

# Outer Dowsing Offshore Wind

## Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor Appendix A Figures

Procedural Deadline 19 September

Part 1 of 2

Date: September 2024

Document Reference: 15.9A

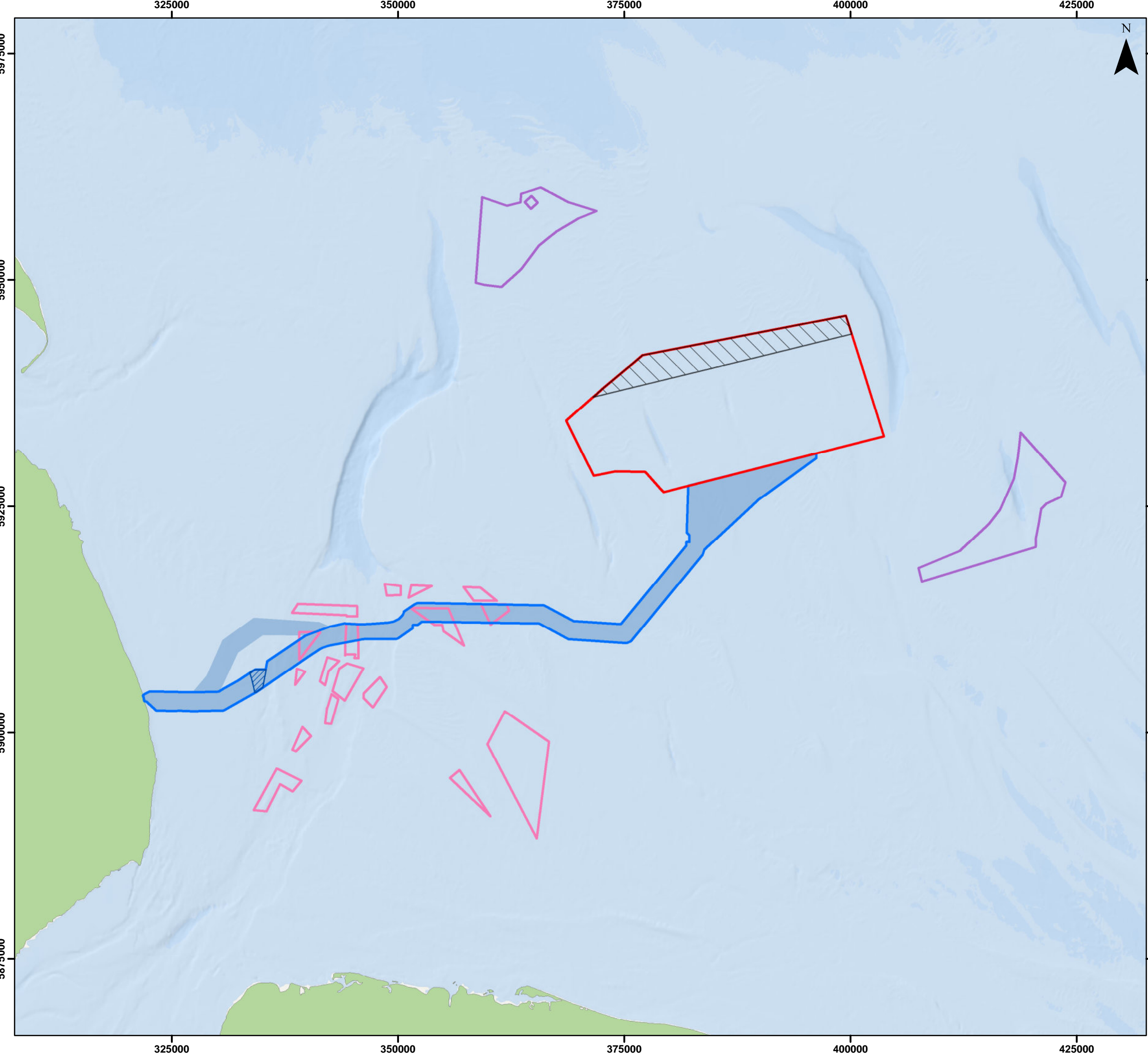
Revision: 1.0

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Project:		<b>Whole Wind Farm</b>		Sub Project/Package:		Whole Asset	
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1.0	September 2024	Procedural Deadline 19 September	GoBe	GoBe	Outer Dowsing	Outer Dowsing	

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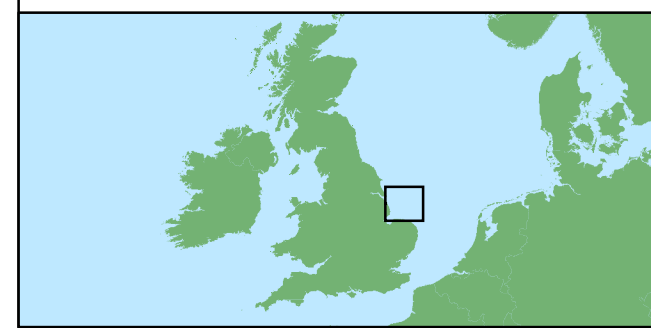
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**Legend**

- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- Offshore Export Cable Corridor (ES)
- ORCP Area
- Artificial Nesting Structure Area
- Biogenic Reef Restoration Area



Coordinate System: WGS 1984 UTM Zone 31N  
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Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Overview of the ORBA and Offshore ECC Modifications

Figure 1.0



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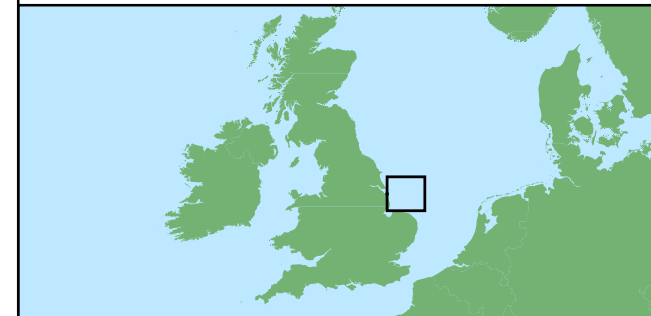


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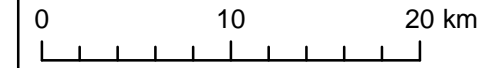
-  Array Area
-  Offshore Restricted Build Area
-  Offshore Export Cable Corridor
-  ORCP Area
-  Artificial Nesting Structure Area
-  Physical Processes Zone of Influence
-  Special Areas of Conservation
-  Marine Conservation Zones

### High Northerly Current Current Speed

- Current Speed (m/s)**
-  < -0.1
  -  -0.05 - -0.1
  -  -0.02 - -0.05



Coordinate System: WGS 1984 UTM Zone 31N



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Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Hydrodynamic blockage effects during a high spring ebb tide

Figure 1.1

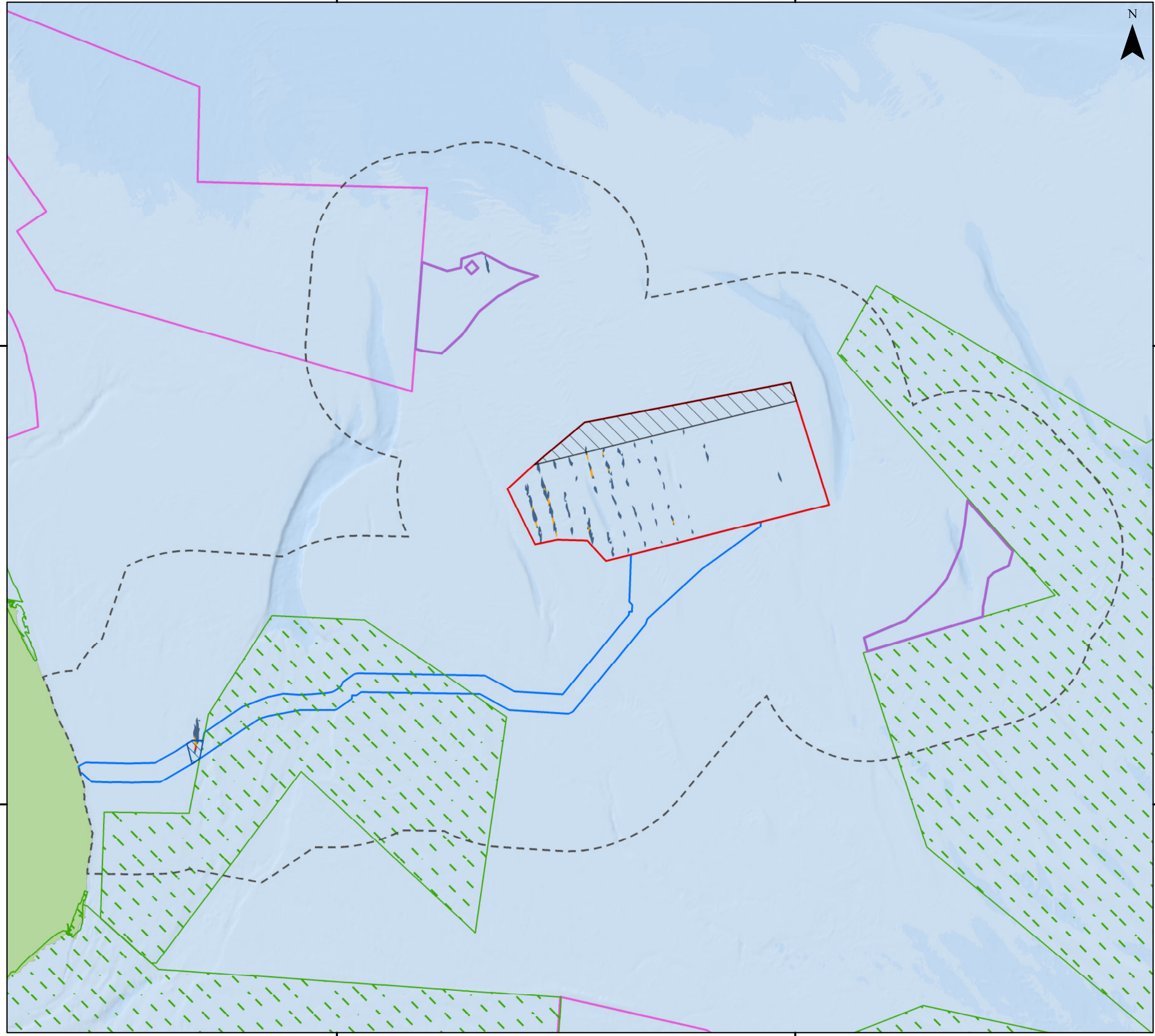


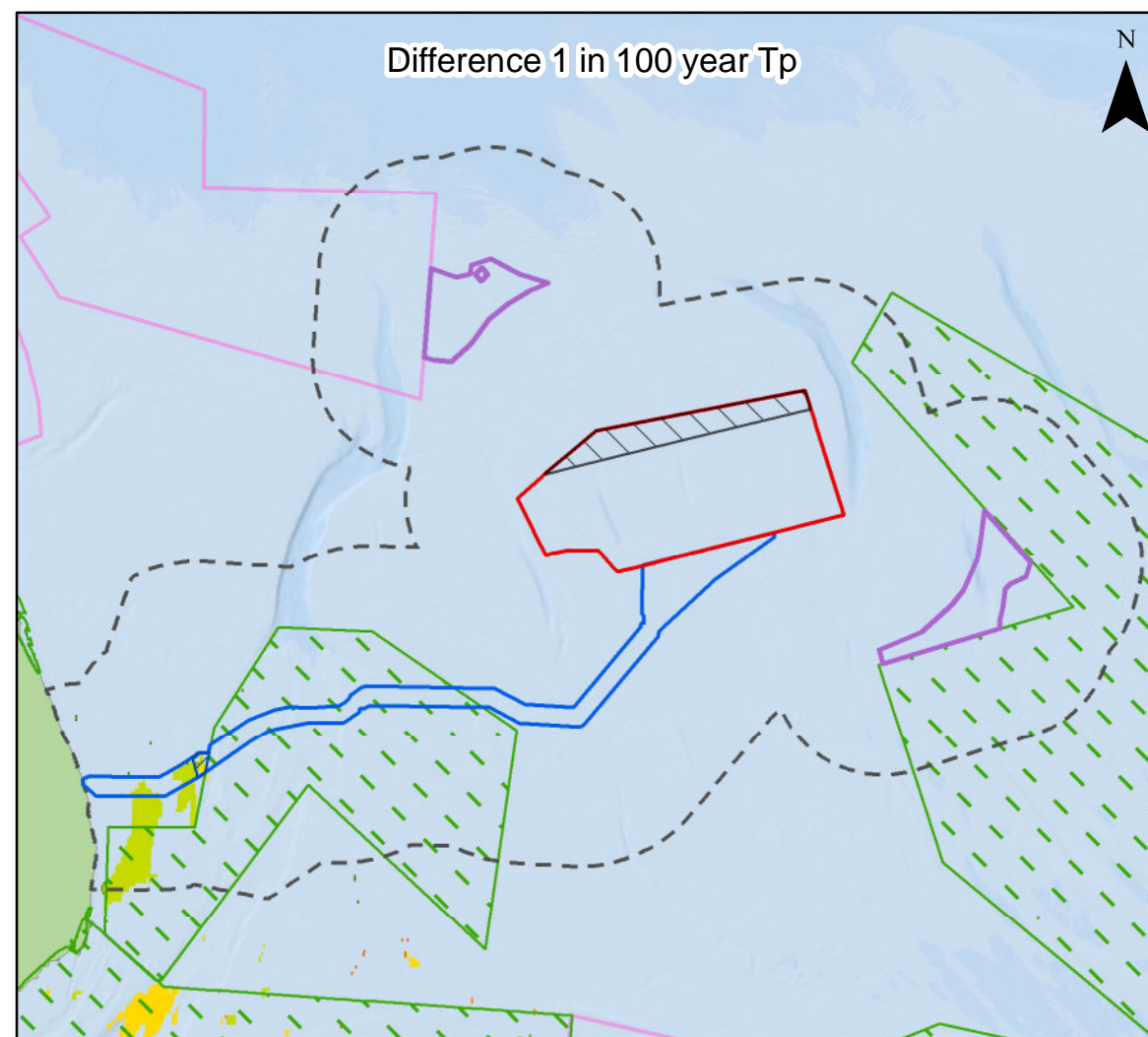
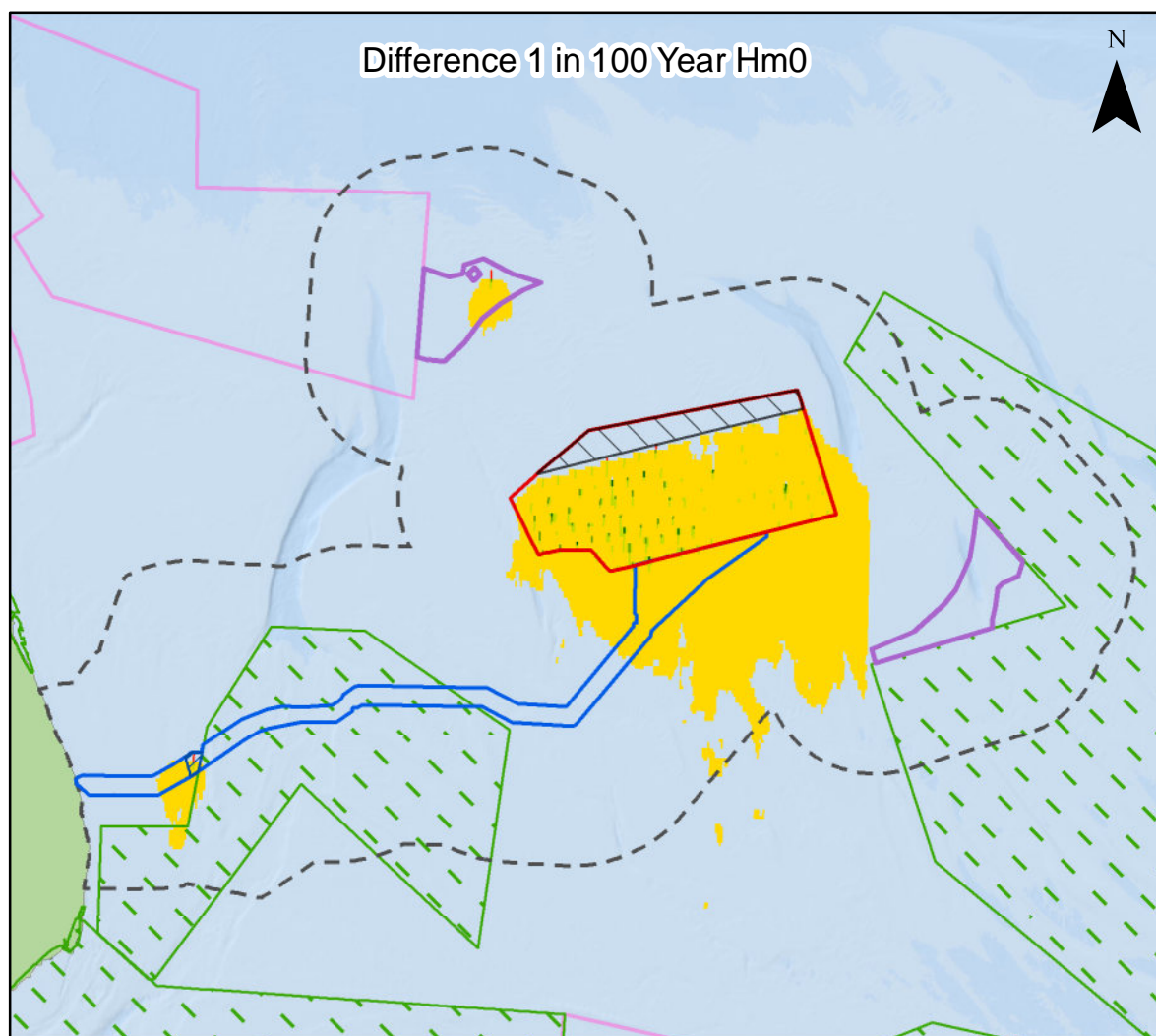
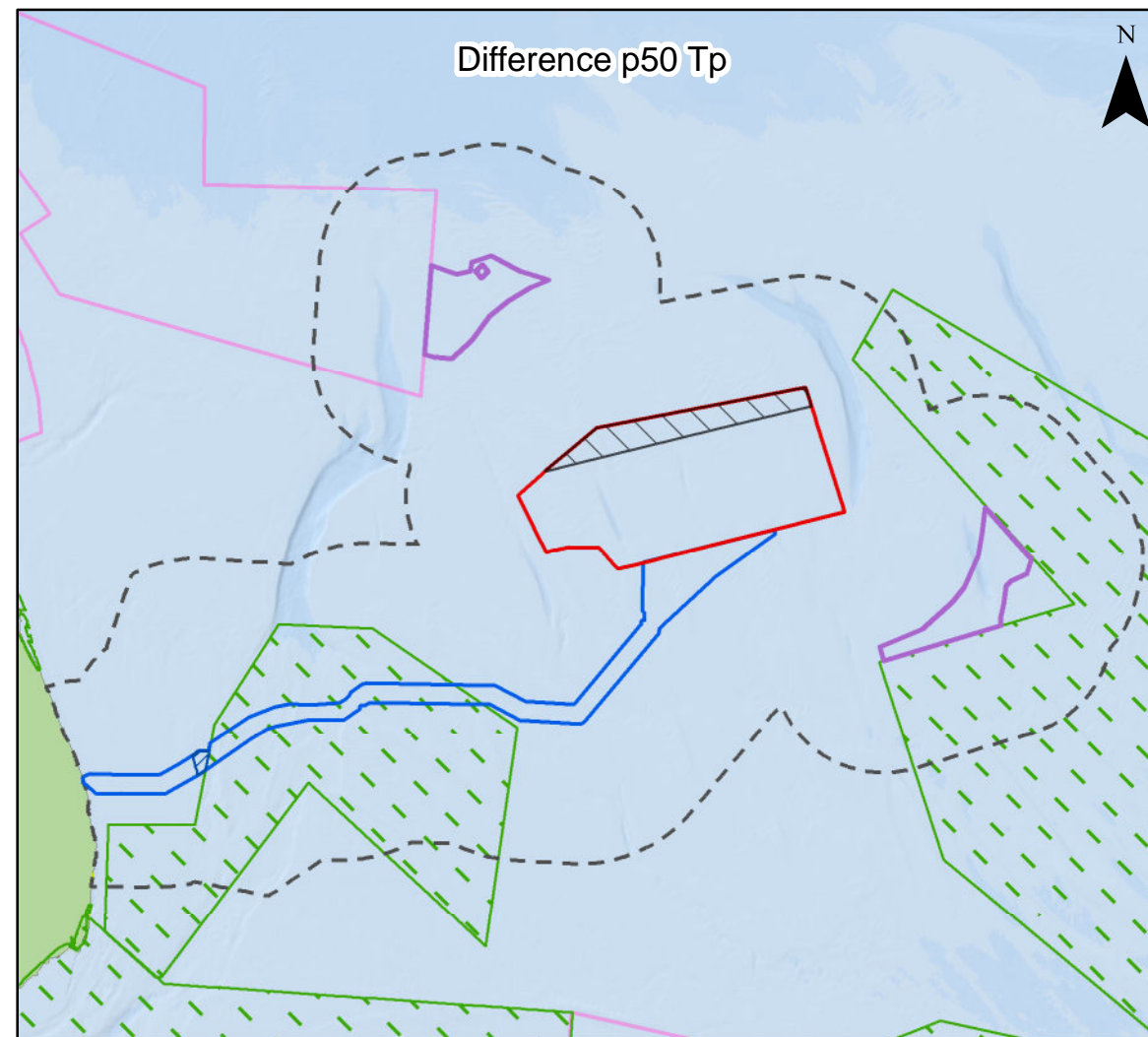
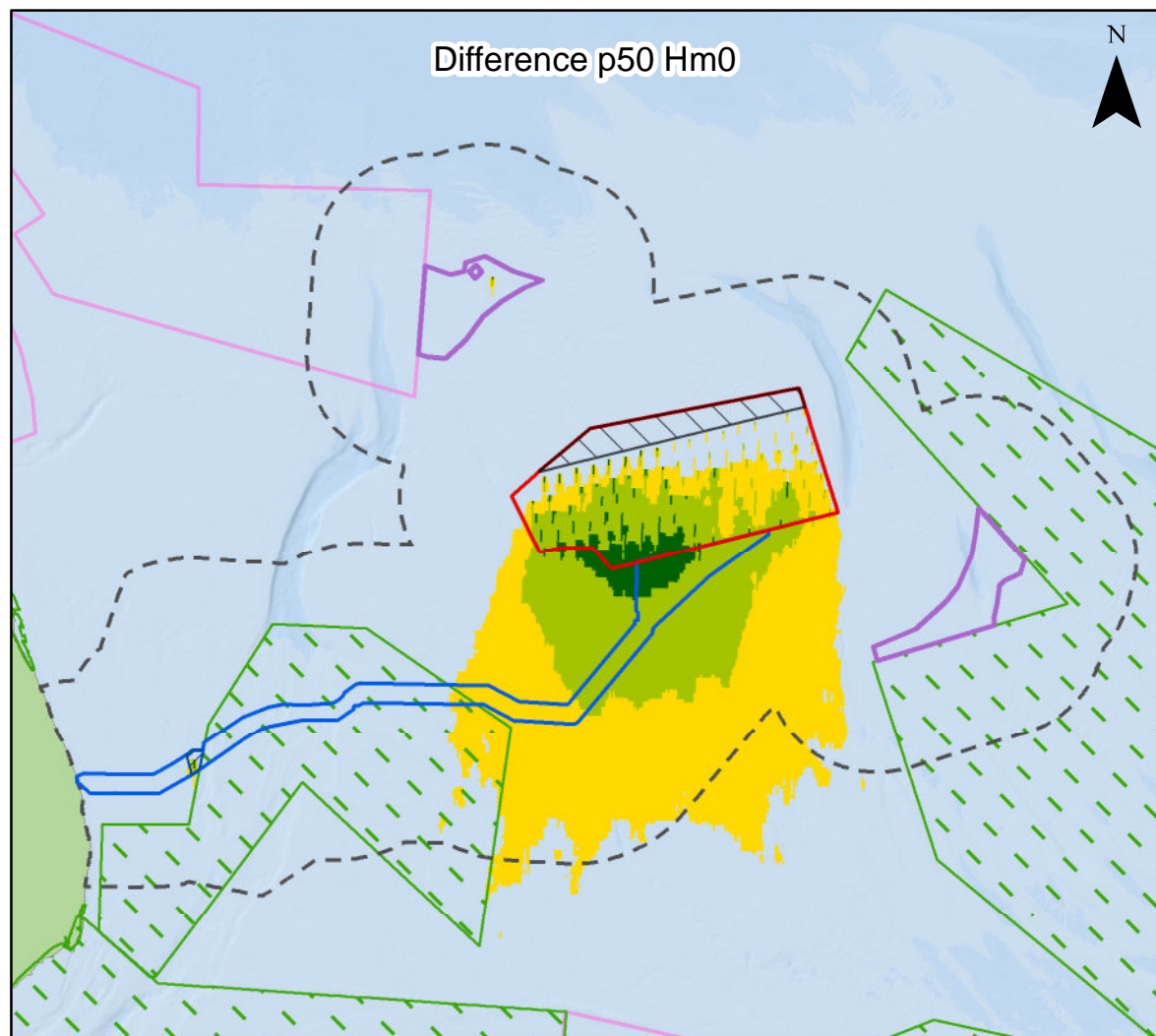
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**Legend**

- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Physical Processes Zone of Influence
- Special Areas of Conservation
- Marine Conservation Zones

**Difference p50 Hm0 (m)**

- 1 - -0.1
- 0.1 - -0.05
- 0.05 - -0.025
- 0.025 - 0.025

**Difference 1 in 100 Year Hm0 (m)**

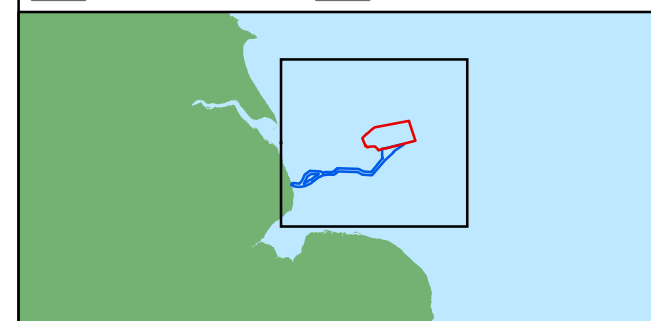
- 1 - -0.1
- 0.1 - -0.05
- 0.05 - -0.025
- 0.025 - 0.025
- 0.025 - 0.1
- 0.1 - 1
- 1 - 2.5
- 2.5 - 5
- > 5

**Difference p50 Tp (s)**

- < -5
- 5 - -2.5
- 2.5 - -1
- 1 - -0.1
- 0.1 - -0.025
- 0.025 - 0.025
- 0.025 - 0.1
- 0.1 - 1
- 1 - 2.5
- 2.5 - 5
- > 5

**Difference 1 in 100 Year Tp (s)**

- < -5
- 5 - -2.5
- 2.5 - -1
- 1 - -0.1
- 0.1 - -0.025
- 0.025 - 0.025
- 0.025 - 0.1
- 0.1 - 1
- 1 - 2.5
- 2.5 - 5
- > 5



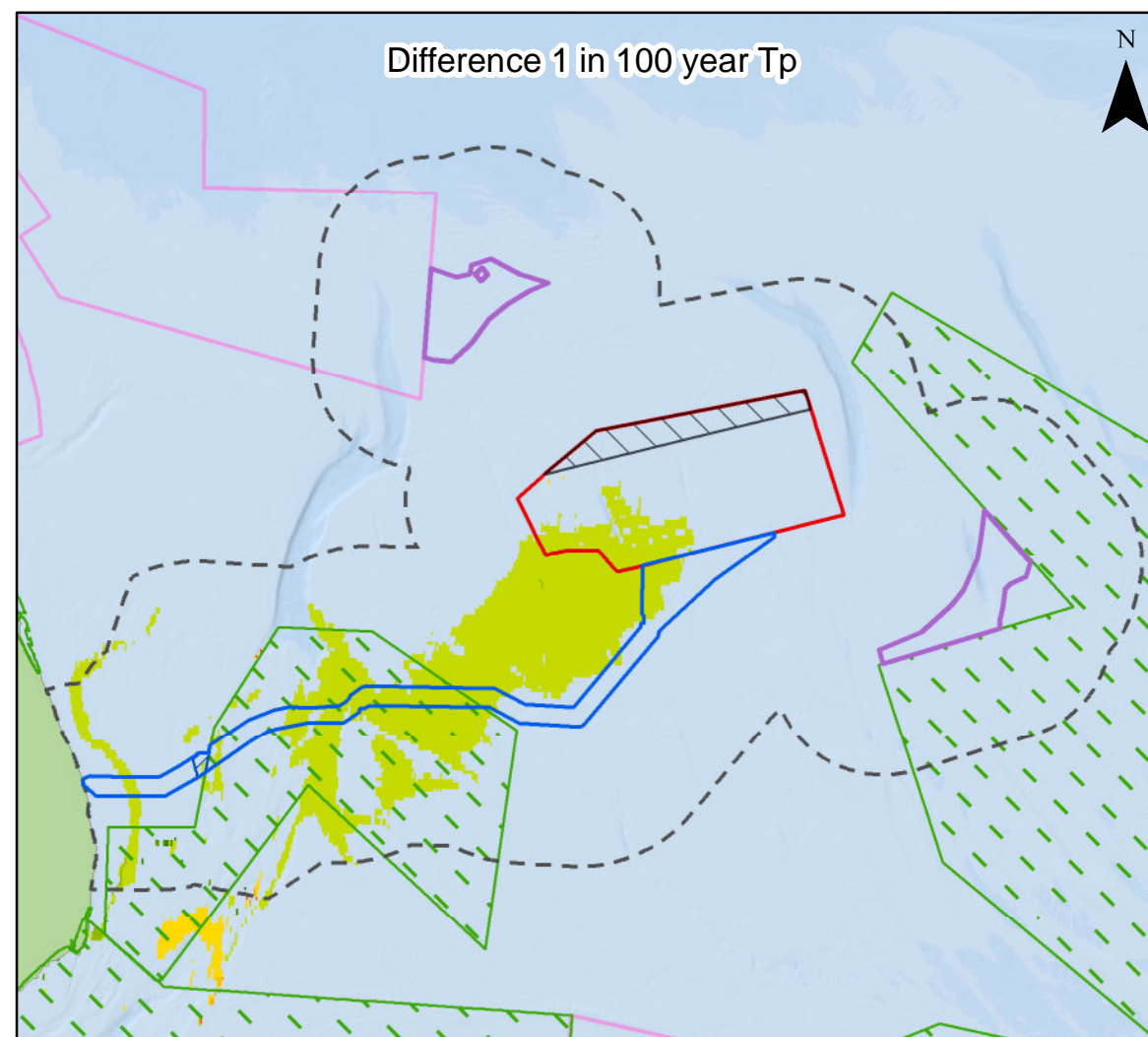
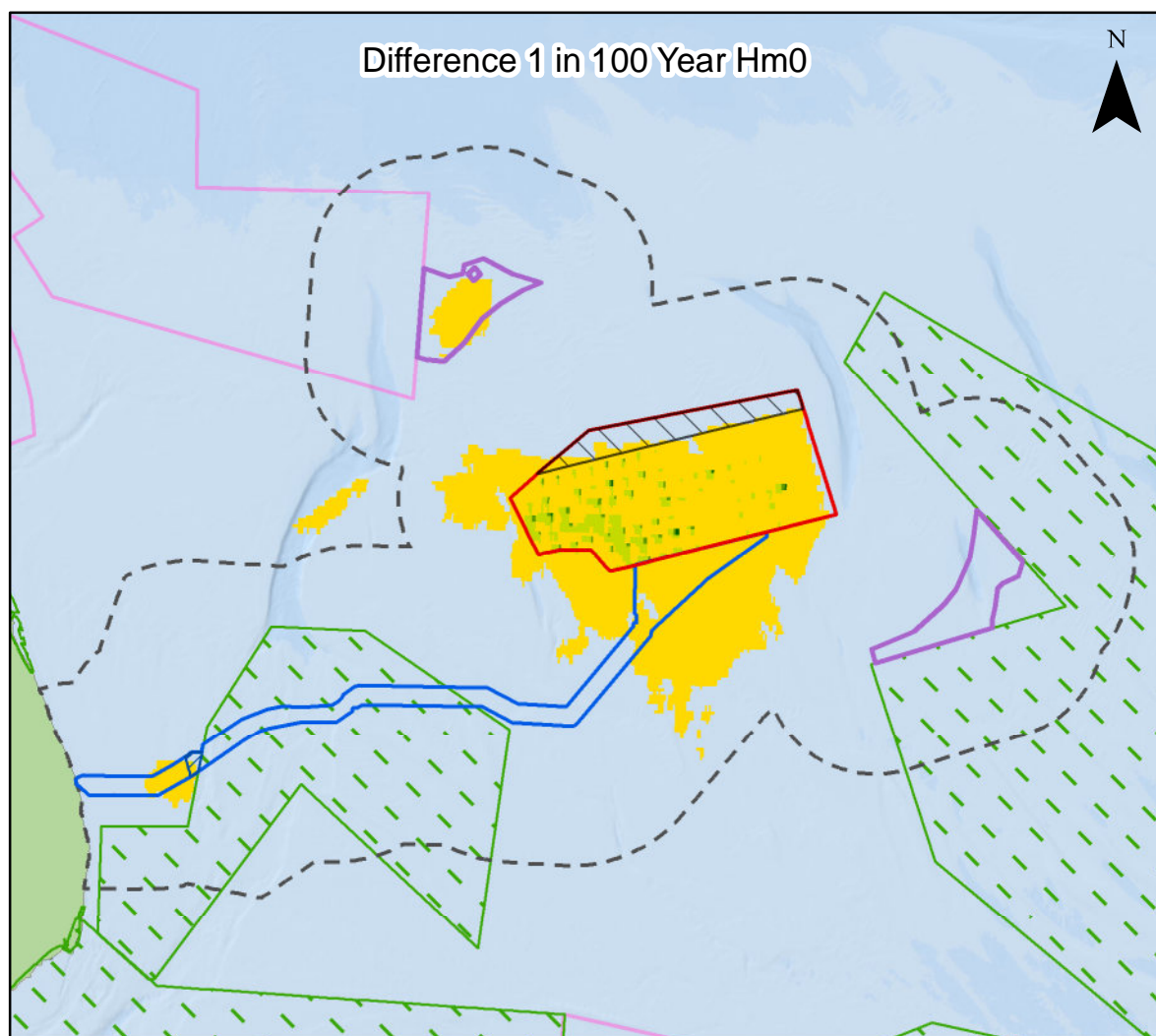
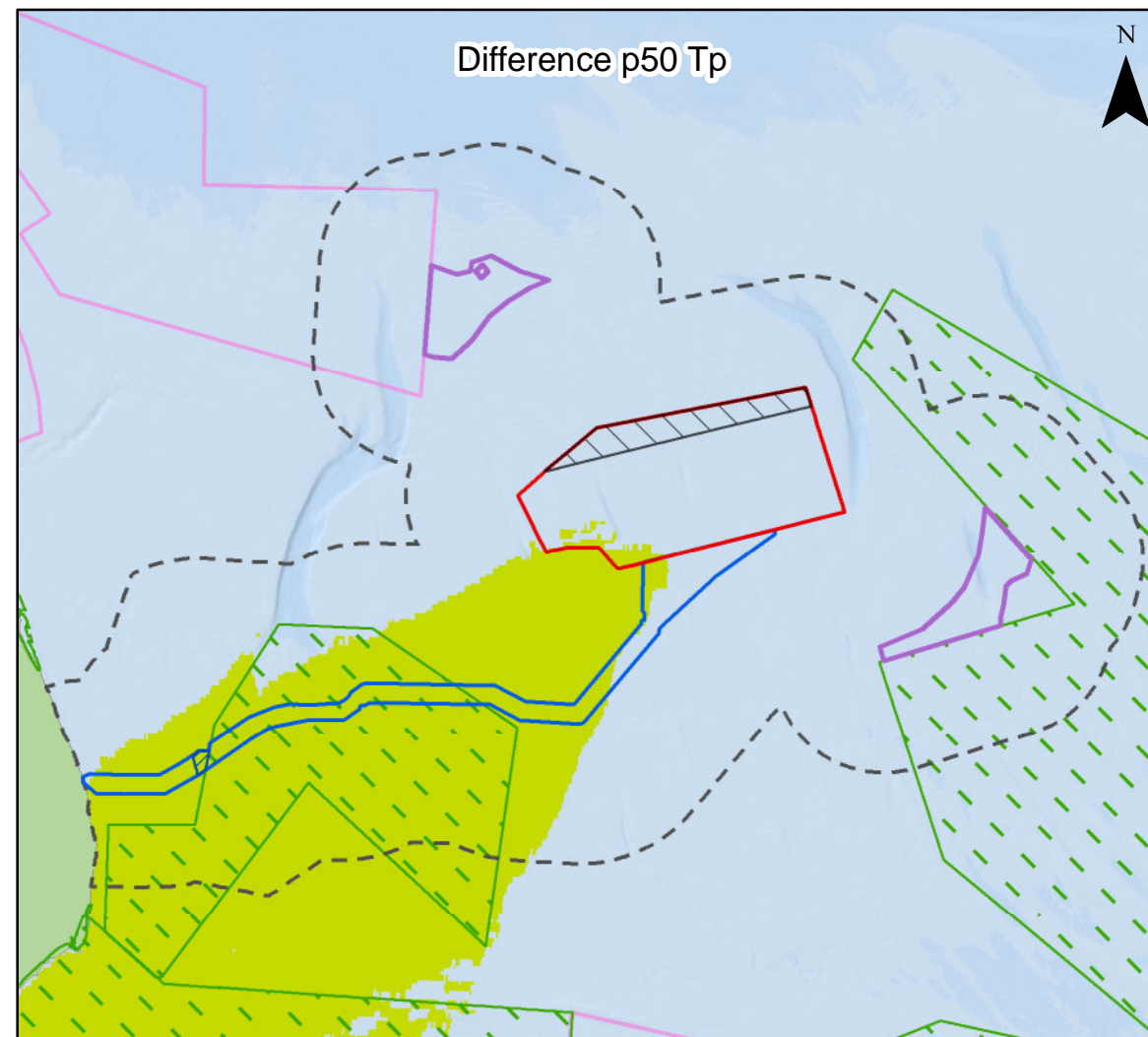
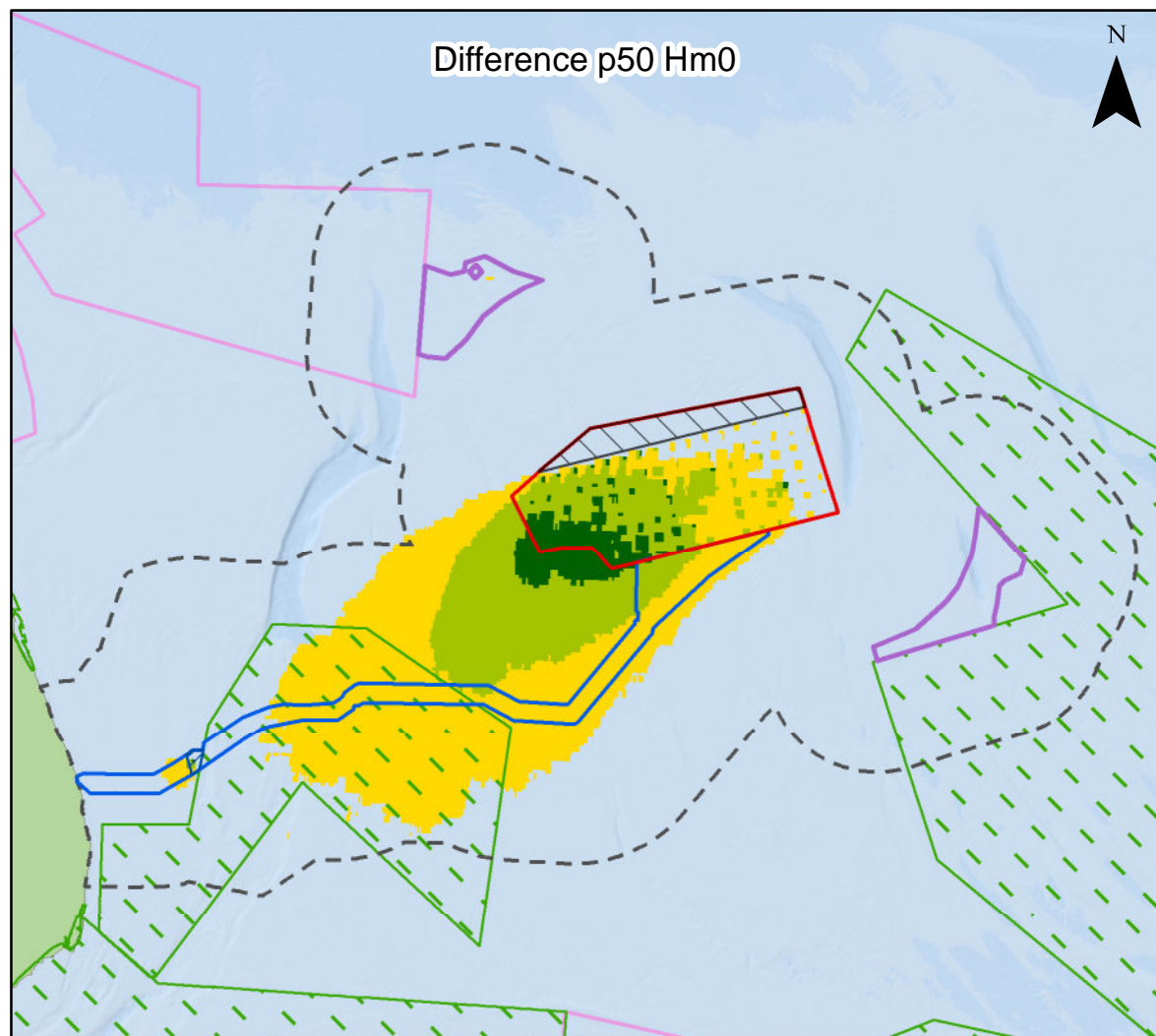
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Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Wave blockage effects on northerly waves (on significant wave height and wave period) during median and extreme conditions

Figure 1.2

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**Legend**

- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Physical Processes Zone of Influence
- Special Areas of Conservation
- Marine Conservation Zones

**Difference p50 Hm0 (m)**

- 1 - -0.1
- 0.1 - -0.05
- 0.05 - -0.025
- 0.025 - 0.025

**Difference 1 in 100 Year Hm0 (m)**

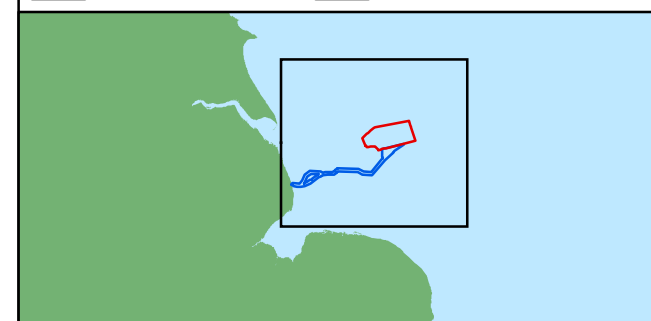
- 1 - -0.1
- 0.1 - -0.05
- 0.05 - -0.025
- 0.025 - 0.025

**Difference p50 Tp (s)**

- < -5
- 5 - -2.5
- 2.5 - -1
- 1 - -0.1
- 0.1 - -0.025
- 0.025 - 0.025
- 0.025 - 0.1
- 0.1 - 1
- 1 - 2.5
- 2.5 - 5
- > 5

**Difference 1 in 100 Year Tp (s)**

- < -5
- 5 - -2.5
- 2.5 - -1
- 1 - -0.1
- 0.1 - -0.025
- 0.025 - 0.025
- 0.025 - 0.1
- 0.1 - 1
- 1 - 2.5
- 2.5 - 5
- > 5



Coordinate System: WGS 1984 UTM Zone 31N

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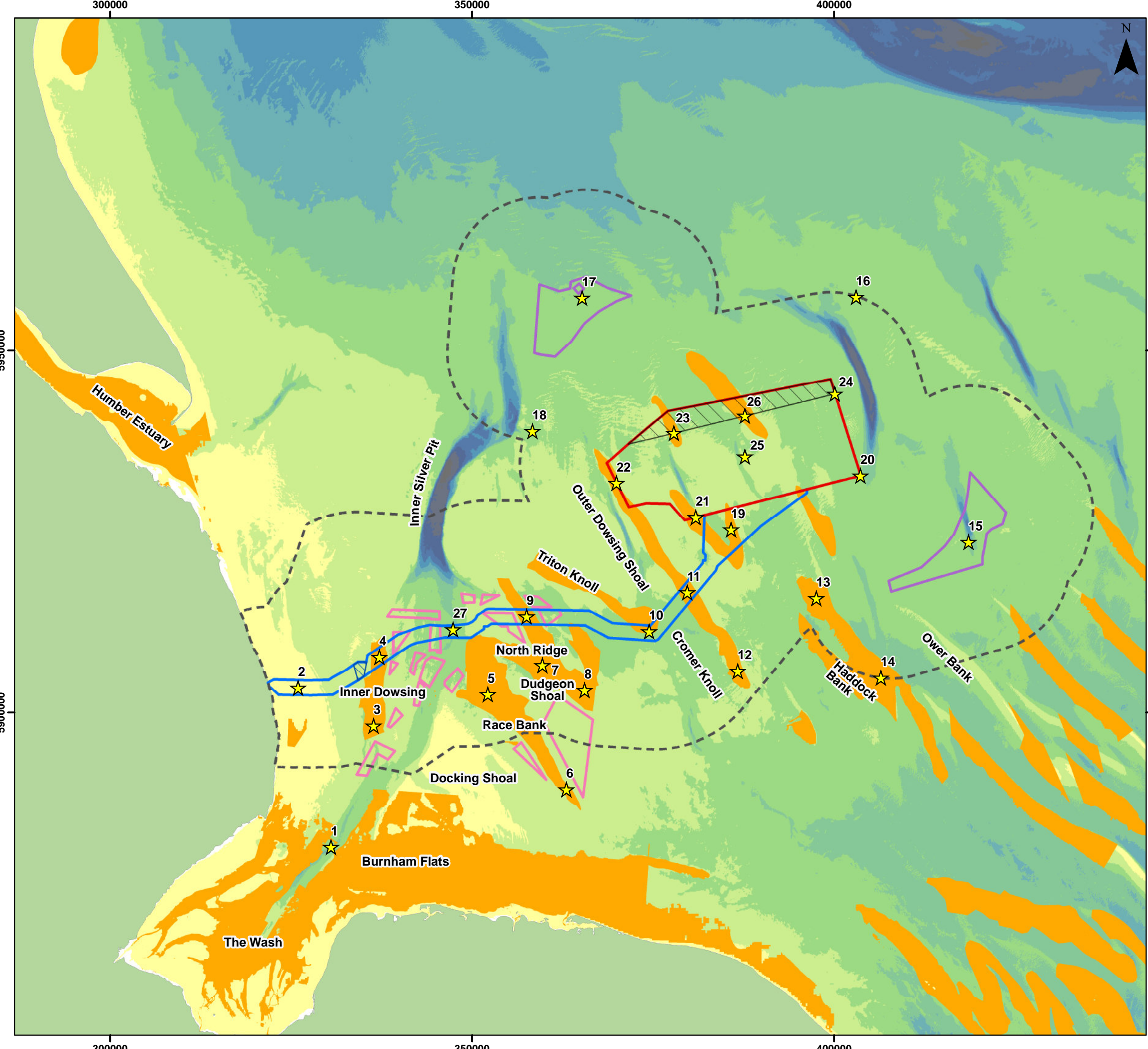
Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Wave blockage effects on northeasterly waves (on significant wave height and wave period) during median and extreme conditions

