arable land, although drainage is not always satisfactory and often impeded. The characteristic undulating topography frequently results in a pattern of better drained upper slopes and poorer drained depressions. Narrow strips of heavy, poorly drained clay, derived from alluvium, occupy many of the valleys that cut through the drift terrain.

Natural England's Agricultural Land Classification identifies the soils to the west of the LCAR as Grades 1 and 2, 'Excellent' and 'Very Good' respectively, with the lower lying land to the east classed as Grade 3, 'Good'. The disposition of arable land and pasture closely reflects these soil variations.

32.3 Historic and Cultural Influences:

Patterns of human settlement in the Lincolnshire Drift LCAR mirror those described for the Lincolnshire Wolds LCAR whereby the relatively elevated land lying above the coastal marshes proved attractive to early settlers. Here early settlements concentrated along the valleys, which offered shelter and a reliable water source. Streams such as Skitter Beck were especially attractive and today still form the focus of village and farm settlement. Flint tools made around 200,000 years ago were discovered in a gravel pit at Kirmington and are the first evidence of early settlers in North Lincolnshire.

The villages and hamlets throughout the area have a scattered arrangement. Like the Wolds, the Drift areas have seen major, permanent settlement since Saxon times. Most villages have Saxon or Danish origins, although the particular density of villages ending in `-by', such as Ulceby, would indicate that the Danish were the main settlers.

In recent historical times, the coastal zone marking the area's eastern edge was in a general state of flux. The Iron Age coastline lay along a line approximated by the villages of Killingholme, Halton and Goxhill. Paleogeographic evidence suggests that a wide intertidal zone of brackish marshes and creeks existed. Anglo-Saxon and Danish settlers slowly drained this land and by the 11th century much of it had been reclaimed for agricultural and pastoral purposes.

'The Castles' motte & bailey, at Barrow Haven to the north of Barrow upon Humber, is a Scheduled Monument and archaeological site which was fortified during the Norman Conquest with the other enclosures or 'baileys' added later. The castle is listed as belonging to Thornton Abbey in a charter of 1189 and as the castle was never built out of stone, remained an earth and timber fortification with indications that it was in use into the 14th century. The motte and bailey castle survives reasonably well, despite it having been altered by agriculture and building work as well as through the excavation for the construction of an air-raid shelter in 1939 and treasure hunting in the 1940's.

Barrow upon Humber contains the only Conservation Area within the wider eastern area of North Lincolnshire and includes a significant number of Listed Buildings and Structures as well as the village cross which is a Scheduled Monument. Barrow Upon Humber is the birthplace of John Harrison, a carpenter and clockmaker born in 1693, famous for solving the problem of longitude, which enabled safer and swifter travel for thousands of ships down the centuries.

Thornton Abbey at Thornton Curtis was one of the best known ancient monasteries in the region with its enormous and ornate fortified gatehouse which is described as '..the largest and amongst the finest in England' by English Heritage. The Abbey quickly prospered becoming an independent Abbey in 1148 and was one of the richest houses of its order, reflected in the magnificence of the buildings, of which only fragments remain as Scheduled Monuments. The great church was started in 1264 and underwent constant rebuilding. The site also contains a medieval road and bridge, moat, fishponds post-Dissolution college, school and house. The closure of the abbey in 1539 by Henry VIII was followed by centuries of destruction. The ruins of the chapter house are a stark reminder of the stately hall built by Sir Vincent Skinner in 1602

which subsequently fell down because of its poor construction. The site was abandoned thereafter, and tales were created about a ghostly canon that had been buried alive seated at a table with a book and a pen.

Southeast of Goxhill is Goxhill Hall Scheduled Monument which includes the remains of its manor house, moated site with associated drainage system, fishponds and field system. Around Kirmington there are two significant Scheduled Monument sites with the Medieval settlement of Croxton to the north and the Roman Settlement to the west.

The 20th century saw the establishment of Royal Air Force bases at Goxhill, North Killingholme and Kirmington. At Goxhill there is evidence of a landing ground during the First World War and later, in 1940, it was deemed suitable by the Air Ministry as an airfield. Originally used as a barrage balloon site to protect the port of Hull and the River Humber, it was transferred to RAF Bomber Command in 1940 and rebuilt as a bomber airfield. More recently, Goxhill and North Killingholme have been partially redeveloped to accommodate manufacturing and industrial use.

Kirmington RAF base, to the south west of Kirmington village, was re-purposed in the early 1970s with Kirmington Airport opened in 1974. Such has been the growth and development that the modern-day Humberside International Airport has established traffic associated with offshore gas production and exploration and caters for UK and European flights.

The development of industry, infrastructure and housing within and adjacent to this LCAR has had a significant impact on the character of the landscape.

32.4 Settlements and Buildings:

The arrangement and distribution of many villages date back to the medieval period. Most villages are tight-knit and nucleated around street patterns which, naturally, were not designed with the modern traffic demands in mind. Typically, villages display a strong architectural character with building materials, styles and scales blending to create attractive street scenes. Many villages have prominent churches with their steeples, or more commonly towers, visible across wide areas. Many of these churches are listed buildings, such as the Grade I Listed Church of St Andrew at Wootton.

Towards the end of the last century, the expansion of housing areas around Barrow upon Humber spread into the countryside. Other settlements on the higher slopes, such as Wootton and Kirmington, have remained tightly nucleated.

There is a significant number of Historic farmsteads scattered across the LCAR, with around 50% of them surviving in an extant condition and the remainder identified as partially altered. Some of the farmsteads are within the urban envelopes of Barrow upon Humber and Goxhill, a reflection of earlier settlement expansion in these locations.

The impressive brick and stone gatehouse of Thornton Abbey is a remnant of what was once one of the great ecclesiastical buildings of England. Brick was used from an early date and although the structure has some fine stonework features, the gatehouse is largely of brick rendered over to look like stone.

32.5 Landcover and Wildlife:

The Enclosure Acts resulted in the creation of a farmed landscape with large regularly shaped fields over much of the Lincolnshire Drift LCAR. The demands for increased mechanisation in the farmed economy has led to the enlargement of fields and consequent loss of hedgerows and gradual decline of hedgerow trees. Remaining hedges and woodland in the landscape have an enhanced visual prominence due to the openness of views and lack of other traditional rural landscape elements.

On the lower slopes, hedgerow trees become less common and watercourses such as East Halton Beck have become increasingly modified impacting on the ecological value of the habitat found there.

Drainage and cultivation have led to losses of most grassland and woodland of interest. Nevertheless, pockets of semi-natural woodland of slightly base-rich derivation remain, usually closely associated with settlements or historic sites, e.g. within areas that extend from Thornton Abbey to Ulceby Junction and between East Halton and North Killingholme.

These are found in the form of mature tree groups and mixed hedges, streamside woodland and within the ground flora of replanted farm woodland and tend to be found on the lower lying land.

Mixed woodland linked to the woodland of the Brocklesby Estate which straddles the North Lincolnshire administrative boundary has considerable bird interest, although the ground flora is unremarkable.

Woodland is limited to occasional small blocks. Typical canopy species of woodland in the area include sycamore, pedunculate oak, ash, alder with an understorey of hawthorn, hazel, field maple and wych elm, the latter usually found as underwood suckering from cut stools or diseased elms. Indicator field layer species include dog's mercury, ramsons and enchanter's nightshade.

In addition to the woodland blocks, Natural England's Priority Habitat Inventory (PHI) also shows that there are areas of good quality semi-improved grassland and traditional orchards associated with both Thornton Abbey and Goxhill. Some of these are of Local Wildlife Site quality. There are also several areas of coastal floodplain grazing on the lower lying land to the north east of Goxhill.

The Kirmington Pits former extraction site has been designated an SSSI for its geological importance providing an exceptional stratigraphical record with research importance for dating and reconstructing Quaternary environments, environmental changes, former sea-levels, and landscape evolution.

30.6 Connectivity:

The Public Rights of Way (PROW) network within the LCAR is more prevalent in the north east around Goxhill and Barrow upon Humber where routes link with those on the Humber Estuary shoreline. In the south west there are links between Ulceby and Kirmington, crossing the A180, which continue west to Barnetby le Wolds.

There are no routes within the western half of the LCAR and as such no connections into the Wolds to the west.

There is a range of self-guided walks and cycling routes which are promoted regionally through the Council's website.

32.7 Landscape Strategy:

The strategy for the Lincolnshire Drift LCAR is to strengthen the landscape character through the continued conservation and promotion of historical sites, the restoration of the agricultural landscape and increasing broadleaved woodland cover and conserving other valued habitats. The following should be considered:

- Promote the management and conservation of remnants of chalk rich grassland, coastal grazing marsh and spring-fed natural watercourses that are generally under threat.
- Protect existing hedgerow trees, and replant in selected locations, taking care to reflect the existing sparse pattern of these trees which is characteristic of the open landscape.
- Development around farmsteads should be encouraged to accord with the materials of the original structure, or to suitably compliment them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Consideration should be given to the siting of new development such as vertical infrastructure or quarries, which can be highly intrusive within the open landscape. Consideration should be given to the potential impacts and seek to mitigate during strategic options studies. Ensure that there is a robust assessment and planning in place to assimilate them within the landscape, either through screening and/or through an acceptable restoration plan.
- Retain and enhance the areas of woodland and ensure that they are managed to establish diversity in age, structure and species. Management should favour predominantly native species, with a proportion of species from more southerly zones, to allow for the effects of climate change.
- The existing extent and general arrangement of woodland and shelterbelts is distinctive and should be maintained and any new woodland planting should reflect the existing pattern, species and scale so that its relationship with skylines and farmsteads is harmonious.
- Integrate the incongruous features associated with the major road corridors, transmission lines and industrial estates through planting and hedgerow repair appropriate to that character. Intermittent tree planting may diffuse their appearance as opposed to completely screening them which and helps to retain the open nature of the LCAR.
- Consider the use of appropriate planting to filter views of heavy industry to the east without restricting views of the Humber Estuary.
- Local Wildlife Sites and Local Geological Sites should be regularly monitored to ensure that they are not being affected or eroded by development or other activities within or near to these valuable habitats.
- Consideration should be given to supporting and expanding the existing PROW network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the existing historical and cultural assets and features of interest within the Lincolnshire Drift which would raise awareness of their value and promote a sense of ownership and surveillance within the local community.

33. Lincolnshire Drift – Flat Open Farmland

There are two geographical areas of this LCT located along the northern and north eastern boundary of the Lincolnshire Drift LCAR and form part of a wider area of Flat Open Farmland which continues out to the estuary edge and is within the neighbouring Humber Estuary LCAR. The first area is a strip to the north of Barrow upon Humber which commences on the western edge of Barton-Upon-Humber extending east to North End near Goxhill. The second, smaller area is to the east of Goxhill and north west of East Halton and surrounds a section East Halton Beck. Both areas are on low lying land, which is typically below the 5m contour and share similar characteristics with the wider area within the Humber Estuary LCAR.

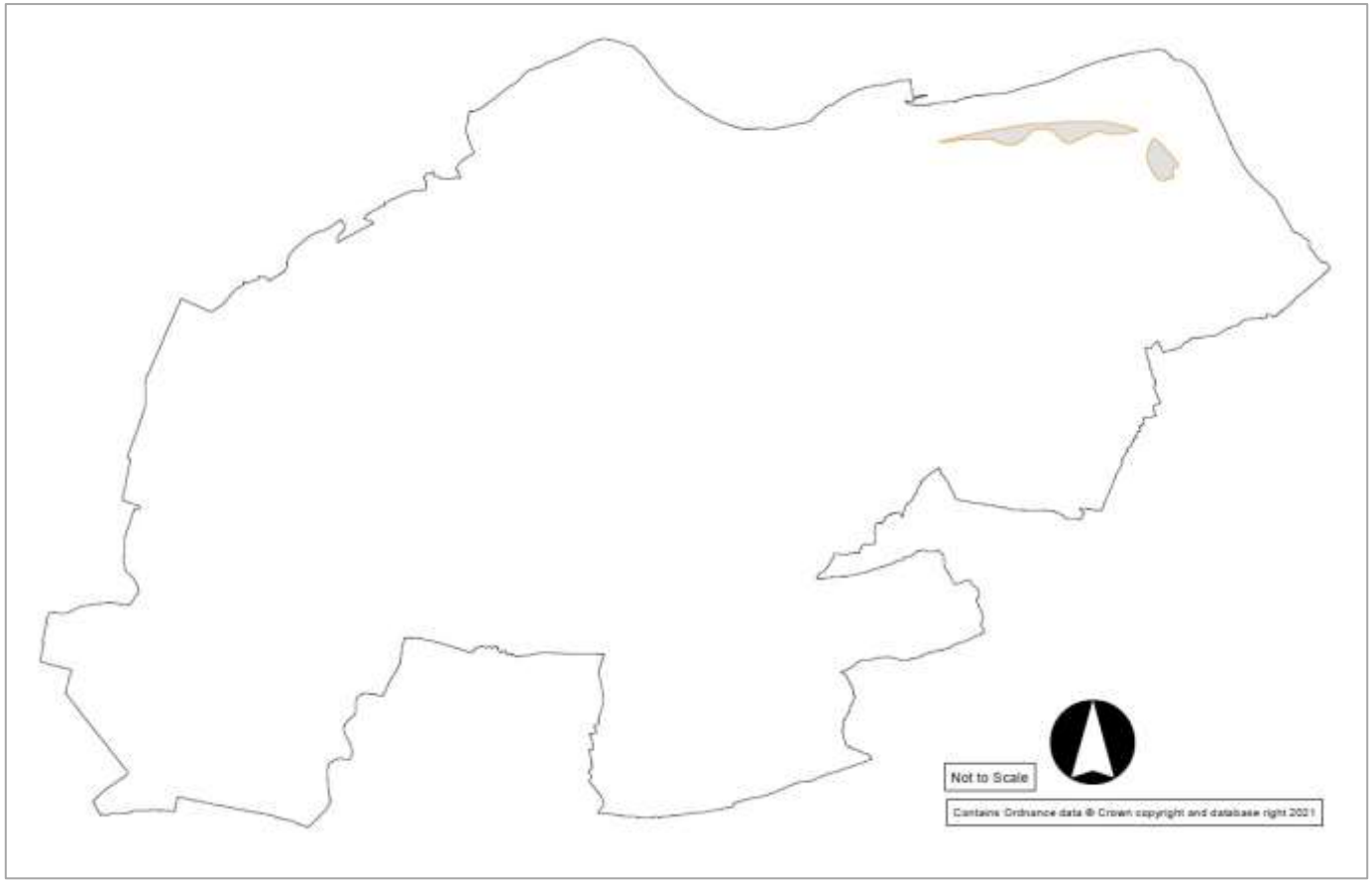

Figure 56 – Flat Open Farmland

33.1 Key Characteristics:

- Flat, expansive agricultural landscape with limited settlement. The southern edge of Barrow Haven and the northern tip of Goxhill contribute to the majority of settlement within the LCT.
- Traditional farm buildings present although large scale, imposing barns are often associated and made from modern materials.
- Open, low-lying arable farmland with a scarcity of woodland blocks.
- Trees concentrated around farm buildings or occasionally present in hedgerows which can create a sense of containment within views.
- Landscape is unified by the large rectilinear fields, well defined hedgerows and long straight roads.
- Hedgerows are either well managed and tightly clipped or very discontinuous with ditches being the defining boundary element.
- Farmland appears uniform and vacant in places with little species or structural diversity, though in winter, the open fields are attractive to flocks of wintering waterbirds such as lapwing, golden plover and curlew.
- Prominent watercourses include The Beck at Barrow Haven and East Halton Beck to the east of Goxhill both of which have sections with no associated vegetation. Several ditches and dikes are also present within the LCT.
- 'The Castles' motte & bailey Scheduled Monument at Barrow Haven is within the LCT.
- PROW routes offer good connections across the neighbouring open farmland and out to the Humber Estuary shoreline.
- Some visually intrusive features such as the railway line between Goxhill and New Holland.

