

ES Chapter 5: Landscape and Visual Impact Assessment

Port of Immingham Wind Turbines

Client: Associated British Ports (ABP)

Reference: C4946-1307

Version 1

March 2024



Report Prepared for:

Associated British Ports (ABP)

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Checked by	Rob Collin	Date	15/09/2023
Approved by	Cameron Sutherland	Date	25/03/2024

Issue History	Date	Details
V0.1	15/09/2023	Draft
V0.2	20/03/2024	Legal Review
V1.0	25/03/2024	Submission

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5 Landscape and Visual Impact Assessment

5.1 Introduction

The Landscape and Visual Impact Assessment (LVIA) and the Cumulative Landscape and Visual Impact Assessment (CLVIA) has been undertaken in accordance with the methodology set out below and conforms with The Guidelines for Landscape and Visual Impact Assessment, Third Edition (Landscape Institute and IEMA, 2013). It can be found in **Appendix 5.1**. The assessment process has encompassed the construction, operational and decommissioning phases of the Proposed Development and has included the design, landscape and visual assessment (including cumulative) and assessment of the residual effects. Consultation relevant to the assessment has been undertaken with both North Lincolnshire Council and North East Lincolnshire Councils during a Scoping Exercise, who commented on aspects of methodology, sources of information, scope of assessment, viewpoint assessment and cumulative development.

This chapter assesses the landscape and visual effects of the Proposed Development, as described in **Chapter 2** of the ES. The LVIA forms one of the key components of the EIA process to comply with the EIA Regulations. This chapter assesses the Proposed Development against the requirements of the EIA Regulations and relevant planning policies relating to the landscape resource and visual amenity.

The purpose of this assessment has been to determine the landscape and visual effects of the Proposed Development on the existing landscape visual resource. The following landscape and visual receptors have been assessed.

- Landscape/Townscape character, key characteristics, and elements;
- Designated landscapes; and
- Views and visual amenity experienced by residents, tourists, visitors, and road users.

The Proposed Development is located on the southern bank of the Humber Estuary to the north of the settlement of Immingham. The port is served by the M180/A180, which links the port to the M18 and M1. The Proposed Development comprises two wind turbines, with a maximum turbine height of up to 149.9m to blade tip. The Site is split between the North Lincolnshire Council and North East Lincolnshire Council areas.

See Chapter 2 of the ES for a full description of the Proposed Development.

The assessment process has encompassed the construction, operation, and decommissioning of the Proposed Development and has included design parameters and further assessment of the residual effects. The design process has sought to achieve the highest energy generation capacity for the Site, whilst balancing this with environmental considerations and achieving an acceptable design in terms of landscape and visual effects.

This chapter is accompanied by:

- **Appendix 5.1** Methodology
- **Appendix 5.2** Viewpoint Assessment
- **Landscape and Visual Impact Assessment Figures 5.1 to 5.10**
 - Figure 5.1 – Study Area
 - Figure 5.2 – Cumulative Baseline
 - Figure 5.3 – Local Landscape Character Areas

- Figure 5.4 – National Landscape Character Areas
- Figure 5.5 – Landscape Planning Designations
- Figure 5.6 – Local Landscape Character with ZTV
- Figure 5.7 – Landscape Planning Designations with ZTV
- Figure 5.8 – Tip Height ZTV
- Figure 5.9 – Hub Height ZTV
- Figure 5.10 – Route Assessment
- **Landscape and Visual Impact Assessment Photomontages Figures 5.11 to 5.27**

The aim of the design and assessment process is to promote the best “environmental fit” for the development through consideration of the existing landscape resource, the potential landscape and visual effects and design alternatives. The assessment process will refer to landscape value, and in particular landscape designations and related planning policy, as well as landscape character and capacity for wind farm development at this Site.

5.2 Legislation, Policy and Guidance

The methodology for the Landscape and Visual Impact Assessment (LVIA) and the Cumulative Landscape and Visual Impact Assessment (CLVIA) has been undertaken in accordance with the methodology set out below and conforms with The Guidelines for Landscape and Visual Impact Assessment, Third Edition (Landscape Institute and IEMA, 2013).

5.2.1 Legislation

National legislation relating to landscape and visual includes:

- Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations).

5.2.2 Policy

National and local policy relating to landscape and visual includes:

- *National Planning Policy Framework*, Department for Levelling Up, Housing & Communities, 2023;
- *Policy 42 – Landscape, North East Lincolnshire Local Plan 2013 to 2032*, North East Lincolnshire Council, Adopted 2018;
- *Policy LC7 – Landscape Protection, North Lincolnshire Local Plan*, North Lincolnshire Council, Adopted May 2003; and
- *Policy LC13 – Parks Gardens and Landscape of Special Historic Importance*, North Lincolnshire Local Plan, North Lincolnshire Council, Adopted May 2003.

5.2.3 Guidance

National and local guidance relating to landscape and visual includes:

- *Landscape Character Assessment: Guidance for England and Scotland* (Countryside Agency and Scottish Natural Heritage publication, produced by the University of Sheffield and Landuse Consultants), 2002;
- *An Approach to Landscape Character Assessment*, Christine Tudor Natural England. October 2014;
- *North East Lincolnshire Landscape Character Assessment*, North East Lincolnshire Council, February 2010;
- *West Lindsey Landscape Character Assessment*, West Lindsey District Council, August 1999;

- *East Lindsey District Landscape Character Assessment*, ECUS, July 2009;
- *East Riding of Yorkshire Landscape Character Assessment*, AECOM, 2018;
- *Making Space for Renewable Energy: Assessing On-Shore Wind Energy Development*, Natural England, 2010;
- *Landscape Character Assessment Topic Paper 6 - Techniques and Criteria for Judging Capacity and Sensitivity*, Natural England and NatureScot, 2015;
- *Siting and Designing Wind Farms in the Landscape*, NatureScot, Version 3a, August 2017;
- *Visual Representation of Wind Farms*, NatureScot, February 2017;
- *Visual Representation of Wind Farms Good Practice Guidance*, prepared by Horner + Maclennan and Envision for Scottish Natural Heritage, The Scottish Renewables Forum and the Scottish Society of Directors of Planning, March 2006;
- *Photography and Photomontage in Landscape and Visual Assessment*, Landscape Institute Advice Note 01/2011, 2011; and
- *Assessing the Cumulative Impacts of Onshore Wind Energy Developments*, NatureScot, March 2021.

5.3 Consultation and Scope

5.3.1 Summary of Scope

The scope of the assessment has been established on the basis of professional judgment and is set out in **Table 5.1**. A Scoping report was submitted to North Lincolnshire Council and to North East Lincolnshire Council in April 2023, and feedback from statutory consultees responding to this has been taken onboard in the scope of the following assessment, which is based on the Scoping Opinions.

Table 5.1 - Scope of the Landscape and Visual Assessment

Landscape Issues	Description
Landscape Character	The effects of the Proposed Development on the landscape character and quality of the site area, as defined by the National Character Assessment and site survey.
Landscape Elements	Direct physical effects on any landscape elements which characterise the area.
Landscape Designations	Views from any designated landscape including Areas of Great Landscape Value, Areas of Outstanding Natural Beauty and Registered Parks and Gardens. Views from other areas of landscape character as perceived by people.
Visual Issues	Description
Local Community	Views from the local rural community, particularly from residential properties near the Site and from local settlements which lie within the Zone of Theoretical Visibility (ZTV). Views from roads and popular tourist / walker destinations and hilltops will also be taken into consideration.
Tourist Destinations	Views from popular outdoor tourist destinations which entail an appreciation of the landscape, and the setting of features and the visitor experience.
Major Transport Routes	Transport routes including the A180 as well as any popular walking routes in the area.
Cumulative Issues	Description
Cumulative Assessment	The cumulative assessment includes viewpoint assessment within the study area where simultaneous and/or successive views of more than one wind energy development may be viewed along transport routes (simultaneous or successive).

5.3.2 Viewpoint Selection

The final list was borne out of consultation, professional experience and the scoping process with North Lincolnshire Council and North East Lincolnshire Council. **Table 5.2** below provides a summary of the viewpoint locations and rationale for their selection. The selected viewpoints offer views from near, middle and distant locations as well as views from the north, south, east and west. 17 locations in total have been photographed and photomontaged across the study area. These locations represent a number of different receptors, viewing directions and distances. As far as possible, viewpoints have been selected to represent the development at its most visible.

Table 5.2 - Summary of locations selected for viewpoint assessment

Viewpoint	Reason for Inclusion or Exclusion of Location	Distance
VP1 – Immingham North (Figure 5.11)	View is representative of views experienced by the closest residents on the northern edges of the settlement of Immingham.	0.8km
VP2 – Homestead Park (Figure 5.12)	View is representative of views experienced by residents of Immingham, as well as any users of Homestead Park.	0.8km
VP3 – Immingham South (Figure 5.13)	View is representative of views experienced by the residents of the wider Immingham area.	1.7km
VP4 – South Killingholme (Figure 5.14)	View is representative of views experienced by residents of Killingholme.	2.8km
VP5 – Habrough (Figure 5.15)	View is representative of views experienced by residents of Habrough.	3.0km
VP6 – East Halton (Figure 5.16)	View is representative of views experienced by residents of East Halton.	6.6km
VP7 – Stallingborough (Figure 5.17)	View is representative of views experienced by residents of Stallingborough.	4.8km
VP8 – Holderness Peninsula (Figure 5.18)	View is representative of views from across the Humber Estuary and illustrate the Proposed Development in context with the Humber Refinery.	5.7km
VP9 – Keelby (Figure 5.19)	View is representative of views experienced by residents of Keelby.	7.4km
VP10 – Public Right of Way on the Grimsby Coast (Figure 5.20)	View is representative of views experienced by walkers walking between Grimsby and Immingham on the Public Right of Way.	6.4km
VP11 – Brocklesby Park (Figure 5.21)	View is representative of views experienced by visitors to the Registered Park and Garden and impacts on its character.	12.1km
VP12 – Fort Paull (Figure 5.22)	View is representative of views experienced by visitors to Fort Paull as well as illustrating the impact on the historic feature here.	8.2km
VP13 – National Cycle Route over the A180 (Figure 5.23)	View is representative of views experienced by both road users on the A180 and cyclists on the National Cycle Route 1.	12.1km
VP14 – Barrow upon Humber (Figure 5.24)	View is representative of views experienced by residents of Barrow Upon Humber.	12.1km
VP15 – Victoria Dock, Hull (Figure 5.25)	View is representative of views experienced by residents of Hull and of views along the Humber estuary.	13.0km
VP16 – Lincolnshire Wolds AONB (Figure 5.26)	View is representative of views experienced by visitors to the AONB and impacts on the character of the AONB.	10.3km

Viewpoint	Reason for Inclusion or Exclusion of Location	Distance
VP17 – Spurn Point (Figure 5.27)	View is representative of views experienced by visitors to Spurn Point and the impact on ferries passing through the Mouth of the Humber.	22.0km

5.3.3 LVIA Study Area

An overall study area of 40km radius from the proposed turbine was established following NatureScot Guidance. This study area is illustrated in **Figure 5.1**. While this 40km study area was initially investigated, the focus of the assessment will be on those impacts within 20km of the Proposed Development, as receptors beyond this are unlikely to experience any significant landscape or visual effects.

5.3.4 Cumulative Assessment

Drawing from NatureScot guidance, a cumulative baseline of all operational and consented developments and other planning applications for development, within the 40km study area is created. Any Developments above 50m within 10km of the development Site are included and any developments above 80m within 20km are included in this assessment. Any developments over 20 km away are highly unlikely to give rise to significant cumulative effects. The detailed assessment focuses on the relationship with other developments in the area and the potential for significant cumulative effects in combination with the operational turbines.

These developments will be included on any wirelines and CZTV's will be run for each of these in conjunction with the Proposed Development, primarily focussed on the cumulative visibility between the wind turbine elements of the proposal. For a full list of all cumulative projects see **Figure 5.2**.

In addition to wind energy developments, any other developments as identified in **Table 3.3** of **Chapter 3**, were considered. However, none of these would give rise to in-combination cumulative effects with the Proposed Development. In accordance with the NatureScot guidance, projects at or up to the scoping stage have not been included.

5.4 Assessment of Landscape Effects

5.4.1 Landscape Baseline

Information on the existing landscape and visual resource has been collected by reference to Local Plans, OS maps and relevant literature, including Natural England's National Character Assessment (NCA) ¹as well as information gathered from field surveys.

5.4.1.1 Broad Landscape Context

The study area for the Proposed Development (**Figure 5.1**) is located partially within the North East Lincolnshire Landscape Character Assessment and partially within North Lincolnshire Landscape Character Area. The North East Lincolnshire area covers the landscapes of North East Lincolnshire, which includes Grimsby and the surrounding landscape, inland to the Lincolnshire Wolds as well as the stretch of coastline between Humberston Fitties and Immingham. There is a strong man modified influence to much of this area, particularly in the east, near at the coast where the development is located, with a history of industry strongly influencing the landscape and landuse. The Lincolnshire Wolds to the west provides a border, as well as containment to the North East Lincolnshire area, while the coastline and estuary to the east is a notable feature of the landscape as well as a

¹ National Character Area Profiles, Natural England, September 2014

strong boundary on this side. North Lincolnshire does not have a local character assessment and is covered by the NCA.

Figure 5.2 illustrates the various landscape character types, which have been classified by Natural England, the local authorities and their consultant landscape architects. It can be seen from Figure 5.2 that the Site study area is contained within a number of different landscape character reports, including the North-East Lincolnshire, North Lincolnshire, East Lindsey, West Lindsey and East Riding of Yorkshire reports.