Figure 1.3

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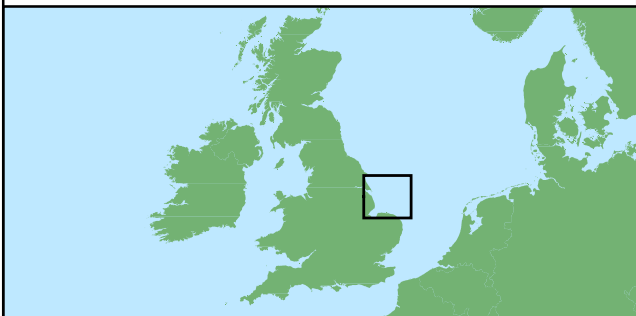


**Legend**

- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Biogenic Reef Restoration Area
- Physical Processes Zone of Influence
- ★ HD Model Timeseries Extraction Points
- Annex I Sandbanks (JNCC)

**Depth (m)**

- 0 - 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 60
- 60 - 70
- 70 - 80
- 80 - 90
- 90 - 100



Coordinate System: WGS 1984 UTM Zone 31N  
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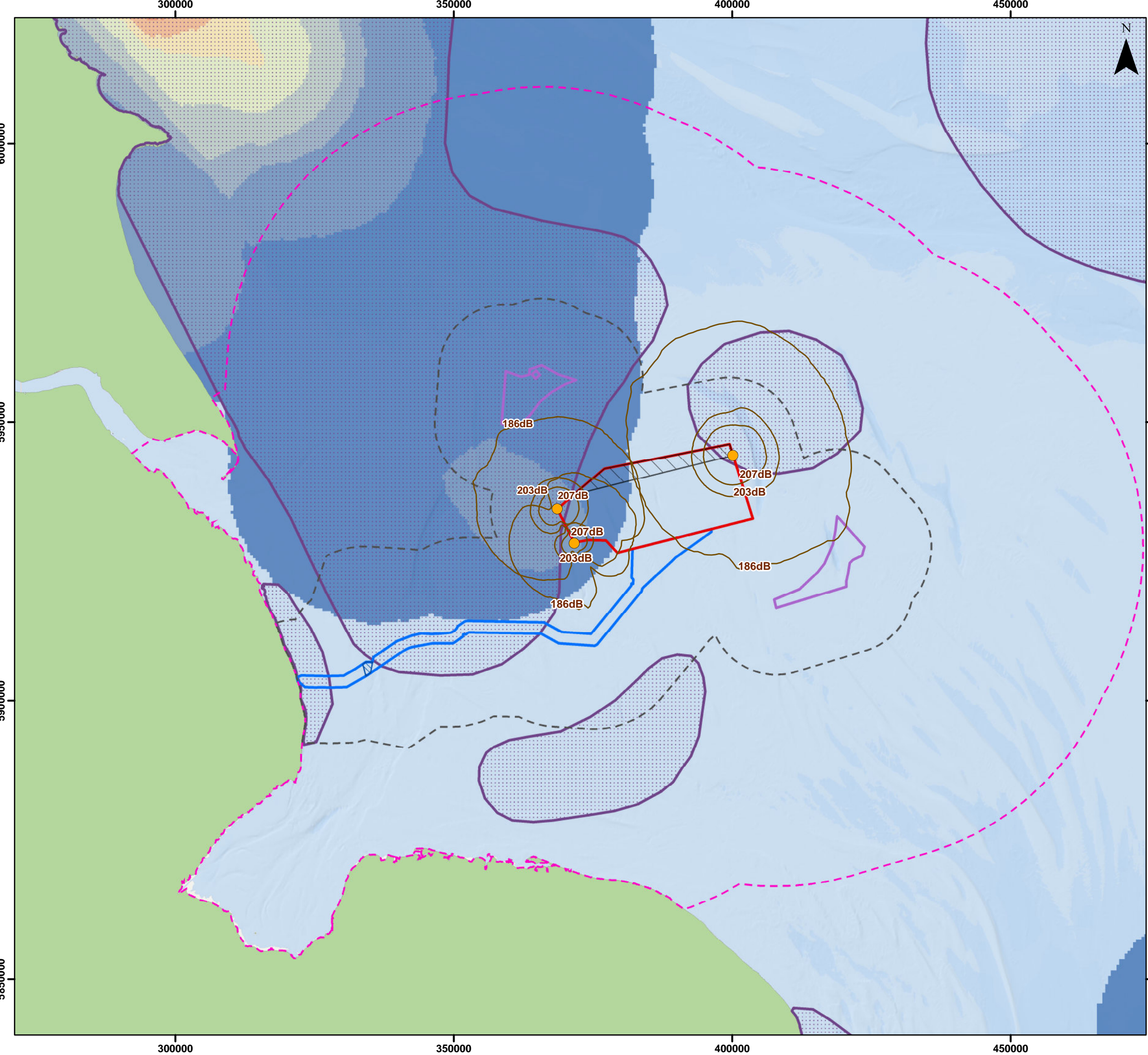
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Major Sandbanks within the Study Area

Figure 1.4



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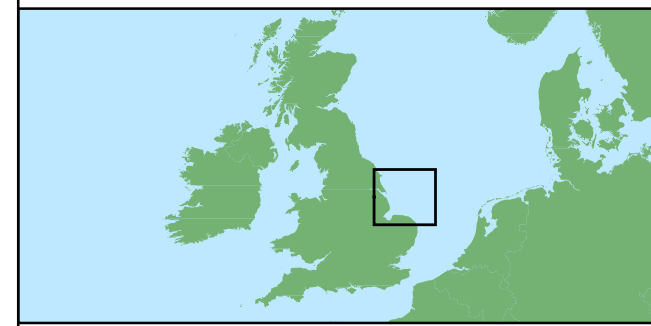
- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer
- Underwater Noise Modelling Locations
- Pin Piles x6 Contours (dB SELcum) - Stationary Receptors

**Spawning Grounds (Coull *et al.*, 1998)**  
(Species, Intensity)

- Herring, Undetermined

**IHLS Season 2012-13 to Season 2023-24**  
Larval abundance per m<sup>2</sup>

- 0 - 1,000
- 1,000.1 - 3,000
- 3,000.1 - 4,500
- 4,500.1 - 7,000
- 7,000.1 - 11,000
- 11,000.1 - 15,000
- 15,000.1 - 20,000
- 20,000.1 - 28,000
- 28,000.1 - 35,000
- 35,000.1 - 43,000



Coordinate System: WGS 1984 UTM Zone 31N


0 20 40 km


Scale: 1:650,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst Case Impact Ranges for Spawning Herring from the Sequential Piling of Jacket Foundations within the Array Area (Stationary Receptor, 3,500kJ hammer energy, 5m pile diameter)

Figure 3.1

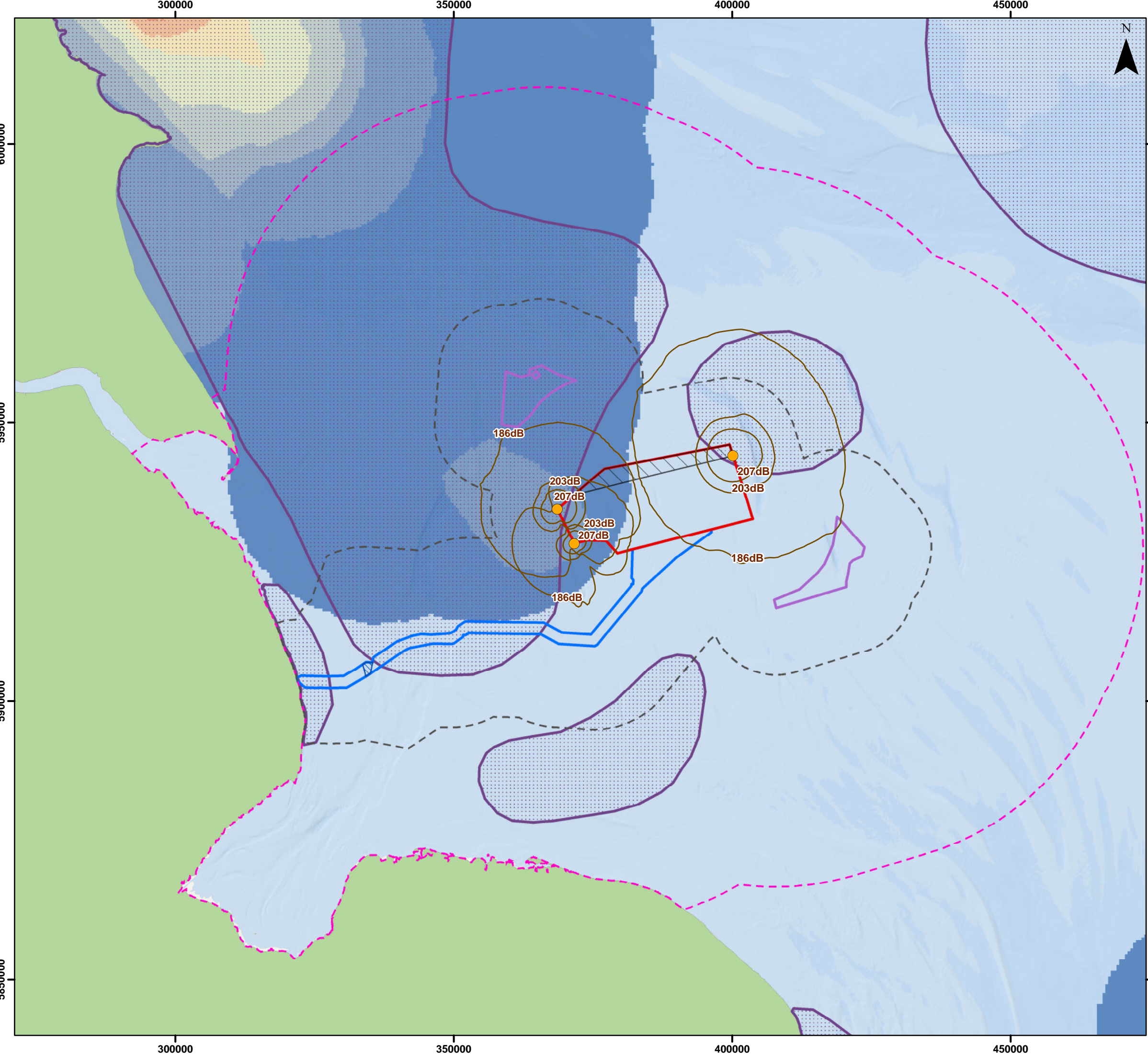




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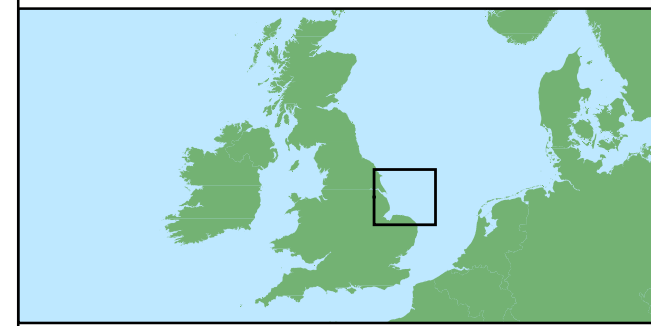
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- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer
- Underwater Noise Modelling Locations
- Monopile Contours (dB SELcum) - Stationary Receptors

**Spawning Grounds (Coull et al., 1998)**  
(Species, Intensity)

- Herring, Undetermined

**IHLS Season 2012-13 to Season 2023-24**  
Larval abundance per m<sup>2</sup>

- 0 - 1,000
- 1,000.1 - 3,000
- 3,000.1 - 4,500
- 4,500.1 - 7,000
- 7,000.1 - 11,000
- 11,000.1 - 15,000
- 15,000.1 - 20,000
- 20,000.1 - 28,000
- 28,000.1 - 35,000
- 35,000.1 - 43,000



Coordinate System: WGS 1984 UTM Zone 31N


0 20 40 km


Scale: 1:650,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst Case Impact Ranges for Spawning Herring from the Sequential Piling of Monopile Foundations within the Array Area (Stationary Receptor, 6,600kJ hammer energy, 14m pile diameter)

Figure 3.2

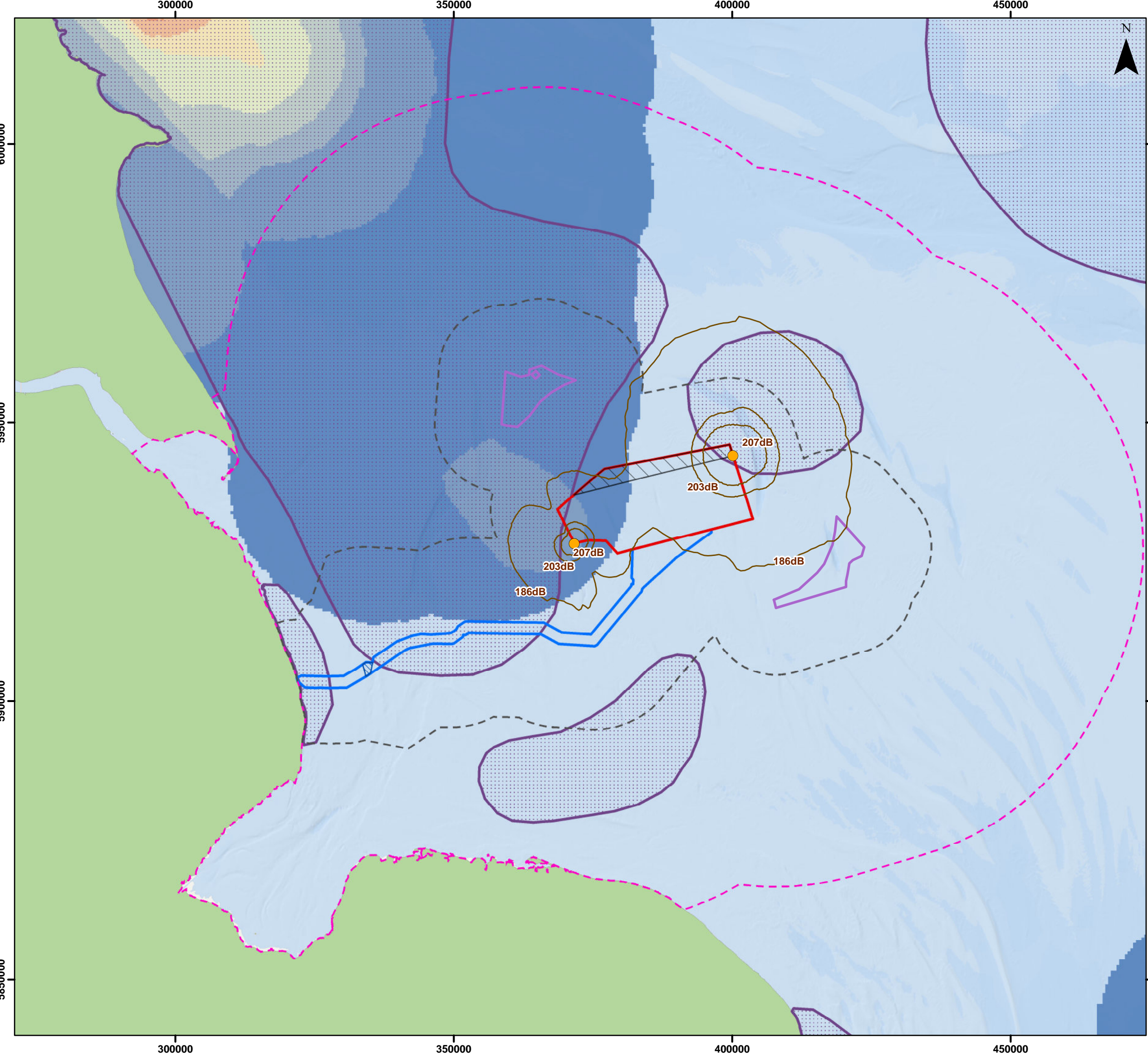




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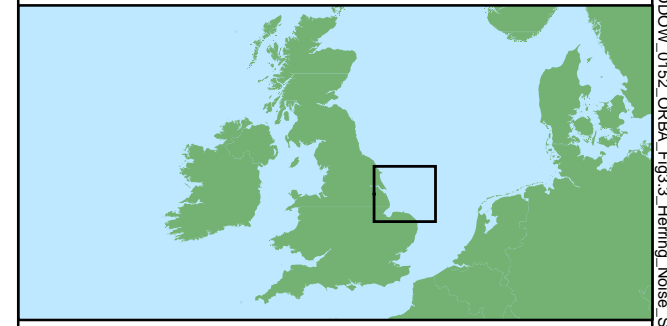
- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer
- Underwater Noise Modelling Locations
- Simultaneous Jacket Contours (dB SELcum) - Stationary Receptors

**Spawning Grounds (Coull et al., 1998) (Species, Intensity)**

- Herring, Undetermined

**IHLS Season 2012-13 to Season 2023-24 Larval abundance per m<sup>2</sup>**

- 0 - 1,000
- 1,000.1 - 3,000
- 3,000.1 - 4,500
- 4,500.1 - 7,000
- 7,000.1 - 11,000
- 11,000.1 - 15,000
- 15,000.1 - 20,000
- 20,000.1 - 28,000
- 28,000.1 - 35,000
- 35,000.1 - 43,000



Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

Scale: 1:650,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

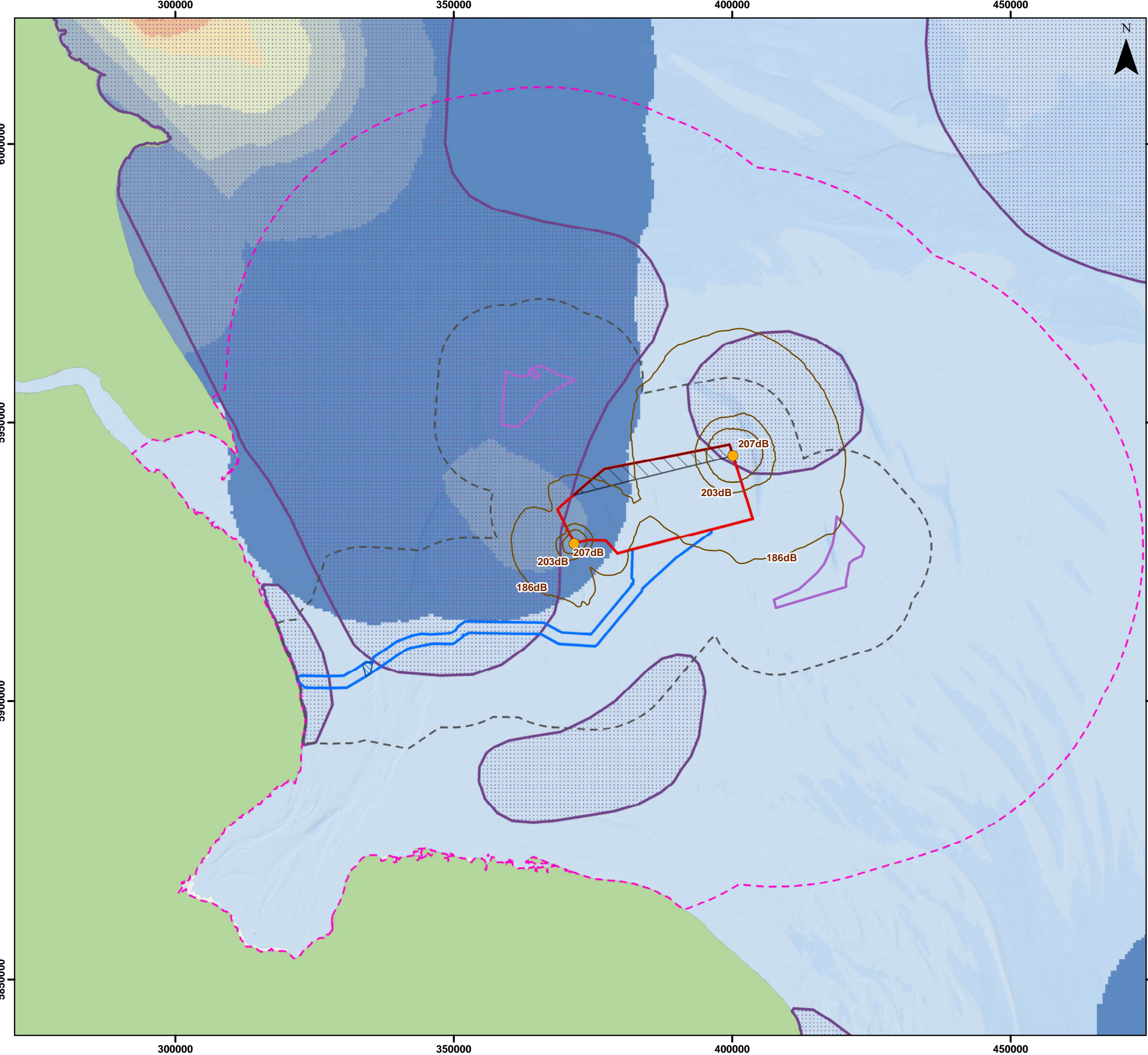
Predicted Worst Case Impact ranges for Spawning Herring from the Simultaneous Piling of Jacket Foundations within the Array Area (Stationary Receptor, 3,500kJ hammer energy, 5m pile diameter)

Figure 3.3

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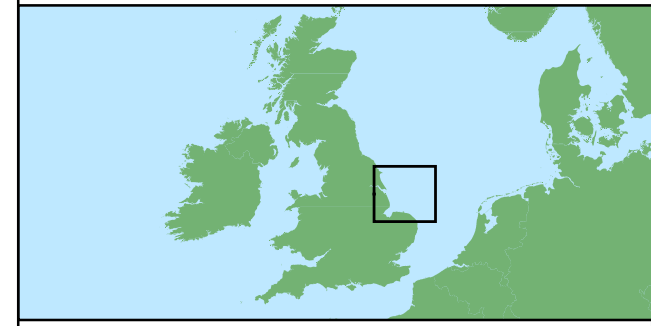
- Array Area
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- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer
- Underwater Noise Modelling Locations
- Simultaneous Monopile Contours (dB SELcum) - Stationary Receptors