Figure 57 – View south from Marsh Lane

"Farmland appears uniform and vacant in places with little species or structural diversity, though in winter, the open fields are attractive to flocks of wintering waterbirds such as lapwing, golden plover and curlew."

33.2 Physical Influences:

Formed on Cretaceous chalk overlain with estuarine alluvium deposits, which have given rise to poorly drained heavily gleyed soils producing a flat terrain which has been modified and drained to create good quality agricultural land.

Due to its low-lying nature, the land is under continual threat of flooding and this has inhibited significant growth of rural settlements, the change in elevation is loosely delineated by settlement which has sought the higher, drier land.

33.3 Landscape Strategy:

Because of the lack of conventional rural structure, the landscape strategy for this local landscape type should be enhancement, seeking to encourage more hedgerows, hedgerow trees to integrate the built-up areas and provide localised enclosure, whilst retaining an overall sense of openness.

33.4 Landscape Guidelines:

The guidelines for Flat Open Farmland are presented below:

- Discourage further expansion of settlement.
- Discourage the construction of large scale, imposing warehouses, or farm structures.
- Where development is unavoidable encourage new farm buildings to be sited close to existing farmsteads and to reflect the materials, detail and scale of the traditional buildings. For all development, screen with native species of local origin to integrate intrusive buildings. A robust maintenance and management schedule should also be put in place to ensure that the trees establish and flourish.
- New woodland blocks should be concentrated around settlements, areas of industry, farmsteads and intrusive farm buildings and be of linear and geometric arrangement.
- Seek to restore natural flows, marginal habitat and floodplain grazing marsh along both The Beck and East Halton Beck to improve their ecological value.
- Where possible, allow hedgerows to establish in height and thickness through the reduction of cutting regimes to increase the visual impact and habitat value. Where possible link to existing shelterbelts and woodland blocks to create wildlife corridors and enhance ditches.
- Promote the development of hedgerow trees, particularly to link woodland blocks and screen the railway corridor.
- Continued conservation and promotion of the Scheduled Monument site at Barrow Haven.

34. Lincolnshire Drift – Open Undulating Farmland

This is the largest and most extensive LCT within the Lincolnshire Drift LCAR and in certain parts extends both the full width and the full length of the LCAR. On its western edge it abuts the elevated land of the neighbouring Lincolnshire Wolds LCAR and slopes down to the lower lying land to the north and east. It is mostly contained to the north by the neighbouring Flat Open Farmland LCT and its eastern edge is broken up by areas of the Wooded Farmland LCT.

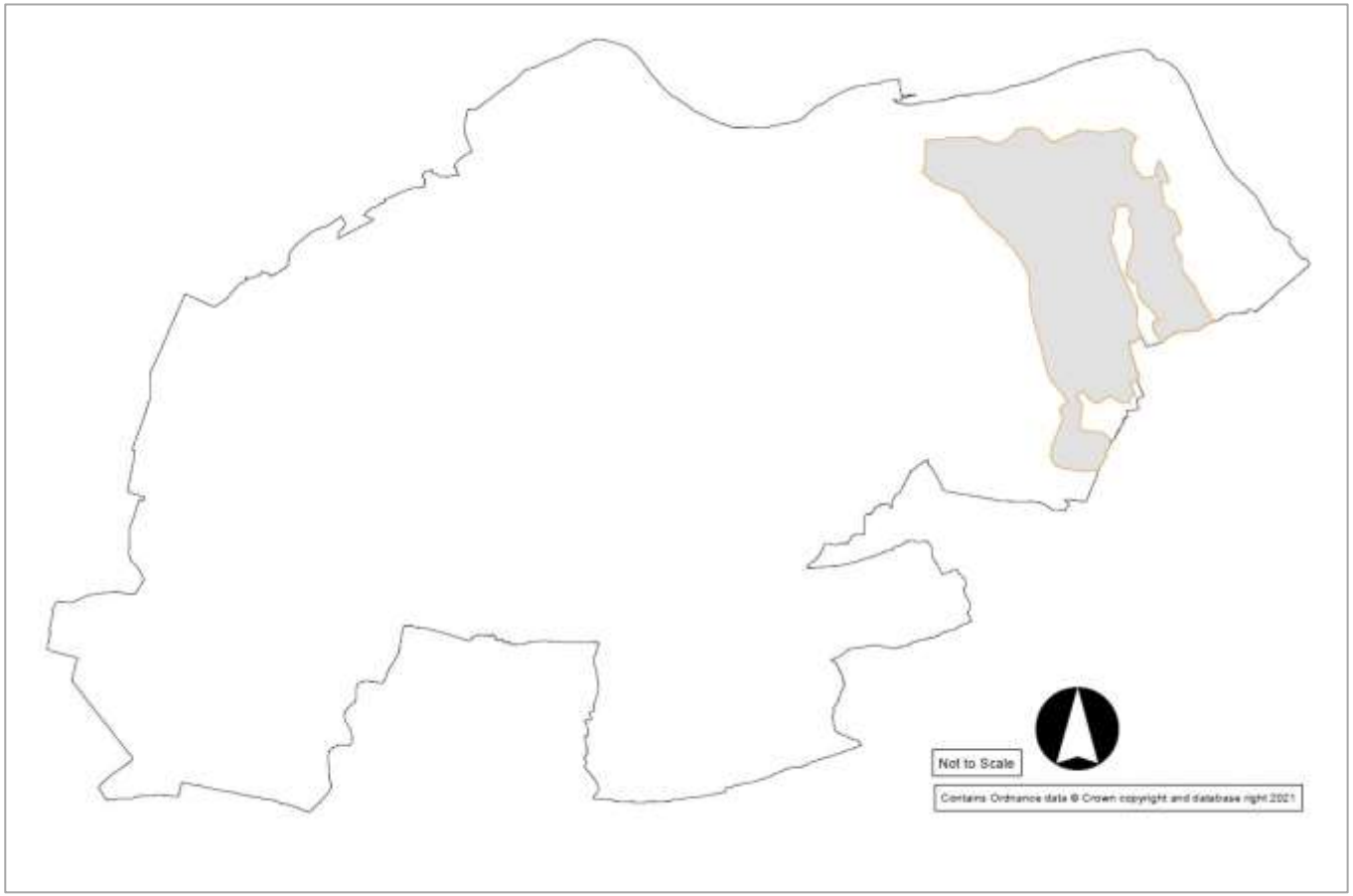

Figure 58 – Open Undulating Farmland

34.1 Key Characteristics:

- Gently undulating terrain of around 40m AOD in the west, dipping towards the lower lying ground of the Humber in the north and east.
- The undulating nature of the terrain has resulted in both arable and pastoral land use due to the mix of areas with good draining soils and ones with impeded drainage.
- Settlement is dispersed with larger settlements such as Barrow upon Humber and Goxhill to the north of the LCAR with smaller scattered settlements, such as Wootton and Ulceby, to the south.
- Settlements retain important open spaces, such as small meadows, orchards and ponds. Ponds are a particular feature of the villages, given the poor drainage. Blow wells also occur at Barrow upon Humber.
- Strong presence of historic farmsteads throughout the LCAR with many surviving in their extant condition or only partially altered.
- Additional Cultural Heritage provided by the Scheduled Monuments south of Goxhill and around Kirmington as well as the Conservation Area at Barrow upon Humber.
- Despite the existence of traditional farm buildings, large-scale portal framed sheds are common.
- Large, intensive arable fields bounded by clipped hawthorn hedges although some degraded and with gaps.
- Some roadside hedge planting near to transmission lines as a mitigation measure.
- Landscape is open and sometimes exposed away from the influence of woodland blocks. Trees are commonly grouped with farm buildings or nearby as shelterbelts, or occasionally present in hedgerows.
- Ditches are common on the lower slopes and create strong linear features when associated with the roadside or field boundaries.
- Simple, peaceful landscape is interrupted by pylons that are often dominant elements when in close proximity, transport corridors and industry forming a distant backdrop in some views.
- Urban clutter such as the proliferation of signs or fencing along field boundaries are common features.
- The Public Rights of Way (PROW) network is more prevalent in the north east around Goxhill and Barrow upon Humber and in the south west between Ulceby and Kirmington. No PROW network within the western half of the LCT.

Figure 59 – View west towards Walk House, from the A1077 north of Thornton Curtis

"Strong presence of historic farmsteads throughout the LCAR with many surviving in their extant condition or only partially altered."

34.2 Physical Influences:

This gently undulating landscape has formed on Cretaceous chalk that dips eastward, overlain with glacial deposits of predominantly boulder clay with pockets of sand and gravel, which forms the parent material. Soils have been extensively cultivated to produce a mix of grades 1,2 and 3 as defined in Natural England's Agricultural Land Classification which lend themselves to both arable and pastoral use.

34.3 Landscape Strategy:

The landscape of this LCT is vulnerable to change through inappropriate development or poor land management. The strategy for Open Undulating Farmland is to locally enhance it through conservation and enhancement including the continued protection and strengthening of hedgerows, shelterbelts and woodland blocks. Strategic woodland planting can enhance views, provide greater local variation, and integrate intrusive elements into the landscape. Traditional landscape elements such as farm buildings that are being degraded in extent and quality should be protected and enhanced.

34.4 Landscape Guidelines:

The guidelines for Open Undulating Farmland are presented below:

- Consideration should be given to designate this LCT as an 'Area of High Landscape Value'.
- Retain and enhance the areas of woodland and ensure that they are managed to establish diversity in age, structure, and appropriate species to promote habitat and visual diversity.
- Promote the planting of hedgerow trees to introduce an increasing degree of visual enclosure as the land becomes flatter and low-lying. Also encourage hedgerow tree planting to soften views of industry and infrastructure and link wooded areas.
- Seek to restore natural flows, marginal habitat and floodplain grazing marsh along both The Beck and East Halton Beck to improve their ecological value.
- Development around historic, and other, farmsteads should be encouraged to accord with the materials of the original structure, or to suitably complement them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Consider the siting of new development or vertical infrastructure which can be highly intrusive within the open landscape. Ensure that there is a robust plan in place to assimilate it within the landscape, either through screening or, in the case of quarries through an acceptable restoration plan.
- Conserve views to both the higher Wolds landscape and across the lower-lying coastal plain by minimising skyline interruption when siting new structures.
- Encourage the conservation, restoration, replacement and management of all primary hedgelines, particularly in prominent, or historically significant situations, i.e. along roadsides or parish boundaries.
- The existing extent and general arrangement of woodland and shelterbelts is distinctive and should be maintained and any new woodland planting should reflect the existing pattern, species and scale so that its relationship with settlement, skylines and farmsteads is harmonious.
- Seek to conserve the distribution and form of villages and hamlets integrating new residential development through limited infill, seeking to re-use existing redundant buildings where possible and limiting use of important village open space and ponds. Maintain the continuity of village structure and character by ensuring new buildings follow local architectural styles and use traditional building materials.
- Seek to enhance the edge treatment of Barton-Upon-Humber, Barrow upon Humber and Goxhill by expanding existing woodland and tree cover.
- Integrate the incongruous features associated with the major road corridors, development on the site of former airfields, transmission lines and distant industry through planting and hedgerow repair appropriate to that character. Intermittent tree planting may diffuse their appearance as opposed to completely screening them

and helps to retain the open nature of the landscape.

- Continued conservation and promotion of the Schedule Monument sites at Goxhill and around Kirmington.
- Consideration should be given to supporting and expanding the existing footpath network towards the west to create links into the Wolds and beyond.

35. Lincolnshire Drift – Wooded Farmland

This LCT occurs across four separate geographic locations with an area around Kirmington, a central linear area extending northwards along the valley from south of Ulceby Station to Thornton Abbey and two small areas on the eastern edge of the LCAR boundary encompassing part of East Halton and the periphery of North Killingholme.

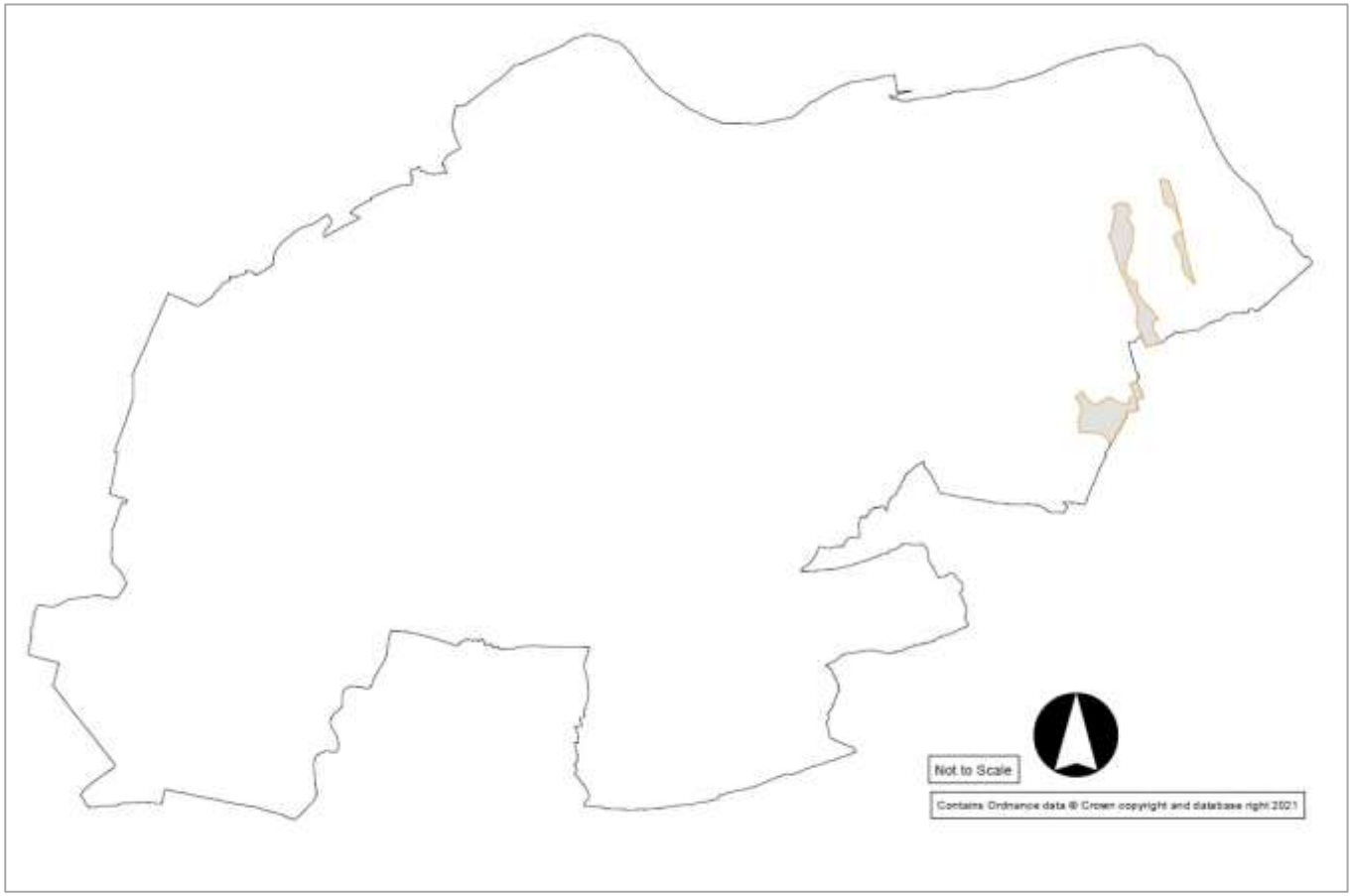

Figure 60 – Wooded Farmland

35.1 Key Characteristics:

- Gently undulating wooded landscape with pockets of arable farmland and pasture with sheep grazing. The landscape around Kirmington increases to 30m AOD where it meets the higher ground of the Wolds.
- Settlement is typically in the form of tightly nucleated traditional villages which have traditional buildings, with brick and pantile the vernacular.
- The scale of settlement is limited and varies within the 4 sub areas of the LCT. Kirmington is the largest village and wholly within the LCT.
- Historic farmsteads are limited across this LCT with only a small cluster on the western periphery of Kirmington and one near Ulceby Skitter.
- Mixed woodland at Kirmington is principally of planted origin. Deciduous woodland is well matured, predominantly broadleaved species.
- Skitter Beck and East Halton Beck support some semi-natural carr woodland, and other woodland is of seminatural origin.
- Mostly a peaceful, attractive unified setting with internal diversity. Localised enclosure provides important visual screening from detracting elements which cross this LCT.
- Roadside hedgerows and trees contribute to the sense of enclosure, particularly on the local road network.
- Strong rural character with watercourses, ditches and streams although some hedgerows are overgrown, and ditches have been neglected.
- Close ecological and historic associations such as historic sites, parkland, mature tree groups, irregular small fields, mixed hedgerow and field ponds.
- Irregular small fields around East Halton and North Killingholme still supported species-rich neutral grassland in the 1980s. Some examples still survive today and are designated as Local Wildlife Sites.
- Transmission lines traverse to the north of Sinks Covert woodland, near Ulceby Station and impact the quality of views out to open landscape.
- Although the A180 crosses through the southern edge of the central linear area, embankment planting screens it from view.
- The influence of the transmission lines and industrial development to both the east and west of East Halton Road, at North Killingholme is much more prevalent where there is little to no tree cover.
- Strong Cultural Heritage through the presence of Brocklesby Park Registered Park and Garden and the Scheduled Monument of Thornton Abbey Augustinian monastery.
- Ecological designation is represented by the Kirmington Pits SSSI to the north of Kirmington. The woodland within the Brocklesby Park estate is defined as Wood Pasture and Parkland.