5.4.1.2 National Landscape Character Area

The Proposed Development is situated within the Humber Estuary National Character Area (NCA) as identified by Natural England in their 'National Character Area Profiles, September 2014' document, which includes sections on either side of the Humber within both North-East Lincolnshire and across the water in East Riding of Yorkshire. This is illustrated on Figure 5.4 and a brief description is offered by Natural England:

"The Humber Estuary National Character Area (NCA) focuses on the open and expansive waters of the Humber where it flows in to the North Sea and the adjacent low-lying land. Several major rivers flow into the Humber, including the Trent, Don, Aire, Ouse and Hull, thus draining one-fifth of England. This is a low-lying estuarine landscape, with extensive stretches of intertidal habitats including mudflats, salt marsh and reedbeds, coastal dunes and wetlands along the side of the estuary. The estuary is of international significance, as a Ramsar site and is designated as a Special Protection Area for the large flocks of overwintering, migratory and breeding birds. The estuary is also designated as a Special Area of Conservation for its geomorphology and range of intertidal habitats, its lampreys and breeding colonies of grey seals. The area is particularly important for its dynamic geomorphological processes, the most notable of which form the ever-changing, long, remote Spurn peninsula, now designated as Heritage Coast.

There are strong contrasts within this landscape. Much of it is open and expansive, with long views and tranquil and remote places, such as Spurn Point, Blacktoft and Skitter Ness, or quiet rural areas dominated by farming. These areas contrast with the large towns such as Hull and Immingham, with the industrial complexes, and with the estuary itself which is a busy trading route.

Key challenges include integrating the development pressures associated with the towns and ports with the protection and enhancement of the landscape and the internationally significant habitats and species. Rising sea levels are another challenge which, when combined with flood flows in the many big rivers that flow into the estuary, can cause major flood events. Addressing the coastal squeeze that is affecting the important intertidal habitats is another challenge, as is understanding and allowing the natural dynamic estuarine process, in particular those that shape the Spurn peninsula."

Within the 'National Character Area Profiles' document, Natural England provide key characteristics of this landscape, which make it distinct from other landscapes. These 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 intertidal 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.
- The unique peninsula of Spurn Point, with its mudflats and sand dunes constantly responding to dynamic coastal processes, provides birdwatching of international interest within a wild and remote landscape.
- 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.

5.4.1.3 Key Landscape Character Types within the Study Area

According to the European Landscape Convention², Landscape Character Types (LCT) are area, as perceived by people, whose visual features and character are the result of the action and interaction of natural and/or human factors. Each area is identified as a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another. While the Humber Estuary landscape is a wider regional area, locally, the Proposed Development Site is located within the Industrial LCT, which covers a narrow strip of landscape on the northern side of Grimsby and stretches north to the border with North Lincolnshire. In addition to this landscape there are also a number of other landscape character areas that are included within the study area. **Table 5.3** summarises the landscape character types (from the relevant documents³) that are situated within the study area and have potential visibility. Landscapes beyond 20km have been scoped out of the assessment as the Proposed Development is unlikely to have significant effects on them.

Table 5.3 - Landscape Character

Name	Key Characteristics
North East Lincolnshire (Extracted from <i>North East Lincolnshire Landscape Character Assessment</i> , North East Lincolnshire Council, February 2010)	
Ai – Industrial Landscape	Landscapes visually dominated by large or massive structures serving as docks, storage, factories or petrochemical installations. These structures are often separated by extensive open arable land with hedges and groups of trees playing little compositional role in the landscape.
Aii – Flat Open Farmland	Level, low-lying arable landscape with scattered tree and hedgerow cover providing local shelter and enclosure. Fields are large and regular, often rectilinear. Settlement is frequent in this landscape but tends to be in the form of dispersed farmsteads with large outbuildings. Villages are nucleated and tend to be well separated.
Bi – Open Farmland	The typical English lowland landscape with open arable fields set in undulating or gently rolling terrain. Locally, enclosure is provided by hedgerows, trees, copses and the regular presence of villages. The nature of the

² An Approach to Landscape Character Assessment, Christine Tudor Natural England. October 2014.

³ North East Lincolnshire Landscape Character Assessment, North East Lincolnshire Council, February 2010;

East Lindsey District Landscape Character Assessment, ECUS, July 2009;

East Riding of Yorkshire Landscape Character Assessment, AECOM, October 2018;

West Lindsey landscape Character Assessment, West Lindsey Council, August 1999; and

National Character Area Profiles, Natural England, September 2014.

	topography is closely related to the underlying drift and solid geology. Areas of glacial till and clays tend to be softly undulating while in areas such as the Jurassic Hills the influence of the solid geology is greater, creating a gently rolling landscape of more open aspect.
Bii – Wooded Open Farmland	An open rural landscape including a relatively high percentage cover of mature broad-leaved woodland. Land between woodlands and copses is mostly laid to intensive arable production with few hedgerows or trees.
Biii – Flat Open Farmland	Level, low-lying arable landscape with scattered tree and hedgerow cover providing local shelter and enclosure. Fields are large and regular, often rectilinear. Settlement is frequent in this landscape but tends to be in the form of dispersed farmsteads with large outbuildings. Villages are nucleated and tend to be well separated.
Biv – Sloping Farmland	An attractive, expansive and elevated arable landscape set in gently sloping terrain. Long views across the land and over low-lying land are an important characteristic, setting this type apart from other open farmland types. Fields are large and regular, bounded by clipped hedgerows and occasional woodland blocks. Villages tend to be mature and follow a nucleated pattern, often dispersed along a spring-line supplying groundwater from higher farmland. Proximity to the adjacent ‘Wolds’ landscapes is important resulting in partially enclosed views.
Ci – High Farmland	An elevated and expansive arable landscape of large, gently rolling fields. These very large regular fields are generally bounded by well-maintained hedgerows with few trees, although at times hedges are absent or gappy. Tree cover is limited to regular woodland blocks which, although not covering an extensive area, play an important compositional role in scale with the overall landscape. Roads traverse the area in a regular pattern, usually with widened verges. Villages are mostly absent or peripheral to the area, with built forms mostly comprising large farmsteads, commonly built of brick. The shallow soils result in the visible presence of chalk in the soil, especially where recently ploughed.
East Lindsey (Extracted from <i>East Lindsey District Landscape Character Assessment</i> , ECUS, July 2009)	
I1 – Holten Le Clay to Great Steeping Middle Marsh	The low lying landform has subtle variations. In some locations it is flat and in others it is very gently undulating. It rises gradually to the west forming the foothills to the Wolds. It has partially enclosed settlements sheltered by trees, woodland blocks, hedgelines and landform, but is more open in many other parts. Views are mostly uncluttered and include those to the Wolds Area of Outstanding Natural Beauty (AONB) and to windfarms at Conisholme and offshore from Skegness. This is a strongly rural landscape with many small historic villages and a patchwork of arable and pastoral fields interwoven with rows of hedgerows and trees.
J1 – Tetney Lock to Skegness Coastal Outmarsh	This is a mainly flat and drained agricultural coastal plain. There are some very gentle undulations including an area of salterns stretching from Tetney Lock to Grainthorpe and also in the area around Croft in the south. This is a mostly simple and rural landscape with intensive agricultural fields. There are more urban influences around the busy traditional seaside resorts of Skegness, Ingoldmells, Sutton on Sea and Mablethorpe in the southern part of the area.
K1 – Tetney to Gibraltar Point Naturalistic Coast	This tidal landscape is flat, open and vast with big skies and views that extend out to sea. These ever changing views are dependant upon the tides and the weather. Views inland are enclosed by sand dunes and man-made sea defences in the form of sea banks and concrete embankments alongside the coastal resorts. This is a simple, peaceful and remote landscape, made up of natural coastal saltmarsh, mudflats and sandbanks with long sandy beaches.
East Riding of Yorkshire (Extracted from <i>East Riding of Yorkshire Landscape Character Assessment</i> , AECOM, October 2018)	
11C – Elloughton cum Brough to Hessle Urban Edge Farmland	This LCA is located along the corridor of the A63 as the Jurassic Hills approach the Humber Estuary. The area extends eastwards to include the southern edge of the chalk slope west of Hull. A pattern of large, rectilinear fields lies within agricultural areas with a low number of trees to field boundaries and small, infrequent tree groups dispersed throughout the LCA. Where the landscape is influenced by settlement, transport activity and energy infrastructure, it is busy and connected while away from these areas, the LCA is otherwise rural and calm.

17A – Hedon, Preston and Bilton Farmland	The LCA is located on the eastern edge of Hull. The urban edge of Hull impacts on the character of this rural farmed area because of the stark interface between development and the countryside. The area is relatively low lying and well drained with few trees or woodland. This LCA is distinctly lacking woodland cover and offers long distance views of the urban edge of Hull.
17B – North Cottingham Farmland	The LCA is located on the north western edge of Hull. This LCT is mostly arable farmland and improved horse grazed grassland with very flat topography. This area plays an important role separating development and providing a setting for built up areas. The area includes some recreation provision as well as mixed farming. Thwaite Hall Registered Park and Gardens (Grade II) is situated at Cottingham and offers both historic and recreational interest. The A1079 is a major road to the north which is on an embankment in places making it a prominent feature crossing this area. There are few settlements or scattered farmsteads beyond the urban fringe of Hull to the south.
17C – South Cottingham Farmland	This small LCA is located on the western edge of Hull. The landform is flat with a regular field pattern of medium to large fields. Field boundaries are managed hedges with hedgerow trees. Views are medium length with trees and farmland presenting a contrast to surrounding urban development.
17D – North Hessle Farmland	This LCA contains a narrow strip of farmland located on sloping land at the edge of Hull. It contains Anlaby Common, some woodland in addition to informal recreation and farmed arable land. There are small areas of Parkland and open space, to the east of Hull Collegiate School, which influence local character and aid the integration of the urban edge with open countryside.
19D – Central Holderness	This is a large scale landscape with a gently undulating landform. Panoramic views to the east coast and the neighbouring Wolds, to the north-west, are available from this LCA. Agricultural intensification within the River Hull floodplain means that, as with the other parts of Holderness, woodland is scarce.
19E – Burstwick to Withernsea Open Farmland	This LCA is located to the east of Hull and includes Hedon, the area’s largest settlement. Typical of this LCT, the land use consists of open agricultural land, mainly intensively managed arable, with large fields and limited woodland. Settlements are well scattered, numerous and larger in size. Farmsteads are common and field pattern comprise large rectilinear fields bordered by hedgerows and tracks.
20A – Withernsea to Spurn Coast	This LCA covers the strip of coastline between Withernsea and Spurn Point and is part of the Spurn Heritage Coast, and the ecologically important Humber Estuary. This LCA includes the village of Easington which has natural gas terminals. The structures associated with the gas terminals are large and impact considerably on the remote character of the coastline. The wind farm at Out Newton north of Easington is also a highly visible development in the coastal landscape from this area.
20B – Hornsea to Withernsea Coast	This LCA covers the coastal landscape between the southern edge of Hornsea and the northern edge of Withernsea. The area is generally devoid of trees except at Grimston where there is plantation woodland. Fields are generally large and rectilinear. Smaller fields are located around the numerous scattered villages, hamlets and farmsteads in the area and their pattern may date back to medieval times. Land use is predominantly arable farmland, camping/caravan sites, parkland (Grimston) and a firing range south of Mappleton.
21B – Sunk Island	Sunk Island is a Conservation Area and an example of direct land reclamation, linking the original island with the mainland. Agricultural land adjacent to the Humber Estuary would have at one time consisted of wet pasture. Much of this has been drained, however it is still important for many birds including pink-footed goose, wigeon, lapwing and golden plover. Field pattern is comprised of large, rectilinear arable fields bordered by tracks and drainage ditches.
21C – South Patrington, Ottringham and Keyingham Farmland	This farmed area is located on higher ground north of Sunk Island LCA and south of the villages at the southern edge of LCA 19E. It differs from Sunk Island as the land is slightly raised and was once part of the north bank of the Humber Estuary prior to the reclamation of Sunk Island. Drainage pattern here is slightly more complex and overall fields are smaller and less regular. The area also includes several small woodlands and clumps of trees around farmsteads and hamlets.

21D – Paull Farmland	The Conservation Area of Paull is the site of a landing that dates back to Viking times. The site has been an important location for defence in the past. This area also contains the remains of World War II decoys designed to attract bombs away from Hull Docks. Land use is predominantly arable and fields are medium in size, relatively irregular in shape and bound by a combination of ditches and fragmented hedges. There are extensive views across the Humber Estuary to the south and the Humber Bridge can be seen in the distance to the west. The industrial development on the east edge of Hull is clearly visible and is a detractor on the edge of this pleasant landscape.
22A – North Ferriby Farmland	The LCA was a farmed landscape with small scale fields that had hedgerow boundaries. 20th Century development has altered this by introducing large scale industry to the area between Brough and North Ferriby. The Humber Estuary has a large influence on this area ecologically and in terms of landscape character. There are good views of the Humber Bridge across this area. Views to the south bank of the Humber are also extensive and contribute to the large scale appearance of the area. An area of very large scale turbines adds a vertical element to the skyline.
West Lindsey (Extracted from <i>West Lindsey landscape Character Assessment</i> , West Lindsey Council, August 1999)	
9 – Lincolnshire Wolds	This is an open agricultural landscape with big skies. The fields are of medium size and predominantly arable, with some pasture used for grazing cattle and sheep. The field pattern is regular with well maintained hawthorn hedge boundaries and very few hedgerow trees. The land is low-lying and gently undulating south of the A6312 and there are some small blocks of deciduous woodland in the area.
10 – The Kelseys	This is an area of relatively enclosed farmland on slightly elevated land to the north-east of the Lincolnshire Wolds. A series of cluster villages are sited on minor hills and linked by minor roads. The land is more undulating than the surrounding clay vale and there are more hedgerows, hedgerow trees and small deciduous woodlands. There is a string of small nucleated settlements including North Kelsey, South Kelsey and North Owersby.
11 – Heathland Belt	The Heathland Belt is situated on a low lying area of wind blown coversands overlaying the Jurassic and glacial clays on the north western fringes of the Wolds escarpment. The acid heathland has been extensively planted with large conifer plantations, dominated by Scots pine and Corsican pine.
12 – North-West Wolds Escarpment	The North-West Wolds Escarpment is a pronounced escarpment, with exposed scars of chalk and outcrops of ironstone. The scarp face and its ridges line form a prominent vertical feature in the landscape which can be seen for miles from the west. Rough pasture predominates on the slopes of the scarp, with occasional wedges of woodland, areas of scrub, wet flushes and old ironstone workings. The slopes are steep, hummocky and indented by the action of minor streams and landslips. There are extensive views from the top of the scarp to the north and west, particularly between Nettleton and Normandy le Wold.
13 – Lincolnshire Wolds	The broad chalk dip slope extends eastwards from the North-West Wolds Escarpment. This is an elevated, rolling landscape with a broad, rounded landform, dominated by arable farmland. The dip slope valley features, representing the glacial lakes and spillways that covered wide areas of the Lincolnshire Wolds at the end of the last glaciation. The contrast between the arable tops and the lush wooded valleys is characteristic of this area.
14 – Wolds Estates	This is a relatively open, agricultural landscape with a distinctive pattern of woodlands and shelterbelts. The regular field pattern is structured by well maintained hedgerows. These are particularly robust alongside local roads, but from more patchy boundaries elsewhere. An extensive belt of mixed deciduous and coniferous woodland on the fringes of the Brocklesby Estate provides a broad sense of enclosure and a backdrop to views in this otherwise open landscape.
North Lincolnshire (Extracted from <i>National Character Area Profiles</i> , Natural England, September 2014)	
42 – Lincolnshire Coast and Marshes	The Lincolnshire Coast and Marshes is a low lying, broad plain which forms the most easterly landscape in Lincolnshire. Its long eastern coastline is bounded largely by the North Sea with the northerly extent of the coastline joining the large expanse of the Humber Estuary while to the south lies the entrance to The Wash.