**Spawning Grounds (Coull et al., 1998) (Species, Intensity)**

- Herring, Undetermined

**IHLS Season 2012-13 to Season 2023-24 Larval abundance per m<sup>2</sup>**

- 0 - 1,000
- 1,000.1 - 3,000
- 3,000.1 - 4,500
- 4,500.1 - 7,000
- 7,000.1 - 11,000
- 11,000.1 - 15,000
- 15,000.1 - 20,000
- 20,000.1 - 28,000
- 28,000.1 - 35,000
- 35,000.1 - 43,000



Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

Scale: 1:650,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst Case Impact ranges for Spawning Herring from the Simultaneous Piling of Monopile Foundations within the Array Area (Stationary Receptor, 6,600kJ hammer energy, 14m pile diameter)

Figure 3.4

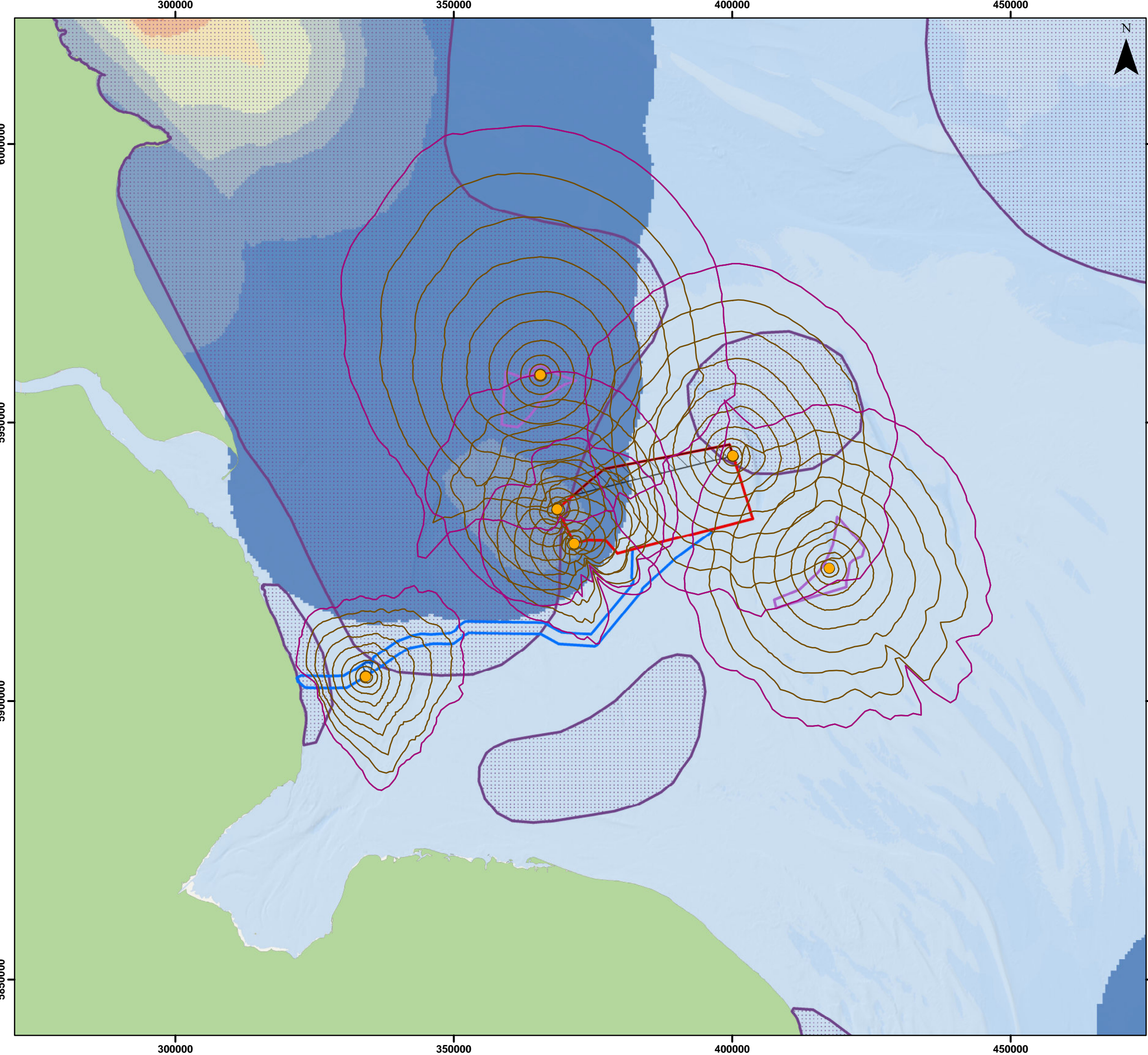




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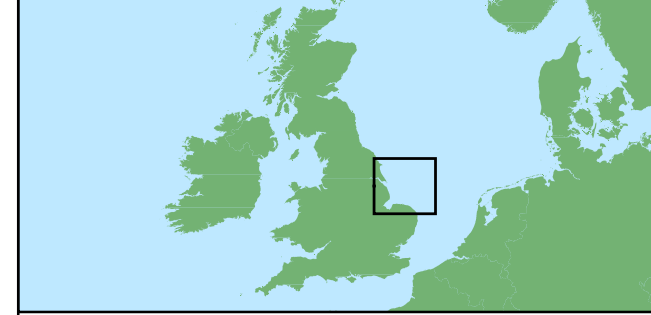
- Array Area
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- ORCP Area
- Artificial Nesting Structure Area
- Underwater Noise Modelling Locations
- Simultaneous Jacket/Pin Piles Contours (dB SELs) - Stationary Receptors
- 135dB Contour

**Spawning Grounds (Coull et al., 1998)**  
(Species, Intensity)

- Herring, Undetermined

**IHLS Season 2012-13 to Season 2023-24**  
Larval abundance per m<sup>2</sup>

	0 - 1,000
	1,000.1 - 3,000
	3,000.1 - 4,500
	4,500.1 - 7,000
	7,000.1 - 11,000
	11,000.1 - 15,000
	15,000.1 - 20,000
	20,000.1 - 28,000
	28,000.1 - 35,000
	35,000.1 - 43,000



Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

Scale: 1:650,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst case Impact Ranges for herring from the piling of jacket foundations in the Array Area, ORCP and ANS search areas, 5dB increments (stationary receptors, 3,500kJ hammer energy, 5m pile diameter)

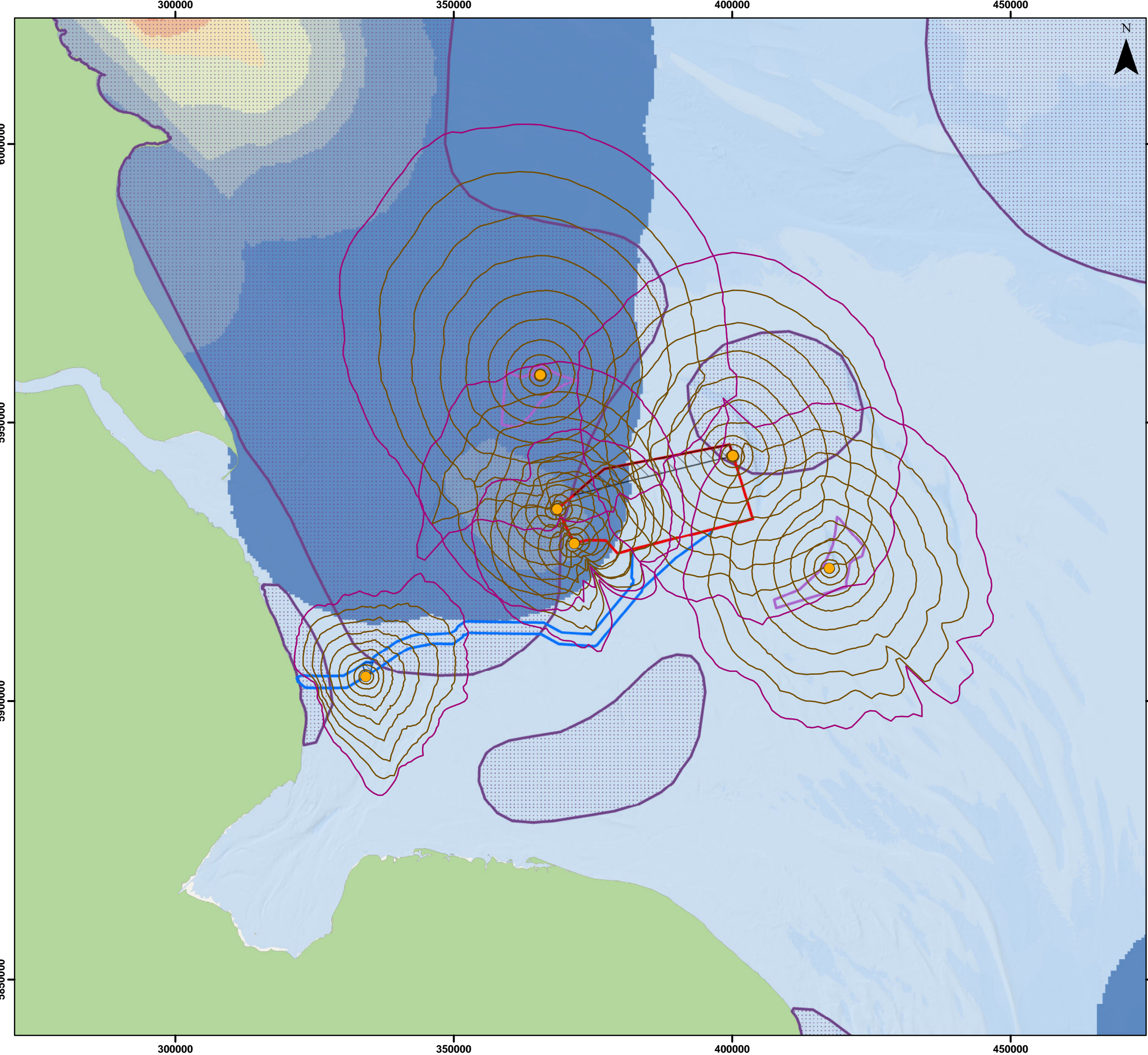
Figure 3.5



Date: 17/09/2024  
Produced By: BPHB  
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Document Path: Z:\GIS\GIS - Projects\0152 Outer Dowsing EIA\GIS\Figures\Examination\ORZ and ECC Environmental Report\ORBA Report\ODOW\_0152\_ORBA\_Fig3.5\_Herring\_Noise\_AllAreas\_Pn\_3500k\_V3.mxd



**Legend**

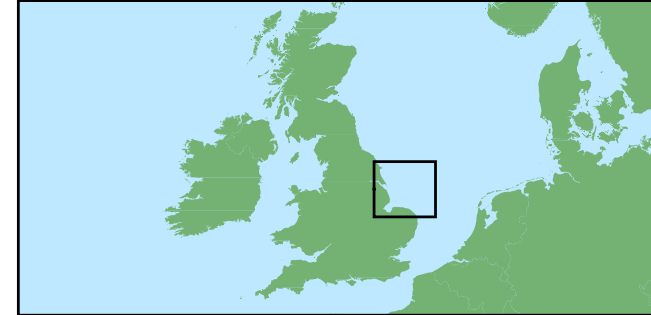
- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Underwater Noise Modelling Locations
- Monopile Contours (dB SELss) - Stationary Receptors
- 135dB Contour

**Spawning Grounds (Coull et al., 1998)**  
(Species, Intensity)

- Herring, Undetermined

**IHLS Season 2012-13 to Season 2023-24**  
Larval abundance per m<sup>2</sup>

- 0 - 1,000
- 1,000.1 - 3,000
- 3,000.1 - 4,500
- 4,500.1 - 7,000
- 7,000.1 - 11,000
- 11,000.1 - 15,000
- 15,000.1 - 20,000
- 20,000.1 - 28,000
- 28,000.1 - 35,000
- 35,000.1 - 43,000



Coordinate System: WGS 1984 UTM Zone 31N


0 20 40 km


Scale: 1:650,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst case Impact Ranges for herring from the piling of monopile foundations in the Array Area, ORCP and ANS search areas, 5dB increments (stationary receptors, 6,600kJ hammer energy, 14m pile diameter for Array Area and ORCP, 8m pile diameter for ANS)

Figure 3.6

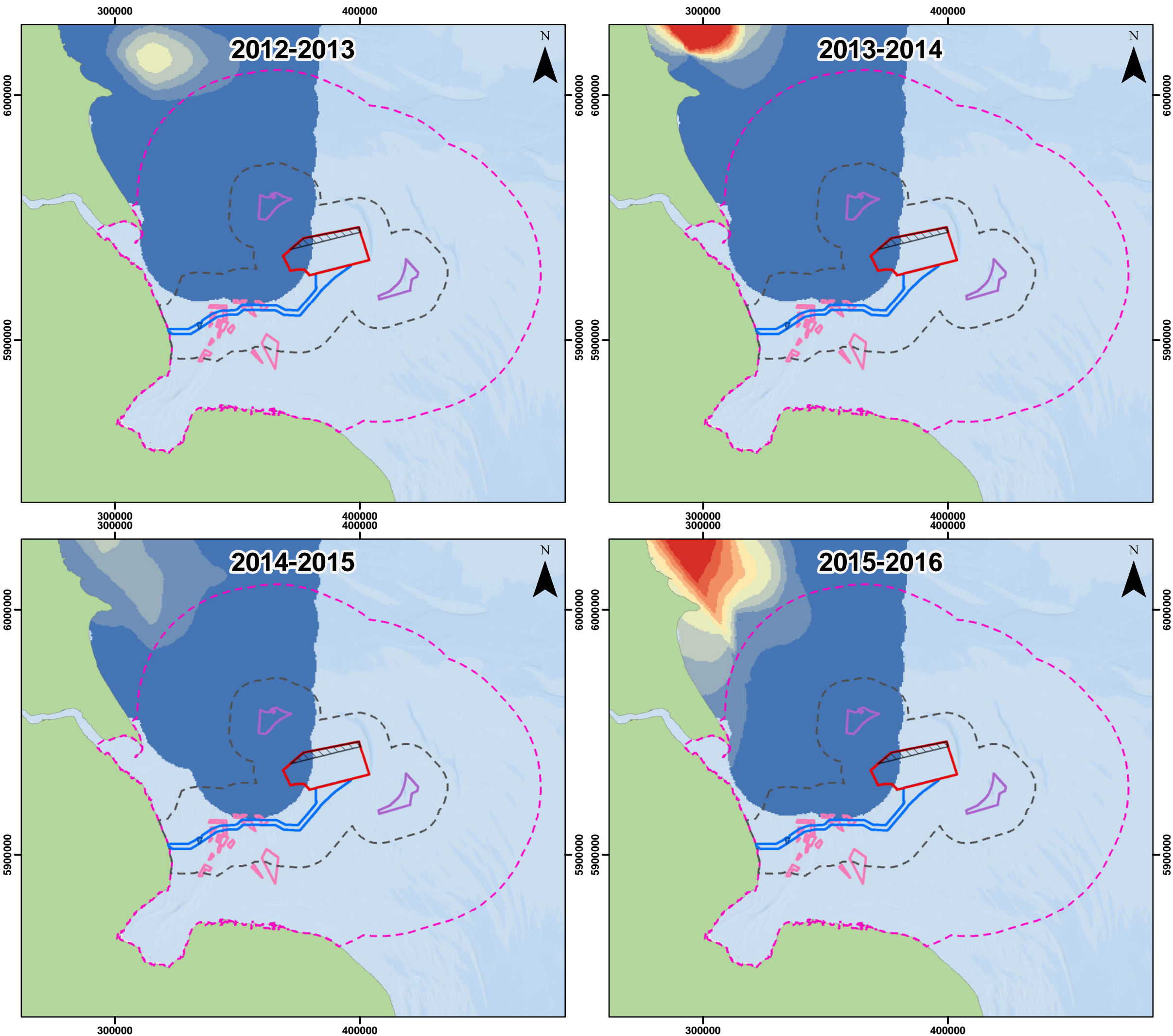




Date: 17/09/2024  
Produced By: BPHB  
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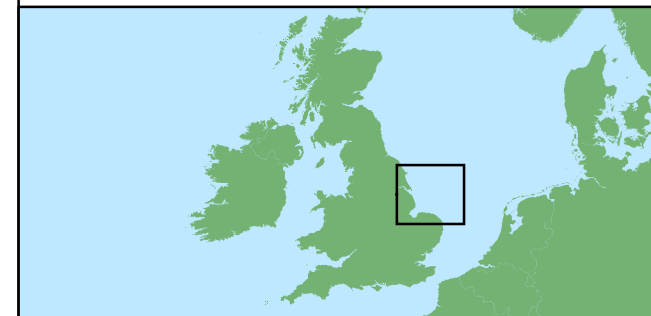
**Legend**

- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Biogenic Reef Restoration Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer

**IHLs Survey Data**

**Larval abundance per m<sup>2</sup>**

- 0 - 100
- 100.1 - 300
- 300.1 - 450
- 450.1 - 700
- 700.1 - 1,100
- 1,100.1 - 1,500
- 1,500.1 - 2,000
- 2,000.1 - 2,800
- 2,800.1 - 3,500
- 3,500.1 - 4,300



Coordinate System: WGS 1984 UTM Zone 31N

0 50 100 km

Scale: 1:1,500,000

A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Outer Dowsing with Herring Spawning Grounds IHLs Comparison, 2012 – 2016

Figure 3.7

OUTER DOWSING  
OFFSHORE WIND

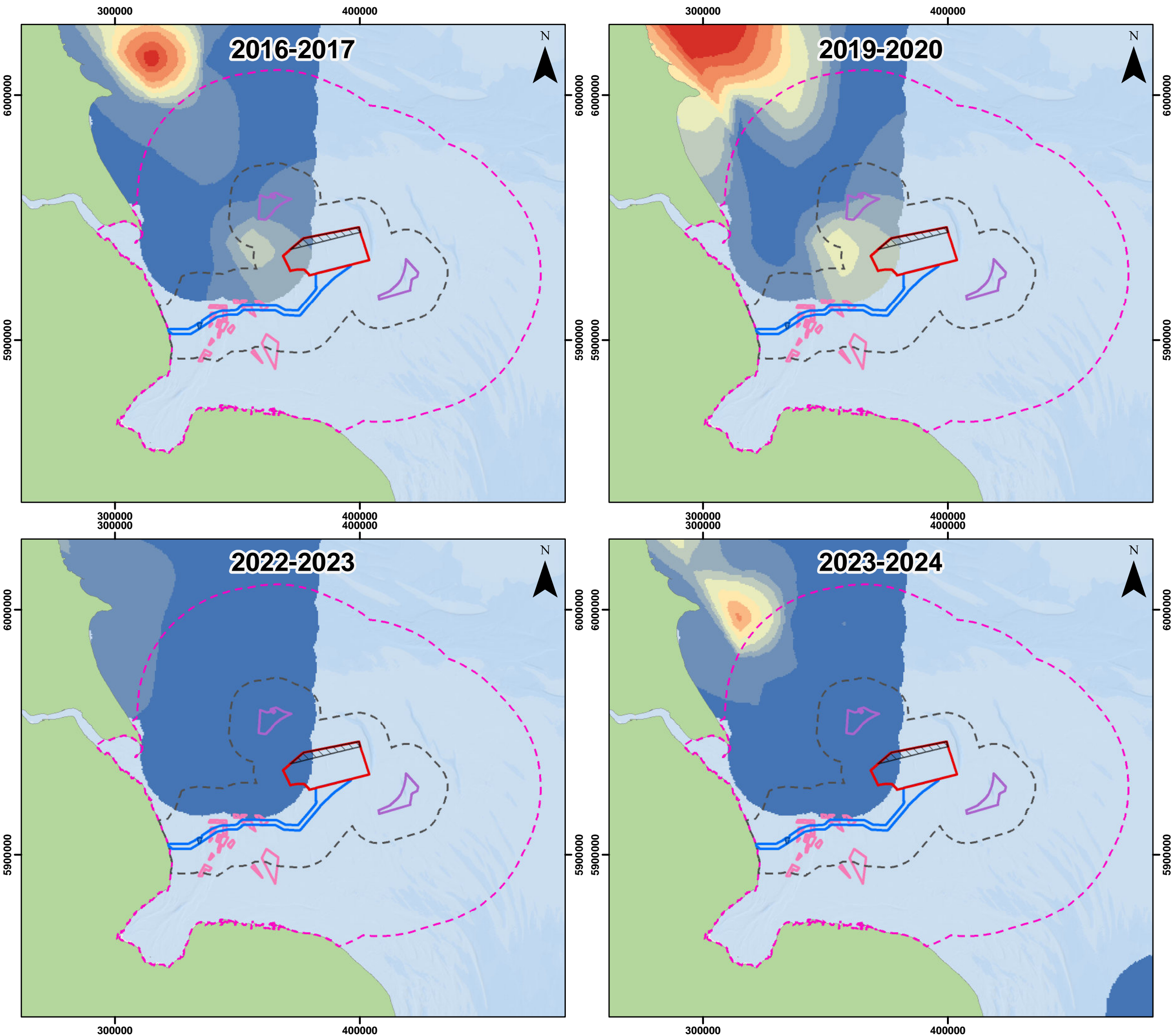
Date: 18/09/2024  
Produced By: BPHB  
Revision: 0.1

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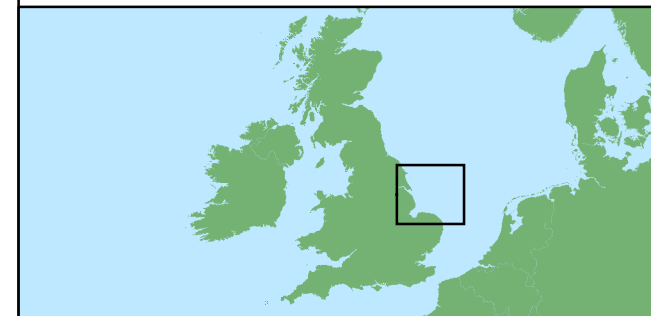
**Legend**

- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Biogenic Reef Restoration Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer

**IHLs Survey Data**

**Larval abundance per m<sup>2</sup>**

- 0 - 100
- 100.1 - 300
- 300.1 - 450
- 450.1 - 700
- 700.1 - 1,100
- 1,100.1 - 1,500
- 1,500.1 - 2,000
- 2,000.1 - 2,800
- 2,800.1 - 3,500
- 3,500.1 - 4,300



Coordinate System: WGS 1984 UTM Zone 31N

0 50 100 km

Scale: 1:1,500,000

A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Outer Dowsing with Herring Spawning Grounds IHLs Comparison, 2016 – 2024