Figure 61 – View east towards Thornton Abbey from Crook Mill Road

"Strong Cultural Heritage through the presence of Brocklesby Park Registered Park and Garden and the Scheduled Monument of Thornton Abbey Augustinian monastery."

35.2 Physical Influences:

This LCT has an underlying geology of chalk overlain with glacial till deposits of boulder clay to produce a gently undulating landscape. The chalk outcrops in the south around Kirmington have resulted in the production of thinner soils. A predominantly wooded landscape has developed because it has either been protected or deemed unsuitable for intensive farming. It has either close association with the villages or historic sites, maintaining traditional landscape elements, or has been planted with woodland as part of an estate.

35.3 Landscape Strategy:

Landscape guidelines should seek to conserve and enhance the historic character and wooded nature of the LCT. This should be done through woodland management, hedgerow renewal and management and the creation of new woodland which is reflective of the historic land management and designed landscapes.

35.4 Landscape Guidelines:

The guidelines for Wooded Farmland are presented below:

- Consideration should be given to designate this LCT as an 'Area of High Landscape Value'.
- Encourage the conservation and enhancement of tree cover within and around villages. Protect and manage existing mature tree groups for future regeneration and increase the number of specimen trees within villages, particularly along roads.
- Retain and enhance the areas of woodland, particularly those at the edge of settlements to aid the screening of industry, in accordance with the South Humber Bank Landscaping Initiative (SHBLI). Ensure the woodland is managed to establish diversity in age, structure, and appropriate species to promote habitat and visual diversity.
- Conserve existing hedgerows and enhance those in particularly prominent or historically significant situations, i.e. parish boundaries and along roadsides and where there is scope for improved wildlife dispersal between woodlands.
- Enhance the presence of hedgerow trees, especially where it will screen influence from industrial features, e.g. at North Killingholme.
- Conserve and enhance the remaining neutral grasslands in small, irregular fields. Where possible, create more, bigger, better and joined habitat by re-creating species-rich grassland in neighbouring fields.
- Seek to conserve the distribution and form of villages and hamlets limiting infill, seeking to re-use existing redundant buildings where possible and restricting use of important village open space.
- Maintain the continuity of village structure and character by ensuring new buildings follow local architectural styles, use traditional building materials and are assimilated into the fabric of the village.
- Seek to protect archaeological interest from damage and promote the rich and varied cultural heritage in the LCT.
- Enhance the existing marginal woodland along East Halton Beck and encourage the creation of other marginal habitats along the watercourse.
- Investigate the potential improvements and ecological enhancement through re-naturalising modified watercourses such as Skitter Beck.
- Consideration should be given to supporting the existing footpath network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the existing historical and ecological assets and features of interest across the scarp slope.
- Establish new links to the PROW network which connects westwards over the neighbouring Ancholme Valley.

36. Humber Estuary Landscape Character Area

The Humber Estuary Landscape Character Area (LCAR) is a predominantly low-lying estuarine landscape which wraps around the eastern and northern edge of North Lincolnshire. It is contained by the higher inland terrain within it and outside by the Humber Estuary causing its width to vary accordingly, measuring barely 1km wide in some parts and as much as 10km in other parts. The Humber Estuary is one of the largest estuaries in England and drains approximately one fifth of the area of the country and has a maximum width of approximately 14km at its mouth. The estuary can be divided into two sections, the 'inner' and 'outer' estuary, situated up-stream and down-stream of the Humber Bridge, some 45km up-stream of the mouth. The western extent of the LCAR is around the confluence of the Rivers Trent and Ouse and is within the 'inner' area as far as the Humber Bridge. To the east of the bridge, in the 'outer' area of the estuary, the LCAR continues east then south east, extending to South Killingholme Haven and North Lincolnshire's southern, land based administrative boundary.

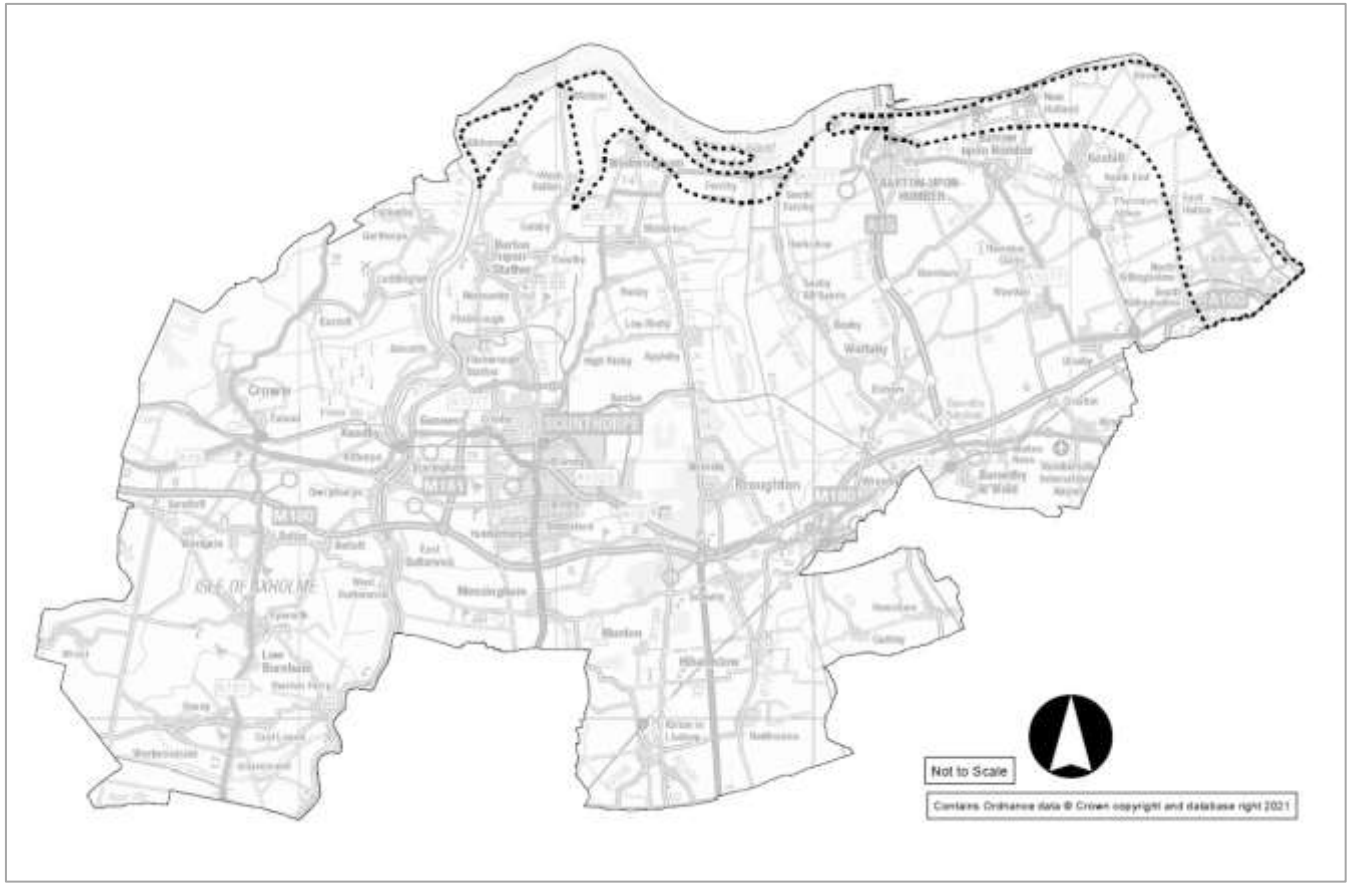

Figure 62 – Humber Estuary

36.1 Key characteristics:

The Humber Estuary LCAR consists of 6 individual Landscape Character Types (LCTs) over 8 geographical locations. Although visually important, the marine environment was not previously assessed and therefore has not been included within this review. The key characteristics of note are:

- The Humber Estuary is a pre-dominantly flat, expansive, low-lying, estuarine landscape.
- Local areas of undulating terrain and wooded farmland inland of the estuary.
- Visual presence of the Humber from within the LCAR itself is often slight, owing to the low-lying nature of the terrain and the visual obstruction created by flood alleviation defences.
- The sky and open views dominate, with ever-changing character due to tidal influences, and mudflats, salt marshes and reedbeds form where flood embankments allow.
- Tidal dynamics create recurring change as the low tide reveals extensive areas of mudflat in contrast to the high tide which creates a brighter more attractive coastal feel.
- The dynamics of tides, changing weather, flocks of wetland birds and visible activity on the estuary can combine to create a vibrant scene.
- The whole of the estuary is an internationally and nationally designated area of ecological conservation importance containing important wetland and coastal habitats.
- Inland of the floodbanks, there are significant areas of wetland habitat at Alkborough Flats and in the blow wells and claypits stretching from Barton upon Humber to East Halton.
- A predominantly reclaimed, formerly intertidal landscape of rectilinear, mainly arable fields on fertile well-drained soils, often unbounded, with dikes, drains and embankments characteristic.
- The agricultural land is graded as ‘High’ and ‘Good to Moderate’ in Natural England’s Agricultural Land Classification system; the second and third highest grade.
- Hedgerow and tree cover is limited, although occasional dense woodland blocks break up views and are visually prominent.
- Urban and industrial complexes are significant. Away from settlement and industrial influences there is a sense of remoteness and isolation.
- Strong Cultural Heritage across the LCAR, notably through the presence of the Grade I Listed Humber Bridge.
- Good regional connectivity in the form of the PROW network with some routes along the estuary edge, including overlap with the Viking Way long distance footpath. The National Cycle Network Route 1 crosses the Humber Bridge.

“The sky and open views dominate, with ever-changing character due to tidal influences, and mudflats, salt marshes and reedbeds form where flood embankments allow.”

36.2 Physical Influences:

In geomorphic terms, the Humber Estuary is a recent feature, with its present form having been created since the last ice age by processes that occurred during the late Quaternary period. At its maximum, the ice advanced along the eastern edge of the Wolds, plugging the mouth of the estuary and impounding a large lake over the Vale of York and the Goole and Crowle Lowlands. In the post-glacial period this lake, now unplugged, discharged eastward, through a gap approximately at the position of the Humber Bridge, across the muddy boulder clay wastes. It formed a deep channel with a wide shallow valley flowing out into the North Sea, which at this time was dry. As the sea level rose, the wide valley became flooded and the estuary slowly developed, so that around 6000 years ago, the estuary's current form was largely established.

Many of the poorly drained alluvial soils around the estuary are of good to moderate agricultural value through human management of the land, largely due to the extensive drainage improvements that were carried out over the past few centuries, including the cutting of new drainage channels, enlarging and diverting of existing watercourses, construction of flood alleviation berms, sluices and installation of pumps. Soils of the area were also extensively modified from the mid-18th century onwards by the practice of `warping' i.e. the seasonal impoundment of tidal silts. This practice owed much to the influence of Dutch engineers. Warping increased the fertility of the land such that most of the land close to the estuary is now of Grade 2 and 3 classification and is used for arable, root crop and market garden production.

Although warping is no longer practised, the drains remain useful for land drainage and are still locally prominent by virtue of their raised grassed flood defence embankments. It has been estimated that around 78% of the estuary's original salt marsh has been converted to agricultural production in recent centuries, although a substantial area has been preserved. In addition, over 5000 hectares of inter-tidal wetland has been reclaimed.

36.3 Historic and Cultural Influences:

The Humber Estuary has encouraged settlement and trade across the past several thousand years as well as its use as a resource for industry and extraction in more recent centuries.

The Humber was a northern frontier of the Roman Empire for some 20 years (AD 50 to 70), before a northward push was made. This led to the development of Ermine Street (now the B1207) which carried trade to the ferry at Winteringham. New Romano-British settlements grew up along the Humber to take advantage of the new trading routes as exemplified by the Old Winteringham Roman Settlement, which is located to the east of the current village of Winteringham, is now a Scheduled Monument site. By the 3rd and 4th Centuries the area was densely populated and wealthy.

Tidal erosion has exposed archaeological finds suggesting considerable human activity during prehistoric times. Of these by far the most important are the Bronze Age boats and several log boats that have been discovered on the Humber foreshore. These boats have contributed much to the knowledge of early boat building in north west Europe and would certainly have been used in the Humber estuary and the surrounding rivers. Additional archaeological and palaeoecological evidence suggests that early settlement clustered around the higher land above the estuary. These elevated and drier positions allowed exploitation of the low-lying surrounds and with gradual clearance of the woodland allowed the development of pastoral and small-scale agriculture. By the late Iron Age, a major settlement had developed at South Ferriby.

Traces of medieval cultivation and early settlement are evident around North Killingholme with 'ridge and furrow' lines visible within the fields and surrounding archaeological sites from this period. There are earthworks of the deserted village of Lobingham, recorded in the Doomsday Book, with the site located around the village of East Halton. There are also two Scheduled Monument sites at East Halton at Manor Farm and Baysgarth Farm which are moated sites and the latter also with associated earthworks. At North Killingholme there are two similarly moated sites at Manor Farm and North Garth which are both Scheduled Monuments, the latter with associated enclosure.

The Humber continued to play an important role in the development of trade and commerce throughout the medieval period and contributed to the growth and prosperity of several market towns. The 16th and17th Centuries saw the fortunes of many of the market towns begin to fluctuate. The reasons for this included a decline in water-borne

trade, competition between market centres, localised famines or epidemics and improved land-based transport and communication. Selective urban growth continued during 17th century often favouring those towns with access to water communications. Work was commenced during the 1630s by Sir John Monson to build the South Ferriby sluice to control the flow of water within the Ancholme Valley. The structure was seen as an extreme measure leading to animosity within local villagers and the sluice was subsequently destroyed. South Ferriby sluice and lock were eventually built in 1842, to the design of Sir John Rennie and the sluice is now a Scheduled Monument.