<p>43 – Lincolnshire Wolds</p>	<p>The Lincolnshire Wolds is a long, narrow; north–south aligned landscape stretching between the Humber and the Wash. It is situated on the highest land in Lincolnshire, giving long views and strong visual links with adjacent landscapes. To the west there are views over the Central Lincolnshire Vale towards Lincoln Cathedral and the wider Trent Valley, and to the east of the Lincolnshire coast and marshes and the North Sea. To the north the Wolds subside to the Humber Estuary and to the south lie the extensive Fens.</p>
<p>44 – Central Lincolnshire Vale</p>	<p>The low hills of the Wolds form a visual backdrop along the eastern margin, provide extensive views over the Vale and are the source of most of the streams that flow across it. Links to the Humber Estuary are strong, with the River Ancholme flows into this internationally important habitat and many waders of the mudflats come inland to roost and feed on the fields in the Ancholme Valley at high tide. Prior to drainage and conversion to farmland, much of this part of the NCA comprised intertidal creeks and a functional part of the estuary. There are views out of the Vale over the estuary from the northern Wolds escarpment.</p>

5.4.1.4 Local Landscape Character

The local landscape is heavily influenced by the past and present industrial activities related to the Immingham Dock and the petrochemical works at Humber Refinery, with the Proposed Development Site located on a brownfield site between the docks and the refinery. This area has a strong manmade and industrial character to it, with the refinery, the dock cranes and flare stacks prominent and defining features. Boat masts, cranes and flood lighting provide common manmade vertical elements in the existing views across the landscape. These industrial elements wrap around the settlement of Immingham on its northern, eastern and southern sides, with the A180 providing a barrier between the industrial areas and the more open agricultural landscapes inland. The proximity to the coast and to the settlement of Grimsby also have an influence over this local character.

5.4.1.5 Landscape Planning Designations

The study area for the Proposed Development is located mainly within the North East Lincolnshire Council Area and the North Lincolnshire Council Area, however, it is surrounded by a number of other council areas, including, West Lindsey, East Lindsey and East Riding of Yorkshire. The local development plans contain policies which seek to protect landscape resources and the key landscape planning designations are illustrated in **Figure 5.5**.

Landscape planning designations and policies are considered in the determination of the sensitivity of landscape and visual receptors as they provide an indication of value ascribed to the landscape or visual resource. The Proposed Development is not located within any designated landscapes, and thus there will be no direct effects on any designated landscapes.

While there are no direct impacts, there is potential for indirect impacts on those designated landscapes that overlap the ZTV and may potentially have views of the Proposed Development. These designated landscapes have been considered as part of this assessment and are listed in **Table 5.4**. Planning policies and designated landscapes outwith the ZTV and beyond 20km have been scoped out of the assessment.

Table 5.4 - Landscape Planning Designations

Designation	Description
<p>Lincolnshire Wolds AONB</p>	<p>The Lincolnshire Wolds AONB covers a large section of landscape inland from Grimsby, acting as a backdrop to the coastal landscape and settlements. It is a rolling, elevated, agricultural landscape dissected by hedgerows and occasional shelterbelts. The special qualities which make the AONB unique are:</p> <ul style="list-style-type: none"> • A unique physiography - The physical geography of the Lincolnshire Wolds is unusual and distinctive. The upland chalk landscape, extensively modified by glaciations, is reflected in the steep sided coombs whilst the wider river valleys contain drift deposits, all providing the basis for the diverse range of soils.

	<ul style="list-style-type: none"> • A scenic, working landscape - The high scenic quality of the Wolds depends almost entirely upon the area's use for agriculture, with its charm derived from the seasonally changing field and cropping patterns, interspersed with pasture and small woodlands. Much of the attractiveness of the Wolds today is a result of the activities of generations of landowners and farmers. • A major archaeological resource - The Wolds is rich in prehistoric sites and historic landscape features. Most of Lincolnshire's long barrows are in the Wolds, with a high concentration of round barrows, together with many important ancient trackways. The Wolds also has one of the largest densities of deserted and shrunken medieval villages in the country. • A valued cultural landscape - Alfred, Lord Tennyson spent much of his formative years in the Wolds and is featured in 'The Brook' poem; and Peter de Wint, the mid-19th century painter, captured many scenes of the working landscape. The Wolds continues to provide inspiration for artists, photographers, crafters and writers today. <p>The designation is located 10.8km to the south of the Proposed Development and covered by Policy 42 in the North East Lincolnshire Local Development Plan, Policy NBE9 in the West Lindsey Local Development Plan and Policy SP23 in the East Lindsey Local Development Plan.</p>
<p>West Lindsey AGLV</p>	<p>This locally designated landscape acts as a continuation of the Lincolnshire Wolds AONB on its northern extent. It covers the landscapes between Caistor in the south and Ulceby in the north, some of which is also part of Brocklesby Park and Registered Garden. It is an undulating landscape, which is slightly elevated, however not to the same extent as the Lincolnshire Wolds to the south. The designation is located 5.0km south-west of the Proposed Development and covered by Policy NBE9 in the West Lindsey Local Development Plan.</p>
<p>Brocklesby Park Registered and Garden</p>	<p>Brocklesby Park is situated to the north of the Lincolnshire Wolds AONB, and fully within the West Lindsey AGLV. It covers the wooded areas within the AGLV, as well as the open areas between Great Limber and Brocklesby. Brocklesby Hall itself is situated at the northern end of the designation, with mature woodland on most sides and some formal garden areas. The designation is located 5.1km south-west of the Proposed Development and covered by Policy NBE8 in the West Lindsey Local Development Plan.</p>

5.4.2 Assessment of Predicted Landscape Effects

Landscape Effects are defined by the Landscape Institute as “Change in the elements, characteristics, character, and qualities of the landscape as a result of development.” These effects are assessed by considering the landscape sensitivity (low, medium or high on the basis of the criteria set out in Appendix 5.1) against the magnitude of change (negligible, low, medium or high on the basis of the criteria set out in Appendix 5.1). A matrix is used to guide the evaluation of the significance of the predicted effect as illustrated in **Table 1**, in **Appendix 5.1**. The type of effect may also be described as temporary or long-term/permanent, direct or indirect, cumulative and negative, neutral or positive.

5.4.2.1 Potential Operational Effects on the Industrial Landscape Character Type

Changes to landscape local landscape can occur where there would be direct or indirect physical changes to the landscape. In this instance, direct changes to landscape fabric would only occur within the development boundary, while indirect changes may occur outwith this.

The Industrial LCT has been assessed to be of low sensitivity.

Magnitude of Change

During operation, the Proposed Development would occupy and directly affect a limited extent of the Industrial LCT, typically defined by the Humber Refinery, Immingham Docks and Immingham settlement, and stretching south-east to Grimsby. This would not result in the loss of any landscape features as this area is currently a brownfield site, previously of industrial use, with no existing landscape features.

This local landscape has been completely man modified by the port and refinery activities and there remains no evidence of a natural landscape. As such, the turbines and associated infrastructure would be positioned within a section of the landscape which has a similar character and similar materials, in terms of being manmade structures, with a mechanical character, reducing their potential to impact the area. While the Proposed Development would be widely visible across the LCT, it would not be out of character, given these existing elements which comprise the Industrial LCT. In addition to this, the vertical nature of the turbines would be in keeping with the form and scale of the vertical flare stacks and cranes currently within the landscape, and while there would be movement of the blades, this landscape is busy and many port and industrial activities provide an existing sense of movement. One of the most notable attributes would be the coastal position and the Estuary character, the turbines would become part of the Estuary coastline, but again fit with the existing character, with the industrial vertical features already a defining element of this part of the coastline. Views across the Humber Estuary towards the Industrial LCT would see the Proposed Development comprise the skyline, where they would be notable additions to the landscape. **Figure 5.18 - Viewpoint 8** illustrates this impact.

The magnitude of change for direct landscape effects as a result of the Proposed Development on the local landscape character resource, would be low, resulting in a **minor** level of effect, which would not be significant.

5.4.2.2 Potential Operational Effects on the Humber Estuary NCA

This is an area of landscape which occupies the landscape on either side of the Humber Estuary. The landscape is uniform and features a distinctly flat topography, where agricultural practices and industrial features are commonplace, the condition/quality of the landscape is generally medium.

In terms of landscape value within the study area, the area is not designated. As such, the landscape value is considered to be medium.

The overall sensitivity of the landscape unit is considered to be medium.

Magnitude of Change

While the ZTV indicates that there will be visibility across much of the NCA, the proposed turbines are always visible in areas where the existing industrial developments are prominent and would not open up new sections of the LCA to impacts caused by manmade elements. The Proposed Development will have the potential to impact on the characteristics which comprise the landscape.

The scale of the turbines fit with the larger-scale of the landform and the simple flat topography helps to accommodate the proposed turbines into the landscape. The distinctly flat topography means that the ZTV predicts widespread visibility across the NCA, however this also means that there are no elevated vantage points within the landscape where the turbines are prominent, as such, local vegetation and built features often completely screen views of the Proposed Development. The flatness and expansiveness are also conducive to accommodating tall vertical structures without diminishing impacts on perceived scale, particularly given the existing vertical features at Immingham Dock and the Humber Refinery.

In **Table 5.5** below the Proposed Development will be assessed alongside the characteristics which comprise the NCA.

Table 5.5 - Impact on key attributes of the NCA

Landscape Attribute	Impact
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.	The flatness and expansiveness help to accommodate the turbines with little impact on its perceived scale. The movement of the turbines fits within the changing character caused by weather and tides and with the movements of boats and machinery, there would little contrast to this attribute.

Underlying bedrock of Cretaceous Chalk exposed as cliffs where the estuary cuts through between the Yorkshire and Lincolnshire Wolds.	This attribute is not particularly evident in the area surrounding the Proposed Development. It occurs over 15km to the north-west as the Humber Estuary turns westwards. There would be no impact on this.
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.	The agricultural character is strong and the Proposed Development would not result in the loss of any of these high-quality soils or agricultural land. The nature and form of the turbines is in keeping with the rectilinear pattern and would not offer a notable contrast to this.
Large, dispersed farmsteads and small villages on higher land are set within a quiet rural landscape.	These areas tend to be further inland, where the NCA meets the Lincolnshire Wolds. By this point, the Proposed Development is a minor feature in views and has little influence over the more rural section of the NCA. The Proposed Development is located within a distinct urban and industrialised section of the NCA.
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.	The Proposed Development is located on a brown field site and would have no direct impact on the mudflats, sand dunes or other estuarine features.
The unique peninsula of Spurn Point, with its mudflats and sand dunes constantly responding to dynamic coastal processes, provides birdwatching of international interest within a wild and remote landscape.	The Proposed Development is visible from this location, and Figure 5.27 - Viewpoint 17 illustrates the predicted impact. The turbines would not be prominent, seen at over 20km distance and indistinct from the other industrial elements. The wild, remote and tranquil character would remain, as the turbines would be associated with the Port and the industrial landscapes of the opposite side of the estuary.
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.	The open views and big skies, mean that the Proposed Development would be commonly visible throughout the NCA. However, it would always appear part of the extensive industrial installations at Immingham Dock and the Humber Refinery. As such, its contrast to this baseline is minimal and would affect a section of the NCA which is already characterised by similar developments.
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.	As the Proposed Development is located within an industrial area, it would not diminish this contrast. Turbines located in the more rural sections of the NCA may have the effect of diminishing the contrast, as there becomes a coalescence of urban and rural. However, the position of the turbines avoids this impact.

Generally, the Proposed Development has minimal impact on the key attributes which comprise the NCA, often fitting in with the industrial sections of the NCA and complementing those attributes, as can be seen in **Figure 5.14 - Viewpoints 4** and **Figure 5.16 – Viewpoint 6**. In both cases the existing industrial elements are more prominent; in **Viewpoint 4** they obscure most of the Proposed Development, while in **Viewpoint 6**, their relative distances allow them to appear smaller than the existing stacks. Whilst the landscape is open and flat allowing for views across a wide area, the turbines never feel dominant nor a controlling feature of the landscape, particularly with the existing industrial infrastructure often partially or completely screening views. Although they would be associated to the estuary given their coastal position, they fit with the existing scale, character and sense of movement this part of the NCA brings.