Figure3.8

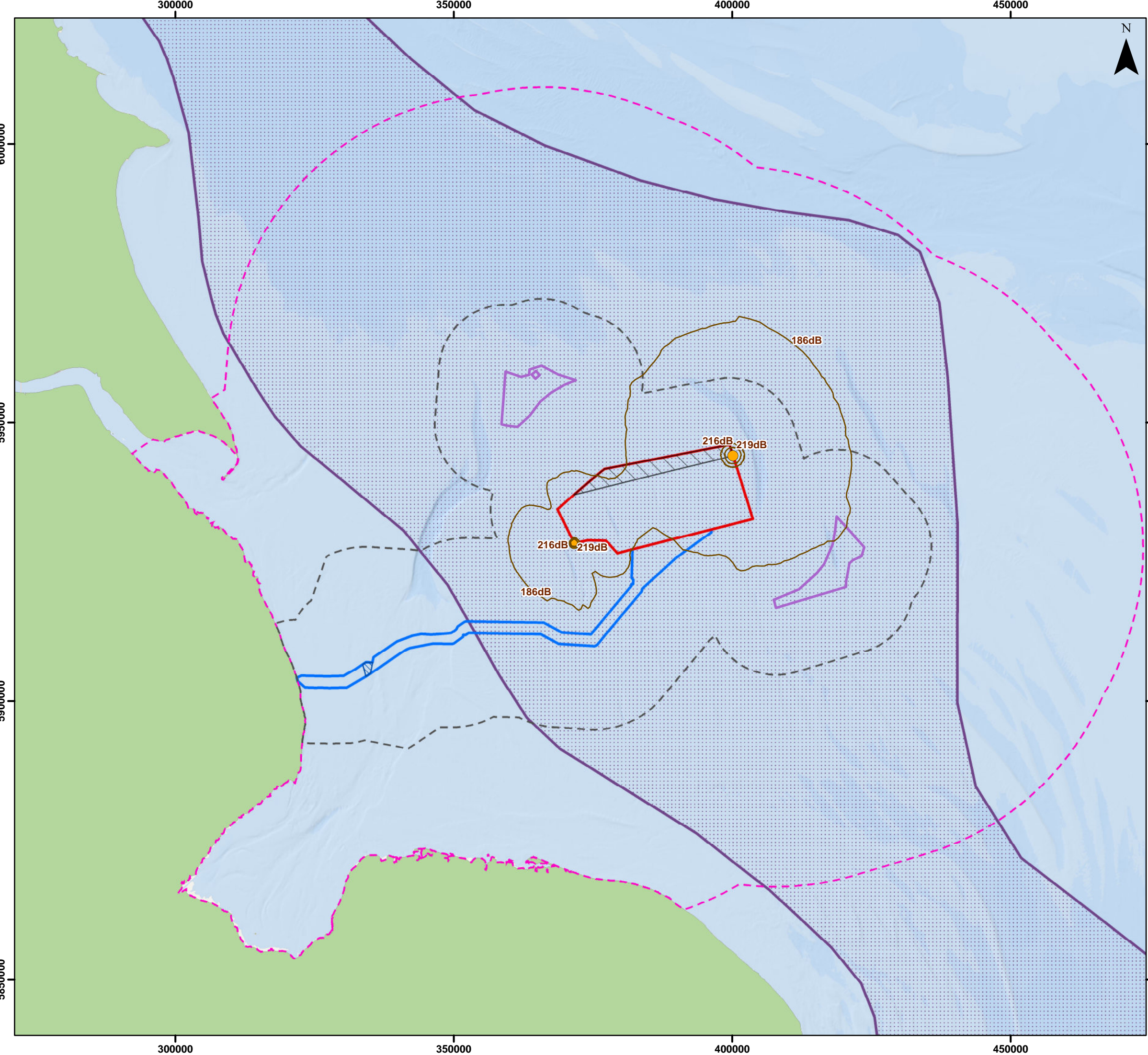
Date: 18/09/2024

Produced By: BPHB

Revision: 0.1

Contains ESRI Basemapping; Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

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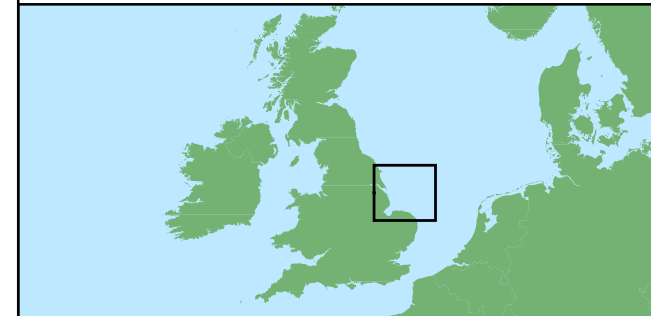


**Legend**

- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer
- Underwater Noise Modelling Locations
- Simultaneous Jacket/Pin Piles Contours (dB SELcum) - Stationary Receptors

**Spawning Grounds (Coull et al., 1998)**  
(Species, Intensity)

- Sandeel, Undetermined



Coordinate System: WGS 1984 UTM Zone 31N  
 0 20 40 km

Scale: 1:650,000 A3 Page Size

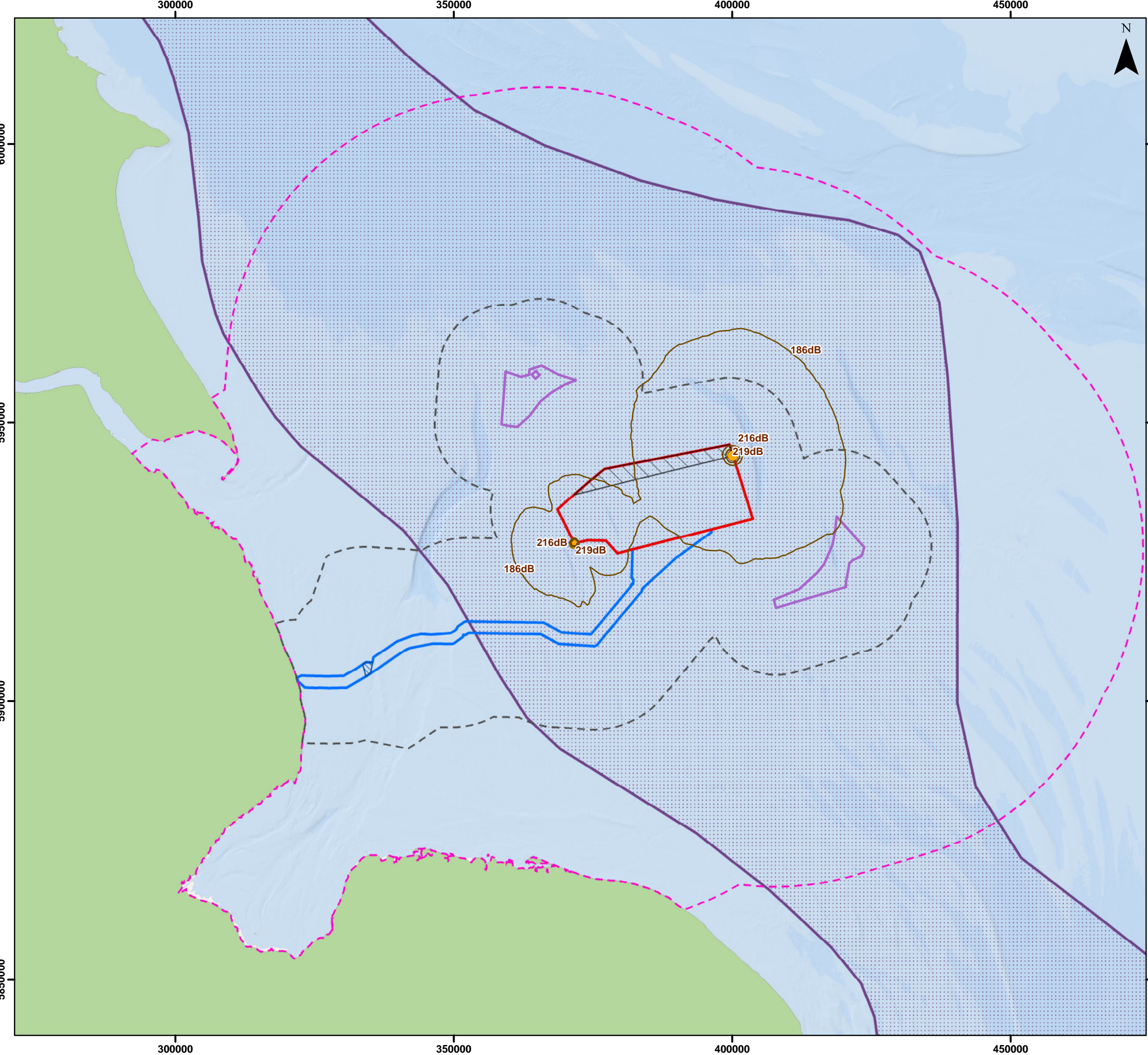
Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst Case Impact ranges for Spawning Sandeel from the Simultaneous Piling of Jacket Foundations within the Array Area (Stationary Receptor, 3,500kJ hammer energy, 5m pile diameter)

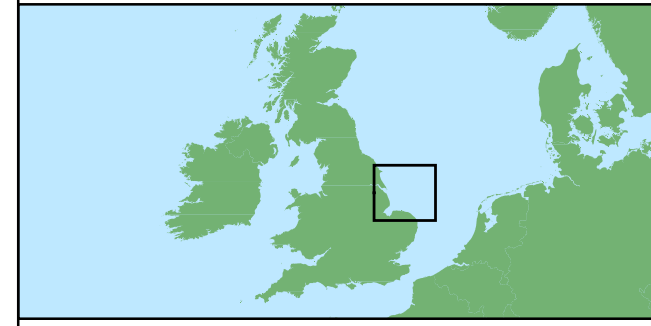
Figure 3.9



Document Path: Z:\GIS\GIS - Projects\0152 Outer Dowsing EIA\GIS\Figures\Examination\ORZ and ECC Environmental Report\ORBA Report\ODOW\_0152\_ORBA\_Fig3.9\_Sandeel\_Noise\_Simultaneous\_Jacket\_3500kJ\_v3.mxd



- Legend**
- Array Area
  - Offshore Restricted Build Area
  - Offshore Export Cable Corridor
  - ORCP Area
  - Artificial Nesting Structure Area
  - Secondary Zone of Influence
  - Underwater Noise Impacts 50km Buffer
  - Underwater Noise Modelling Locations
  - Simultaneous Monopile Contours (dB SELcum) - Stationary Receptors
- Spawning Grounds (Coull et al., 1998) (Species, Intensity)**
- Sandeel, Undetermined



Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

Scale: 1:650,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst Case Impact ranges for Spawning Sandeel from the Simultaneous Piling of Monopile Foundations within the Array Area (Stationary Receptor, 6,600kJ hammer energy, 14m pile diameter)

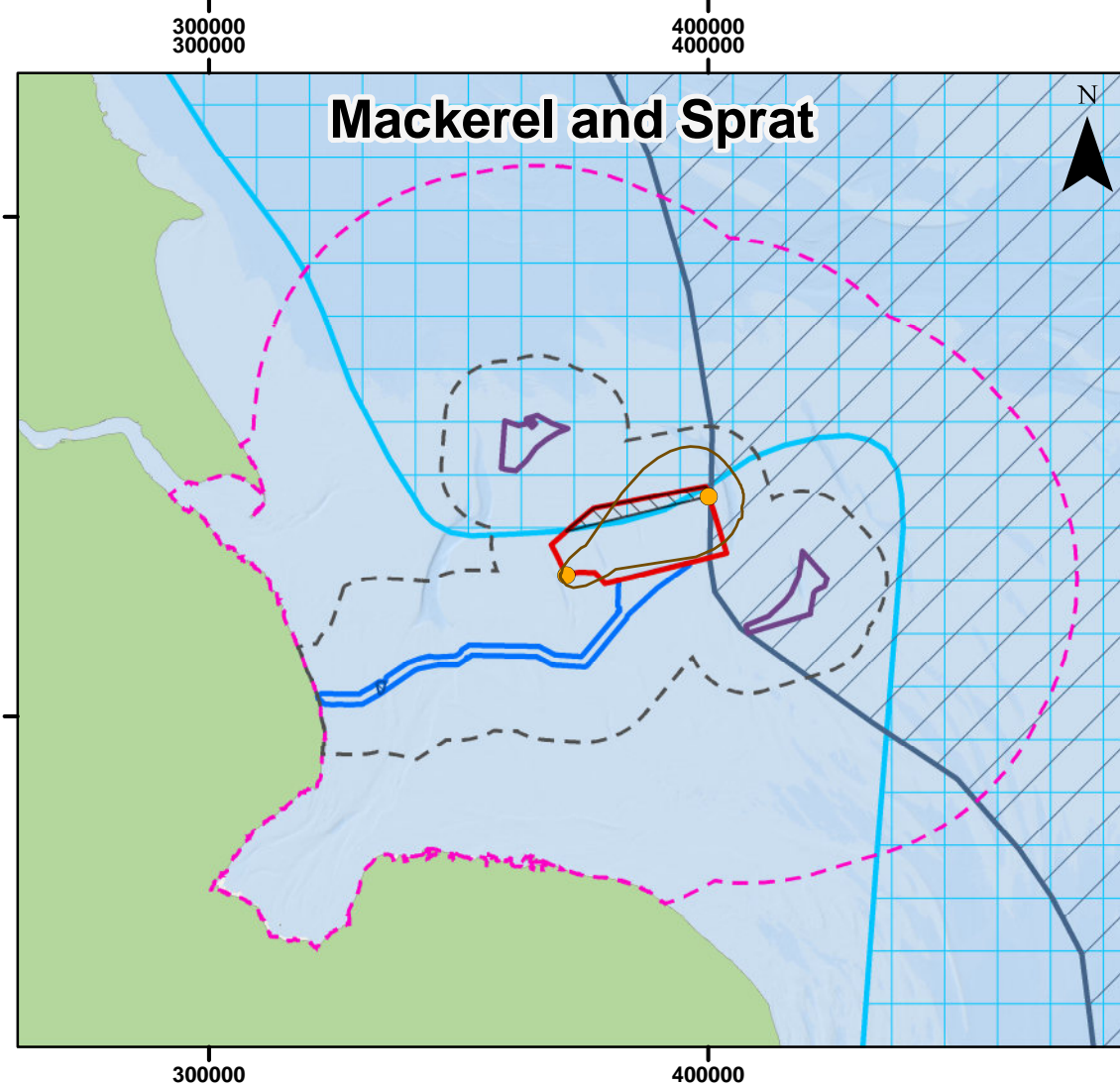
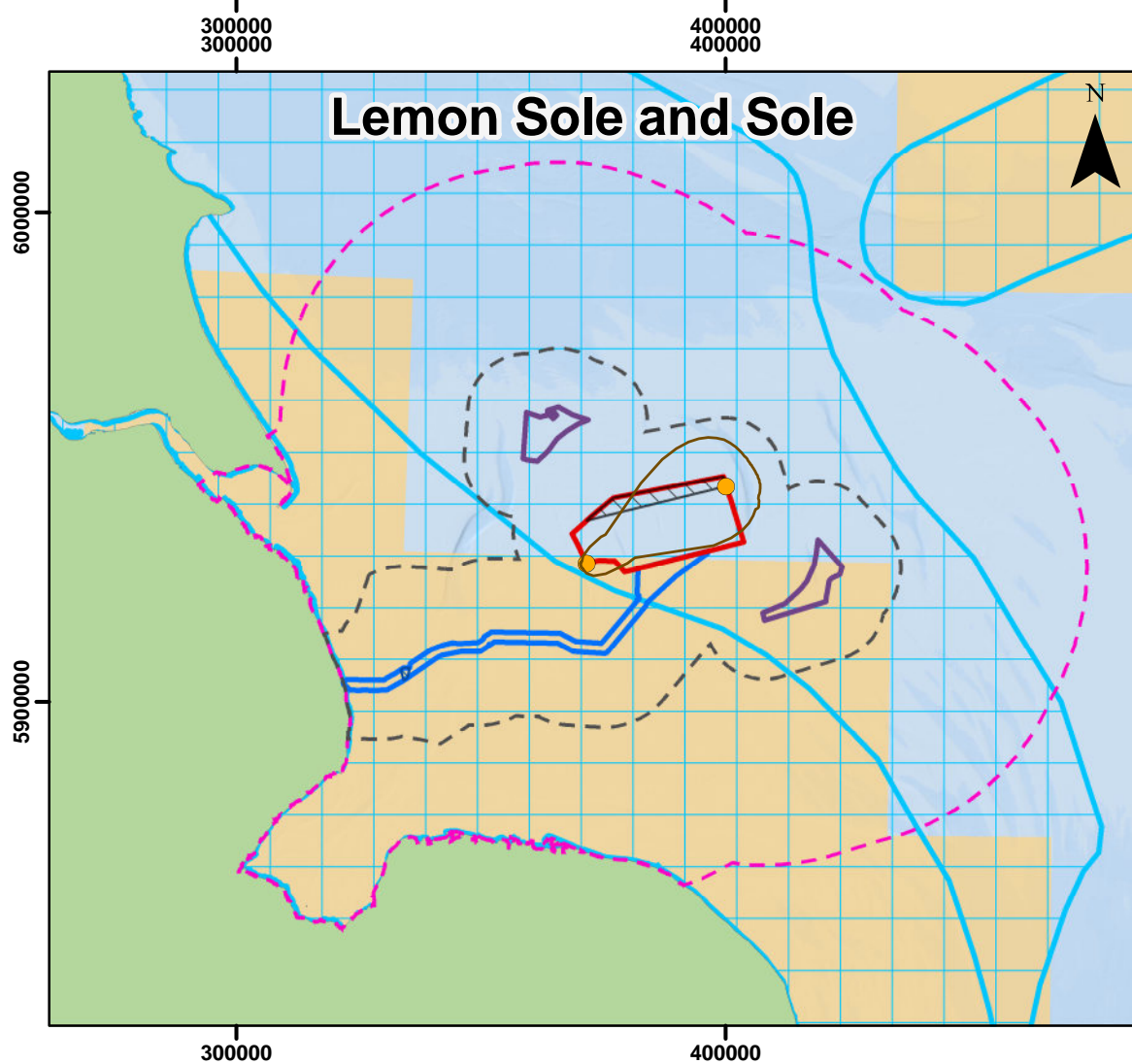
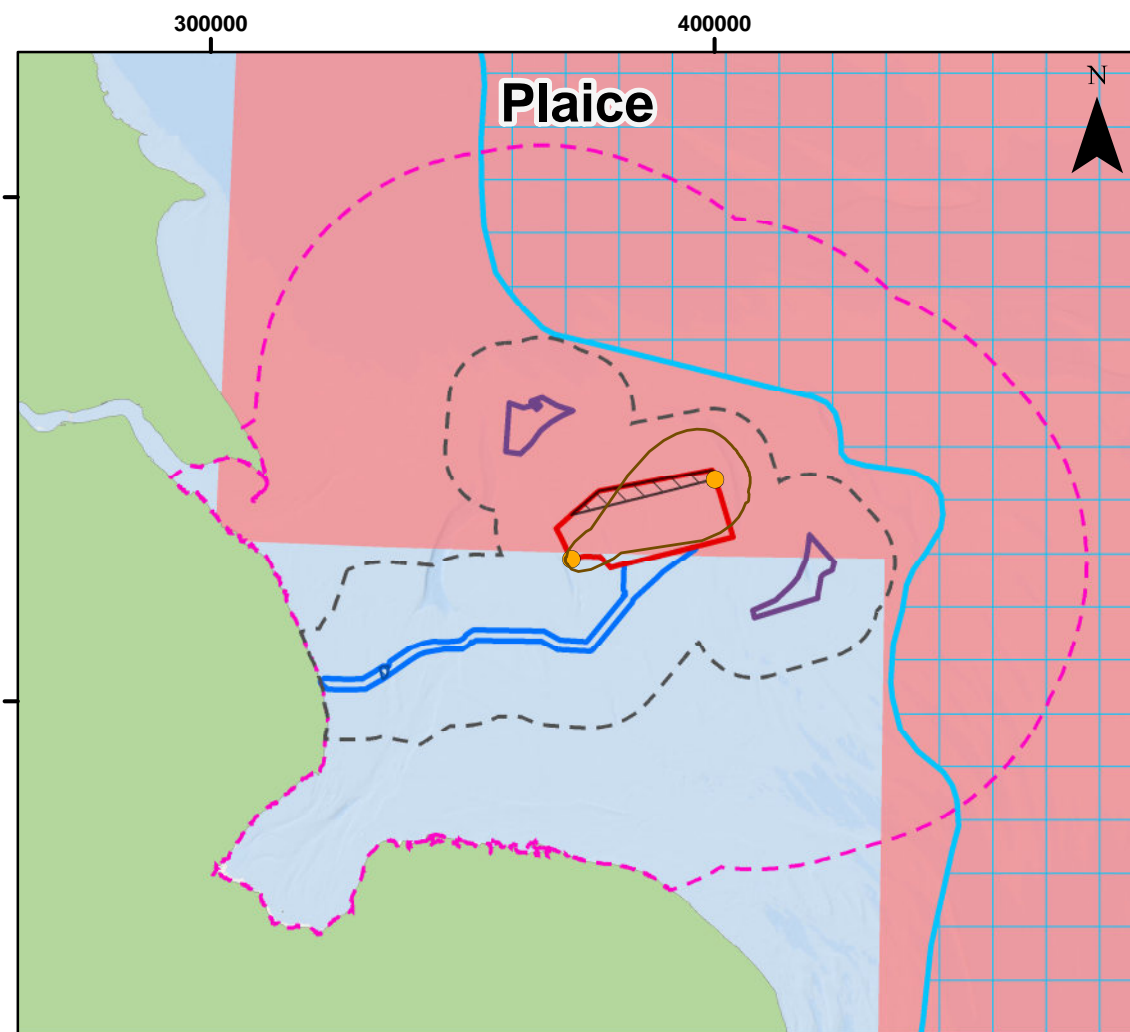
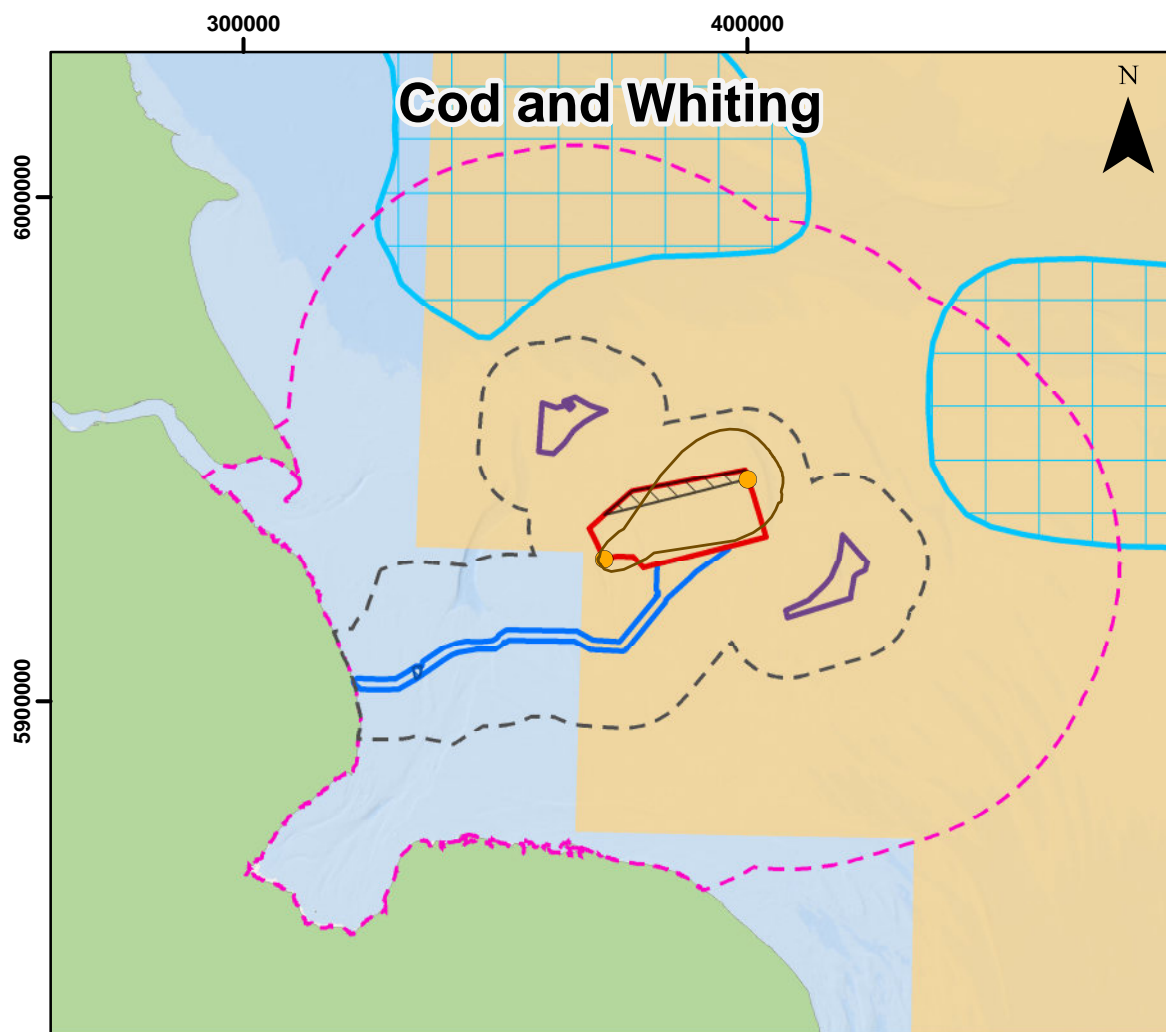
Figure 3.10