In the 18th century, widespread enclosure and improvements in farming methods significantly increased agriculture productivity in the region. Extensive drainage improvements and warping brought most of the soils to their current classification status of Grade 2 and 3 and the area prospered.

Due to the natural clay deposits found within this area, Barton upon Humber was once the brick and tile-making capital of Britain following the industry's birth around the seventeenth century, as tile roofs and brick gradually replaced thatch.

The claypits were created through the extraction of clay for the thriving brick and roof tile making industry of Barton with around 20 manufacturers operating in Barton Upon Humber from the 1850s onwards. By around 1959 the extraction had ceased, with just a handful of manufacturers continuing the work. In more recent times the pits have been flooded and several of them transformed into a network of nature reserves or used for water-based activities such as New Holland Mere.

Erosion of the older patterns of urban development began in the 20th century with the spread of industry and the establishment of the port, oil storage and chemical industries at North Killingholme and the South Humber Gateway. Since the beginning of the 21st century, the pace of development has increased, with much former pasture at Killingholme Marsh converted to industry and hardstanding. Farming intensification has been evident in the last 60 years and more recently, farm diversification for example, poultry farming.

Completion of the Humber Bridge in 1981 resulted in more direct and quicker transport links between south and north Humberside (now North Lincolnshire and East Riding of Yorkshire respectively) and a shift away from the Humber ferry services and the gridlocked road network of the day.

36.4 Settlements and Buildings:

Settlement near the Humber Estuary has traditionally been restricted to the higher drier land beyond the boundaries of this regional landscape character area. With improvement to flood defences, development has grown in association with industrial and shipping activity along the estuary.

Barton upon Humber which lies on the LCAR boundary, was a late Saxon planned town that expanded in response to the abundant clay resource, becoming home to the early English brick and tile industries. Roman and Anglo-Saxon finds suggest that Barton upon Humber's earliest settlement stretches back to these eras of influence. The town was recorded in the Doomsday Book of 1066 as having a ferry and playing an important role on the River Humber. The line of the bridge is believed to be similar to an ancient ferry route between Hessle to Barton upon Humber.

Smaller settlements, such as New Holland and Barrow Haven, developed in the early 1800s in a linear arrangement extending along roads and rail from the estuary to larger inland settlements. Such has been the growth of trade through New Holland that a new bypass was constructed to the west, shortly after the completion of the Humber Bridge, to reduce road traffic running through the centre of the village and to accommodate large storage facilities.

South Ferriby's origin is as a nucleated settlement lying at the foot of the Wolds, exploiting the slightly elevated position and proximity to the mouth of the River Ancholme. Settlement in general and intermittent settlement to the west of the main village, along what is now the A1077, Sluice Road, reflected the growth in water-borne trade generated in this locality and the drainage improvements following the construction of the South Ferriby sluice. More recent development along the south of Sluice Road has resulted in infill development using a variation of building materials and property sizes creating a disjointed and irregular appearance.

There are a significant number of Historic farmsteads scattered across the LCAR, with the strongest presence around East Halton and North and South Killingholme with around 50% of them surviving in an extant condition and the remainder identified as partially altered. To the north east of Goxhill, a number are also distributed along the network of local roads. Other areas, such as north of Winteringham, are less accessible and therefore have only a few isolated farmsteads.

Industrial complexes are common around the Humber, the most significant being the South Humber Gateway which has developed on the estuary at the south eastern edge of North Lincolnshire's administrative boundary. It is a highly strategic location in relation to European trade and the deep nature of the estuary which can accommodate larger scale ships and tankers. The industrial infrastructure and transport corridor has had a significant impact on the surrounding countryside due to its size and scale. The proximity to the clay resource at Barton upon Humber is evident in the number of former extraction sites as well as the many buildings built from local red brick and pantile materials. Proximity to the coast also results in the distinctive use of cobble and brick-cobble materials. In a local context, concrete sea defences, former military installations, and lighthouses, combine to create a coastal vernacular, significant on the South Bank.

The cement works at South Ferriby, currently owned by Cemex, has been in operation for over 80 years and has a significant presence across the low-lying landscape. At the time of writing, the plant had been moth balled since the end of 2020 following an analysis of Cemex's European cement supply chain. No indications have been provided regarding the longer-term plans for the site although the conveyor belt between the plant and the South Ferriby Quarry has been earmarked for decommission.

Use of the Cemex site and the provision of clay has been integral to the alignment and construction of the flood defence embankment at South Ferriby which is due for completion by summer 2021. The flood defences are part of the response to the tidal surge which hit the east coast of England on 5 December 2013 and caused extensive damage to South Ferriby.

36.5 Landcover and Wildlife:

The Humber Estuary is an internationally and nationally important site of ecological value, as recognised by its multiple designations including Ramsar, Site of Special Scientific Interest (SSSIs), Special Protection Areas (SPA) and Special Areas of Conservation (SAC).

These designations not only classify the estuary as a 'Wetland of International Importance' but they also cover its mudflats, saltmarsh, reedbeds and the claypits. Although the estuary edge supports much industry and urban development and receives high inputs of agricultural chemicals by way of its feeder rivers, the extent of mud and the volume of through-flow mean that a rich invertebrate fauna can still be supported.

The Humber Estuary shoreline of North Lincolnshire forms part of an area notable for its important feeding and roosting sites for large numbers of waders and wildfowl, supporting more than 140,000 wintering and passage waterbirds at the time of writing. Features along the estuary include relict lines of saltmarsh and reedbed vegetation along tidal channels, marshy grassland and, significantly, water-filled clay pits around Barton. These are mosaics of open water and extensive stands of reed, with intervening rough grassland and scrub of note for its breeding bird community.

The re-purposing of some of the clay pits has resulted in the establishment of publicly accessible locations to experience the flora and fauna associated with the Humber Estuary within North Lincolnshire. The Waters' Edge Country Park is one of North Lincolnshire's success stories with the creation of ponds, reedbeds, native woodland and wildflower meadows within an 86 acre site immediately to the east of the Humber Bridge. The first part of the country park opened to the public in 2003 and an innovative, sustainable green visitor's centre building was opened in 2006. The site supports a diverse range of flora and fauna. To the west of the bridge is Far Ings National Nature Reserve, managed by the Lincolnshire Wildlife Trust: another example of where pioneering work has created a site which is now rich in wildlife and a breeding site for bittern, a species listed as amber on the UK conservation status list.

The Barton and Barrow Claypits are a complex of reedbeds and open water in flooded claypits which are important for breeding bittern, marsh harrier, bearded tits, water rail, reed warblers and sedge warblers. They also support wintering waterfowl, including good numbers of pochard, tufted duck, goldeneye, teal and gadwall.

To the very west of the LCAR, at the confluence of the Humber Estuary and the River Trent, Alkborough Flats was designated a Local Wildlife Site in 2018 and supports breeding bittern, marsh harrier, bearded tit and water rail in impressive numbers, with huge flocks of wintering waterfowl and frequent rare visitors, such as spoonbill and green-winged teal. Mammals present include otter, water vole, badger, harvest mouse and several species of bat. Not only are the Flats a spectacularly beautiful landscape but they have been at the vanguard of a new approach to managing tidal flood risk whereby tidal waters were allowed to flood a large part of the site which not only saved money on flood defences elsewhere but now also plays a key role in capturing and storing carbon and helping to increase resilience to climate change.

Approximately 7km to the east of Alkborough Flats is Winteringham Ings and Read's Island, within the estuary which are of great importance for breeding avocets and wintering waterfowl, including avocets, curlew and thousands of lapwing, golden plover and pink footed geese.

To the east on Goxhill Marsh, is an area known locally as The Grues, which was previously designated as a separate SSSI but is now part of the wider Humber Estuary designation and comprises of areas of coastal grazing marsh, saltmarsh that features drainage channels and borrow pits together with intertidal mudflats of ornithological value.

Further east still is the Halton Marshes wet grassland scheme, completed in 2020 as part of a mitigation for Able Humber Ports Limited development consent for the construction and operation of a new quay at Killingholme. This new wetland habitat has been created over 90 hectares of arable land on the banks of the Humber Estuary.

The North Killingholme Haven Pits, situated on the South Bank are a separate SSSI with national importance due to their range of saline lagoons which differ in both size and salinity. These have an exceptionally rich fauna with many rare invertebrates and are significant as roosting and feeding grounds for visiting waterfowl, especially waders.

Woodland cover is sparse across the whole LCAR but there are a few blocks of medium-sized, regularly shaped deciduous woodland on the more elevated land, usually in linear form as shelterbelts associated with farmsteads. Regular medium-sized shaped blocks of mixed woodland are associated with the South Bank industrial complex where coniferous planting offers a greater element of all-year round screening. The woodlands at Burkinshaw's Covert and Chase Hill Wood on the periphery the South Humber Gateway industrial area have been present for over 100 years. Some semi-natural woodland and pasture surrounds historic villages and the naturally regenerating areas of the clay pits.

Farm intensification has led to the loss of trees, hedgerows and woodland. Hedgerow loss in some areas has been significant and where hedges remain, they tend to be closely clipped. Hedgerow trees become more common on higher land. The man-modified watercourses, drainage ditches and dikes have little associated vegetation, with little ecological value. In winter, the open fields are attractive to flocks of wintering waterbirds such as lapwing, golden plover and curlew.

36.6 Connectivity:

The Humber Estuary LCAR has a good, well-established network of Public Rights of Way (PROW) some of which overlap with the coastal section of the Viking Way long distance footpath.

The Viking Way route runs from Oakham in Rutland to the Waters' Edge Country Park in Barton-Upon-Humber. Within the LCAR it overlaps with the PROW network and skirts the edge of South Ferriby and then along the estuary shoreline, eastwards, towards Barton-Upon-Humber.

At the time of writing, the England Coast Path Mablethorpe to Humber Bridge section is proposed to lead from the boundary of North Lincolnshire at South Killingholme, primarily along the floodbank to the Humber Bridge, as the name suggests.

Sustrans' National Cycle Network Route 1 is a national route which runs in sections from Dover up to the Highlands of Scotland and the route through the LCAR, across the Humber Bridge, is part of the larger regional section which runs from Lincoln to the Humber Bridge.

There is also a range of self-guided walks and cycling routes are promoted regionally through the Council's website. There is a range of self-guided walks and cycling routes which are promoted regionally through the Council's website.

36.7 Landscape Strategy:

The strategy for the Humber Estuary LCAR is to enhance the landscape through restoration. In many circumstances these strategies should be designed to mitigate specific visual impacts of developments or structures. The agricultural landscape needs to be enhanced to strengthen rural character and visual value as well as ecological value. Coastal habitats need continued protection with opportunities for enhancement identified such as the recent scheme at Alkborough Flats. In addition to the above, the following should also be considered:

- Maintain the openness of the farmland, to provide feeding, roosting and loafing habitat, known as “functionally-linked land” for the waterbirds of the Humber Estuary.
- Plan to adapt to the impacts of sea level rise which is likely to reduce the extent of farmland and freshwater habitat around the Humber in the longer term; and seek opportunities to positively adapt by establishing a variety of wetland, intertidal and grazing marsh habitats– where feasible – to partially compensate for loss.
- Protect existing hedgerow trees, and replant in selected locations, taking care to reflect the existing sparse pattern of these trees which is characteristic of the open landscape. The remaining native black poplar trees at Goxhill Marsh are of particular importance.
- Development around farmsteads should be encouraged to accord with the materials of the original structure, or to suitably compliment them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Consider the siting of new development which can be highly intrusive within the open landscape. Ensure that there is a robust plan in place to assimilate them within the landscape, either through screening and/or through an acceptable restoration plan.
- Retain and enhance the areas of woodland and ensure that they are managed to establish diversity in age, structure and species. Management should favour predominantly native species, with a proportion of species from more southerly zones, to allow for the effects of climate change. The existing extent and general arrangement of woodland and shelterbelts is distinctive and should be maintained and any new woodland planting should reflect the existing pattern, species and scale so that its relationship with skylines and farmsteads is harmonious.
- Consider the use of appropriate planting to filter views of heavy industry to the east without restricting views of the Humber Estuary, in accordance with the South Humber Bank Landscaping Initiative (SHBLI).
- Local Wildlife Sites should be regularly monitored to ensure that they are not being affected or eroded by development or other activities within or near to these valuable habitats.
- Manage field drainage channels to allow native habitats and species to establish and flourish.
- Consideration should be given to supporting and expanding the existing PROW network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the existing historical and ecological assets and features of interest within the Humber Estuary which would raise awareness of their value and promote a sense of ownership and surveillance within the local community.

37. Humber Estuary – Flat Drained Farmland

This LCT is within the 'inner estuary' to the west of the Humber Bridge with the most westerly area located at Alkborough Flats which are well contained to the east and south by the scarp slope of 'The Cliff' and by the confluence of the rivers Ouse and Trent to the west. The second area commences east of Whitton, through Winteringham Ings, encompassing Read's Island, extending along the A1077, Sluice Road, as far as the lower slopes around South Ferriby. Immediately to the east of Whitton, the LCT extends inland for over 5km where it tapers off as it is contained by the adjacent higher land of the Lincolnshire Edge LCAR. Around Winteringham Ings and Sluice Road, the southern boundary is indistinct as it merges into the flat landscape of the Ancholme Valley although the eastern boundary is well-defined by the rising land of the scarp slope of the Wold.