The sensitivity of the LCT is medium and the magnitude of change on the Humber Estuary NCA resource would be medium, resulting in a **moderate** level of effect, which would not be significant.

5.4.2.3 Indirect Effects on Neighbouring Landscape Character Areas

Neighbouring areas of landscape character are formed by agricultural, coastal, industrial and rolling landscapes.

None of these areas would be directly affected by the Proposed Development and there would be no direct effects on the key physical characteristics that form the areas landscape character or their quality and integrity. However, parts of the Proposed Development may be visible from these areas and as such, could indirectly affect the landscape character where particular views or scenic qualities are noted as a key characteristic of the landscape. Alternatively, the Proposed Development could be frequently visible and particularly prominent in the landscape such that the addition of these new features affects the character of the area. **Figure 5.6** illustrates the ZTV pattern in relation to these LCAs.

Owing to the likelihood of significant effects on landscape character areas diminishing beyond 20km, those LCTs lying beyond 20km of the Proposed Development have been scoped out of the final assessment due to lack of visibility and distance. An assessment of those inside 20km with visibility predicted are assessed in the **Table 5.6** below.

Table 5.6 - Indirect landscape effects on neighbouring landscape character areas

North East Lincolnshire Landscape Character Area Assessment		
Ai – Industrial Landscape	0km	<p>The Proposed Development is located partially on the northern edge of this landscape and will be visually prominent from it. Despite this prominence, the character of this landscape is heavily influenced by existing industry, which not only characterises this landscape, but is a strong element when seen from adjacent landscapes. The introduction of turbines into this landscape would represent only a minor contrast to the baseline, however they would be prominent elements of the landscape. Figure 5.11 - Viewpoint 1, illustrates the type of impact the turbines will typically have, when seen from within the Industrial Landscape. It is located on the northern edge of Immingham and whilst the turbines are prominent elements, they appear within context of manmade elements, which define this view. Although the larger-scale industrial elements are not particularly visible, the scene is one of a manmade character.</p> <p>Figure 5.13 - Viewpoint 3, on the southern side of Immingham, is set back slightly within this landscape and some of the industrial features such as cranes and conveyor belts are seen rising above the skyline. The Proposed Development would fit into this pattern and have a similar impact. From a wider perspective, they have an impact on the skyline of the Immingham Port and the coastline, however, are in keeping with the existing elements which comprise this section of skyline. The turbines would never be out of scale or out of character with the LCT.</p> <p>The sensitivity of this landscape is considered to be low, given that it is predominantly industrial in nature, and the magnitude of change will be medium, resulting in a moderate/minor level of effect which is not significant.</p>
Aii – Flat Open Farmland	16.9km	<p>This landscape is located on the southern side of Grimsby and occupies only a small area. The ZTV indicates that there would be theoretical visibility from the northern half of the LCT, however actual views would be rarer. This is due to screening provided by both vegetation and the built environment of Grimsby along the LCTs northern edge. It is unlikely that there would be any actual visibility of the turbines from this LCT beyond rare glimpses of the very tips of the blades.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>

<p>Bi – Open Farmland</p>	<p>3.2km</p>	<p>This LCT forms a narrow strip between the industrial landscapes along the eastern coast and the interior farmland. It forms a distinctly flat plain, that while agricultural practices are the most common landscape element, there are some industrial features in the form of prominent electricity pylons and railway lines, as well as views of the adjacent Industrial Landscape (Ai). In addition to these industrial elements, the settlements of Stallingborough and Healing are also located within this landscape. Figure 5.15 - Viewpoint 5 from Habrough illustrates one of the more open and closer views of the Proposed Development from within this LCT. From the northern end of the LCT, the turbines will be notable features, and commonly visible, however would never be an overbearing presence within the landscape and is seen in context with other industrial structures, often screened by them. While this is a rural landscape, its proximity to notable industrial features already has an influence over it, and in conjunction with its relatively large scale, the presence of the turbines would not diminish its character.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be low, resulting in a moderate/minor level of effect which is not significant.</p>
<p>Bii – Wooded Open Farmland</p>	<p>3.8km</p>	<p>The Open Farmland LCT wraps around the southern and western sides of Grimsby and is a large-scale agricultural landscape, which includes a number of small settlements such as Laceby, Barnoldby le Beck and Brigsley. Figure 5.17 - Viewpoint 7 from Stallingborough illustrates the type of impact that would be experienced from along the north-eastern edge of the Wooded Open Farmland LCT. This viewpoint is from an open area on the northern edge of Stallingborough and shows that the Proposed Development would be a minor feature in views. The lower sections would often be screened by vegetation and manmade features, and while still visible, would never be prominent from within the LCT. This LCT has a distinctly rural and agricultural character and while the turbines are seen from this, they are seen in context with the industrial features of the coast. From higher ground the turbines may interrupt views over the estuary, however, these would be rare given the typical elevation of this LCT.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be low, resulting in a moderate/minor level of effect which is not significant.</p>
<p>Biii – Flat Open Farmland</p>	<p>12.2km</p>	<p>This LCT forms a pocket of agricultural landscape to the south of Grimsby, bordered on all sides by urban areas, including New Waltham, Cleethorpes and Grimsby itself. While the ZTV indicates that there will be visibility across the majority of the LCT, actual views are difficult to come by. This is due to a combination of vegetation within the LCT and the built environment in between the Proposed Development and the LCT. It is likely that views of the turbines would be screened and even if visible and would not have a strong influence over the existing character of the landscape.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
<p>Biv – Sloping Farmland</p>	<p>8.7km</p>	<p>This landscape covers the section of the Lincolnshire Wolds AONB which is situated within North East Lincolnshire. This is a slightly elevated landscape which provides a backdrop to the coastal landscapes to the north-east and consists of a series of rounded rolling hills. The elevated position gives a sense of openness with longer-range views apparent, although the abundance of high hedges do limit some of these views. The ZTV indicates that there is theoretical visibility across much of the LCT, although the shallow valleys at Waithe Beck and Irby Dales Wood create respite in the theoretical visibility. When seen from this landscape, views would be similar to those illustrated in Figure 5.26 - Viewpoint 16 from the Public Right of Way north of Beelsby. From here, the turbines are minor features that would be partially screened by industrial developments and are not dominant, this view illustrates the greatest visibility from the AONB and from other locations they are often screened by sections of mature woodland. When visible, they appear separate from the landscape of the LCT and are distinctly part of the industrial landscapes of the coast, generally being indistinct from the flare stack, cranes and other manmade features.</p>

		The sensitivity of this landscape is considered to be high, due to it forming part of the AONB, and the magnitude of change will be low, resulting in a moderate level of effect which is not significant.
Ci – High Farmland	14.8km	<p>This LCT also forms part of the Lincolnshire Wolds AONB, covering the more elevated landscapes of the south. The ZTV across this landscape is distinctly sparser than the Sloping farmland (Biv) with changes in elevation more apparent and more enclosed sections surrounded by higher rounded hills. Views of the Proposed Development would typically be from these higher sections which are predominantly agricultural fields, while the local routes such as the Wanderlust Way and residential areas such as East Ravendale are free from views. It is unlikely that glimpses of the turbines from this landscape would be prominent, nor would they detract from the scenic qualities of the LCT.</p> <p>The sensitivity of this landscape is considered to be high, due to it forming part of the AONB, and the magnitude of change will be negligible, resulting in a moderate/minor level of effect which is not significant.</p>
East Lindsey Landscape Character Area Assessment		
I1 – Holten Le Clay to Great Steeping Middle Marsh	17.4km	<p>This is a distinctly flat landscape criss-crossed with a network of minor roads and watercourses. There are a number of small settlements dotted throughout the landscape, with landcover typically agricultural fields bound by mature hedgerows and shelterbelts. While the ZTV indicates that large sections of the LCA will have theoretical views of the Proposed Development, actual visibility would be limited. This is due to the distance, screening provided by the hedgerows, shelterbelts and built environment at Grimsby, which is located between the LCA and the Proposed Development.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
J1 – Tetney Lock to Skegness Coastal Outmarsh	17.8km	<p>This LCA is even flatter and more exposed than the I1 LCA above and has a more coastal character to it with some open views over the Humber Estuary from its eastern edges. The existing Bishopthorpe Wind Farm is a prominent feature in the northern part of this LCA. While the ZTV indicates that the majority of the LCA will have theoretical views of the Proposed Development, it will be restricted by the screening provided by vegetation along the southern edges of Grimsby. It is unlikely views of the turbines would be common or prominent.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
K1 – Tetney to Gibraltar Point Naturalistic Coast	19.2km	<p>This is a narrow strip of landscape along the eastern coast and comprises primarily of sands and marshes. Given its position it has a strong association with the coast and a strong sense of openness, with expansive views out over the Humber Estuary and North Sea. The ZTV indicates views from the majority of the LCA, however the built environment of the immediate foreground is likely to completely screen views of the Proposed Development. The views out over the Humber Estuary and North Sea would be unaffected.</p> <p>The sensitivity of this landscape is considered to be high, and the magnitude of change will be negligible, resulting in a moderate/minor level of effect which is not significant.</p>
East Riding of Yorkshire Landscape Character Area Assessment		
11C – Elloughton cum Brough to Hessele Urban Edge Farmland	18.2km	<p>This is a small pocket of landscape on the western side of Hull. The ZTV indicates visibility across the majority of the LCA, however actual views would be hard to come by. This is due to a combination of distance and vegetation. Even when visible, the turbines would be indistinct from the other manmade vertical features of the landscape, despite affecting views across the Humber.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>

<p>17A – Hedon, Preston and Bilton Farmland</p>	<p>11.7km</p>	<p>This LCA forms a small section of landscape between the settlements of Hedon, Preston and Bilton, where prominent industrial features of Hull are apparent including cooling stacks and other tall manmade features. These have a strong influence over this LCA and bring an urban fringe character to the area. The ZTV indicates that there would be visibility across the entire area, however actual views are likely to be screened and the turbines would be at over 10km distance. Even if seen they would not constitute a notable contrast to the baseline, being indistinct from the industrial features of the foreground and the Immingham area on the opposite side of the Humber Estuary.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
<p>17B – North Cottingham Farmland</p>	<p>19.9km</p>	<p>Within the 20km study area, this LCA only comprises a very small amount of landscape on the northern side of Hull. Despite theoretical visibility, it is unlikely there would be any views of the turbines given the distance and the built environment at Hull situated between the LCA and the Proposed Development.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
<p>17C – South Cottingham Farmland</p>	<p>18.6km</p>	<p>This LCA is situated in the gap between Hull and Cottingham, and while the ZTV predicts visibility from the entire LCA, the shelterbelts and built environment of Hull will completely screen views.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
<p>17D – North Hessle Farmland</p>	<p>17.2km</p>	<p>This is a small pocket of landscape which is located between Hessle and Kirk Ella. While most visibility from this landscape would be screened, there would be occasional gaps in vegetation where long-range views across the Humber are apparent. In these, the Proposed Development would occupy a negligible to minor extent of the view and appear alongside other vertical manmade elements, being indistinct from them.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
<p>19D – Central Holderness</p>	<p>13.8km</p>	<p>This is a large-scale landscape along the northern edges of the study area, occupying the landscape between Burton Pidsea and Sproatley. The ZTV indicates visibility across the majority of the LCA, however the majority of this is blade tip visibility and the turbines often screened by intervening vegetation. Even when seen, the Proposed Development would be indistinct and would not alter the perceived character of the LCA.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
<p>19E – Burstwick to Withernsea Open Farmland</p>	<p>8.7km</p>	<p>This LCA occupies a large section of the Holderness Peninsula and is an open, large-scale agricultural landscape with a distinct sense of uniformity. The ZTV indicates that the majority of the LCA would have visibility of the turbines. Given the typical distance of between 10km and 15km, the Proposed Development would only be a minor feature in views and is often screened by intervening vegetation. The openness and scale of this landscape can easily accommodate these types of views and the presence of the Proposed Development would not detract from the existing character.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
<p>20A – Withernsea to Spurn Coast</p>	<p>18.8km</p>	<p>This is a narrow, coastal landscape located south of Withernsea, where it is heavily influenced by its position on the coast. While views are predicted, it is likely to only be blade tips when seen and often completely screened by intervening vegetation. In addition to this, the Proposed Development would appear across the 19E LCA and not in views along the coast or out over the North Sea, which would be the more valued aspects of this LCA.</p>

		The sensitivity of this landscape is considered to be high, and the magnitude of change will be negligible, resulting in a moderate/minor level of effect which is not significant.
20B – Hornsea to Withernsea Coast	18.5km	<p>This is a similar LCA to 20A, although is situated north of Withernsea and due to rises in topography across the central Holderness Peninsula will have considerably less visibility. Again, the key aspects of this landscape such as the views along the coast and out over the North Sea will be unaffected.</p> <p>The sensitivity of this landscape is considered to be high, and the magnitude of change will be negligible, resulting in a moderate/minor level of effect which is not significant.</p>
21B – Sunk Island	5.1km	<p>This constitutes a coastal, distinctly flat landscape which runs the length of the northern shores of the Humber Estuary. It is a distinctly rectilinear landscape with large-scale agricultural fields and a network of minor roads. While the entire LCA is predicted to have views, these are likely only apparent from the southern edges directly on the coastline. Figure 5.18 - Viewpoint 8 illustrates the impact from this area and as can be seen the Proposed Development is a notable feature, occupying a moderate extent of the view on the opposite side of the estuary. The turbines would be apparent for the full length of the LCA and would affect the more key views over the estuary, however they would appear within a landscape which is currently characterised by industrial elements, which are seen all along the opposite coast.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be low, resulting in a moderate/minor level of effect which is not significant.</p>
21C – South Patrington, Ottringham and Keyingham Farmland	6.7km	<p>This is a narrow strip of landscape inland from 21B and is predicted by the ZTV to have visibility across the whole LCA. While this theoretical visibility is predicted, actual views are subject to screening by intervening vegetation and will be less common. Even when visible, the Proposed Development would have only a limited impact, given the distance and scale of the LCA.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
21D – Paull Farmland	7.4km	<p>This is a small LCA on the southern side of Hull and features a number of manmade elements both within this LCA and immediately adjacent, with the cranes and cooling stack of the port strong visible elements. The fort is a key landscape feature and its position at the head of the estuary also influences its character. There are notable sections of mature woodland within this LCA which restrict visibility, however open views exist on the coastal areas as illustrated in Figure 5.22 - Viewpoint 12. Here, the turbines are seen across the estuary and occupying a minor to moderate extent of the view. They appear directly adjacent to similarly characterised features and are of a similar scale and not dominant in views.</p> <p>The sensitivity of this landscape is considered to be high, and the magnitude of change will be low, resulting in a moderate level of effect which is not significant.</p>
22A – North Ferriby Farmland	17.3km	<p>This LCA runs along the northern banks of the River Humber, between Hessle and North Fenby. The ZTV indicates that the majority of the LCA will have theoretical views of the Proposed Development. It contains open views across the Humber and these are key to its character, with its position on the waterfront a strong influence over its setting and views. While the Proposed Development is seen within these views over the Humber, it would be a minor feature and indistinct from the other industrial features located adjacent.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.</p>
West Lindsey Landscape Character Area Assessment		
12 – North-West Wolds Escarpment	13.3km	This is one of the few steep landscapes in the area and runs along the western edge of the study area, it is a distinctly linear landscape, and given the topography, the ZTV indicates only views from the east facing slopes along the eastern edges would be available. This would equate to a very limited amount of theoretical visibility which is further reduced by intervening vegetation. In addition to this, the turbines