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**Legend**

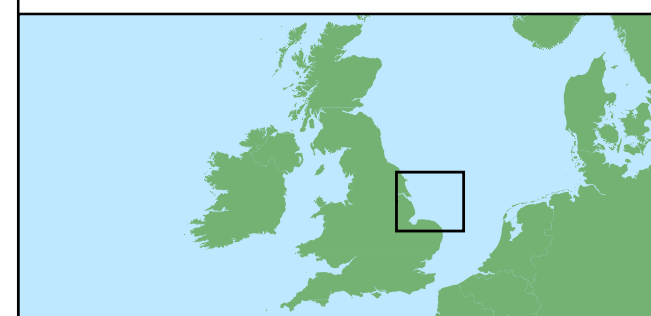
- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer
- Underwater Noise Modelling Locations
- Simultaneous Jacket Contour 186dB (SELCum) - Fleeing Receptors

**Spawning Grounds (Coull et al., 1998) - Intensity**

- Higher
- Lower
- Undetermined

**Spawning Grounds (Ellis et al., 2012) - Intensity**

- Higher
- Lower



Coordinate System: WGS 1984 UTM Zone 31N  
 0 50 100 km

Scale: 1:1,500,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst Case Impact Ranges for Fleeing Receptors from the Simultaneous Piling of Jacket Foundations within the Array Area (Fleeing receptor, 3,500kJ hammer energy, 5m pile diameter)

Figure 3.11

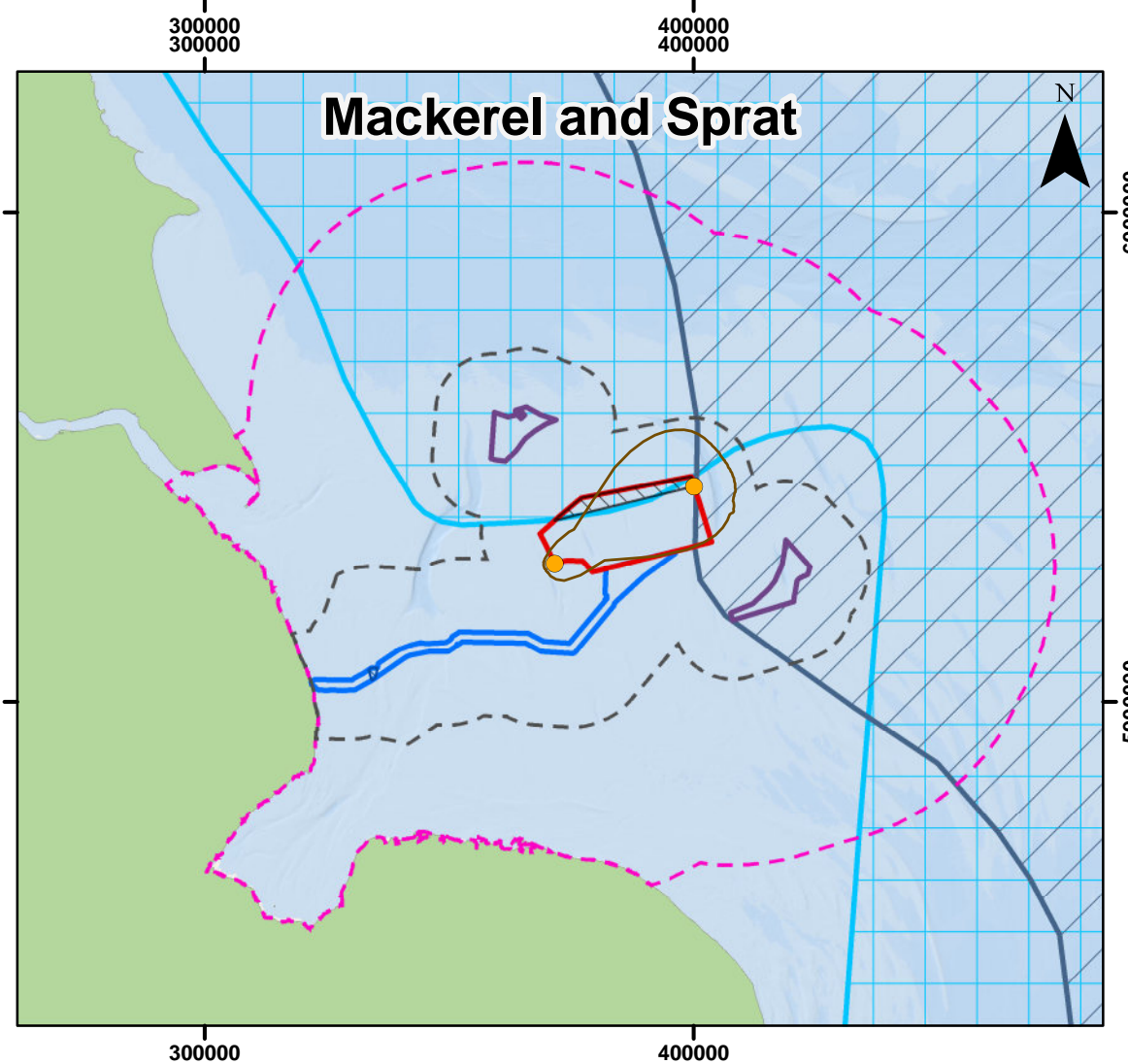
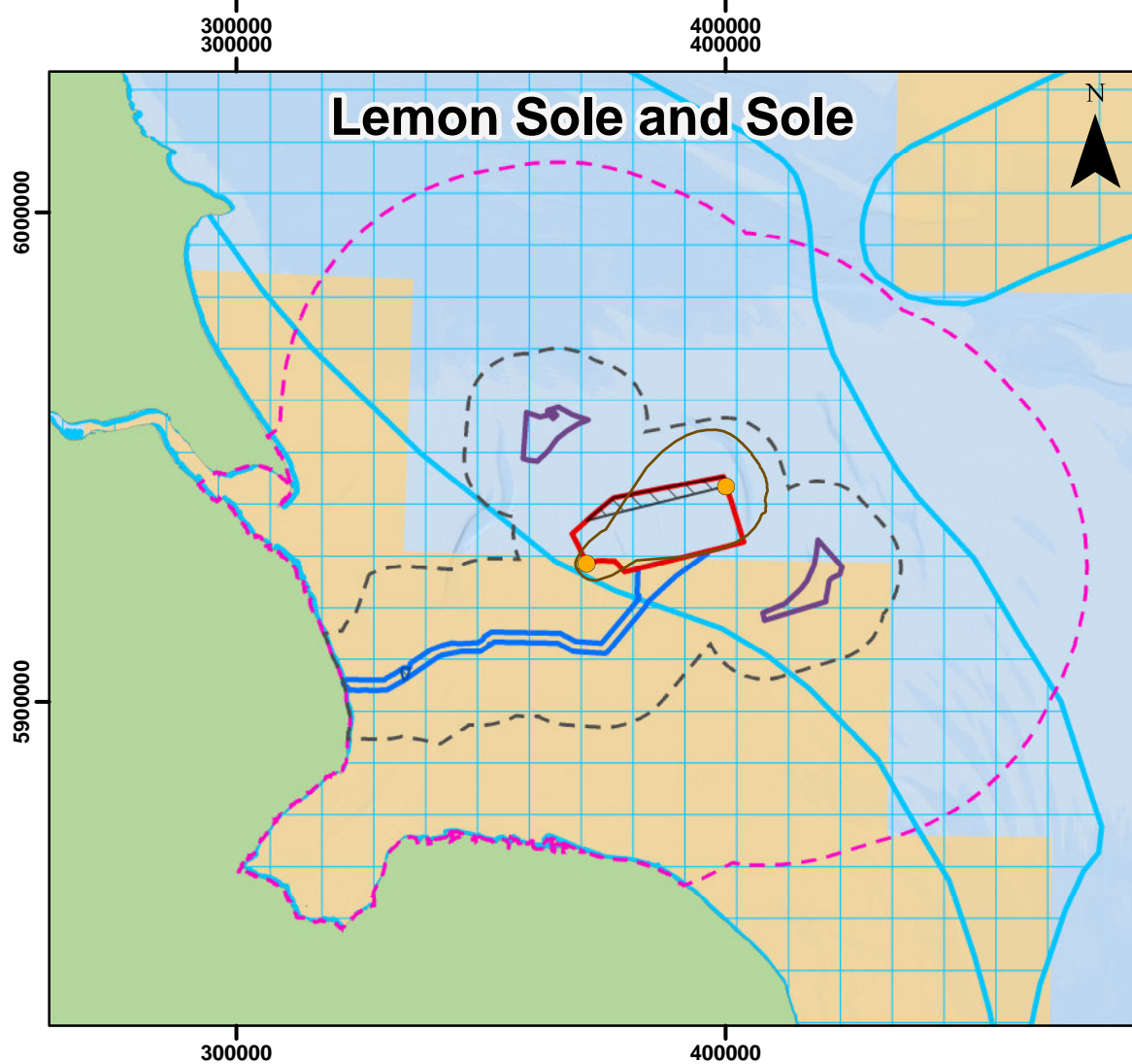
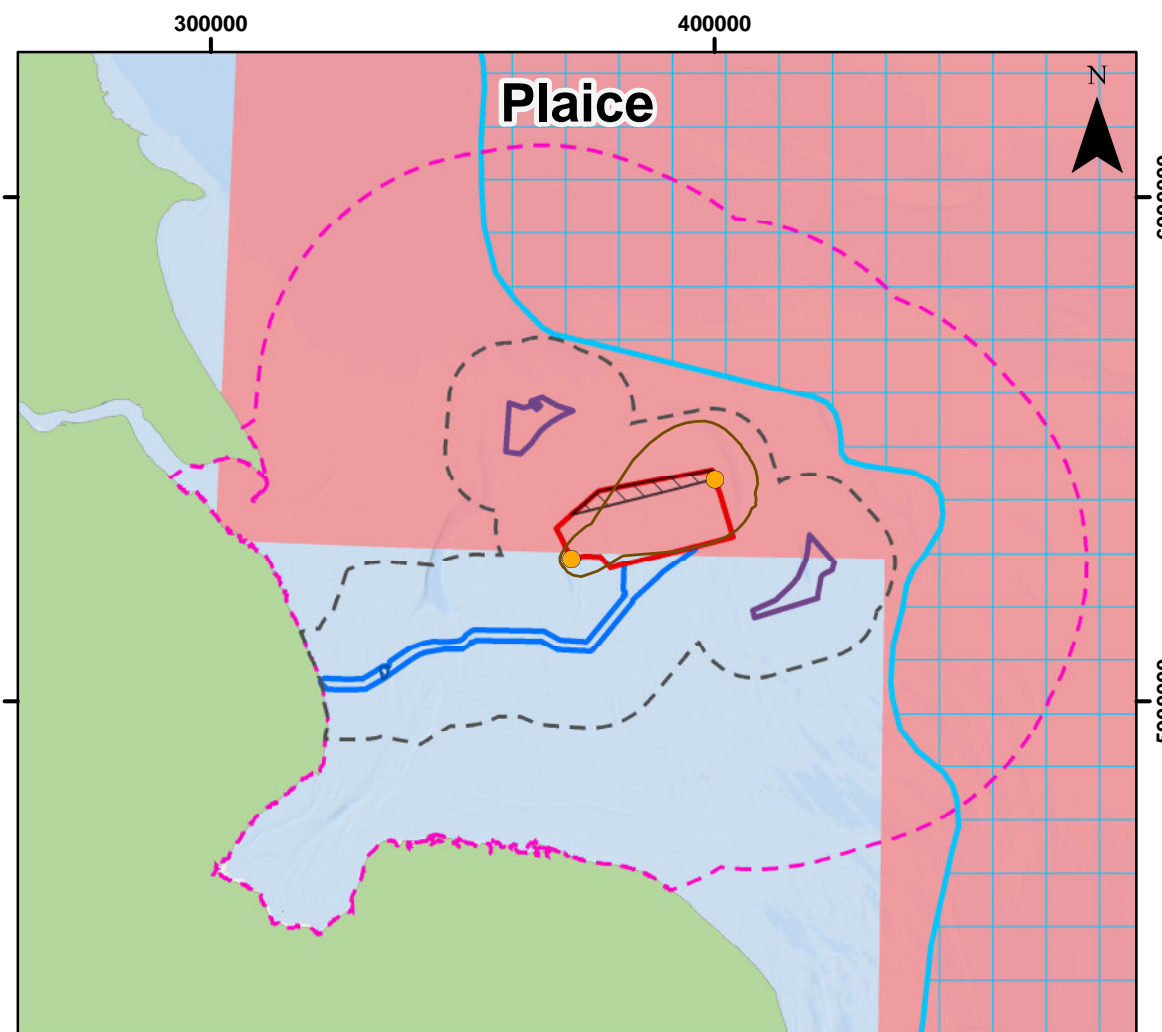
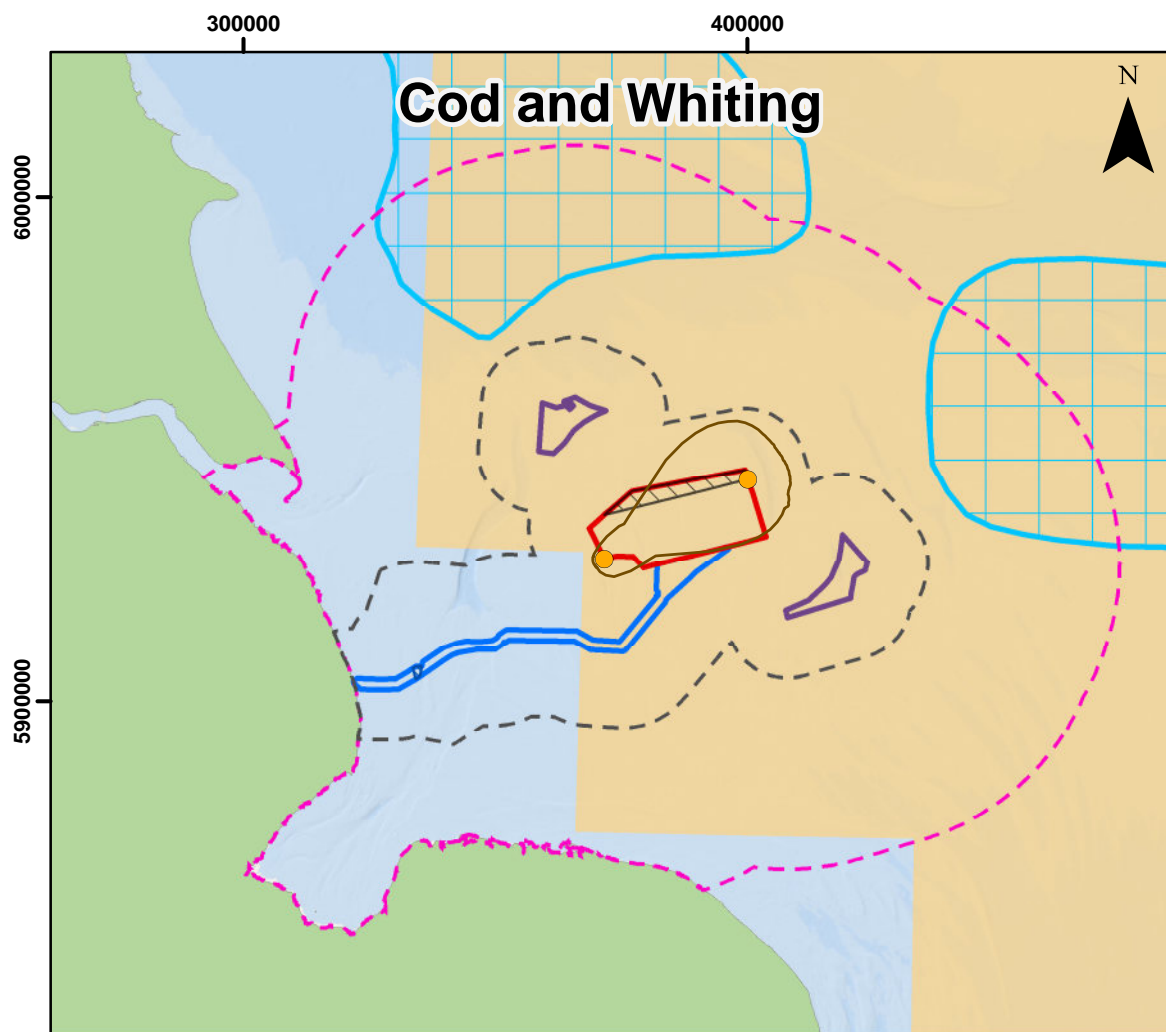


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**Legend**

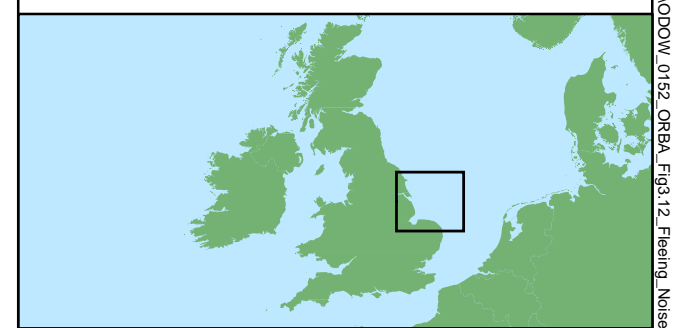
- Array Area
- Offshore Restricted Build Area
- Offshore Export Cable Corridor
- ORCP Area
- Artificial Nesting Structure Area
- Secondary Zone of Influence
- Underwater Noise Impacts 50km Buffer
- Underwater Noise Modelling Locations
- Simultaneous Monopile Contour 186dB (SELCum) - Fleeing Receptors

**Spawning Grounds (Coull et al., 1998) - Intensity**

- Higher
- Lower
- Undetermined

**Spawning Grounds (Ellis et al., 2012) - Intensity**

- Higher
- Lower



Coordinate System: WGS 1984 UTM Zone 31N  
 0 50 100 km

Scale: 1:1,500,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Predicted Worst Case Impact Ranges for fleeing receptors from the Simultaneous Piling of Monopile Foundations within the Array Area (Fleeing receptor, 6,600kJ hammer energy, 14m pile diameter)

Figure 3.12

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300000

350000

400000



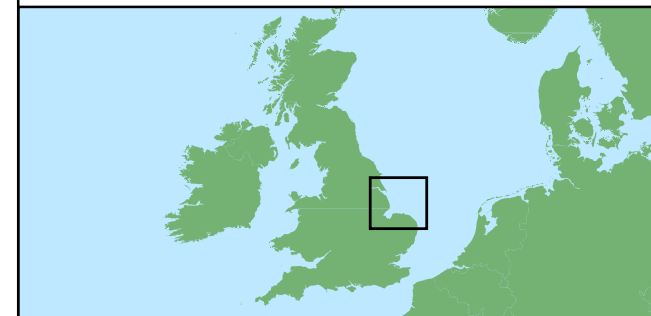
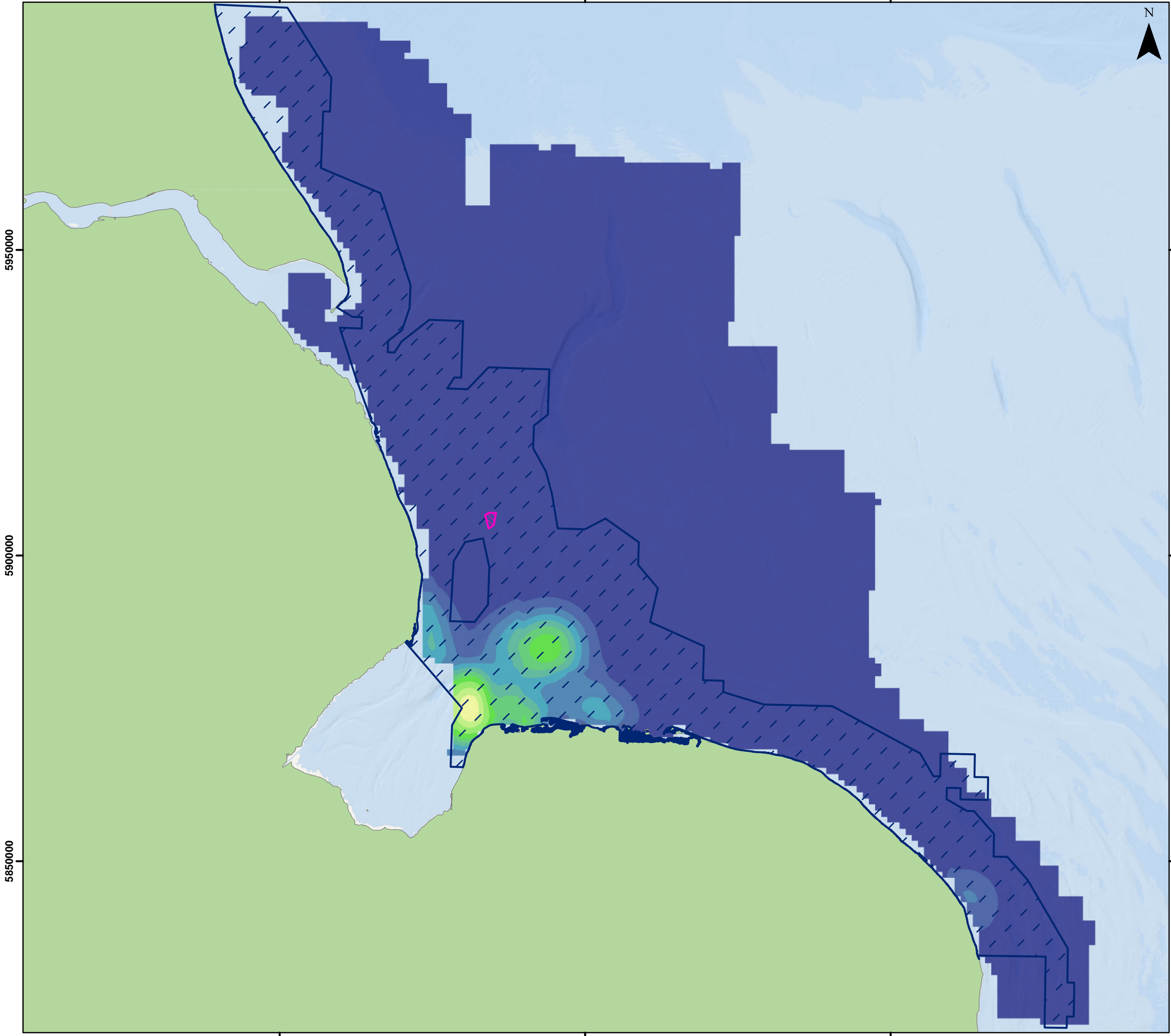
### Legend