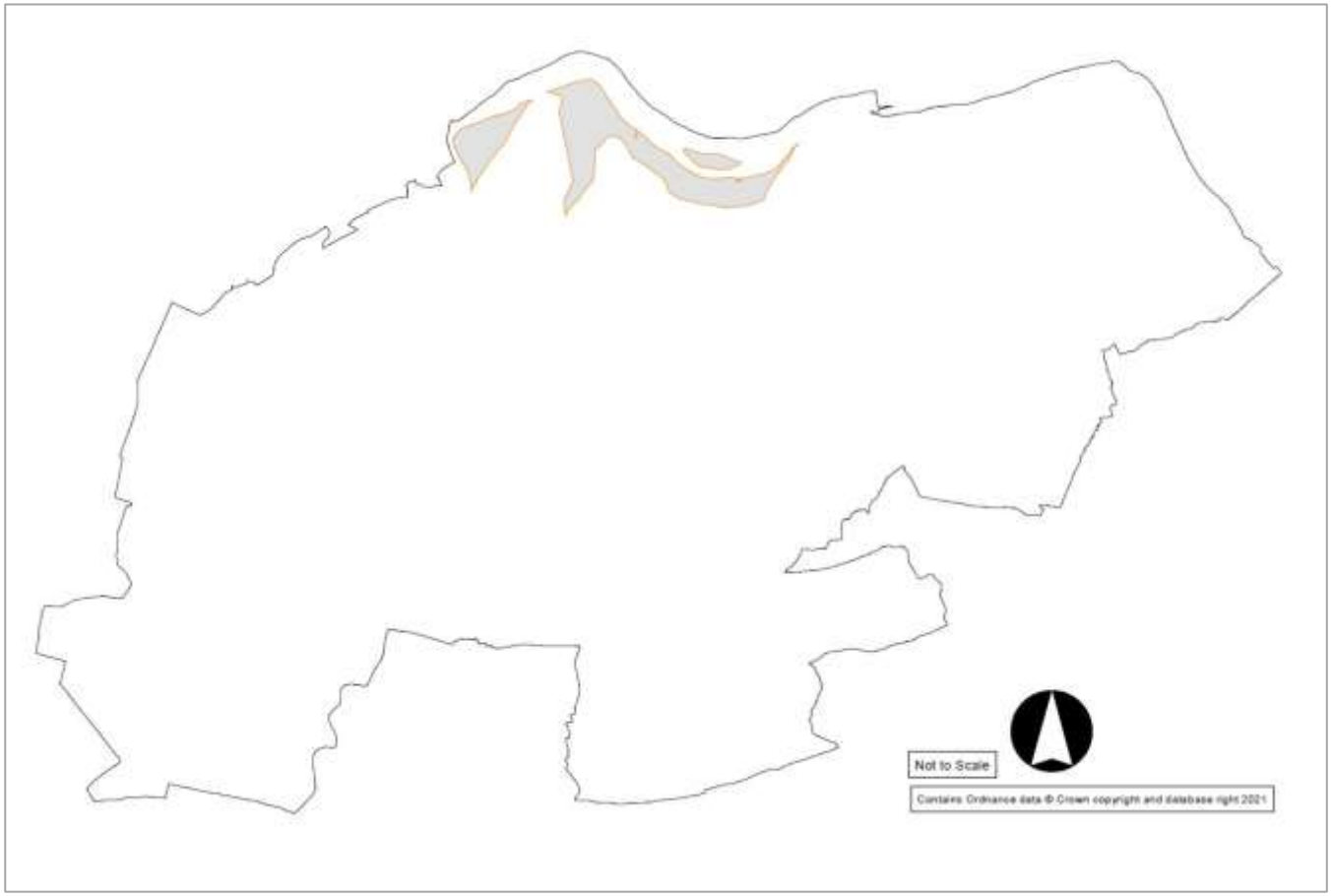

Figure 63 – Flat Drained Farmland

37.1 Key Characteristics:

- Predominantly open, flat, low-lying arable landscape comprising a broad expanse of large rectilinear drained fields.
- Alkborough Flats contains sizable areas of reedbed, mudflat, saltmarsh and coastal and floodplain grazing marsh.
- Settlements and farmsteads are mostly limited with vehicular access through the LCT primarily limited to local roads and tracks.
- Linear settlement at South Ferriby, along the A1077, Sluice Road, is more significant where infill development, using a variation of building materials and property sizes, have created a disjointed and irregular appearance.
- The chimney stacks and large processing buildings of the cement works at South Ferriby have a significant presence across the low-lying landscape and interrupt the expansive skyline.
- Views north, over the estuary, are open and long ranging and constantly changing through the tides and activity on the estuary. Views south are generally contained by the adjacent rising landform, although along Sluice Road, infrastructure such as the Cemex conveyor belt and pylons and transmission lines influence the views in this direction.
- The new flood defence embankment at South Ferriby, along Sluice Road, will limit views over the estuary in this area. The embankment is due for completion by summer 2021 and was constructed in response to the tidal surge which hit the east coast of England on 5 December 2013 and caused extensive damage to South Ferriby.
- Intensive farming has degraded the rural appearance, with field boundaries poorly defined, sometimes as an open ditch. Hedgerow remnants are well clipped and with gaps. In winter, the open fields are attractive to flocks of wintering waterbirds such as lapwing, golden plover and curlew.
- Well-kept ditches and few associated hedgerow trees are characteristic. Shrubby trees dotted in the landscape around Whitten are a distinctive feature.
- Many farms have large modern portal framed sheds that are often imposing on the flat landscape. Limited number of Historic Farmsteads throughout the LCT with some east of Whitton and the remainder at the foot of the scarp slope of the Wolds by South Ferriby. Around 50% of them survive in an extant condition and the remainder identified as partially altered.
- Woodland blocks within the LCT scarce, although elevated slopes within neighbouring LCARs lend an influence over the area.
- Strong natural heritage features throughout the LCT primarily through the international and national ecological designations of the Humber Estuary, but also neutral grassland Local Wildlife Sites between the new and old River Ancholme, and disused sand quarries.
- Large naturalised coastal habitat at Whitton Ness and Alkborough Flats is a designated Local Wildlife Site. These sites, combined with other locations such as Winteringham Ings and Read's Island, provide important breeding, passage and wintering grounds for a wide range of birds and mammals, some of which are nationally rare.
- Notable watercourses include Halton Drain, east of Whitton, Haven Drain and the River Ancholme. The latter is a Local Wildlife Site.
- The views east is dramatic, especially where landform allows views of the Grade I Listed Humber Bridge.
- Additional cultural heritage contributed by the Scheduled Monuments at the Old Winteringham Roman settlement and the Ferriby Sluice on the New River Ancholme.
- Good, well-established network of Public Rights of Way (PROW) some of which overlap with the coastal section of the Viking Way long distance footpath and link up with inland routes in the Lincolnshire Edge and Ancholme Valley.

Figure 64 – View west along Water Lane, Winteringham

"Predominantly open, flat, low-lying arable landscape comprising a broad expanse of large rectilinear drained fields."

37.2 Physical Influences:

Poorly drained alluvial heavily gleyed soils around the estuary have given rise to a flat agricultural landscape, now graded as a mix of 'High' and 'Good to Moderate' in Natural England's Agricultural Land Classification system, due to extensive drainage modifications. The low-lying land is under continual threat of flooding and this has inhibited significant growth of rural settlements. The boundary of Flat Drained Farmland is delineated by the 10m contour line and the villages, just outside of the LCT, which have exploited the more elevated, drier land.

37.3 Landscape Strategy:

Local landscape elements that are diminishing through the intensity of agricultural production need to be restored and enhanced to mitigate the impact of intrusive development and improve landscape structure. As the flood event of 2013 demonstrated, the lower lying land is vulnerable to inundation. Adapting to sea level rise will require more engineered solutions around settlements and natural flood risk management, entailing the creation of saline and wetland habitats, elsewhere.

37.4 Landscape Guidelines:

The guidelines for Flat Drained Farmland are presented below:

- Should additional engineered flood defence solutions be required, ensure that landscape and biodiversity mitigation and enhancements, relevant to the impacts, are delivered as part of the scheme. Expansion of settlements onto the floodplain should be resisted.
- Where possible, adopt the new approach to managing tidal flood risk, as demonstrated at Alkborough Flats, through managed realignment and the creation of washlands and new intertidal habitat.
- Engage with landowners and land managers to accommodate woodland areas around the lower lying part of South Ferriby to integrate the edge of housing into the landscape. Woodland planting should be targeted at areas that are likely to be protected from flooding with saline water for at least 50 years.
- Seek to encourage tree planting in the form of shelterbelts around existing intrusive farm units.
- Seek to restore hedgerows and infill those existing along boundaries, drainage ditches and dikes, where this will not shade out aquatic species. Improve management techniques to allow hedges to thicken and have a stronger visual presence in the landscape.
- Encourage the development of hedgerow trees and green corridors, especially near to intrusive transmission lines, industrial areas and edge of settlements, to link with existing woodland blocks where possible.
- Ensure the outer appearance and edges of settlements are consistent. Seek to conserve village character and form by limiting insensitive expansion. Village expansion should preferably re-use existing buildings or, where this is not possible, utilise traditional building materials and follow local architectural styles.
- Development around farmsteads, including new farm buildings, should be encouraged to accord with the materials of the original structure, or to suitably complement them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Mitigate the impact of existing intrusive farm buildings using new facias such as re-painting structures or using alternative cladding of buildings. Encourage ecological enhancements such as Swift boxes, Bat boxes and other refuges for wildlife.
- Avoid engineering improvements to minor access roads and lanes that will erode their visual characteristics.
- Introduce strategies to improve the ecological value and visual presence of drainage ditches and dikes through profile re-modelling. Habitat creation should be considered along the New River Ancholme.

38. Humber Estuary – Flat Open Farmland

Much of the southern boundary of this LCT abuts the Flat Open Farmland LCT within the neighbouring Lincolnshire Drift LCAR and displays similar characteristics. The northern boundary to the west is primarily defined by the railway line between Barton-Upon-Humber and New Holland. To the east of New Holland, it extends to the coastline and runs along its north-eastern shoulder, around Sluice Ness, before turning south as far as Halton Marshes. Here it is contained by a combination of its neighbouring LCTs, Open Undulating Farmland and Industrial Landscape.

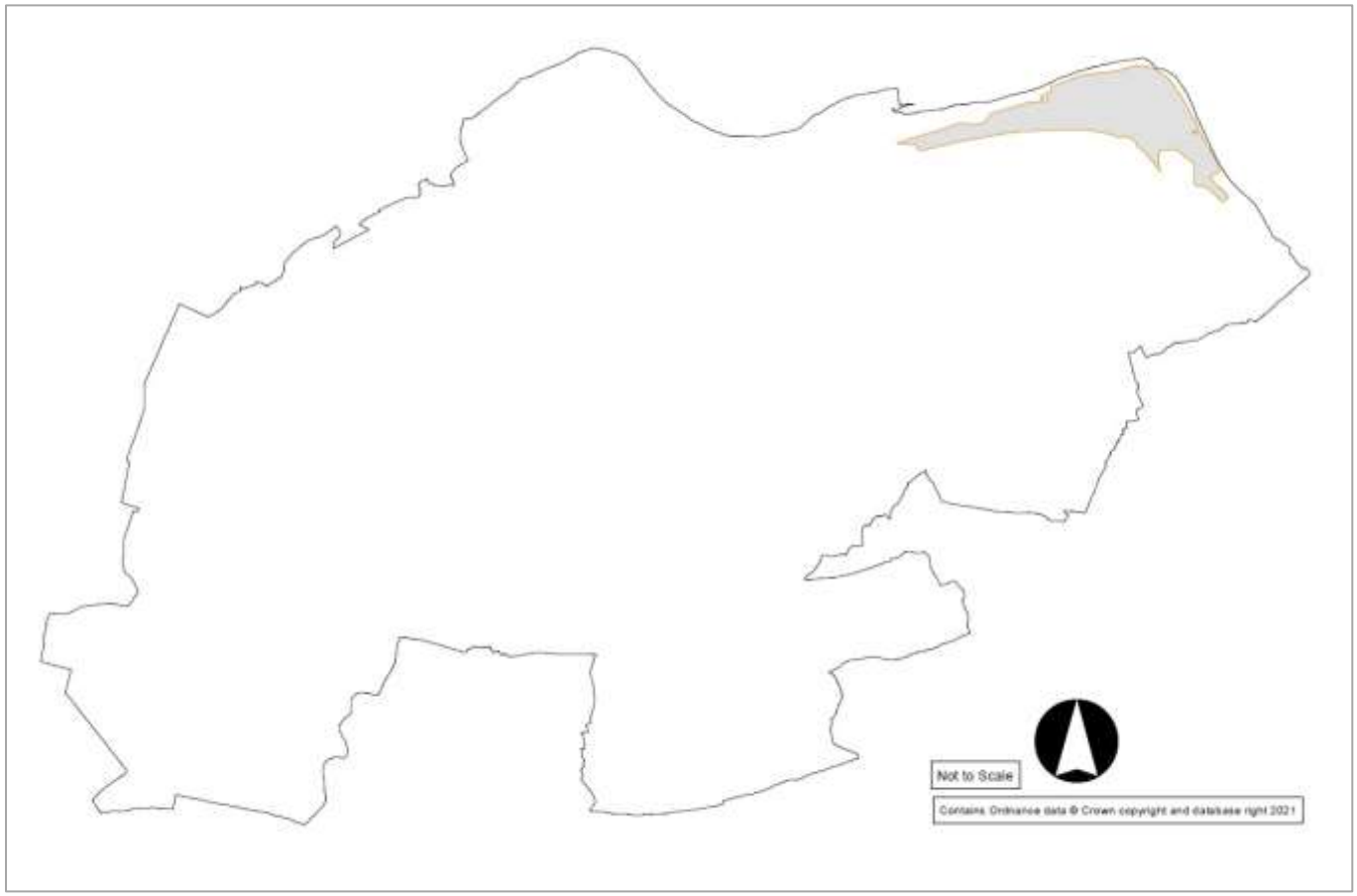

Figure 65 – Flat Open Farmland

38.1 Key Characteristics:

- Flat, expansive agricultural landscape with limited settlement. Barrow Haven and New Holland contribute to the majority of settlement within the LCT.
- Scattered farmsteads along the roads running out towards the north-eastern shoulder of the coastline. Some are Historic Farmsteads with several surviving in their extant condition or only partially altered.
- Further cultural heritage contributed through the World War II anti-aircraft gunsite Schedule Monument at West Marsh Cottage, west of Barrow Haven.
- Traditional farm buildings present although large scale, imposing barns made from modern materials are often associated.
- Open, low-lying arable farmland with a scarcity of woodland blocks.
- Dramatic views west towards the Humber Bridge are possible where intervening features are absent. Similarly dramatic views to the north and east with 'big sky' open views over the Humber Estuary.
- Trees concentrated around farm buildings or occasionally present in hedgerows which can create a sense of containment within views.
- Landscape is unified by the large rectilinear fields, well defined hedgerows and long straight roads.
- Hedgerows are either well managed and tightly clipped or very discontinuous with ditches being the defining boundary element.
- Farmland appears uniform and vacant in places with little species or structural diversity. However, in winter, the open fields are attractive to flocks of wintering waterbirds such as lapwing, golden plover and curlew.
- At the western end of the LCT, on the edge of Barton-Upon-Humber, small scale extraction of clay and shales is still active at Pasture Road north quarry.
- Prominent watercourses include The Beck at Barrow Haven and East Halton Beck to the east of Goxhill, both of which have sections with no associated vegetation. Several ditches and dikes are also present within the LCT.
- The Humber Estuary is an internationally and nationally important site of ecological value, designated as Ramsar, SSSI, SPA and SAC. Some of these designations extend inland from the Grues for nearly 1km, across the grazing marsh associated with the farmsteads at Goxhill Haven.
- PROW routes offer good connections out to the Humber Estuary shoreline.
- Some visually intrusive features such as the railway line between Goxhill and New Holland and the industrial development and working ports associated with New Holland and Barrow upon Humber.

Figure 66 – View north east towards the Humber Estuary from Oxmarsh Lane.

"Dramatic views west towards the Humber Bridge are possible where intervening features are absent. Similarly dramatic views to the north and east with 'big sky' open views over the Humber Estuary."

38.2 Physical Influences:

Formed on Cretaceous chalk overlain with estuarine alluvium deposits with pockets of till drift deposit, which has given rise to a poorly drained flat landscape which has been modified and drained to create good quality agricultural land.

Due to its low-lying nature, the land is under continual threat of flooding and this has inhibited significant growth of rural settlements, the change in elevation is loosely delineated by settlement which has sought the higher, drier land.

38.3 Landscape Strategy:

Within this LCT, the landscape strategy is enhancement of the rural landscape to mitigate and restore traditional rural features lost due to intensive agricultural practices. The focus should also be on boundary improvements to strengthen the structure of the landscape and assimilate incongruous features into the landscape but not compromise the essential openness of landscape character. Climate change adaptation may necessitate managed realignment of the coastline.

38.4 Landscape Guidelines:

The guidelines for Flat Open Farmland are presented below:

- Discourage further expansion of settlement into open farmland.
- Discourage the construction of large scale, imposing warehouses, or farm structures.
- Where development is unavoidable, encourage new farm buildings to be sited close to existing farmsteads and to reflect the materials, detail and scale of the traditional buildings. For all development, seek to screen with native species of local origin to integrate intrusive buildings. A robust maintenance and management schedule should also be secured to ensure that the trees establish and flourish.
- Limit new woodland planting within the open landscape.
- New woodland planting should be concentrated around settlements, areas of industry, farmsteads and intrusive farm buildings and be of linear and geometric arrangement.
- Seek to restore natural flows, marginal habitat and floodplain grazing marsh along both The Beck and East Halton Beck to improve their ecological value.
- .Where possible, away from the largest open fields, allow hedgerows to establish in height and thickness through the reduction of cutting regimes to increase the visual impact and ecological diversity. Where possible link to existing shelterbelts and woodland blocks to create wildlife corridors and enhance ditches.
- Re-establish lost hedgerows and field boundaries particularly where adjacent to roads, lands, footpaths, and watercourses. Leave large fields open where there are records of usage by significant numbers of wintering and passage waterbirds.
- Promote the regeneration and expansion of small pockets of existing semi-natural woodland to screen the railway corridor.
- Continued monitoring and conservation of the shoreline and functionally-linked land of the Humber Estuary ecological designations found within this LCT.