		<p>would be strongly associated with the industrial landscapes of the coast and have a sense of separation from this more rural LCA.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be low, resulting in a moderate/minor level of effect which is not significant.</p>
13 – Lincolnshire Wolds	12.9km	<p>This LCA occupies the section of West Lindsey which is covered by the Lincolnshire Wolds AONB. The topography is more undulating than the surrounding landscapes and is cut by many small rivers, creating a series of small, shallow rounded valleys. As such, the pattern of ZTV is notably reduced compared to the landscapes further east and only occasional views are predicted from the areas of higher ground. When seen in these areas, the Proposed Development would be a minor feature and be substantially screened by a combination of topography and vegetation. The turbines would never be prominent and are likely to be an indistinct feature in views, where they would be appreciated as separate from the LCA and associated with the more man modified landscapes of the coast. The sense of tranquillity of the LCA and its more rural character would remain.</p> <p>The sensitivity of this landscape is considered to be high, due to it forming part of the AONB, and the magnitude of change will be negligible, resulting in a moderate/minor level of effect which is not significant.</p>
14 – Wolds Estates	4.6km	<p>This LCA is of lower elevation than area 13, forming the northern edges of the Lincolnshire Wolds. Much of this LCA is occupied by the Brocklesby Park and Garden which consists of substantial areas of mature estate woodland. Views from within this LCA are difficult to achieve, due to a combination of this woodland and the topography. Figure 5.21 - Viewpoint 11 illustrates the most open views from the area, along its north-eastern edge and even from here there is considerable screening to the Proposed Development and it is a minor feature. These views would be rare from within this LCA and the impact on its quality limited, with the turbines always seen as part of the existing industrial developments at the coast.</p> <p>The sensitivity of this landscape is considered to be high, due to it forming part of the AGLV and Registered Park and Garden, and the magnitude of change will be negligible, resulting in a moderate/minor level of effect which is not significant.</p>
North Lincolnshire Landscape Character Area Assessment		
42 – Lincolnshire Coast and Marshes	3.7km	<p>This is an open and relatively flat landscape with many manmade elements including agricultural buildings, electricity pylons and a network of roads. The ZTV indicates that there would be visibility across for the majority of the NCA. Figure 5.24 - Viewpoint 14 illustrates views of the Proposed Development from within this NCA. From much of this landscape the Proposed Development would be directly behind the Humber Refinery, which not only provides visual screening but also provides a sense of capacity, as the turbines would appear in a section of the landscape which is characterised by vertical manmade elements.</p> <p>The sensitivity of this landscape is considered to be medium, and the magnitude of change will be low, resulting in a moderate/minor level of effect which is not significant.</p>
43 – Lincolnshire Wolds	7.5km	<p>This includes the very northern section of the Wolds covering the section within North Lincolnshire. This section is not part of the AONB and is more characterised by agriculture with more notable manmade features including the busy A180 and Humberside Airport. The ZTV indicates only patches of visibility across this LCA, where the turbines would be minor features and often screened due to the larger section of woodland within the LCA. Figure 5.23 - Viewpoints 13 located on the A180 illustrates a typical impact on this NCA, where the Proposed Development is a minor feature and partially screened by vegetation. This vegetation screening would be the case for much of the NCA.</p> <p>The LCA already has manmade influences over it and as such, the presence of the turbines in views would only offer a minor contrast to the baseline.</p>

		The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.
44 – Central Lincolnshire Vale	15.7km	The majority of this NCA is free of any theoretical visibility, with only the eastern edges having any predicted views. These views would be at over 15km distance, and the turbines often screened by shelterbelts and hedgerows. Any glimpses of the Proposed Development would be rare and the turbines indistinct features. The sensitivity of this landscape is considered to be medium, and the magnitude of change will be negligible, resulting in a minor level of effect which is not significant.

The LCTs that have either no, or highly limited visibility predicted by the ZTV or located beyond 20km distance have been scoped out of the final assessment.

5.4.3 Effects on Designated Landscape

The Site area is not designated and as such, there would be no direct effects on any designated landscapes. Any landscape effects therefore would be indirect effects on the views and visual character experienced from within nearby designated landscape, whilst viewing towards the wind turbines. **Figure 5.7** illustrates the ZTV pattern in relation to the Designated Landscapes within 20km. The assessment considers these effects on the landscape character and valued features and characteristics for which these areas are designated. The assessment of the overall indirect effects experienced by people viewing the Proposed Development from designated landscapes and the Proposed Development’s impact on the setting and character of any designated landscape area is provided in **Table 5.7**. The sensitivity of all designated landscapes considered as part of this assessment has been considered as high.

Table 5.7 - Indirect landscape effects on designated landscapes

Landscape Designations	Distance	Viewpoint	
Lincolnshire Wolds AONB	10.8km	Figure 5.26 – Viewpoint 16	<p>The Lincolnshire Wolds AONB has four key attributes which comprise the scenic landscape, below the assessment will look at the impact the Proposed Development has on each of these.</p> <p><i>A unique physiography</i> – This aspect is best appreciated when outwith the AONB and looking towards it either from the east or west, where the steeper sides of the upland chalk landscape can be seen as a notable contrast to the flat landscape of the coast and surrounding areas. When viewing these rounded uplands from the east where they backdrop views, the Proposed Development is typically to the rear. While views from the west, the Wolds themselves screen views towards the Proposed Development. Within the Wolds, while there are views of the turbines, the steep sided coombs tend to be free of visibility as the rolling topography which surrounds these enclosed landscapes, limits outward visibility.</p> <p><i>A scenic working landscape</i> – The Proposed Development is ~11km from the edges of the AONB and will have no direct impacts on the seasonally changing field and cropping patterns which are a strong attribute of the AONB. The Proposed Development would not interrupt this pattern either, thus the continued attractive pattern of agricultural landscape would remain. There would be views of the turbines from the higher ground and northern edges, where the turbines would be seen beyond these fields, but would be seen in conjunction with them, which would have a slight impact on the visual perception of these fields from some areas and an impact on their setting. However, this is mitigated by the fact that the Proposed</p>

			<p>Development is seen within a section of the landscape which is already characterised by industrial elements, and would only be an indistinct feature of the distance.</p> <p><i>A major archaeological resource</i> – As there will be no direct impacts on the Wolds AONB, there will be no direct impacts on any archaeological features. There may be indirect impacts on the setting of features such as the shrunken medieval villages by virtue of views from and to these features containing the Proposed Development, however at over 11km and with the turbines forming part of an existing industrial landscape the impacts will be minor. More detailed impact on the archaeological resource are detailed in Chapter 6.</p> <p><i>A valued cultural landscape</i> – The working landscape was a key influence over Alfred, Lord Tennyson and Peter de Wint, as well as other artists. While the Proposed Development would be visible from the AONB, it does not detract from its existing or historic qualities. In addition to this, it is a working landscape and the Proposed Development would be in keeping with the ‘working’ characteristics of the landscape, simply a modern day working element.</p> <p>Viewpoint 16 illustrates the greatest impact on the views from the AONB, located on the edges closest to the Proposed Development. The ZTV indicates visibility across much of the northern and eastern edges but reduces quickly further south and west. From these areas of visibility, they would be similar or lesser than those illustrated in Viewpoint 16, where even from here the turbines are minor elements and significantly screened.</p> <p>The Proposed Development would never be a prominent feature from the AONB, and will always appear as part of the coastal, industrial landscape and has only a limited influence over the scenic quality of the AONB. The magnitude of change is considered to be negligible, resulting in a moderate/minor level of effect which would not be significant.</p>
West Lindsey AGLV	5.0km	Figure 5.21 – Viewpoint 11	<p>This AGLV forms a continuation of the AONB to the north. While it is not as scenic nor as elevated as the AONB it remains a scenic landscape. The ZTV indicates that there would be visibility from the majority of this landscape, however there are large areas of woodland which provide screening to the Proposed Development. Viewpoint 9 is located at Keelby, ~2km to the east of the AGLV. When seen the turbines would be notable features, partially screened by intervening vegetation and have limited influence over the AGLV.</p> <p>The magnitude of change is considered to be low, resulting in a moderate level of effect which would not be significant.</p>
Brocklesby Park Registered and Garden	5.1km	Figure 5.21 – Viewpoint 11	<p>This Registered Park and Garden is located within the West Lindsey AGLV, and would have a similar impact, with Viewpoint 11 located within Brocklesby Park. The Hall and grounds would be unaffected given the abundance of mature woodland and views are only likely from the eastern edges of the estate, as illustrated in Viewpoint 11. As can be seen the Proposed Development would be partially screened and a minor feature which would not detract from the character of the park. In addition to this these open views were found to be rare, and the location of Viewpoint 11 was one of only a few locations where views of the turbines were achievable.</p> <p>The magnitude of change is considered to be negligible, resulting in a moderate/minor level of effect which would not be significant.</p>

The Landscape Designations that have either no, or highly limited visibility predicted by the ZTV or located beyond 20km distance have been scoped out of the final assessment.

5.5 Assessment of Visual Impacts

5.5.1 Visual Baseline and Receptors

Visual effects are recognised by the Landscape Institute as a subset of landscape effects and are concerned wholly with the effect of the Proposed Development on views, and the general visual amenity. Visual receptors would include anyone who may have visibility of the proposed turbines, such as people who may work in the area, residents or tourists. **Table 5.8** below identifies all visual receptors that were considered as part of the assessment.

Table 5.8 - Key Visual Receptors

Visual Receptor	Description
Residents	Views from the local community, particularly from residential properties near the site and from local settlements which lie within the ZTV including those within Immingham, particularly on the eastern side of the town.
Settlements	Settlements that will be assessed include Immingham, North and South Killingholme, Keelby, Habrough, Healing and Stallingborough. Photomontages have been produced for a number of these settlements. Settlements outwith 15km are unlikely to experience significant visual effects.
Road Users	The A180, nearby minor roads and the Coastal Bridleway will be assessed both with regards to the impact of the Proposed Development and also cumulatively with any other developments within the area. In addition to this a number of smaller roads and core paths will also be included in the assessment if relevant.
Recreational	Recreational receptors in the area mostly refer to visitors to historical sites and those partaking in outdoor pursuits such as walking, cycling and horse riding.

5.5.1.1 Broad Visual Context

The overall visual character of the landscape is influenced primarily by the distinctly flat topography, which allows for expansive views, particularly over the Humber Estuary. Viewing inland, the Lincolnshire Wolds often provide a backdrop to the view, and while not particularly elevated, they do contrast the flatter landscapes of the coast. While open views are common, high hedges and mature shelterbelts often restrict these views and create quite enclosed views, however when this isn't the case views can be highly expansive. The existing character of the coast also has a strong influence on views, with the industrial components of the various ports drawing the eye to cooling towers, cranes and other large-scale industrial units as well as the city of Hull situated at the head of the estuary, and the Humber Bridge which is located further west. Ships using the ports provide movement and variation to views.

5.5.1.2 Weather Conditions

Changing weather patterns and local climatic conditions will influence the visibility of the proposed turbines in terms of the extent of view, the colour and contrast of the turbines as well as the visibility and thus the perceived visual impact. There will be periods of low visibility (fog, low cloud, and bright sunny conditions that are accompanied by haze generated by temperature inversions) as well as periods of high visibility in clear weather. In some instances, and from some locations the wind turbines may be 'back-lit' (e.g. appearing darker in colour during sunset/sunrise and periods of pale or white blanket cloud) and in other circumstances may appear to be 'up-lit' (e.g. during stormy periods that combine dark clouds and bright sunshine).

The assessment has been conducted in periods of fine weather and assumes good visibility and limited seasonal leaf cover.

5.5.2 Visual Effects During Construction

Temporary landscape and visual effects would occur during the construction period, and would result from the visibility of construction activity, use of lay down areas, and site compound. The landscape and visual effects would be of a low to negligible magnitude of change and not significant. The lay down areas and compound would be located adjacent to the proposed turbine locations. During the construction period the landscape and visual effects would be significant for a small number of receptors in the Immingham area. Given the industrial nature of The Site, construction activities should not contrast with the current baseline. Visible machinery may be partially screened by existing infrastructure and buildings. These effects would be temporary and fully restored on completion.