ORCP Area

Greater Wash SPA

#### Common Scoter Densities within the Greater Wash SPA (Lawson *et al.*, 2016) (birds per km<sup>2</sup>)

- 0 - 0.7
- 0.7 - 2.34
- 2.34 - 4.51
- 4.51 - 7.22
- 7.22 - 10.51
- 10.51 - 14.83
- 14.83 - 21.34
- 21.34 - 31.05
- 31.05 - 40.72
- 40.72 - 56.58



Coordinate System: WGS 1984 UTM Zone 31N  
 0 20 40 km

Scale: 1:600,000 A3 Page Size

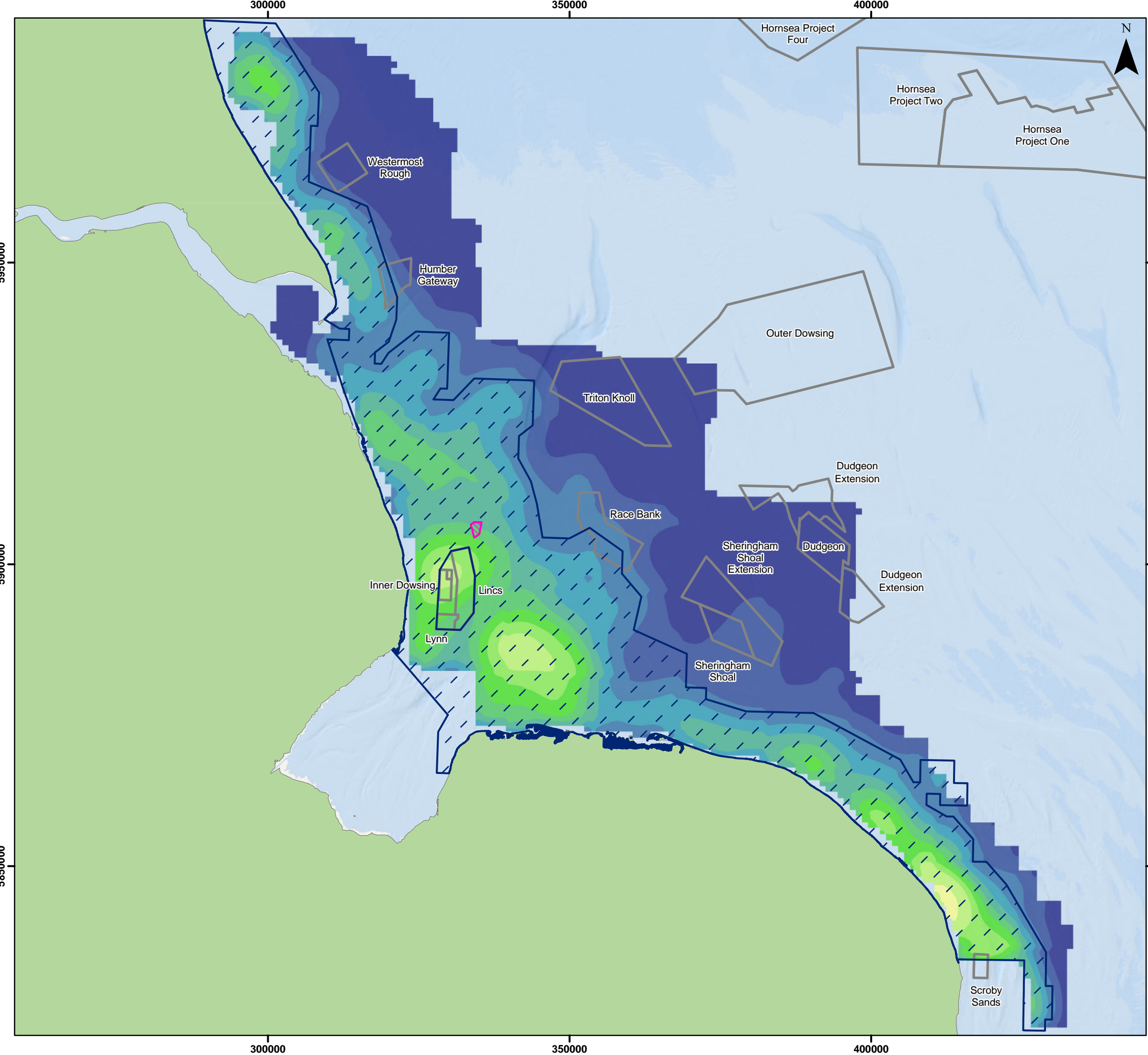
Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Common Scoter Densities within the Greater Wash SPA

Figure 5.1



Document Path: Z:\GIS\GIS - Projects\0152 Outer Dowsing ELA\GIS\Figures\Examination\ORZ and ECC Environmental Report\ORBA Report\ODOW\_0152\_ORBA\_Fig5.1\_Common\_Scoter\_Density\_v1.mxd

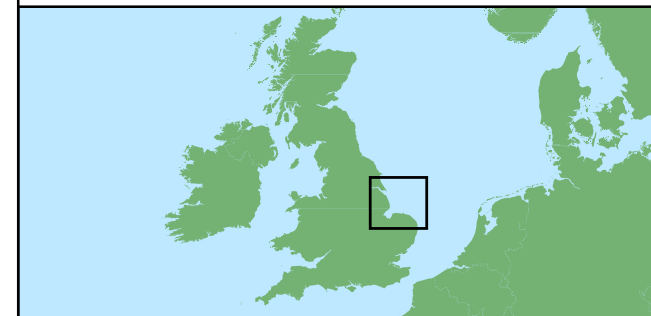


**Legend**

- ORCP Area
- Greater Wash SPA
- Offshore Wind Farm Boundaries (Outer Dowsing AfL boundary shown)

**Red-throated Diver Densities within the Greater Wash SPA (Lawson et al., 2016) (birds per km<sup>2</sup>)**

- 0 - 0.05
- 0.05 - 0.11
- 0.11 - 0.19
- 0.19 - 0.28
- 0.28 - 0.39
- 0.39 - 0.51
- 0.51 - 0.67
- 0.67 - 0.87
- 0.87 - 1.35
- 1.35 - 3.38



Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

Scale: 1:600,000 A3 Page Size

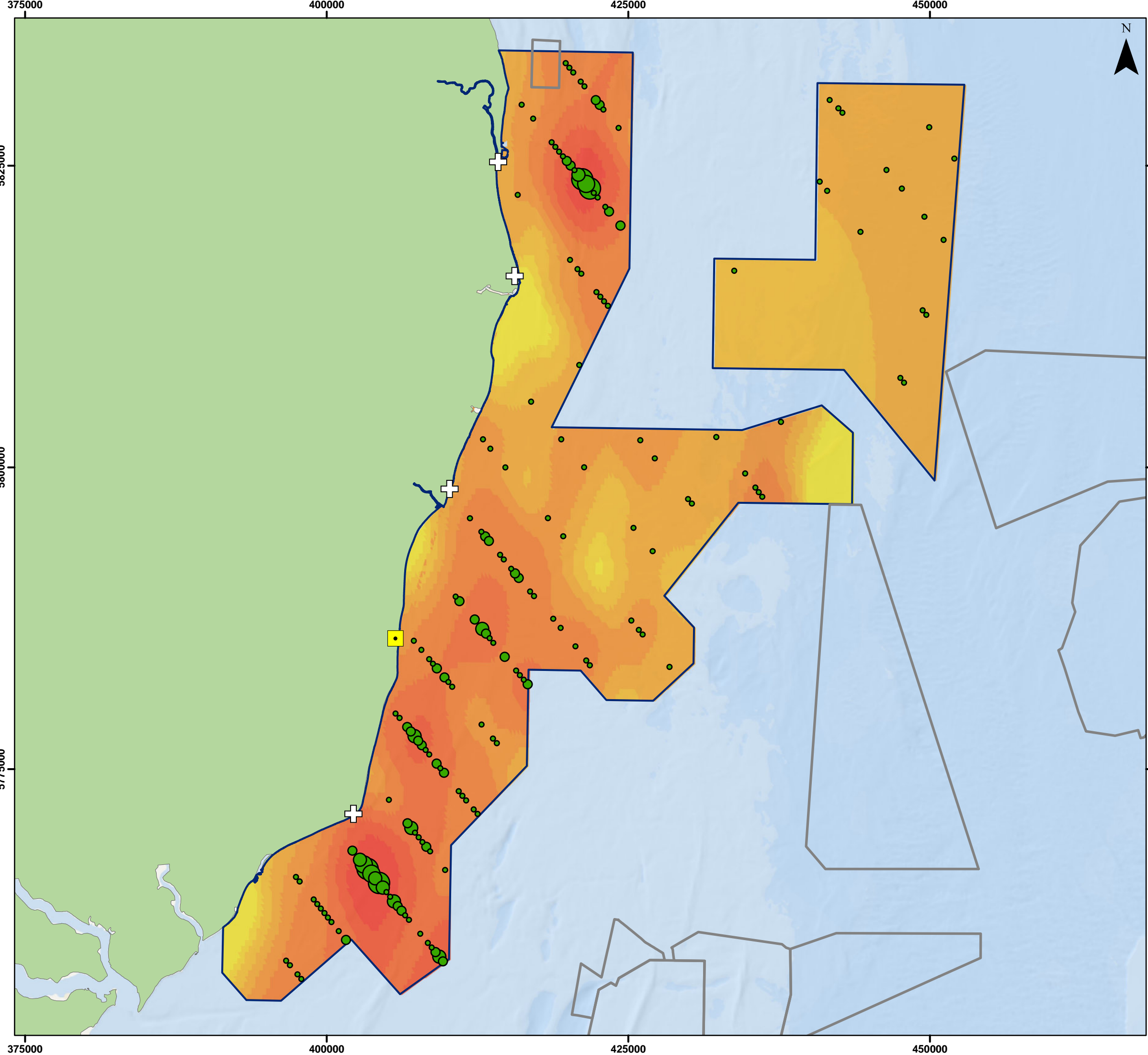
Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Red-throated Diver Densities within the Greater Wash SPA

Figure 5.2



Document Path: Z:\GIS\GIS - Projects\0152 Outer Dowsing EIA\GIS\Figures\Examination\ORZ and ECC Environmental Report\ORBA Report\ODOW\_0152\_ORBA\_Fig5.2\_RedThroated Diver Density\_GreaterWashSPA\_v2.mxd



**Legend**

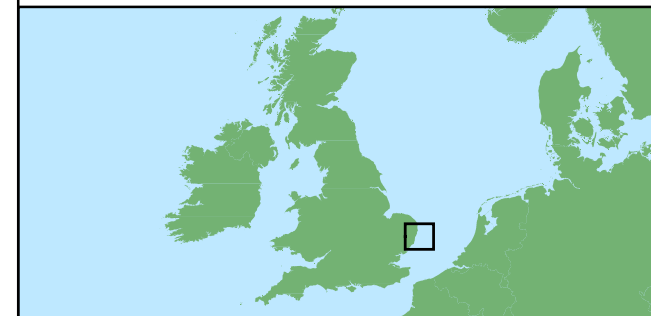
- Outer Thames SPA
- Offshore Wind Farm Boundaries
- Sizewell Nuclear Power Station
- Lighthouse

**Red-throated Divers Count (2018) (Jenks) (Irwin *et al.*, 2019)**

- 1 - 2
- 3 - 5
- 6 - 10
- 11 - 15
- 16 - 20

**Bird Densities (birds per km<sup>2</sup>)**

- 0.01 - 0.1
- 0.11 - 0.2
- 0.21 - 0.5
- 0.51 - 1
- 1.01 - 2
- 2.01 - 5
- 5.01 - 10
- 10.01 - 20
- 20.01 - 50



Coordinate System: WGS 1984 UTM Zone 31N

0 10 20 km

Scale: 1:300,000 A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Density of Red-throated Diver in the Northern Section of the Outer Thames Estuary SPA in comparison to Anthropogenic Structures

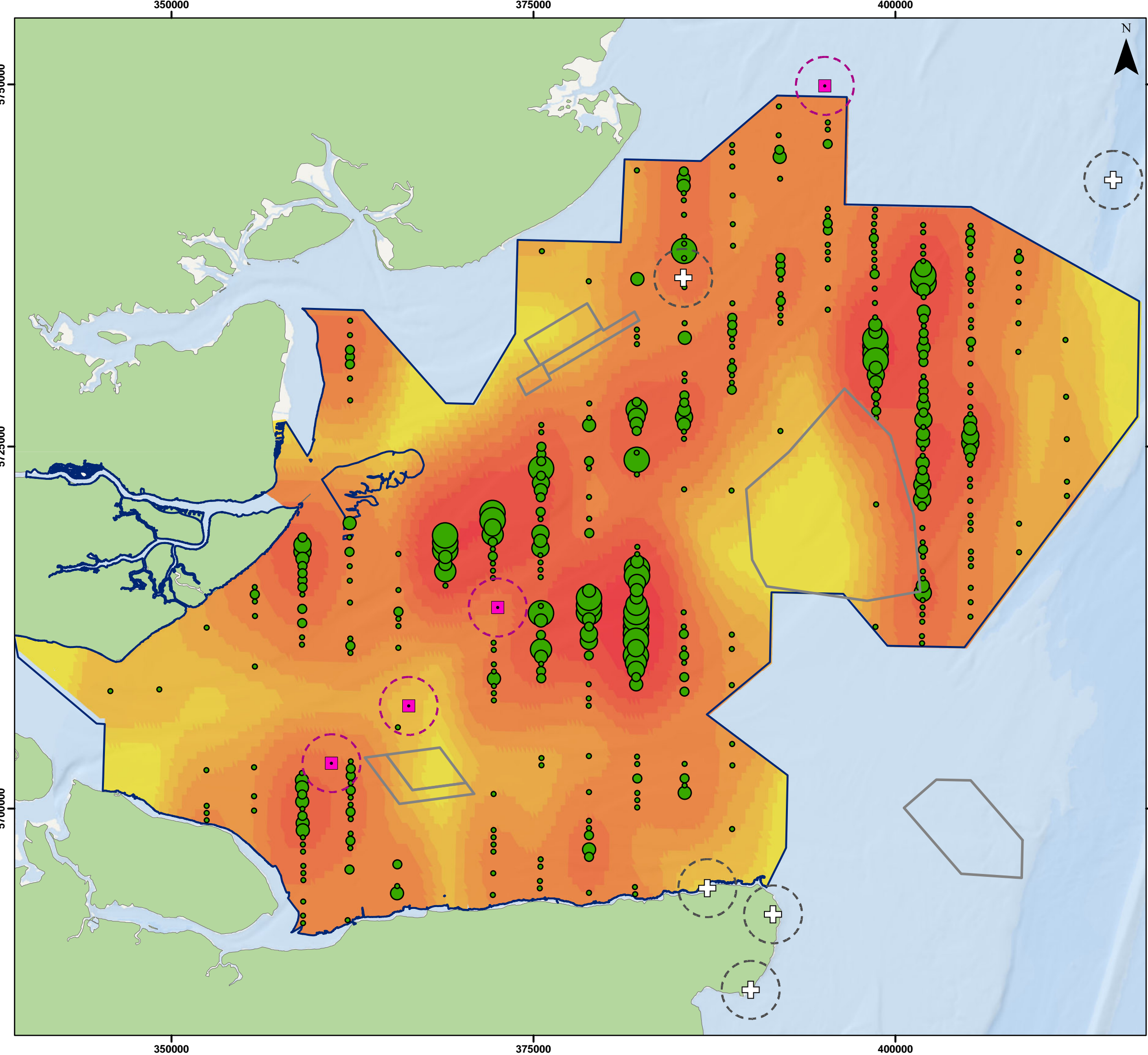
Figure 5.3

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### Legend

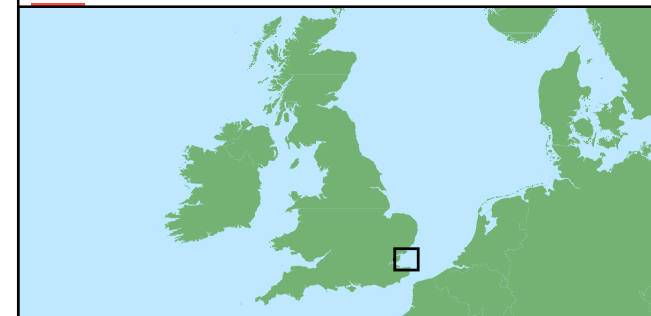
- Outer Thames SPA
- Offshore Wind Farm Boundaries
- Offshore Military Fort
- 2km Buffer from Offshore Military Fort
- Lighthouse
- 2km Buffer from Lighthouse

#### Red-throated Divers Count (2018) (Jenks) (Irwin et al., 2019)

- 1 - 2
- 3 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 84

#### Bird Densities (birds per km²)

- 0
- 0.01 - 0.1
- 0.11 - 0.2
- 0.21 - 0.5
- 0.51 - 1
- 1.01 - 2
- 2.01 - 5
- 5.01 - 10
- 10.01 - 20
- 20.01 - 50



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 km

Scale: 1:250,000

A3 Page Size

Environmental Report for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor

Density of Red-throated Diver in the Southern Section of the Outer Thames Estuary SPA in comparison to Anthropogenic Structures

Figure 5.4



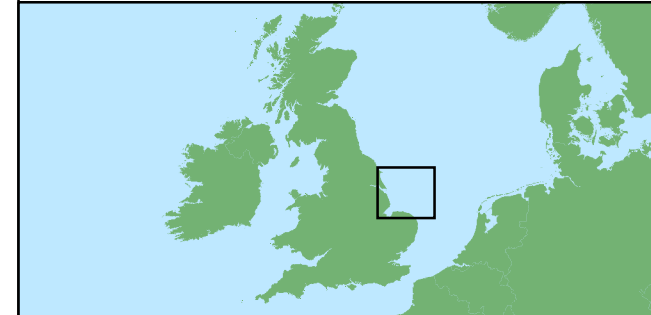
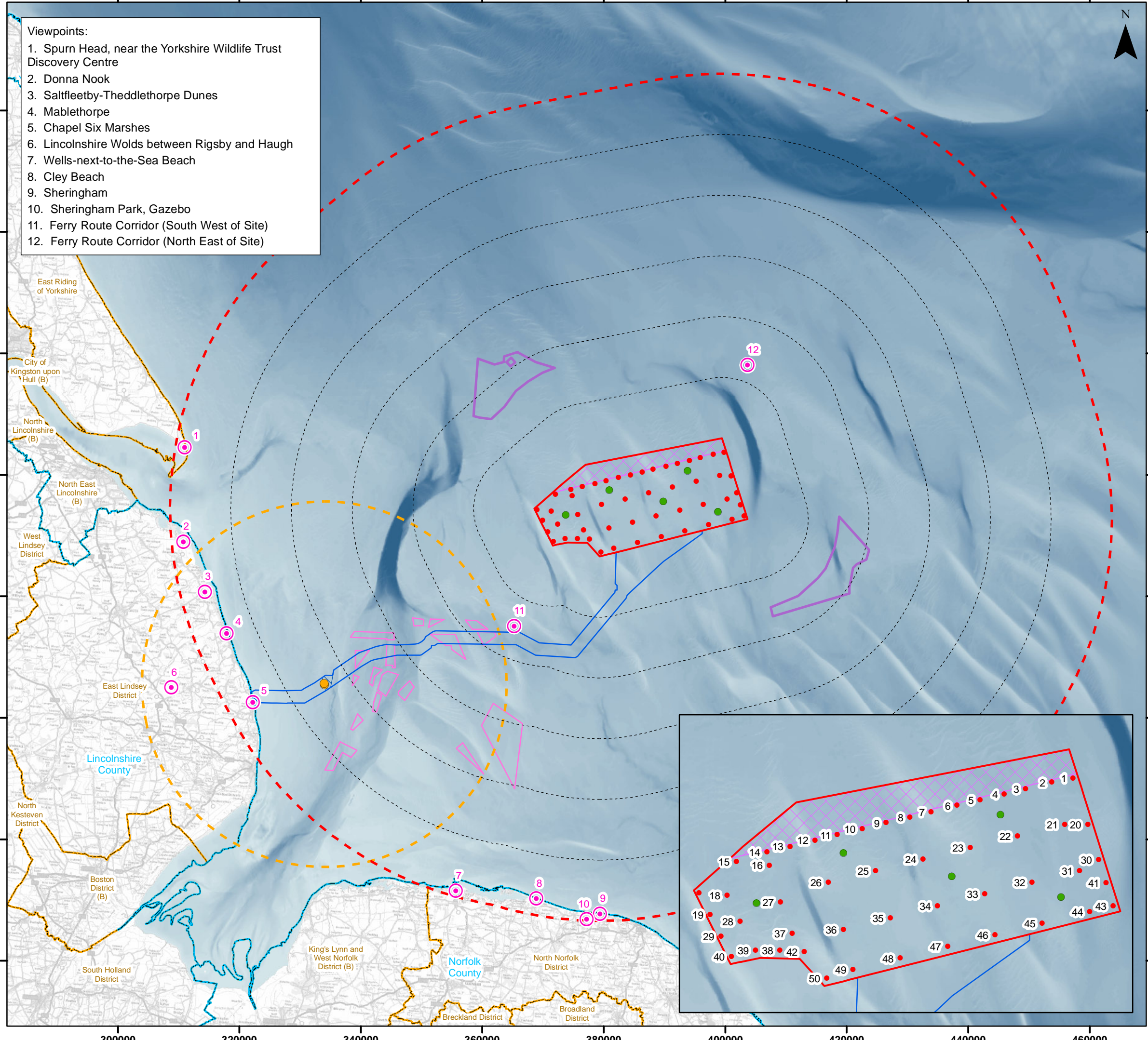
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### Legend

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South
- Artificial Nesting Structure (ANS) Area
- Biogenic Reef Restoration Area
- County Boundary
- District / Unitary Authority Boundary

EMODnet DTM for European Sea Regions (m)  
 High : 4.23  
 Low : -98.28

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)