39. Humber Estuary – Industrial Landscape

This LCT refers to the South Humber Gateway which is located at the mouth of the Humber Estuary and occupies the very eastern edge of North Lincolnshire where it is contained by the county's administrative boundary to the east and south. It extends as far north as Halton Marshes and extends west towards the settlement edge of South Killingholme, North Killingholme and East Halton.

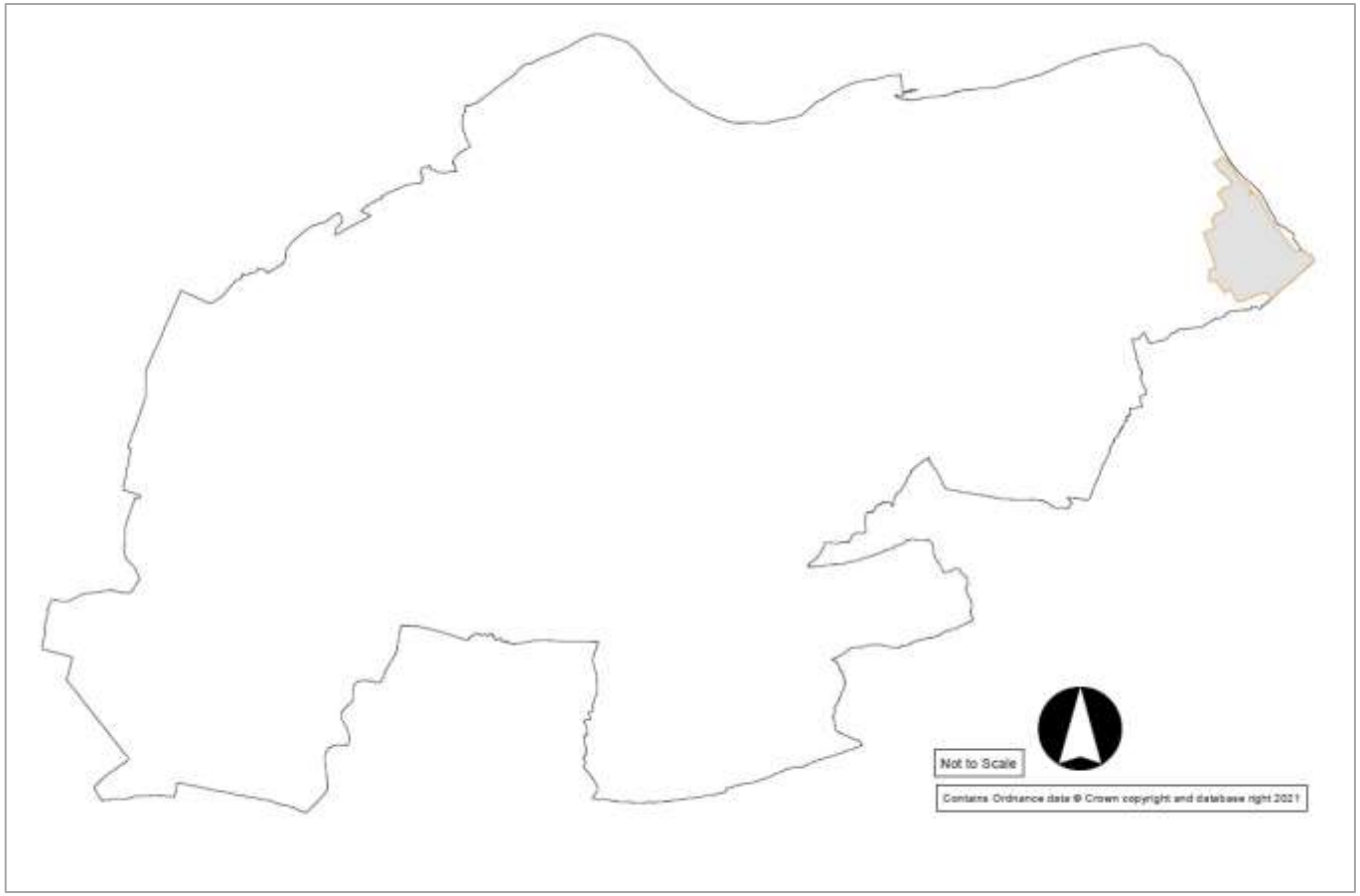

Figure 67 – Industrial Landscape

39.1 Key Characteristics:

- The topography of the land is low lying and flat but gently undulates over the 10m and 20m contour lines as it extends to the west.

- The area has been heavily developed for industry from the 1960's onwards with now only remnant pockets of flat open farmland, woodland and naturalised coastal habitats interspersed amongst the dominant industrial infrastructure.

- The saline lagoons of North Killingholme Haven Pits, on the site of the former clay extraction pits associated with the brick and tile works, have the same national and international level ecological designations as the Humber Estuary, and are significant as roosting and feeding grounds for visiting waterbirds, especially waders.

- In the last 15 years the expansion of hard surfaced vehicle storage areas, east of Rosper Road, has resulted in the loss of 185 hectares of arable land. This includes an unnamed block of deciduous woodland, previously present for over 100 years, as well as the diversion / culverting of field drains and watercourses. Because of this expansion, the saline lagoons are now tightly contained on 3 sides by hard surfaces.

- A similar scenario of expansion has developed at the northern end of the LCT towards the clay extraction pits of the former Wilkinson and Houghton Ltd bricks works on Skitter Road.

- Deciduous woodland blocks at Chase Hill Wood and Burkinshaw's Covert are similarly contained by the industrial landscape. Both blocks have been present for over 100 years with the former retaining its original footprint, but the latter has been partially removed. Plantation woodlands have been planted adjacent to Burkinshaw's Covert. These woodlands are Local Wildlife Sites.

- Landscape infrastructure elements are insignificant within the industrial landscape. Ornamental mitigation planting and amenity trees in grass verges are generally out of scale with the vertical infrastructure and industrial mass.

- Field boundary hedgerows still retained in good condition on the remaining agricultural farmland around Marsh Lane.

- Development has resulted in a disaggregated landscape lacking unity. Urban elements such as fences and signs proliferate and present visual clutter.

- Major transport corridors for the distribution of freight, including the Ulceby to Immingham railway and the A160 which bisect the area to the south. Industrial traffic such as large bulk tankers and lorry freight are common on the road network.

- Lighthouses and engineered coastal defences prominent along the coastline.

- Cultural heritage contribution from the 3 lighthouses (Killingholme North Low, High and South Low) and the Brick and tile kiln and associated chimney at the former Wilkinson and Houghton Ltd brickworks. All are located on the shoreline and are Grade II listed structures.

- The PROW network includes a route along the coastline and links inland to East Halton. There are no continuous routes through the industrial landscape, though the England Coast Path will make the necessary connections.

Figure 68 – View south from Haven Road

"Landscape infrastructure elements are insignificant within the industrial landscape. Ornamental mitigation planting and amenity trees in grass verges are generally out of scale with the vertical infrastructure and industrial mass."

39.2 Physical Influences:

This area has an underlying geology of chalk overlain with estuarine alluvial deposits, which created a flat open landscape developed into open drained farmland through human intervention. Industrial development during the second half of the 20th century has resulted in the establishment of the South Humber Gateway, a highly strategic location in relation to European trade and because of the deep nature of the estuary which is able to accommodate larger scale ships and tankers.

39.3 Landscape Strategy:

Control any future expansion of the industrial infrastructure from detrimentally affecting remaining habitats, agricultural land and cultural heritage features. Seek to create a landscape buffer between industries and neighbouring villages through the South Humber Bank Landscaping Initiative (SHBLI).

39.4 Landscape Guidelines:

The guidelines for Industrial Landscape are presented below:

- Protect landscape features through the application of local landscape and ecological designations.
- Encourage the creation of mitigation habitat within the wider region to counter the current imbalance between developed land and undeveloped land. A recent example is the creation of 90 hectares of wet grassland at Halton Marsh.
- Mitigation planting should be mixed broadleaf in composition, in irregular large-scale blocks and linked to existing blocks and hedgerows. Where year-round screening is required, for example to reduce light spill on to residential properties, broadleaf and coniferous mixes should be used.
- Promote the protection of existing woodland blocks through Local Wildlife Site designations or where appropriate tree preservation orders. Where possible, expand to increase mitigation opportunities.
- Seek to soften boundary security fencing associated with industrial complexes by introducing trees and shrubs species of local origin.
- Larger tree species that are in scale with the industrial mass should be selected for ornamental planting. Shrub planting should appear robust and substantial.
- Tree planting around new developments, for screening or shelterbelts, should be from native species of local origin with a proportion of species from more southerly zones to provide adaptation to predicted climate change. Any planting should be supported by a robust management and maintenance scheme to ensure that full establishment is achieved. Where existing tree planting is not of local origin then a programme of gradual replacement should be encouraged.
- Protect existing hedgerow trees and encourage re-instatement. Seek to maintain existing field boundaries and where possible augment gapped or discontinuous hedge lines within remnant farmland. Link to screen planting and thicken to increase their presence in the landscape. Tree planting close to villages, paths and viewpoints will be more effective at screening industrial structures than tree planting next to the structures themselves.
- Support the increased use of the existing footpath network, for example using technology and downloadable maps and information onto mobile devices. These maps can highlight the existing historical and ecological assets and features of interest within the Industrial Landscape which would raise awareness of their value and perhaps promote a sense of ownership and safeguarding within the local community.

40. Humber Estuary – Open Undulating Farmland

There are two geographic areas of Open Undulating Farmland which are continuations of the same LCT within the neighbouring Lincolnshire Drift LCAR to the west. Neither of the two areas extend to the shoreline to the east as they are predominantly contained by the Industrial Landscape LCT of the South Bank. The two areas are kept geographically separate by the alignment of the Ulceby to Immingham railway line which runs between them.

The larger of the two areas, to the north, has an indistinct boundary to the north and north east where it merges into the Flat Open Farmland LCT. The smaller southern area lies south of the railway line and is bisected by the route of the A160. To the east it is defined by the defined edge of the industrial complex and to the south by the North Lincolnshire administrative boundary.

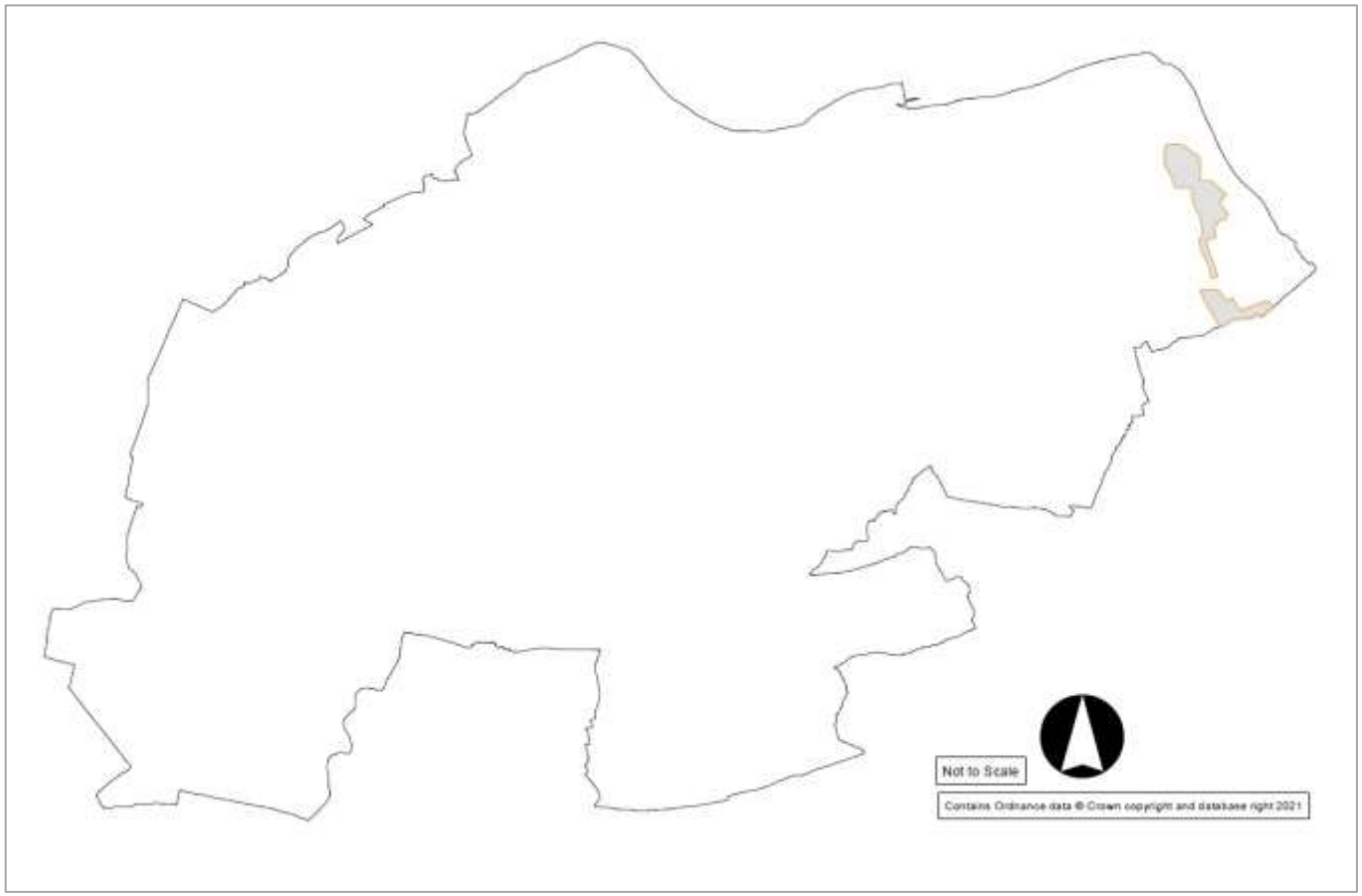

Figure 69 – Open Undulating Farmland

40.1 Key Characteristics:

- Gently undulating terrain descending towards the lower lying ground of the Humber Estuary to the east.
- Settlement is limited to scattered farmsteads and located in the northern area. Within the southern area South Killingholme is nucleated east to west across the A160 corridor and also north to south along Town Street.
- Strong presence of Historic Farmsteads within the smaller area with those present all surviving in their extant condition. In the larger northern area, the numbers are less with those present only partially altered.
- Despite the existence of traditional farm buildings, large-scale sheds are common.
- Large, intensive arable fields bounded by robust clipped hawthorn hedges although some degraded and with gaps.
- In the northern area, the landscape is open and sometimes exposed due to the scarcity of woodland blocks. Trees are commonly grouped with farm buildings or nearby as shelterbelts, or occasionally present in hedgerows.
- In the southern area, blocks of mixed woodland help to screen the hard industrial edge. This includes Houlton's Covert, which has been present for over 100 years retaining its original footprint, and the more recent community woodland of Mayflower Wood.
- Ditches are common and create strong linear features when associated with the roadside or field boundaries.
- Simple, peaceful landscape particularly in the northern area where industry and infrastructure are mainly viewed in the distance. Around the neighbouring Industrial Landscape LCT the interruption is greater due to pylons, infrastructure and transport corridors which are often dominant features.
- Urban clutter such as the proliferation of signs or fencing along field boundaries are common features.
- In the northern area, the Public Rights of Way (PROW) network, originating from East Halton, links up with the route along the coastline. In the southern area, the routes are curtailed by the Industrial Landscape to the east.