All disturbed areas resulting from the construction (around turbine bases, temporary access tracks and on-site compounds and lay down areas) will be restored upon completion of the construction period. Specific mitigation measures necessary during construction would include:

- Colour and finish of substation to be agreed with North East Lincolnshire Council prior to construction;
- Land clearance and occupation will be limited to the minimum necessary for the works;
- Vegetation removal will be minimised as far as possible; and
- Valued features, including historic features will be protected. Fencing will be used to define such areas to avoid accidental damage.

5.5.3 Visual Effects During Operation

During operation, the appearance of the development Site would return to its natural visual character with negligible levels of maintenance activity visible on-site from the nearest visual receptors, and no significant visual effects likely. There would be no ongoing construction activity, however, from time to time there will be maintenance activities but most of these will be indistinguishable from other Port activities. Visibility of the proposed turbines would extend over the study area affecting a range of visual receptors including residents, road users, tourists, and people undertaking recreational activity. The visual effects of the proposed wind turbines on views and visual amenity during operation are assessed in the following sections.

5.5.3.1 ZTV and Visual Receptors

A blade tip ZTV is illustrated in **Figure 5.8** and indicates the maximum potential visibility of the Proposed Development, assuming there are no trees, woodland or buildings within the area (i.e. a bare earth scenario). It is likely that this visibility would be reduced further by the screening effect of trees, woodland, and buildings on the ground, particularly in relation to settlements. A hub height ZTV is also provided in **Figure 5.9**. The key visual effects to be addressed include the following:

- Visual effects on the views experienced by local communities;
- Visual effects on the views experienced by users of footpaths and general recreational areas/ tourist destinations; and
- Visual effects on the views experienced by road users along the main transport routes.

5.5.3.2 Viewpoint Analysis

Viewpoint analysis has been undertaken for each of the viewpoints, the viewpoints are contained in the Landscape & Visual Assessment Figures – **Figures 5.11 – 5.28** and the analysis is summarised in **Table 5.9** below and detailed in **Appendix 5.2**. This assessment reveals that there were five significant effects caused by the Proposed Development, of seventeen locations assessed.

Table 5.9 - Summary of viewpoint analysis

Location	LPA	Sensitivity	Magnitude	Overall Impact	Distance from Nearest Turbine
VP1 – Immingham North (Figure 5.11)	North East Lincolnshire	High	High	Major	0.8km
VP2 – Homestead Park (Figure 5.12)	North East Lincolnshire	High	Medium	Major/Moderate	0.8km
VP3 – Immingham South (Figure 5.13)	North East Lincolnshire	High	Medium	Major/Moderate	1.7km
VP4 – South Killingholme (Figure 5.14)	North Lincolnshire	High	Negligible	Moderate/Minor	2.8km
VP5 – Habrough (Figure 5.15)	North East Lincolnshire	High	Medium	Major/Moderate	3.0km
VP6 – East Halton (Figure 5.16)	North Lincolnshire	High	Low	Moderate	6.6km
VP7 – Stallingborough (Figure 5.17)	North East Lincolnshire	High	Low	Moderate	4.8km
VP8 – Holderness Peninsula (Figure 5.18)	East Riding of Yorkshire	Medium	Low	Moderate/Minor	5.7km
VP9 – Keelby (Figure 5.19)	West Lindsey	High	Low	Moderate	7.4km
VP10 – Public Right of Way on the Grimsby Coast (Figure 5.20)	North East Lincolnshire	High	Negligible	Moderate/Minor	6.4km
VP11 – Brocklesby Park (Figure 5.21)	West Lindsey	High	Low	Moderate	12.1km
VP12 – Fort Paull (Figure 5.22)	East Riding of Yorkshire	High	Low	Moderate	8.2km
VP13 – National Cycle Route over the A180 (Figure 5.23)	North Lincolnshire	Medium	Negligible	Minor	12.1km
VP14 – Barrow Upon Humber (Figure 5.24)	North Lincolnshire	High	-	-	12.1km
VP15 – Victoria Dock, Hull (Figure 5.25)	Hull City	High	Low	Moderate	13.0km
VP16 – Lincolnshire Wolds AONB (Figure 5.26)	West Lindsey	High	Low	Moderate	10.3km
VP17 – Spurn Point (Figure 5.27)	East Riding of Yorkshire	High	Negligible	Moderate/Minor	22.0km

5.5.3.3 Settlement Assessment

The following assessment considers the views from settlements, and the likely visual effects that could be experienced from the main living rooms and garden areas of residential properties. The assessment has not assessed views from rooftops and any windows above ground level. The illustrated viewpoints have been selected to represent views from where the Proposed Development would be most visible within the villages or along the edges of the villages. All settlements and residential properties have been judged to be of high sensitivity.

Many of the settlements within the study area will gain very limited, or indeed have no views of the Proposed Development due built environment and a strong pattern of vegetation which surrounds a number of settlements

in the area. Where the proposed turbines are predicted to be visible within settlements these views will be limited to open areas and from the settlement’s edges, as it is likely that woodland and the built environment will screen outward views from the settlement.

Table 5.10 - Visual effect on settlements within the ZTV

Settlement	Distance	Visual Assessment
Settlement <5km from Proposed Development		
Immingham (North East Lincolnshire)	<1km	<p>The Proposed Development is located at the Immingham Dock and as such, it is likely to be visible from a number of locations within the settlement. Despite the close proximity, the turbines would only be prominent from a few locations, this is due to the strong screening provided by both vegetation and existing infrastructure and industrial units.</p> <p>Figure 5.11 - Viewpoint 1 illustrates the more open views from residential areas, from the eastern edge of the settlement on Manby Road. The southern most turbine would be a prominent feature from both here, and from the Homestead Park area on the northern edge of the settlement, while the northern turbine would be a minor feature due to heavy screening. Although prominent, this turbine would not be overbearing and views from actual residential properties typically afforded further screening or have oblique views in the case of Manby Road. Figure 5.12 - Viewpoint 2 illustrates the views from Homestead Park.</p> <p>Once further south, the turbines would reduce in prominence, have more screening and be seen in context with the industrial infrastructure at the port, as illustrated in Figure 5.13 - Viewpoint 3. While one of the turbines remains prominent, its contrast to the baseline is limited given the existing manmade vertical elements already part of the skyline. Further west, the built environment of Immingham itself restricts views and visibility is only likely to occur around large open areas. As such, there will be views from the dwellings that back onto open park areas such as those on Brewster Avenue, Roundway, Magnolia Rise, Guernsey Grove and Brocklesby Avenue. The visual impact from these locations would be similar to that illustrated in Figure 5.13 - Viewpoint 3, with the turbines seen rising above the skyline. Even from these locations, vegetation around the open spaces and in gardens will further mitigate this impact.</p> <p>The Proposed Development will appear prominently from the eastern edge of the settlement. However, the industrial works between the Proposed Development not only screens views but provides a strong sense of separation between the residential areas and the turbines. The turbines are never overbearing features, and the location within existing industrial elements minimises any contrast to the baseline.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be medium overall, resulting in a major/moderate level of effect, which is significant. It should be noted that there are areas where the impact would be major, as well as areas where views are completely screened.</p>
South Killingholme (North Lincolnshire)	3.0km	<p>This settlement is situated directly to the south of North Killingholme. The ZTV indicates visibility across the entire settlement. Given the dense woodland along the eastern edge, and the Humber Refinery beyond this, the impact would be well screened. Figure 5.14 - Viewpoint 4 is located beyond these trees to give an open view, from an elevated position of School Road, however even here, the Proposed Development is well screened by the Humber Refinery, and the sections visible would be indistinct from the existing prominent industrial developments.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>

<p>North Killingholme (North Lincolnshire)</p>	<p>3.3km</p>	<p>This is a small settlement to the west of the chemical works, and the ZTV indicates visibility across the entire settlement. Actual views would be limited however, as a combination of orientation and vegetation will limit the visual impact. There may be a couple of dwellings on the eastern edge on Church Lane which will have oblique views, however the turbines will appear beyond the Humber Refinery. When approaching the settlement there may also be oblique views from East Halton Road, however, again they will appear beyond the refinery and afforded significant screening.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
<p>Habrough (North East Lincolnshire)</p>	<p>4.0km</p>	<p>While the ZTV indicates visibility from the entire settlement, actual views would be extremely rare. The eastern edge, closest to the Proposed Development may have some visibility from the rear gardens on Kesteven Court. Any glimpses through rare gaps in the vegetation may see the Proposed Development as illustrated in Figure 5.15 - Viewpoint 5. This viewpoint is located a little out of the settlement due to the difficulty in finding open views from Habrough, despite its close proximity to the Proposed Development.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
<p>East Halton (North Lincolnshire)</p>	<p>4.6km</p>	<p>While there is theoretical visibility of the Proposed Development predicted, the turbines are well screened by vegetation. Once vegetation is factored in, it is unlikely that any views would be possible. From College Road there are more open views, however intervening vegetation will still provide substantial screening and views would be rare and indistinct. Figure 5.16 - Viewpoint 6 is located to the east of the settlement in order to find open views towards the development. While this is slightly outwith the settlement, the views would be similar to those experienced through the rare gaps in vegetation around East Halton. The Proposed Development is not prominent and has less visual impact than the existing Humber Refinery.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
<p>Stallingborough (North East Lincolnshire)</p>	<p>4.7km</p>	<p>The ZTV indicates that the entire settlement would have theoretical views of the Proposed Development. Actual views would be less common due to a combination of the built environment and vegetation. There will be open views from properties on the northern edge around Clarkson Drive, while these aren't orientated towards the Proposed Development, there will be views from the garden areas. When seen, the Proposed Development would occupy a minor extent of the view and appear alongside existing industrial features. Figure 5.17 - Viewpoint 7 illustrates this type of impact, where it would offer only a minor contrast to baseline views and not be a prominent feature in these views, having significantly less impact than the electricity pylons.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be low overall, resulting in a moderate level of effect, which is not significant.</p>
<p>Settlement <10km from Proposed Development</p>		
<p>Healing (North East Lincolnshire)</p>	<p>5.9km</p>	<p>Healing is located to the west of Grimsby and the ZTV indicates theoretical visibility for the entirety of the settlement. Despite this, actual views are difficult to achieve. This is due to the pattern of mature woodland which is a common feature of the settlement's edges, limiting outward views. As such, residential receptors in Healing would be unlikely to be impacted, however there may be some glimpses through gaps in vegetation along the northern edge from the Clover Lane. From this area, the impact would be similar to this seen in Figure 5.17 - Viewpoint 7, where the Proposed Development is afforded some</p>

		<p>screening, is not prominent and is seen within a view already characterised by manmade features such as pylons.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Keelby (West Lindsey)	6.0km	<p>The ZTV indicates that the entire settlement will have views of the Proposed Development. Many of these will be obscured by the built environment itself and vegetation at Roxtor Wood. The only open views likely, will be from the A18 to the south-east of the settlement, where the turbines will appear on the horizon and occupying a minor extent of the view, as seen in Figure 5.19 - Viewpoint 9.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Brocklesby (West Lindsey)	6.1km	<p>The residential dwellings at Brocklesby are well set within mature estate woodland and unlikely to have any views. Figure 5.21 - Viewpoint 11 is located on the eastern edge of the estate and would illustrate any open views if available. In the unlikely event of visibility of the Proposed Development, it would be a minor feature and never prominent from within Brocklesby.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Ulceby (North Lincolnshire)	6.9km	<p>This settlement is located to the west of the Proposed Development and the ZTV indicates visibility across the entire town. Most views would be screened by the built environment and by vegetation, however some views are predicted on the eastern edges. Dwellings at the eastern end of Meadow Avenue, the rear gardens of dwellings on the eastern side of Fields End and a few dwellings at the eastern end of Station Road will have views. From these locations the turbines will still be afforded some screening by topography and vegetation and will only occupy a minor extent of the view, where they would appear alongside existing infrastructure such as electricity pylons.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be low overall, resulting in a moderate level of effect, which is not significant.</p>
Grimsby (North East Lincolnshire)	8.1km	<p>Grimsby is a large settlement to the south-east of the Proposed Development and the ZTV indicates that there will be visibility from much of the town. Actual views may be difficult due to the prominence of vegetation along its northern end, and the industrial units along the coast. From the area out by the Grimsby Dock tower there are open views along the coast where the turbines will appear. However, even from these open areas, a combination of distance and the infrastructure at Immingham Dock will limit the visual impact. From the remainder of the settlement views are unlikely.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Goxhill (North Lincolnshire)	8.6km	<p>Although the ZTV indicates that there is visibility across the entire settlement, there is an estate woodland character to the settlement and its surroundings, which creates an enclosed character and limited outward views from the settlement. It was not possible to find a suitable location in Goxhill for a visualisation and views would be rare, through gaps in vegetation from rear gardens. It is unlikely that these would be common or that the Proposed Development would ever be prominent.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>

Great Limber (West Lindsey)	8.7km	There would be no visibility of the Proposed Development from Great Limber. The sensitivity of the receptor is considered to be high. The magnitude of change is considered to be none and there would be no significant effects.
Kirmington (North Lincolnshire)	8.8km	The ZTV indicates that there will be visibility of the Proposed Development from the north-eastern half of the settlement. This settlement is well wooded, however some open views from the eastern end of Kirmington Business Centre will be apparent. Due to topography this is likely to only be blade tips and would be a minor feature in views. The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.
Thorngumbald (East Riding of Yorkshire)	9.0km	This settlement is located across the Humber Estuary and the ZTV predicts that there will be visibility from the entire town. Despite this, views would be limited. Dwellings along Hooks Lane on the southern edge would be orientated towards the development, however a large, mature hedge blocks the majority of long-range views from these dwellings, and they are unlikely to view the Proposed Development. Any gaps in vegetation may allow for some minor views, where the turbines would occupy a minor extent of the view and be seen in conjunction with the Humber Refinery. The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.
Wootton (North Lincolnshire)	9.0km	Although the ZTV indicates visibility from the entire settlement, views of the Proposed Development are highly unlikely given the pattern of vegetation in the area. Even from the closest point on the eastern edge at the cemetery views are blocked by high hedges and shelterbelts. The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.
Laceby (North East Lincolnshire)	9.5km	Laceby is situated on the northern side of the A46 to the south-west of Grimsby. The ZTV indicates visibility across the majority settlement. For much of this, views will be screened by the built environment and vegetation. There may be some open views along the northern edge at Daisey Drive, where blade tips appear rising above the treeline, however these are likely to be indistinct features. The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.
Settlements <15km from Proposed Development		
Keyingham (East Riding of Yorkshire)	10.2km	The ZTV indicates visibility across the entire settlement, however, actual views would be limited, due to vegetation on the settlements edge. There may be glimpses of the Proposed Development from the southern edge at properties on The Leys, Ings Lane, and Ottringham Road, however even here the turbines would be minor features of the distance and likely be indistinct from the Humber Refinery buildings. The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.
Hedon (East Riding of Yorkshire)	10.8km	This settlement is situated on the opposite side of the Humber Estuary and the ZTV indicates that there is theoretical visibility across the entire town. Actual visibility will be rare and well screened. Dwellings on Thorn Road, Sacred Gate, Damn Court and Daildon Court may have views, however hedgerows along the southern edge of the settlement and intervening woodland would still provide notable screening, and potentially only blade tips would be seen, which would be indistinct features.

		The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.
Burstock (East Riding of Yorkshire)	11.2km	<p>There would be theoretical visibility from the majority of the settlement. It is unlikely actual views would occur with vegetation and infrastructure associated with Station Road and the A1033 likely screening views. Any glimpses would likely be blade tips and seen in conjunction with the Humber Refinery.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Irby upon Humber (North East Lincolnshire)	11.2km	<p>This is a small settlement, where visibility is predicted by the ZTV from most of the town. Despite this, views are unlikely given the mature vegetation which lines either side of the A46 and screens most views in the direction of the Proposed Development. There may be some open views on the eastern edges of the settlement on Walk Lane, where glimpses of the turbines may appear. These would be blade tips, and not affect any of the views from dwellings.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Barrow upon Humber (North Lincolnshire)	11.2km	There would be no visibility of the Proposed Development from Barrow upon Humber. The sensitivity of the receptor is considered to be high. The magnitude of change is considered to be none and there would be no significant effects.
New Holland (North Lincolnshire)	11.3km	<p>This settlement is situated on the southern banks of the River Humber and is predicted to have theoretical visibility throughout. It is unlikely that there will be any visibility of the turbines from the majority of the settlement. There may be glimpses of blade tips seen rising above the woodland from the dwellings on Barrow Road.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Cleethorpes (North East Lincolnshire)	12.1km	<p>Cleethorpes occupies the south-eastern area beyond Grimsby, and while the ZTV indicates visibility, actual views are well screened by the built environment. Even from the open areas at the promenade and by the cemetery views would be well screened by the built environment at Grimsby.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Preston (East Riding of Yorkshire)	12.8km	<p>Preston is located directly to the north of Hedon and while the ZTV indicates visibility across the entire settlement, views would be difficult. The settlement of Hedon is directly between Preston and the Proposed Development, thus the built environment and the associated vegetation will provide significant levels of screening.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Hull (Hull City)	13.0km	Hull is the largest settlement in the area and despite its size, the ZTV indicates theoretical visibility from the entire settlement. In reality views will be limited to the waterfront area where there are open views across the Humber River. These views are illustrated in Figure 5.25 - Viewpoint 15 , where the Proposed Development occupies a minor extent of the view, appearing in between the infrastructure at Immingham Dock and the Humber Refinery. These existing elements rises to a similar height in the view and the addition of the turbines to this has little contrast to the baseline views. While the turbines are visible from the waterfront, they would not diminish the view and are never prominent, nor do they draw

		<p>the eye. From the remainder of Hull views are difficult, there are no areas of higher ground with vantage points and the built environment tends to screen views. From the areas with visibility, the Proposed Development would fit into the existing character.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be low overall, resulting in a moderate level of effect, which is not significant.</p>
Swallow (West Lindsey)	13.0km	<p>There would be no visibility of the Proposed Development from Swallow. The sensitivity of the receptor is considered to be high. The magnitude of change is considered to be none and there would be no significant effects.</p>
Barnetby le Wold (North Lincolnshire)	13.6km	<p>There would be no visibility of the Proposed Development from Barnetby le Wold. The sensitivity of the receptor is considered to be high. The magnitude of change is considered to be none and there would be no significant effects.</p>
Barnoldby le Beck (North East Lincolnshire)	13.8km	<p>While the ZTV indicates that the northern half of the settlement will have theoretical views of the Proposed Development, this settlement is well enclosed by mature woodland and actual views are highly unlikely.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Waltham (North East Lincolnshire)	13.9km	<p>Situated to the west of New Waltham, the ZTV indicates visibility from the western half of the settlement. When conducting the LVIA visualisations, it was difficult to find a public location within Waltham which had visibility of the Proposed Development due to the pattern of the built environment and vegetation. The rear gardens of dwellings which back onto Buck Beck may have some glimpses of the turbines, where they would occupy a minor extent of the view. However, even these would be subject to intervening vegetation, and at most blade tips would be seen which would be indistinct from their surroundings.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Patrington (East Riding of Yorkshire)	13.9km	<p>While the entire settlement is predicted to have visibility according to the ZTV, the only likely views would be from the western edge. Dwellings along Westfield Road would have open views across the landscape, however even from here, intervening woodland will likely screen views.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>
Beelsby (North East Lincolnshire)	14.3km	<p>There would be no visibility of the Proposed Development from Beelsby. The sensitivity of the receptor is considered to be high. The magnitude of change is considered to be none and there would be no significant effects.</p>
Grasby (West Lindsey)	14.5km	<p>There would be no visibility of the Proposed Development from Grasby. The sensitivity of the receptor is considered to be high. The magnitude of change is considered to be none and there would be no significant effects.</p>
New Waltham (North East Lincolnshire)	14.6km	<p>The entirety of New Waltham is covered by the ZTV, despite this, visibility of the Proposed Development is difficult. Even from the most open sections on the edges closest to the Proposed Development, vegetation in particular along the A16 would screen most views in this direction.</p> <p>The sensitivity of this receptor is high, and the magnitude of change is considered to be negligible overall, resulting in a moderate/minor level of effect, which is not significant.</p>

Barton-Upon-Humber (North Lincolnshire)	14.6km	There would be no visibility of the Proposed Development from Barton-Upon-Humber. The sensitivity of the receptor is considered to be high. The magnitude of change is considered to be none and there would be no significant effects.
Settlements beyond 15km have been scoped out		

5.5.3.4 Assessment of Major Tourist and Transport Routes

An assessment of the potential for visual effects on popular routes in the area has been undertaken. These routes are shown on **Figure 5.10** and include:

- A180 between Brigg and Grimsby; and
- Public Bridleway between Skitterness and Grimsby.

A180 between Brigg and Grimsby

The A180 is a busy commuter route which traverses the across the Lincolnshire landscape connecting Scunthorpe in the west, with Hull in the north (via the A15) and Grimsby in the south-east. It travels across open agricultural landscapes to the north of the Wolds and is often enclosed by mature shelterbelts. The section assessed runs for 32km and is considered to be medium sensitivity. At its closest point, the nearest turbine is within 2km of the path. **Figure 5.10** illustrates the route overlaid by the ZTV.

Travelling east, the first ~2.5km is not predicted to have any visibility of the Proposed Development. Theoretical views are predicted to begin as the route passes under Race Lane, at this point views would be as illustrated in **Figure 5.23 - Viewpoint 13**, where visibility of the turbines is shown to be screened by vegetation. For the next ~7.5km, views are theoretically intermittent, however, intervening vegetation will limit views towards the Proposed Development, with only occasional glimpses, although any views would be direct. Reaching the junction with the A160, views would be similar to this illustrated in **Figure 5.14 - Viewpoint 4**, with the Humber Refinery providing high levels of screening to the turbines. At this point, the turbines would be distinct features in the view, when not screened by the infrastructure. These views would quickly become oblique and appear similar to those seen in **Figure 5.15 - Viewpoint 5**, where the Proposed Development is prominent but not dominant and seen in conjunction with the dock infrastructure. This view would only last ~3.5km before the turbines pass to the rear of the viewer.

When travelling in the opposite direction, most views will be well screened by the infrastructure and vegetation on the north-western edges of Grimsby and is likely to be the case for the first ~6km of the route. Once the route passes to the northern side of Healing, the views would open up and the Proposed Development will appear in full on the horizon, where it will occupy a minor to moderate extent of the view, similar to the impact seen in **Figure 5.17 - Viewpoint 7** from Stallingborough. The impact illustrated here would last for ~4km and views would begin direct but become oblique as the route passes to the south of Immingham. At this point any views not screened by vegetation would appear similar to those illustrated in **Figure 5.13 - Viewpoint 3**, although this impact would be fully oblique and brief as the Proposed Development passes to the rear of the viewer.

The overall magnitude of change is considered to be low, resulting in a **moderate/minor** level of effect, which would not be significant.

Public Bridleway between Skitterness and Grimsby

The Bridleway is a popular footpath which traverses the coastal landscapes along the western side of the Humber Estuary. It follows the coastline, with the water to the east and industrial units directly to the west, which line the route of the path. The section assessed runs for 17m and is considered to be high sensitivity due to its popularity as a walking route. At its closest point, the nearest turbine is within 300m of the path. **Figure 5.10** illustrates the route overlaid by the ZTV.

When travelling south, the ZTV indicates that there would be visibility of the Proposed Development for the entire route. As the route departs Skitterness, the turbines would appear directly in front of the viewer in the distance. At this point, the Proposed Development would occupy a minor extent of the view and seen alongside the Humber Refinery. This impact would last for ~5km, with the turbines gradually becoming more prominent in the view until the route reaches the location of **Figure 5.16 - Viewpoint 6**. At this point, the Proposed Development is seen in between some of the built environment associated with the dock and the Humber Refinery and although obvious features, are neither prominent nor out of character with the baseline views. Again, as the route travels further south the turbines would become more prominent, and while the refinery becomes obliquely seen in land, the infrastructure at the Dock becomes more apparent. Only at the very end of the route at Immingham Dock would the Proposed Development be prominent, and at this point the existing industrial infrastructure heavily characterises the views and are also prominent. After this there is a break in the footpath due to the industrial developments at Immingham Dock.

When travelling in the opposite direction, the turbines are likely to be screened for the opening ~2km by industrial development on the north-western side of Grimsby. Once views open up, the impact will be as illustrated in **Figure 5.20 - Viewpoint 10**, where it can be seen that intervening industrial units provide significant levels of screening with only blade tips visibility apparent. This impact would last for ~2.5km, before a break in development north of the South Humber Power Station, although the Dock infrastructure will now also provide screening to the Proposed Development for the final ~3km. It is unlikely that the Proposed Development will appear in full at any point travelling north from Grimsby due to screening provided by a number of existing industrial developments.

For the route as a whole, the baseline is heavily influenced by existing industrial developments all along the coast, and the Proposed Development would be of little contrast to this and would not detract from the existing visual experience when walking the route. The open views over the Humber Estuary are never interrupted due to the relative position of the turbines.

The overall magnitude of change is considered to be low, resulting in a **moderate** level of effect, which would not be significant.

5.6 Assessment of Predicted Cumulative Visual Impacts and Effects

5.6.1 Cumulative Baseline

There are a number of operational projects within the area as well as consented projects and projects with a valid planning application submitted. All operational, consented and planned schemes within 40km of the Proposed Development are detailed on **Figure 5.2**. The most relevant wind energy developments to the CLVIA include those sites within 20km as these are more likely to have intervisibility between them and the Proposed Development, while developments over 20 km away are highly unlikely to give rise to significant cumulative effects.

5.6.2 Cumulative Landscape Assessment on the Humber Estuary NCA

5.6.2.1 Cumulative Operational Turbine Impacts

The Proposed Development is situated within an Industrial LCT, which is part of the national Humber Estuary NCA. The existing industrial buildings at Humber Refinery and Immingham Dock have a strong influence over the current character of the landscape however there are currently no other wind energy developments within either the local Industrial LCT nor on this side of the Humber Estuary NCA. There are two operational turbines at Pyewipe farm near Laceby, which are visible from within the Industrial LCT and a single turbine at Barton Vale Farm. These would only have a minor influence over this landscape and are never prominent features. While the Proposed Development will have a notable impact on the Industrial LCT and the Humber Estuary NCA, its contribution towards cumulative effects are limited as simultaneous visibility between the Proposed Development and the these operational turbines is minimal. The cumulative magnitude of change when considering operational

developments would be low, resulting in a minor level of cumulative impact, which in this case would not be significant.

5.6.2.2 Cumulative Consented Impacts

There are no consented developments either within this landscape nor in the surrounding area, as such the cumulative magnitude of change would remain low.

5.6.2.3 Cumulative In Planning Turbine Impacts

Current validated planning applications would add in the two turbines proposed at Grimsby Port which would be located within the industrial LCT, ~9km to the south-east of the Proposed Development. The two developments would be located at either end of the LCT, with both having a notable influence over the landscape. Neither would result in the loss of any landscape features, with both located on made ground. While views from within the LCT of the two developments would be common, simultaneous views would be rarer given their relative positions within the LCT. Simultaneous views would most likely occur when viewed towards the LCT from across the Humber Estuary. Although the two developments would be prominent, this landscape is heavily characterised by existing manmade and industrial features, many with strong vertical characteristics, as such neither development nor the combination of the two feel out of character with their surroundings. In addition to this the two turbines proposed at Hull Onshore across the estuary would also have an influence over the Humber Estuary NCA. These turbines would be located on the opposite banks of the Humber Estuary and would cause some minor cumulative effects due to turbines being apparent on both sides, however these would also be located in a section of the estuary where existing industrial elements are the overriding character.

The contribution towards cumulative effects by the Proposed Development is considered to be medium, resulting in a **moderate/minor** level of cumulative impact, which would not be significant.