Figure 70 – View south along Skitter Road

"Simple, peaceful landscape particularly in the northern area where industry and infrastructure are mainly viewed in the distance."

40.2 Physical Influences:

This area has an underlying geology of chalk overlain with glacial till deposits of boulder clay to produce a gently undulating landscape. Intensive farming practices and nearby industrial development has significantly degraded rural character.

40.3 Landscape Strategy:

Seek to locally enhance this landscape type through the continued protection and strengthening of hedgerows, shelterbelts and woodland blocks. Strategic woodland planting would enhance views, provide greater local variation and integrate intrusive elements into the landscape. Seek to initiate landscape policies to protect and enhance traditional landscape elements such as farm buildings that are being degraded in quality.

40.4 Landscape Guidelines:

The guidelines for Open Undulating Farmland are presented below:

- The percentage of woodland cover can be increased significantly to mitigate the impact of infrastructure and industry, particularly around South Killingholme and along the railway line.
- Tree planting around new developments, for screening or shelterbelt, should be from native species of local origin with a proportion of species from more southerly zones to provide adaptation to predicted climate change. Any planting should be supported by a robust management and maintenance scheme to ensure that full establishment is achieved. Where existing tree planting is not of local origin then a programme of gradual replacement should be encouraged.
- Retain and enhance the areas of woodland and ensure that they are managed to establish diversity in age, structure, and appropriate species to promote habitat and visual diversity.
- Promote the planting of hedgerow trees to introduce an increasing degree of visual enclosure as the land becomes flatter and lower-lying, to diffuse and soften views of industry and infrastructure.
- Encourage the retention, infilling and thickening of hedgerows, where possible linking to existing shelterbelts and woodland blocks to create wildlife corridors and enhance ditches.
- Seek to conserve the distribution and form of villages and hamlets integrating new residential development through limited infill, seeking to re-use existing redundant buildings where possible and limiting use of important village open space. Maintain the continuity of village structure and character by ensuring new buildings follow local architectural styles and use traditional building materials.
- New farm buildings should be sensitively designed, sited close to and in scale with existing buildings and of appropriate detail.
- In the northern area, conserve views across the lower-lying coastal plain by minimising skyline interruption when siting new structures.
- Development around historic, and other, farmsteads should be encouraged to accord with the materials of the original structure, or to suitably compliment them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Consideration should be given to supporting and expanding the existing footpath network in the southern area towards the east and north to create more direct links to the shoreline.

41. Humber Estuary – Waterfilled Claypits

Commencing in the west near Barton Cliff and Chowder Ness, this narrow LCT extends approximately 8km eastwards to New Holland Mere, just past New Holland. The water filled pits are the legacy of late 19th C and 20th C clay extraction to feed the numerous brick and tile works which once dominated the shoreline.

The southern boundary, as it runs west to east, is defined by the Wolds scarp slope, the northern edge of Barton-Upon-Humber and finally the railway line running to New Holland.

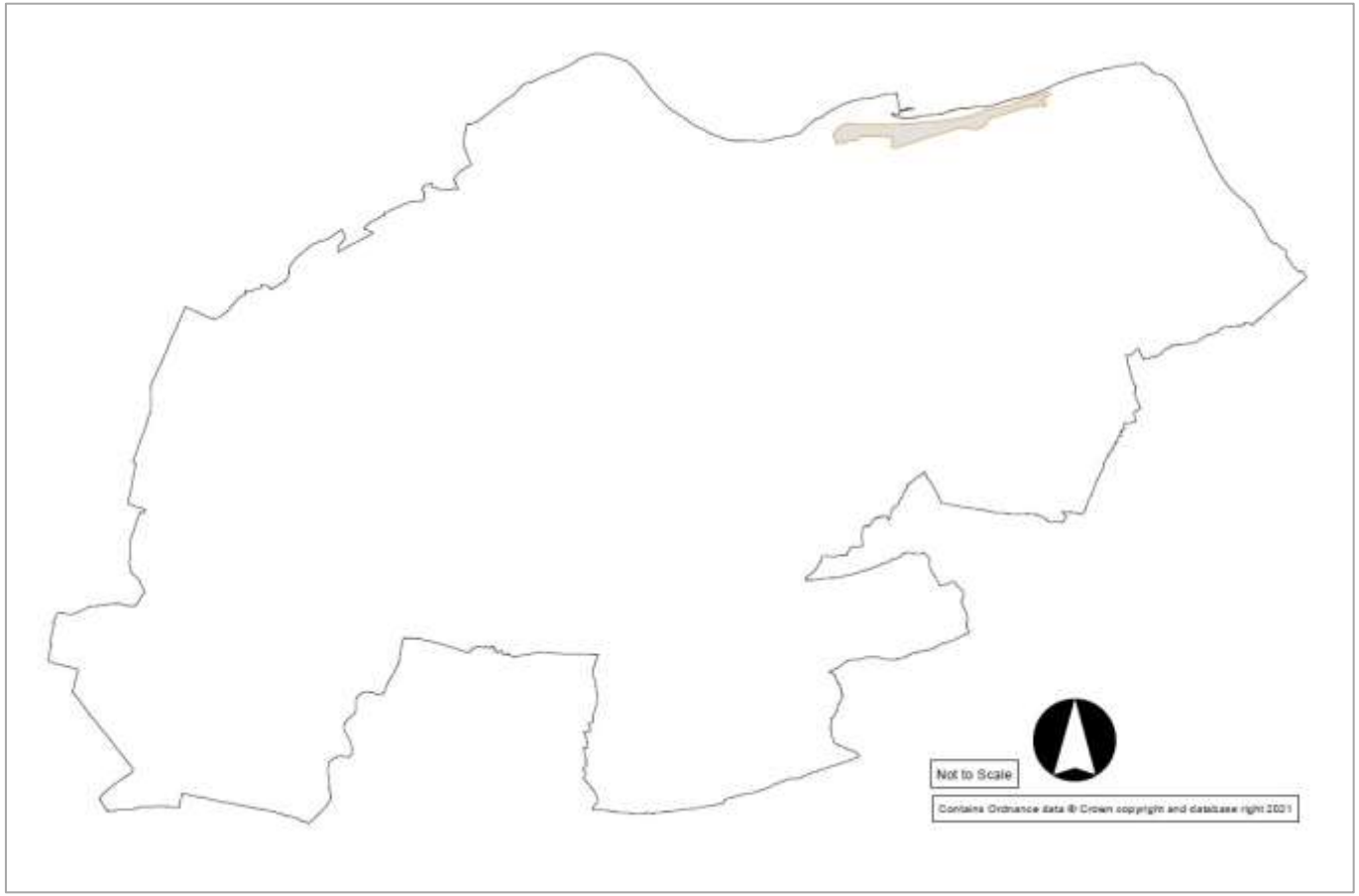

Figure 71 – Waterfilled Claypits

41.1 Key Characteristics:

- Flat landscape, visually contained to the south by the rising terrain of the Wolds, settlement edge and railway corridor.
- The Grade I Listed Humber Bridge bisects the area and the occasional openness of character in some places affords dramatic views of it, particularly as its massive scale provides a sense of the engineering achievement.
- Settlement and industry are limited to around the northern edge of Barton-Upon-Humber, Barton Waterside and New Holland.
- Between the clay pits, the road network is predominantly 'out and back' local roads which lead to recreational destinations such as visitor's centres, hotels, sailing clubs and fishing lakes.
- Strong natural heritage due to the Humber Estuary's international and national ecological designations which extend inland over 80% of this LCT.
- To the east of the Humber Bridge is the Waters' Edge Country Park, one of North Lincolnshire's success stories for restoring former despoiled landscape, which in addition to the Humber Estuary designations is also a designated Local Nature Reserve.
- Far Ings National Nature Reserve, west of the Humber Bridge, is managed by the Lincolnshire Wildlife Trust and is another example of successful restoration of the clay pits. It is also a designated Local Nature Reserve in part.
- Trees and vegetation are well established with pioneer species such as willow, alder and birch present.
- In and around the water-filled pits, views are contained by the established vegetation and provide an intimate and serene space in which to enjoy the natural world.
- Some of the water filled pits provide water based recreational use, including sailing and angling.
- There are several Grade II Listed buildings, chimneys and structures immediately to the east and west of the Humber Bridge, which are associated with William Blyth Ings Yard and the production of clay tiles. The two locations were part of a significantly evolved industrial complex and Historic England notes that "Such an extensive survival of an essentially late nineteenth century clay tile works is now extremely rare".
- Low voltage electricity poles are present but do not significantly detract from the overall sense of place.
- PROW routes offer good connections between the clay pits and along the Humber Estuary shoreline, including overlap with the Viking Way long distance footpath. The National Cycle Network Route 1 access and egress point for the Humber Bridge is along Far Ings Road and the B1218, Waterside Road.

Figure 72 – View north from Gravel Pit Road

"The Grade I Listed Humber Bridge bisects the area and the occasional openness of character in some places affords dramatic views of it, particularly as its massive scale provides a sense of the engineering achievement."

41.2 Physical Influences:

This flat open landscape has developed on chalk overlain with alluvial clays and was the source of extensive brick and tile manufacturing from the late 19th century until the 1980s. This clay extraction has resulted in a network of pits, of varying sizes, now infilled with water and reclaimed for nature conservation and recreational use. Some original buildings and structures associated with the manufacturing past survive.

41.3 Landscape Strategy:

The restoration of the water filled pits for both ecological purposes and recreational use has been very successful, and the strategy is to maintain this balance.

The continued management of this area as an important resource for nature conservation and recreation is fundamental to its character.

41.4 Landscape Guidelines:

The guidelines for Waterfilled Claypits are presented below:

- Consideration should be given to designate this LCT as an 'Area of High Landscape Value'.
- Resist any development, either on land or on water, which will detrimentally impact on the serene character of the area.
- Ensure any new development, or alteration to existing buildings, should reflect the vernacular of the area notably materials, scale and setting.
- Maintain the isolated nature of the landscape by restricting new road development around the pits. Existing local roads should not be significantly altered or engineered to accommodate either more vehicles or larger vehicles.
- Promote more sustainable visitor access cross the LCT through a park & ride initiative to discourage inconsiderate parking on the local road network.
- Ensure that the cultural and natural heritage of the LCT is maintained and safeguarded and actively promoted within the PROW network.
- Manage tree and vegetation succession to maximise habitat potential, for example through the periodical clearing of overgrown vegetation from the water.
- Maintain areas of reedbed and open water in accordance with Natural England advice, to benefit the nationally and internationally important wildlife. Where possible, seek to improve water quality and avoid excess nutrients.

42. Humber Estuary – Wooded Farmland

This area of Wooded Farmland is on the western boundary of the Humber Estuary LCAR and is essentially a continuation of the same LCT in the neighbouring Lincolnshire Drift LCAR. It commences to the south of the Ulceby to Immingham railway line, extending north through North Killingholme and East Halton and contained on its northern boundary by the New Holland to North Killingholme Haven railway line. Due to its geographical location, this LCT is one of only a few LCTs within the Humber Estuary LCAR which don't actually extend on to the estuary shoreline itself.

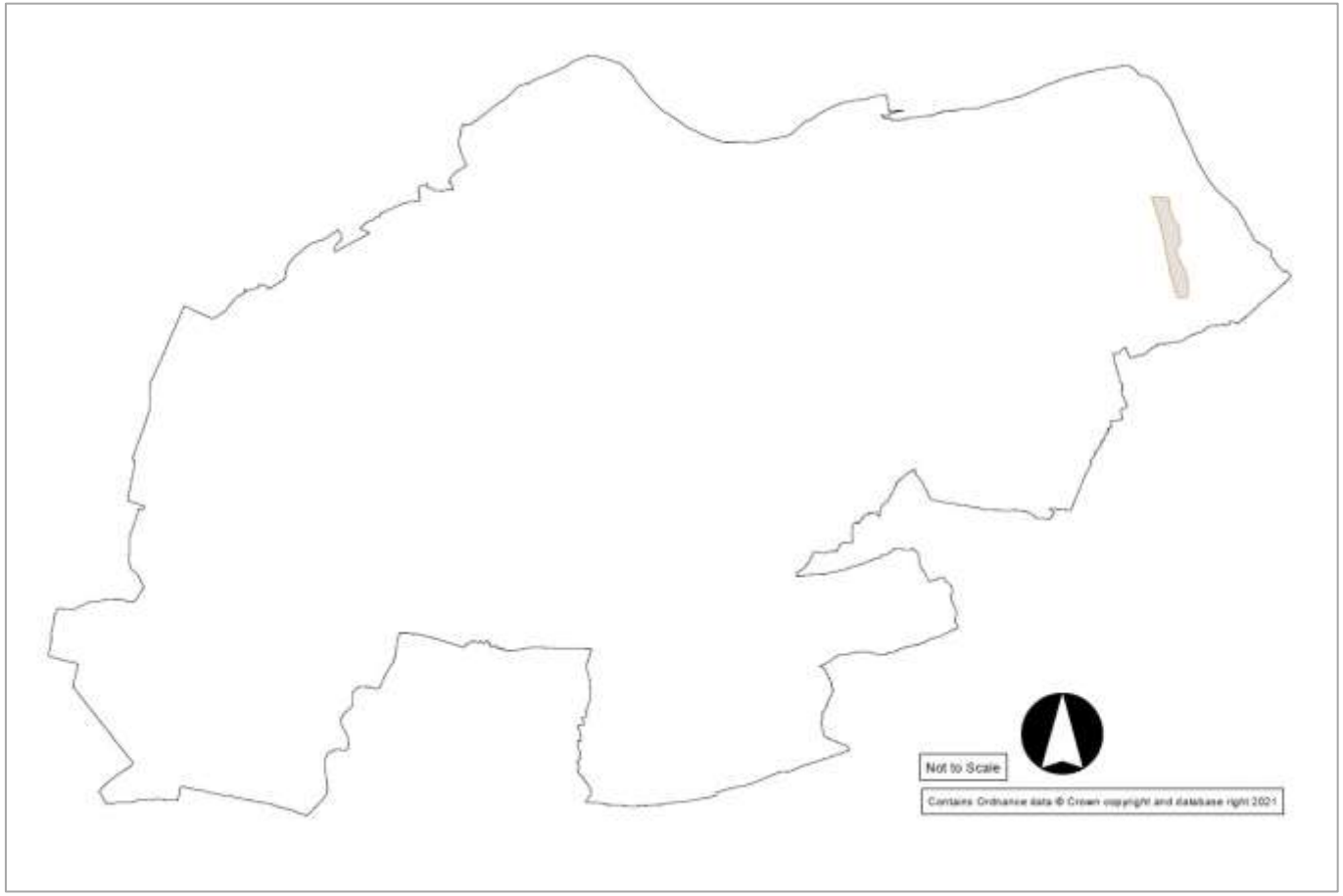

Figure 73 – Wooded Farmland


30
EAST
HALTON
Please drive
slowly

42.1 Key Characteristics:

- Gently undulating wooded landscape with pockets of arable farmland and pasture with sheep grazing.
- Small-scale field patterns are distinct in this LCT, with occasional field ponds of varying size.
- Irregular small fields around East Halton and North Killingholme still supported species-rich neutral grassland in the 1980s. Some examples still survive today and are designated as Local Wildlife Sites.
- Settlement is typically in the form of tightly nucleated traditional villages which have traditional buildings, occasionally with white render, and pantile or slate roofs.
- Historic farmsteads are scattered across this LCT with around 50% of them surviving in an extant condition and the remainder identified as partially altered.
- Mostly a peaceful, attractive unified setting with internal diversity. Localised enclosure provides important visual screening and filtering of detracting elements which cross this LCT.
- Roadside hedgerows and trees contribute to the sense of enclosure, particularly on the local road network.
- The influence of the transmission lines and industrial development to both the east and west of East Halton Road, at North Killingholme, is much more prevalent where there is no tree cover.
- Strong Cultural Heritage with four Scheduled Monument sites, including moated sites, and several Listed Buildings within an area measuring only 4km in length. The Church of St Peter and the Church of St Denys are Grade I Listed. Traces of medieval cultivation and early settlement are evident around North Killingholme with 'ridge and furrow' lines visible within the fields.
- PROW routes offer good connections to both the west and east with the latter heading out to the Humber Estuary shoreline.