5.6.3 Cumulative Viewpoint Analysis

Each viewpoint assessed as part of the viewpoint assessment has also been considered cumulatively with any existing, consented and planned turbines. The location of the cumulative developments included within the assessment are mapped and shown in **Figure 5.2**. This aspect is considered in more detail as part of the viewpoint assessment in **Appendix 5.2**. Following the assessment, it is considered none of the viewpoint locations would be affected to the point where the cumulative impact as a result of the Proposed Development would become significant.

A summary of the potential cumulative visibility assessment from each of the viewpoints is provided **Table 5.11** in Further details can be found in the viewpoint assessment located in **Appendix 5.2**.

Table 5.11 - Summary of Cumulative Viewpoint Analysis

Viewpoint No.	Sensitivity	Magnitude	Level of Effect
Viewpoint 1: Immingham North (Figure 5.11)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 2: Homestead Park (Figure 5.12)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor

Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 3: Immingham South (Figure 5.13)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 4: South Killingholme (Figure 5.14)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 5: Habrough (Figure 5.15)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 6: East Halton (Figure 5.16)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 7: Stallingborough (Figure 5.17)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 8: Holderness Peninsula (Figure 5.18)			
Proposed Development and Operational Developments	Medium	Negligible	Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Low	Moderate/Minor
Viewpoint 9: Keelby (Figure 5.19)			
Proposed Development and Operational Developments	High	Low	Moderate
Proposed Development and Operational Developments and Operational, Consented Developments		Low	Moderate

Proposed Development and Operational Development and Operational, Consented, Planned Developments		Low	Moderate
Viewpoint 10: Public Right of Way on the Grimsby Coast (Figure 5.20)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Low	Moderate
Viewpoint 11: Brocklesby Park (Figure 5.21)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Moderate/Minor
Viewpoint 12: Fort Paull (Figure 5.22)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Low	Moderate
Viewpoint 13: National Cycle Route over the A180 (Figure 5.23)			
Proposed Development and Operational Developments	Medium	Negligible	Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Negligible	Minor
Viewpoint 14: Barrow Upon Humber (Figure 5.24)			
Proposed Development and Operational Developments	High	-	-
Proposed Development and Operational Developments and Operational, Consented Developments		-	-
Proposed Development and Operational Development and Operational, Consented, Planned Developments		-	-
Viewpoint 15: Victoria Dock, Hull (Figure 5.25)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Low	Moderate
Viewpoint 16: Lincolnshire Wolds AONB (Figure 5.26)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor

Proposed Development and Operational Development and Operational, Consented, Planned Developments		Low	Moderate
Viewpoint 17: Spurn Point (Figure 5.27)			
Proposed Development and Operational Developments	High	Negligible	Moderate/Minor
Proposed Development and Operational Developments and Operational, Consented Developments		Negligible	Moderate/Minor
Proposed Development and Operational Development and Operational, Consented, Planned Developments		Low	Moderate

5.6.4 Cumulative Assessment of Major Tourist and Transport Routes

An assessment of the potential for cumulative effects on popular routes in the area has been undertaken. These routes are shown on **Figure 5.10** and include:

- A180 between Brigg and Grimsby; and
- Public Bridleway between Skitterness and Grimsby.

5.6.4.1 A180 between Brigg and Grimsby

Operational Turbine Developments

When travelling along the A180 in a south-easterly direction, there is theoretical visibility of the single turbine at Barton Vale Farm between Brigg and Barnetby le Wold. However, these views would be highly screened by intervening vegetation and a mature shelterbelt which runs along the northern side of the road. During this section, views of the Proposed Development are limited, and even glimpses of these would appear simultaneously with Barton Vale Farm, which quickly passes to the rear of the viewer. Neither development will be prominent from this northern section of the route. After the route turns to the south-east at the A160 junction, there may be long-range views of the Pyewipe Farm turbines, these would be minor features in the distance and likely to be screened by intervening vegetation. However, at this point, the Proposed Development would pass to the rear and not appear simultaneously with Pyewipe.

When travelling in the opposite direction, the beginning of the route passes through Grimsby and simultaneous visibility with the Proposed Development and other wind energy development is unlikely. The Proposed Development will not be prominent from this part of this route and would only become visible once the existing turbines at Pyewipe have passed to the rear of the viewer. The cumulative magnitude of change will be low.

Consented Turbine Developments

There are no consented developments visible from this route, and the cumulative magnitude of change will remain low.

In Planning Turbine Developments

When travelling east between Brigg and Immingham, there will be theoretical direct views of the Hull Onshore turbines. While these would theoretically appear directly adjacent to the Proposed Development, both schemes are well screened, and even when views of the Immingham Onshore turbines become available, views towards Hull Onshore turbines are still well screened. During this section of ~14km, views towards the Proposed Development and Hull Onshore turbines would be direct. As the route turns onto a more south-easterly direction at the A160 junction, the Proposed Development turbines will be prominent and seen obliquely, however would quickly pass to the rear of the viewer. It would be a further ~10km before the proposed Grimsby Onshore turbines become prominently visible.

Travelling in the opposite direction, it is unlikely that the Proposed Development would become visible until the Grimsby Onshore turbines, which are prominent in the southern section, have passed to the rear of the viewer. While they would not be seen simultaneously, this would cause some minor sequential effects when travelling along the route. There may be some long-range views of Hull Onshore turbines, also after Grimsby Onshore has passed to the rear, and seen simultaneously with the Proposed Development, however these would be afforded considerable screening by the industrial elements of the foreground and even when seen would be minor features. The cumulative magnitude of change would become medium.

5.6.4.2 *Public Bridleway between Skitterness and Grimsby*

Operational Developments

When walking south along this route there is theoretical visibility of the Pyewipe turbines, which will appear inland. However, these are screened by a combination of vegetation and the industrial units which sit directly inland from the coast. Thus, it is unlikely that there will be any simultaneous visibility with the Proposed Development. On clear days, there will be long-range views out across the Humber Estuary towards the Humber Gateway offshore development, these will appear simultaneously with the Proposed Development, seen to the left of it. The offshore development would not be prominent and the Proposed Development would appear as illustrated in **Figure 5.16 – Viewpoint 6**. While the Proposed Development is prominent from the section immediately north of the turbines, its cumulative contribution is limited given the lack of visibility of Pyewipe and the distance to Humber Gateway.

When travelling in the opposite direction, the offshore Humber Gateway would be to the rear of the viewer at the beginning. There would be views across the Humber Estuary towards the Far Marsh, Limes and Hull Water Treatment turbines, however these would be minor features, seen to the right of the Proposed Development. These developments, along with the Proposed Development would all be well screened and have limited visibility. The cumulative magnitude of change is considered to be negligible.

Consented Developments

There are no consented developments visible from this route, and the cumulative magnitude of change will remain negligible.

In Planning Developments

Travelling south-east there would be oblique visibility of the Hull Onshore turbines across the Humber estuary, these would not be visible simultaneously with the Proposed Development, which would appear directly in front of the viewer. There would be theoretical, long-range views of Grimsby Onshore in the same direction, however these would be screened by the industrial infrastructure at Immingham Dock.

When travelling in the opposite direction, the Grimsby Onshore turbines would be prominent to the rear of the viewer at the beginning of the route, as such there would be no simultaneous visibility of the two projects when walking this route. While they aren't seen together, their presence may cause some sequential cumulative impacts, with both being prominent features at either end of the route. Between Grimsby and Immingham Dock, the Hull Onshore turbines would be minor features, seen on the opposite side of the Humber Estuary and would appear simultaneously with the Proposed Development during this stretch. Despite this, the Proposed Development is well screened by industrial buildings and the Hull Onshore turbines are minor features, as such the cumulative magnitude of change would be low.

5.6.5 *Decommissioning*

All of the visible, above ground structures (turbines, substation and grid connection) will be removed upon decommissioning, thus rendering the landscape and visual effects of the Proposed Development as reversible. There would, therefore, be no landscape and visual effects remaining after decommissioning as a result of the Proposed Development.

5.7 Summary of Predicted Impacts and Effects

5.7.1 Introduction

The Proposed Development is located on a brownfield site at Immingham Dock and is situated between the dock and the Humber Refinery. The Proposed Development has been sited to minimise potential impacts on landscape character, with the specific locations and turbine sizes and numbers selected in such a way as to minimise their visual influence by fitting into the existing industrial character of the area and avoiding more rural and scenic locations in the region. The methodology for the landscape and visual impact assessment (LVIA) adopts the guidelines set out by the Landscape Institute and the Institute for Environmental Management and Assessment.

5.7.2 Landscape Assessment

The Proposed Development is located within the Industrial LCT, which is within the Humber Estuary NCA and would affect a proportion of that part of this landscape. It is part of a landscape which has been heavily altered with the port developments and other industrial units almost continuously between Grimsby and Immingham, which gives it a low landscape sensitivity. The assessment found no significant effects on the LCT. This was due the size of the landscape unit and the presence of prominent industrial developments within it. At no point did the Proposed Development overwhelm the landscape and was a minor contrast to the baseline, given the existing character. When seen from outwith the Industrial LCT, the proposed turbines are seen as part of a heavily modified and industrial landscape, often screened by the existing industrial elements.

Considering the wider area, the assessment has concluded that there would be no significant indirect effects from any of the other landscape character types within the study area. The ZTV shows that the visual influence over the wider area is quite extensive, due to the relative flatness of these landscapes. However, there are two primary reasons why this theoretical visibility across the landscape has only limited impact on the landscape character. Firstly, whilst the flatness allows for wide ranging theoretical views, it also allows for any vegetation to provide good screening and the area has an abundance of hedges and shelterbelts. Secondly, when visible within the landscape, the Proposed Development is always seen in context with the Immingham Dock and Humber Refinery, limiting its contrast to the baseline.

5.7.2.1 Effects on Designated Landscapes

The landscape of the Site area is not designated and as such there will be no direct effects on any landscape designations. There are other nationally and locally designated landscapes within the study area such as AONBs, AGLVs and Registered Parks and Gardens. These included Lincolnshire Wolds AONB and the West Lindsey AGLV, both of which had photomontages produced to illustrate the worst impact on them. It is predicted that the impacts on these designated landscape (which are of a high sensitivity) as a whole will be of low to negligible magnitude resulting in no significant effects.

5.7.3 Visual Assessment

The viewpoint analysis indicates that there would only be significant visual effects resulting from four of the sixteen locations assessed. These would all be within the immediate area, with the Habrough location at 3.0km the furthest significant visual effect occurring. While these effects are significant, as the Proposed Development turbines are prominent features, the turbines would not be dominant or overbearing and will affect views already characterised by the dock and refinery activities, as well as other industrial buildings.

5.7.3.1 Visual Effects: Construction Period

There will be no significant visual effects resulting from the construction period and visibility of the ground-based activity. Views of concentrated areas of construction could however lead to a temporary and negative effect that in some cases may appear more disruptive than the finished development. However, these are not thought to be

out of character with the existing activities at the port and surrounding area. Post construction, the appearance of the Site would have negligible levels of activity visible on-site from the nearest visual receptors.

5.7.3.2 *Visual Effects: Operational Period*

Due to the close proximity and some prominent views, parts of the settlement of Immingham are predicted to experience likely significant impacts. These impacts will be typically experienced by dwellings on the northern and eastern edges of the settlement nearer the Proposed Development, with views from the remainder of Immingham well screened by the built environment. From some open areas the turbines are seen rising above the skyline, although are seen alongside existing industrial elements which also have a similar visual effect. A selection of viewpoints from within Immingham illustrate the types of impact.

Regarding all other settlements in the study area, there is a distinct pattern to the visual impact from these. Due to the flat landscape of the region, theoretical views are typically predicted from the majority of settlements. However, this flatness combined with high, mature hedges along roads, and mature shelterbelts along the edges of settlements provides considerable screening to the Proposed Development. With no elevated locations within settlements, there are no vantage points over the vegetation, leaving the turbines well screened from the vast majority of residential areas.

5.7.4 *Cumulative Landscape and Visual Effects*

Cumulative impacts with other wind energy developments are limited due to a combination of a lack of other developments close by, screening by vegetation and industrial buildings limiting views of both the Proposed Development and other turbines.

When developments with a valid planning application are considered, there would be some sequential cumulative impacts relating to the A180 and the Public Bridleway and views of Immingham Onshore and Grimsby Onshore appearing prominently at different point along these routes, with some longer-range views of Hull Onshore turbines in the northern part of the study area. Despite this, they are never prominent at the same time, and only rarely seen simultaneously. No significant cumulative effects were found.

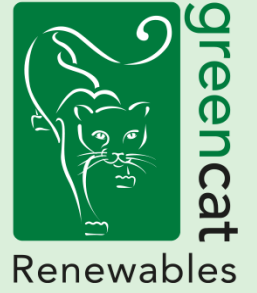
5.8 *Conclusion*

The Proposed Development is located in an industrial section of the landscape, at Immingham Dock. It features two turbines positioned within a brownfield site. The Site offers the opportunity for the proposed turbines to be located within a landscape which has already been heavily modified by port activities and other industrial developments, reducing the need to open up new areas of more rural landscape to locate the turbines in.

Given that the existing character of the surrounding area is dominated by the industrial developments at Immingham Dock and Humber Refinery, impacts on the LCT would be limited. The effects on the LCT primarily relate to views from close proximity where the turbines appear as part of the existing infrastructure, as such they have only a limited contrast to this baseline. Views into the LCT from adjacent LCTs remain not significant and the perceived character of the Industrial LCT remains intact.

While significant impacts are predicted on the settlement of Immingham, due to the presence of the Proposed Development in some views along the closest edges, this impact is not considered to breach the residential visual amenity threshold due to the existing baseline views they have, and the fact that the turbines are never overbearing nor dominant. From the wider area, vegetation around settlements typically screens views of the turbines from the majority of residential areas.

The Proposed Development would have a low (non significant) impact to cumulative effects as the proposed turbines are rarely seen simultaneously with other wind turbine developments. Those turbines that are located locally are often screened or not seen in the same views as the Proposed Development.



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