Figure 74 – View south east from College Road, East Halton

"Mostly a peaceful, attractive unified setting with internal diversity. Localised enclosure provides important visual screening and filtering of detracting elements which cross this LCT."

42.2 Physical Influences:

This LCT has an underlying geology of chalk overlain with glacial till deposits of boulder clay to produce a gently undulating landscape. A predominantly wooded landscape has developed with the historic villages because it has either been protected or deemed unsuitable for intensive farming.

42.3 Landscape Strategy:

The strategy should be to conserve and enhance the historic character and wooded nature of the LCT which has been partially eroded by more recent intensive agricultural farming. This should be done through the conservation of historic features and character, woodland management, hedgerow renewal and management and the creation of new woodland.

42.4 Landscape Guidelines:

The guidelines for Wooded Farmland are presented below:

- Encourage the conservation and enhancement of tree cover within and around villages. Protect and manage existing mature tree groups for future regeneration and increase the number of specimen trees within villages, particularly along roads.
- Retain and enhance the areas of woodland, particularly those at the edge of settlements to aid the screening of industry in accordance with the South Humber Bank Landscaping Initiative (SHBLI). Ensure the woodland is managed to establish diversity in age, structure, and appropriate species to promote habitat and visual diversity.
- Conserve the small-scale field patterns and field ponds. seek to enhance the ecological value of the ponds and neutral grasslands Where possible, create more, bigger, better and joined habitat by re-creating species-rich grassland in neighbouring fields.
- Conserve existing hedgerows and enhance those in particularly prominent or historically significant situations, i.e. parish boundaries and along roadsides and where there is scope for improved wildlife dispersal between woodlands.
- Enhance the presence of hedgerow trees, especially where it will screen influence from industrial features, e.g. at North Killingholme.
- Enhance the screening of the railway lines through the extension of existing, or planting of new, woodland blocks.
- Ensure the outer appearance and edges of settlements are consistent. Seek to conserve village character and form by limiting insensitive expansion. Village expansion should preferably re-use existing buildings or, where this is not possible, utilise traditional building materials and follow local architectural styles.
- Maintain church steeples as prominent features within villages and resist development that will obstruct short and long-distance views.
- Development around farmsteads, including new farm buildings, should be encouraged to accord with the materials of the original structure, or to suitably complement them. They should also be sensitively sited and screened to assimilate them within the landscape.
- Avoid engineering improvements to local roads and lanes that will erode their rural characteristics.
- Seek to protect archaeological interest from damage and promote the cultural heritage in the LCT.
- Consideration should be given to supporting the existing PROW network, for example using technology with interactive maps and accessing waymarking and information through mobile devices. These maps can highlight the existing historical and ecological assets and features of interest in the LCT.

References

A vision of Britain through time (2009 – 2017) *New Holland Lincolnshire* https://www.visionofbritain.org.uk/place/24744 Accessed 24/05/2021.

BBC (2001) *Bronze Age boat 'oldest in Europe'* http://news.bbc.co.uk/1/hi/uk/1234529.stm Accessed 24/05/2021.

BBC (2020) *South Ferriby Cemex cement plant announces mothballing plan* South Ferriby Cemex cement plant announces mothballing plan - BBC News 07/05/2021.

BBC (2020) *The great bicycle boom of 2020* https://www.bbc.com/future/bespoke/made-on-earth/the-great-bicycle-boom-of-2020.html Accessed 11/05/2021.

Bomber County Aviation Resource (2008-2015) *Kirmington Airfield History* http://www.bcar.org.uk/kirmington-history Accessed 19/05/2021.

Brigg Heritage Centre (2020) *Exhibitions* https://www.briggheritage.org/exhibitions Accessed 04/05/2021.

British Geological Survey (2021) *About BGS* https://www.bgs.ac.uk/about-bgs/ Accessed 10/05/2021.

British Geological Survey (2021) *Geoindex Onshore* http://mapapps2.bgs.ac.uk/geoindex/home.html Accessed 17/03/2021.

Cleatham Hall (no date) *History of Cleatham Hall* https://www.cleathamhall.com/our-heritage/history 22/03/2021.

East Riding of Yorkshire Council (2018) *The Humber 2100+ Partnership – Tell us what you think* https://www.eastriding.gov.uk/council/have-your-say-homepage/consultation-finder/?entryid99=747400 Accessed 10/05/2021.

Elsham Golf Club (no date) *Elsham Golf Club* https://www.elshamgolfclub.co.uk/the-course/course-overview/ 05/05/2021.

Elsham Hall Gardens and Country Park (2021) *Elsham Hall Gardens and Country Park* http://www.elshamhall.co.uk/about/ Accessed 04/05/2021.

Environment Agency (2018) *Humber 2100+ Sustainability Appraisal: Final Scoping Report* https://consult.environment-agency.gov.uk/humber/strategyreview/supporting_documents/Humber2100_SA%20Final%20Scoping%20Report_2018.pdf Accessed 10/05/2021.

European Environment Agency (2015) *Natural capital and ecosystem services* https://www.eea.europa.eu/soer/2015/europe/natural-capital-and-ecosystem-services Accessed 10/05/2021.

Gov.UK (2021) *Environmental Land Management schemes: overview* https://www.gov.uk/government/publications/environmental-land-management-schemes-overview/environmental-land-management-scheme-overview Accessed 10/05/2021.

Gov.UK (2020) *Nature Recovery Network* https://www.gov.uk/government/publications/nature-recovery-network Accessed 10/05/2021.

Gov.UK (2020) *Nature Recovery Network Policy paper* https://www.gov.uk/government/publications/nature-recovery-network/nature-recovery-network Accessed 10/05/2021.

Gov.UK (2018) *25 Year Environment Plan* https://www.gov.uk/government/publications/25-year-environment-plan Accessed 10/05/2021.

Gov.UK (2019) *At a glance: summary of targets in our 25 year environment plan* https://www.gov.uk/government/publications/25-year-environment-plan/25-year-environment-plan-our-targets-at-a-glance Accessed 10/05/2021.

Gov.UK (2019) *UK becomes first major economy to pass net zero emissions law* https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law Accessed 10/05/2021.

Gov.UK (2020) *Forestry Commission* https://www.gov.uk/government/organisations/forestry-commission Accessed 11/05/2021.

Gov.UK (2020) *Landmark Agriculture Bill becomes law* https://www.gov.uk/government/news/landmark-agriculture-bill-becomes-law Accessed 11/05/2021.

Gov.UK (2018) *Resources and waste strategy: at a glance* https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england/resources-and-waste-strategy-at-a-glance Accessed 11/05/2021.

Gov. UK (2020) *Changes to Landfill Tax rates from 1 April 2020* https://www.gov.uk/government/publications/changes-to-landfill-tax-rates-from-1-april-2020/changes-to-landfill-tax-rates-from-1-april-2020 Accessed 11/05/2021.

Gov.UK (2021) *Government powers up electric vehicle revolution with £20 million chargepoints boost* https://www.gov.uk/government/news/government-powers-up-electric-vehicle-revolution-with-20-million-chargepoints-boost Accessed Accessed 12/05/2021.

Gov.UK (2021) *Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030* https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030 Accessed 12/05/2021.

Gov.UK (2020) *Open access restriction at Risby Warren Parcel B (case number: 2005090329): outcome* https://www.gov.uk/government/consultations/open-access-restriction-at-risby-warren-parcel-b-case-number-2005090329-how-to-comment Accessed 17/03/2021.

Grimsby Telegraph (2020) *A blow felt across North Lincolnshire - shock as Cemex announces mothball plans for landmark cement factory* https://www.grimsbytelegraph.co.uk/news/local-news/blow-felt-across-north-lincolnshire-4129511 Accessed 24/05/2021.

Heritage Gateway (2012) *North Lincolnshire HER Old Winteringham* https://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MLS2068&resourceID=1034#:~:text=The%20plotting%20of%20aerial%20photographs%2C%20of%20surface%20finds,spead%20of%20Iron%20Age%20occupation%20on%20the%20site Accessed 24/05/2021.

Historic England (no date) *'The Castles' motte and bailey* https://historicengland.org.uk/listing/the-list/list-entry/1007749 Accessed 20/05/2021.

Historic England (no date) *Brick and Tile Kiln including chimney* https://historicengland.org.uk/listing/the-list/list-entry/1103675 Accessed 26/05/2021.

Historic England (no date) *Mill House at William Blyth Ings Yard.* https://historicengland.org.uk/listing/the-list/list-entry/1391191 Accessed 27/05/2021.

Institute for Government (2019) *UK net zero target* https://www.instituteforgovernment.org.uk/explainers/net-zero-target Accessed 10/05/2021.

ITV.com (2021) *World's first hydrogen-fuelled power station to be built in North Lincolnshire* https://www.itv.com/news/calendar/2021-04-08/worlds-first-hydrogen-power-station-to-be-built-in-north-lincolnshire Accessed 11/05/2021.

Lincolnshire Trust (no date) *South Humber Heritage Trail South Ferriby* https://www.lincstrust.org.uk/sites/default/files/2018-04/south_humber_heritage_trail_south_ferriby.pdf Accessed 30/04/2021.

Linford, C. (2019) *Settlement Analysis of the Village of East Halton, North Lincolnshire* http://www.easthaltonparishcouncil.com/images/Documents/Local_History/EastHaltonSettlementAnalysis2.pdf Accessed 24/05/2021.

Little Crow Solar (no date) *Little Crow Solar Park* http://littlecrowsolar.co.uk/ Accessed 11/05/2021.

National Library of Scotland (no date) *South Ferriby* https://maps.nls.uk/geo/explore/side-by-side/#zoom=17&lat=53.67675&lon=-0.52236&layers=6&right=ESRIWorld Accessed 24/05/2021.

National Library of Scotland (no date) *Killingholme Marshes* https://maps.nls.uk/geo/explore/side-by-side/#zoom=15&lat=53.65508&lon=-0.23462&layers=6&right=ESRIWorld Accessed 26/05/2021.

Natural England (no date) *Wrawby Moor SSSI* https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1004116 05/05/2021.

North Lincolnshire Council (2021) *A New Local Plan* https://localplan.northlincs.gov.uk Accessed 10/05/2021.

North Lincolnshire Council (2021) – *Alkborough Flats scheme praised* https://www.northlincs.gov.uk/news/alkborough-flats-scheme-praised/ Accessed 10/05/2021.

North Lincolnshire Council (2021) *13 Sustainable Waste Management* https://localplan.northlincs.gov.uk/stages/3/13-waste-management Accessed 11/05/2021.

North Lincolnshire Council (2021) *Visiting Waters Edge* https://www.northlincs.gov.uk/tourism-museums-the-arts/visiting-waters-edge/#1612884536553-48e02d2c-4c87 Accessed 11/05/2021.

North Lincolnshire Council (2019) *North Lincolnshire Local Housing Needs Assessment* https://s.northlincs.gov.uk/downloads/spatial-planning/North-Lincolnshire-Local-Housing-Assessment.pdf Accessed 11/05/2021.

North Lincolnshire Council (2021) *Local Transport Plan 2011 – 2026* https://www.northlincs.gov.uk/transport-and-streets/local-transport-plan-2011-2026/ Accessed 12/05/2021.

North Lincolnshire Council (2019) *New Scunthorpe motorway access approved* https://www.northlincs.gov.uk/news/new-scunthorpe-motorway-access-approved/ Accessed 17/03/2021.

North Lincolnshire Council (2021) *Cycling in North Lincolnshire* https://www.northlincs.gov.uk/leisure/cycling-in-north-lincolnshire/#1604163355112-6d7d206f-633d Accessed 18/03/2021.

Oil & Gas Authority (2021) *Interactive maps and tools* https://www.ogauthority.co.uk/data-centre/interactive-maps-and-tools/ Accessed 17/03/2021.

Pluralist (no date) *New Holland: 1803 until the Present Day* http://www.pluralist.co.uk/localities/history.html Accessed 24/05/2021.

Secretary of State for Transport (2021) *HABITATS REGULATIONS ASSESSMENT* https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR030001/TR030001-003510-NMC-%20HRA%20Test%20for%20likely%20Significant%20Effects%20Report.pdf#:~:text=Halton%20Marshes%2C%20known%20as%20the%20Halton%20Marshes%20Wet,of%20ecological%20mitigation%20into%20a%20single%20block%2C%20namely%3A Accessed 24/05/2021.

Scunthorpe Anglers (2020) *Yaddlethorpe pond* https://scunthorpeanglers.net/fisheries/yaddlethorpe-pond/ 22/03/2021.

Scunthorpe Telegraph (2017) *Plan to build 300 homes at RAF Kirton moves step closer* https://www.scunthorpetelegraph.co.uk/news/plan-build-300-homes-raf-270566 Accessed 23/03/2021.

Sustrans (no date) *NCN Route 1* https://www.sustrans.org.uk/national-cycle-network/ 07/05/2021.

Sustrans (no date) *Route 169* https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/route-169/ Accessed 17/03/2021.

The Environment Partnership (no date) *Lincolnshire Lakes* https://www.tep.uk.com/project/lincolnshire-lakes-design-guidance/#:~:text=Lincolnshire%20Lakes%20is%20a%20proposed%20Garden%20City%20of,5%20lakes%20on%20existing%20agricultural%20land%20near%20Scunthorpe Accessed 13/05/2021.

The Long Distance Walkers Association (no date) *Viking Way* Viking Way - LDWA Long Distance Paths 07/05/2021.

The Renewable Energy Hub UK (2014) *UK Onshore wind farms and wind speed interactive map* https://www.renewableenergyhub.co.uk/blog/uk-onshore-wind-farms-wind-speed-interactive-map/ 18/03/21.

The Wildlife Trusts (no date) *Lowland heath* https://www.wildlifetrusts.org/habitats/heathland-and-moorland/lowland-heath 05/05/2021.

Tourism Alliance (no date) *UK Tourism Statistics 2019* https://www.tourismalliance.com/downloads/TA_408_435.pdf Accessed 11/05/2021.

Visitbritain.org (2021) *The value of tourism in England* https://www.visitbritain.org/value-tourism-england Accessed 11/05/2021.

Welcome to Scunthorpe (no date) *Timeline History of Scunthorpe* http://www.visitoruk.com/Scunthorpe/18th-century-T164.html Accessed 17/03/2021.

Wikipedia (2021) *Barton Upon Humber* https://en.wikipedia.org/wiki/Barton-upon-Humber Accessed 06/05/2021.

Wikipedia (2021) *Humber Bridge* https://en.wikipedia.org/wiki/Humber_Bridge Accessed 06/05/2021.

Wikipedia (2021) *New Holland, Lincolnshire* https://en.wikipedia.org/wiki/New_Holland,_Lincolnshire Accessed 24/05/2021.

York Archaeological Trust (2019) *The Brigg 'Raft'* https://www.yorkarchaeology.co.uk/case-studies-blog/2019/3/14/the-brigg-raft Accessed 04/05/2021.