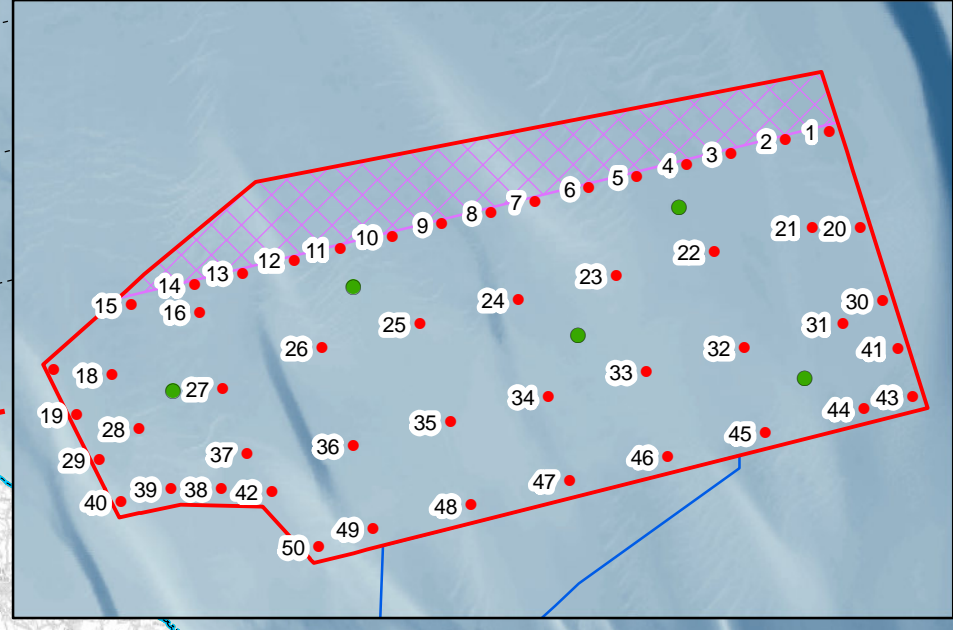
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OFZ and ECC Amendment Report  
 SLVIA Project Design Envelope  
 - Maximum Design Scenario



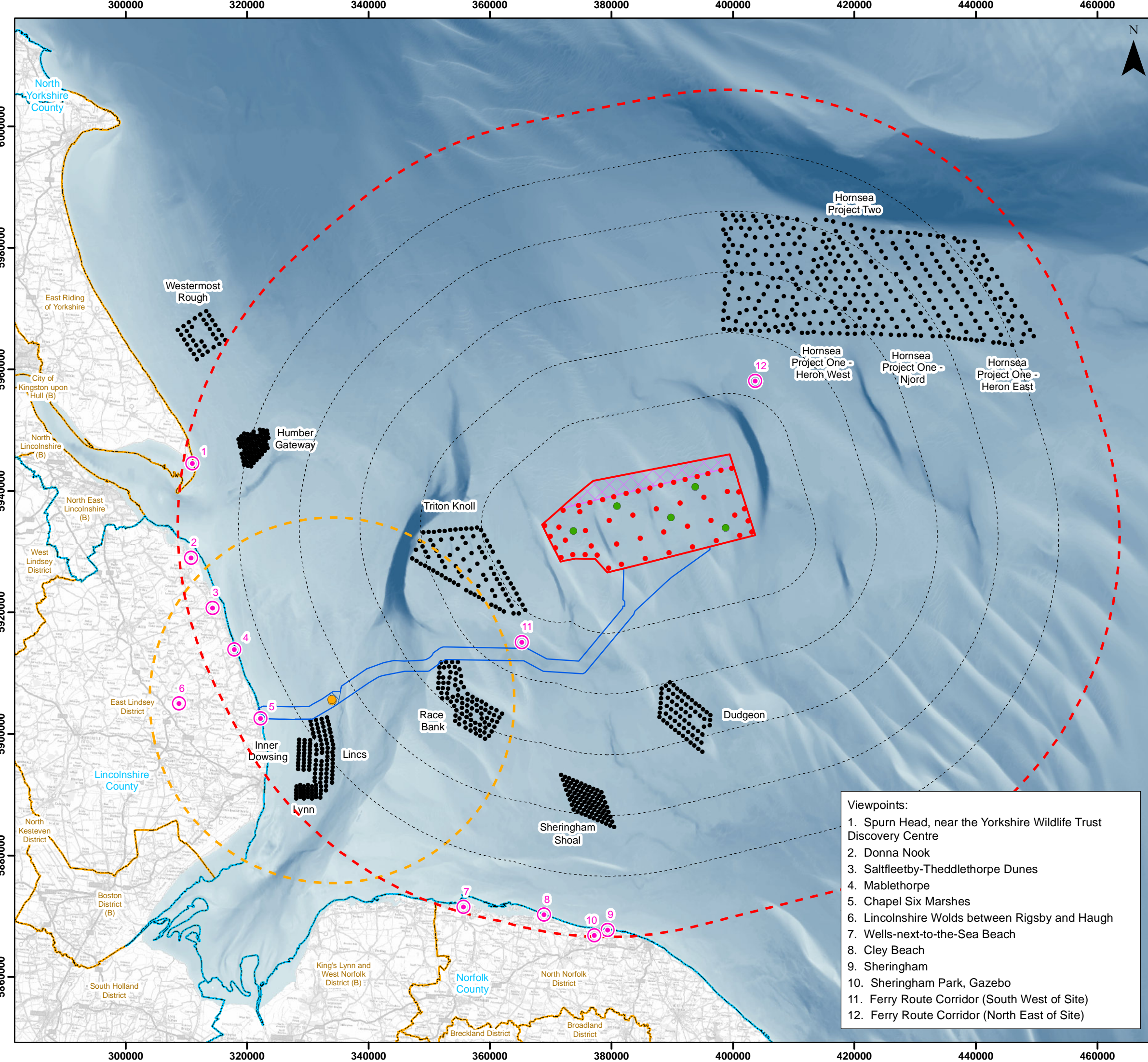
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 Revision: v0.1

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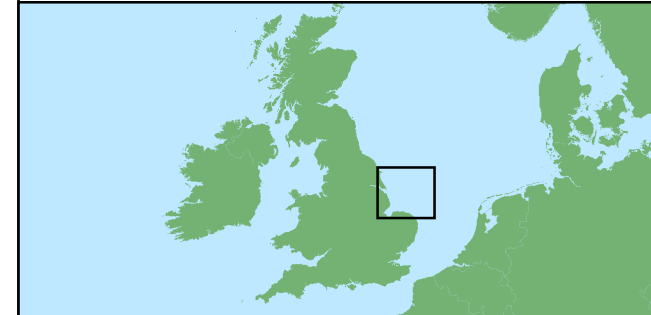
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### Legend

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- ⊙ Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South
- County Boundary
- District / Unitary Authority Boundary

EMODnet DTM for European Sea Regions (m)  
High : 4.23  
Low : -98.28



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 15 20 km  
 Scale: 1:600,000  
 A3 Page Size

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

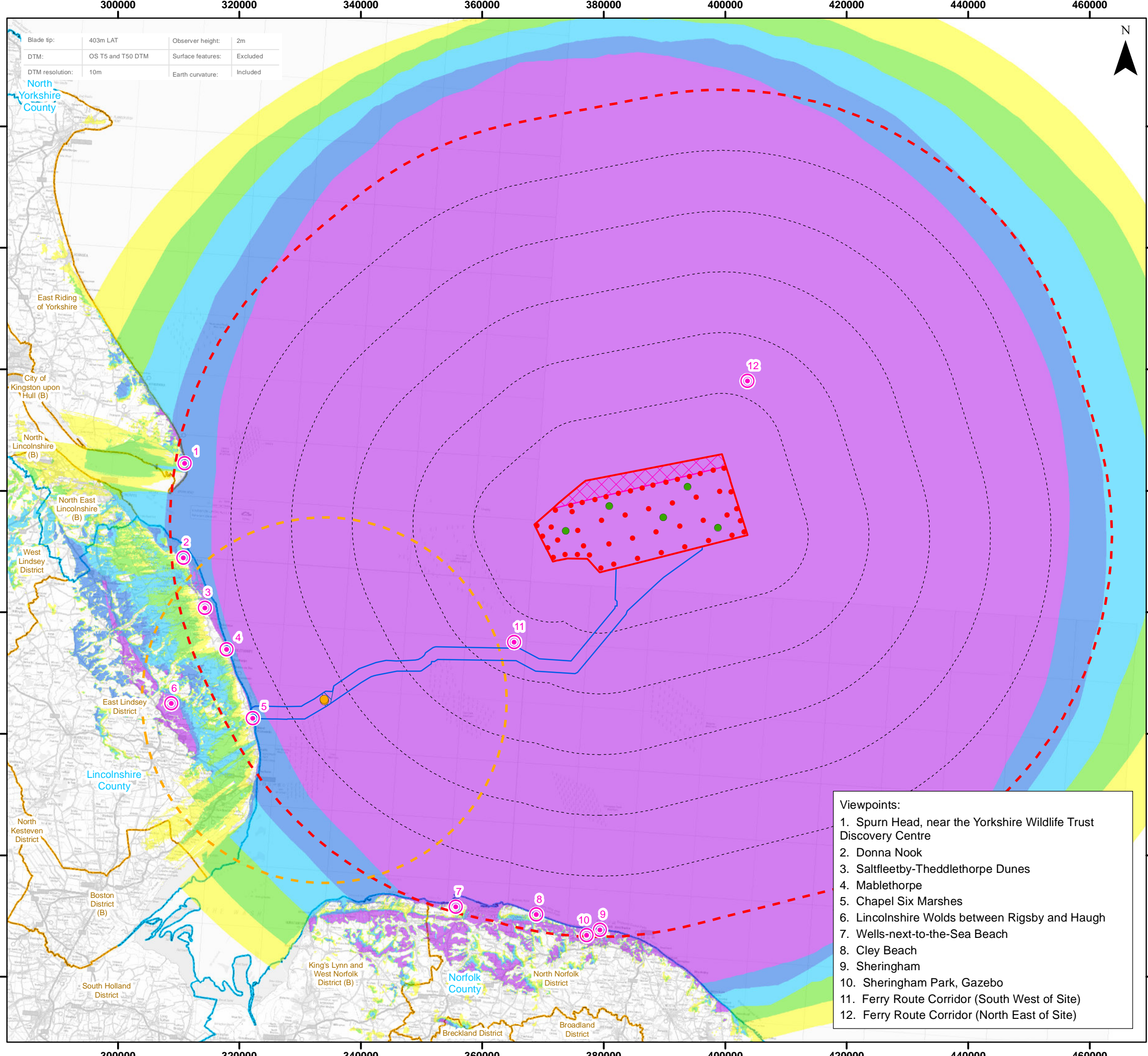
OFZ and ECC Amendment Report  
 SLVIA Study Area  
 Figure 11.2

Date: 27/08/2024  
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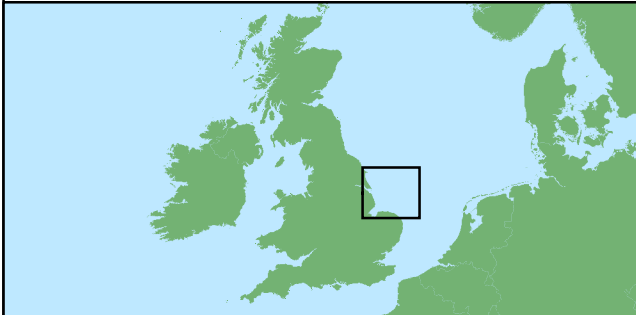
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Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

### Legend

- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - ▭ Array Area
  - ▭ Offshore Export Cable Corridor (ECC)
  - ▭ Offshore Reactive Compensation Platform (ORCP) Area
  - ▭ Offshore Restricted Build Area
  - ⋯ 10km Radii
  - ⋯ 60km Study Area
  - ⋯ Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - ▭ County Boundary
  - ▭ District / Unitary Authority Boundary
- Blade Tip ZTV**
- No of Blade Tips Theoretically Visible
- 1 - 10
  - 11 - 20
  - 21 - 30
  - 31 - 40
  - 41 - 50



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km

Scale: 1:600,000

A3 Page Size

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

OFZ and ECC Amendment Report

Array Area Blade Tip ZTV (Maximum Height) (A3)

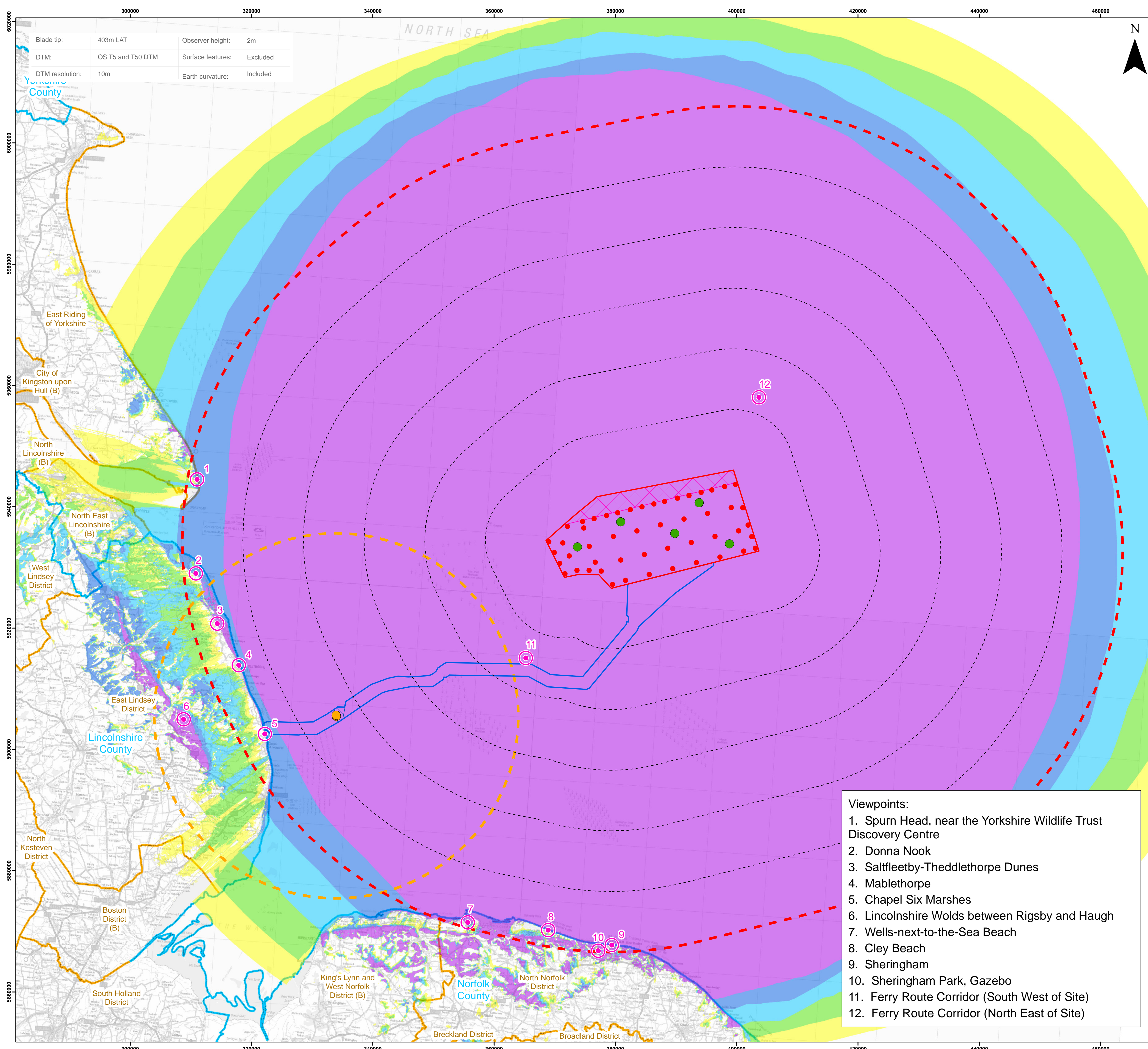
Figure 11.3



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Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

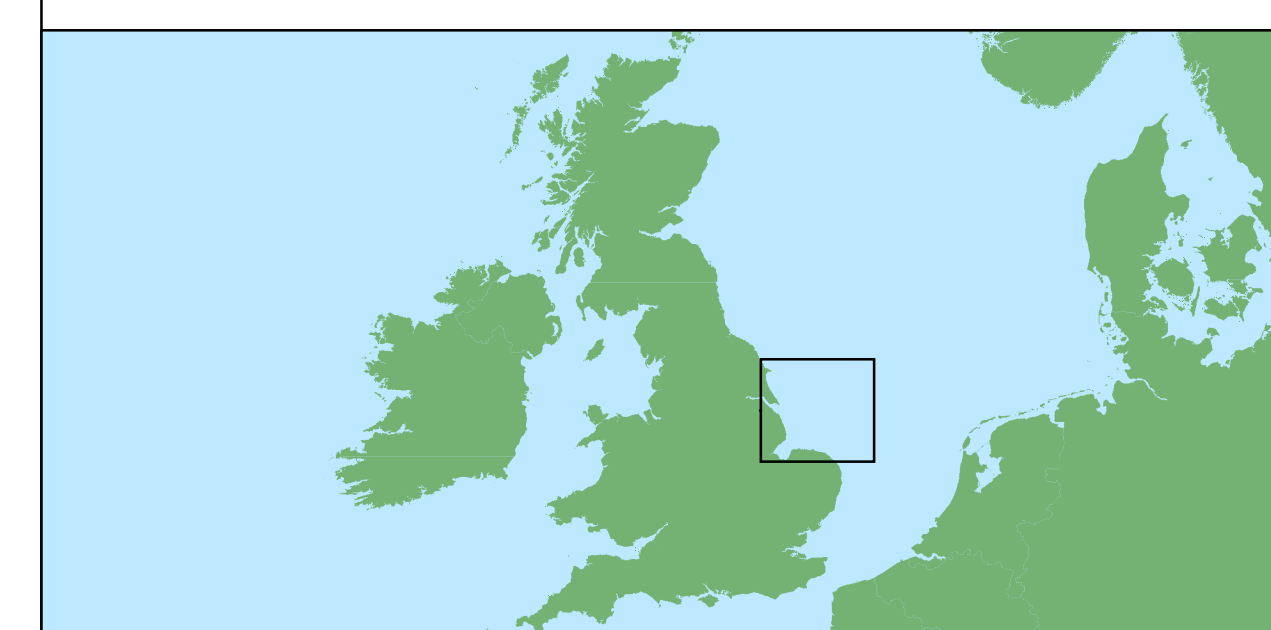
### Legend

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- ▭ Array Area
- ▭ Offshore Export Cable Corridor (ECC)
- ▭ Offshore Reactive Compensation Platform (ORCP) Area
- ▭ Offshore Restricted Build Area
- ⋯ 10km Radii
- ⋯ 60km Study Area
- ⋯ Offshore Reactive Compensation Platform (ORCP) Study Area - South
- ▭ County Boundary
- ▭ District / Unitary Authority Boundary

**Blade Tip ZTV**

No of Blade Tips Theoretically Visible

- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50



Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

Scale: 1:300,000 A1 Page Size

OFZ and ECC Amendment Report

Array Area Blade Tip ZTV (Maximum Height) (A1)

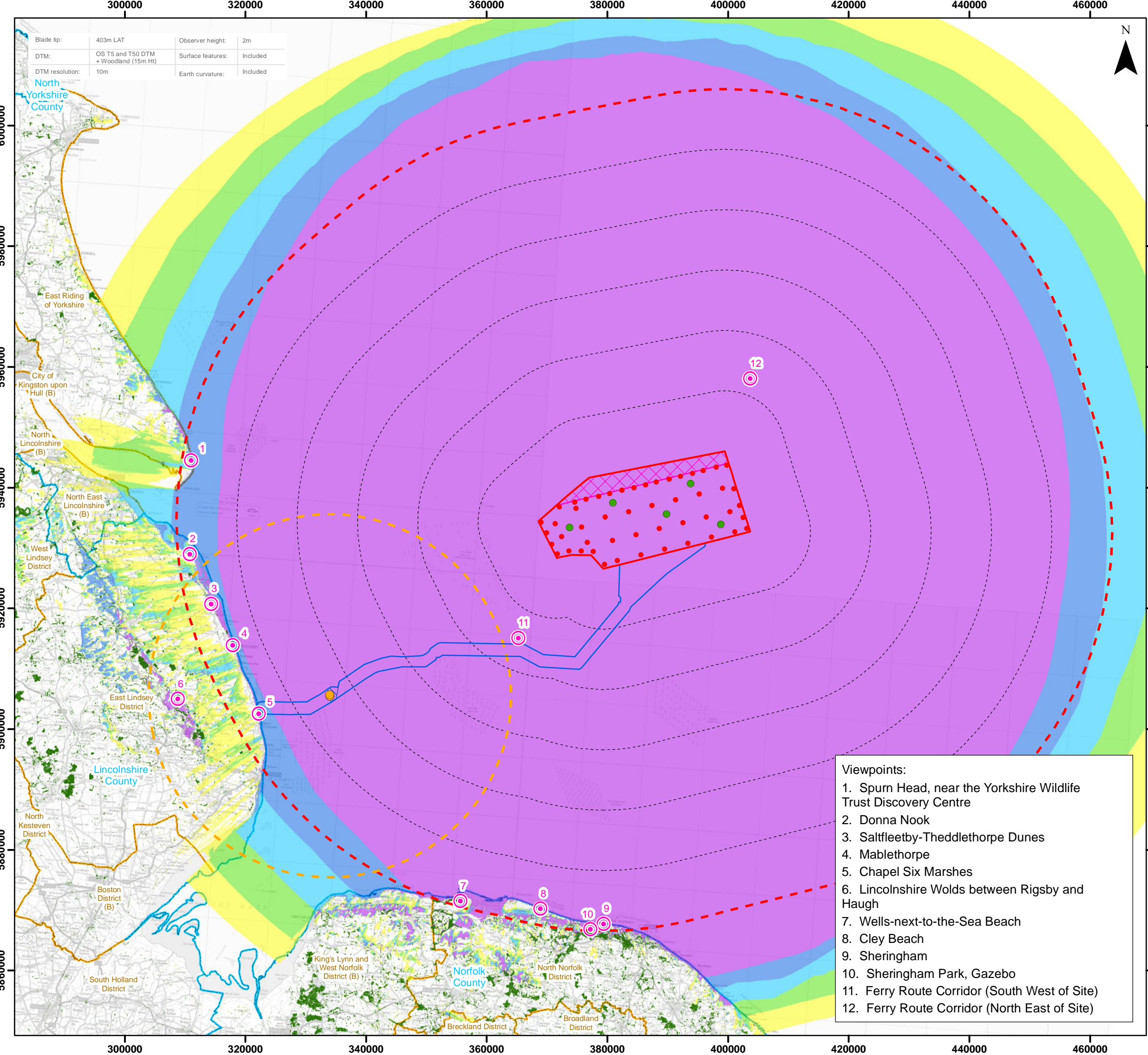
Figure 11.4



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 Revision: v0.1

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 optimised environments  
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- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

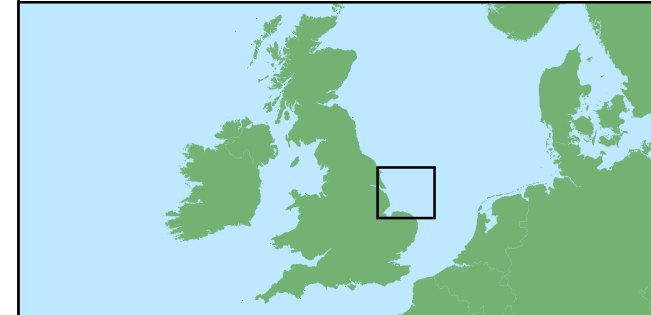


### Legend

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South
- County Boundary
- District / Unitary Authority Boundary
- Woodland

Screening Blade Tip ZTV  
 No of Blade Tips Theoretically Visible

- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 15 20 km  
 Scale: 1:600,000  
 A3 Page Size

- Viewpoints:
- Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  - Donna Nook
  - Saltfleetby-Theddlethorpe Dunes
  - Mablethorpe
  - Chapel Six Marshes
  - Lincolnshire Wolds between Rigsby and Haugh
  - Wells-next-to-the-Sea Beach
  - Cley Beach
  - Sheringham
  - Sheringham Park, Gazebo
  - Ferry Route Corridor (South West of Site)
  - Ferry Route Corridor (North East of Site)

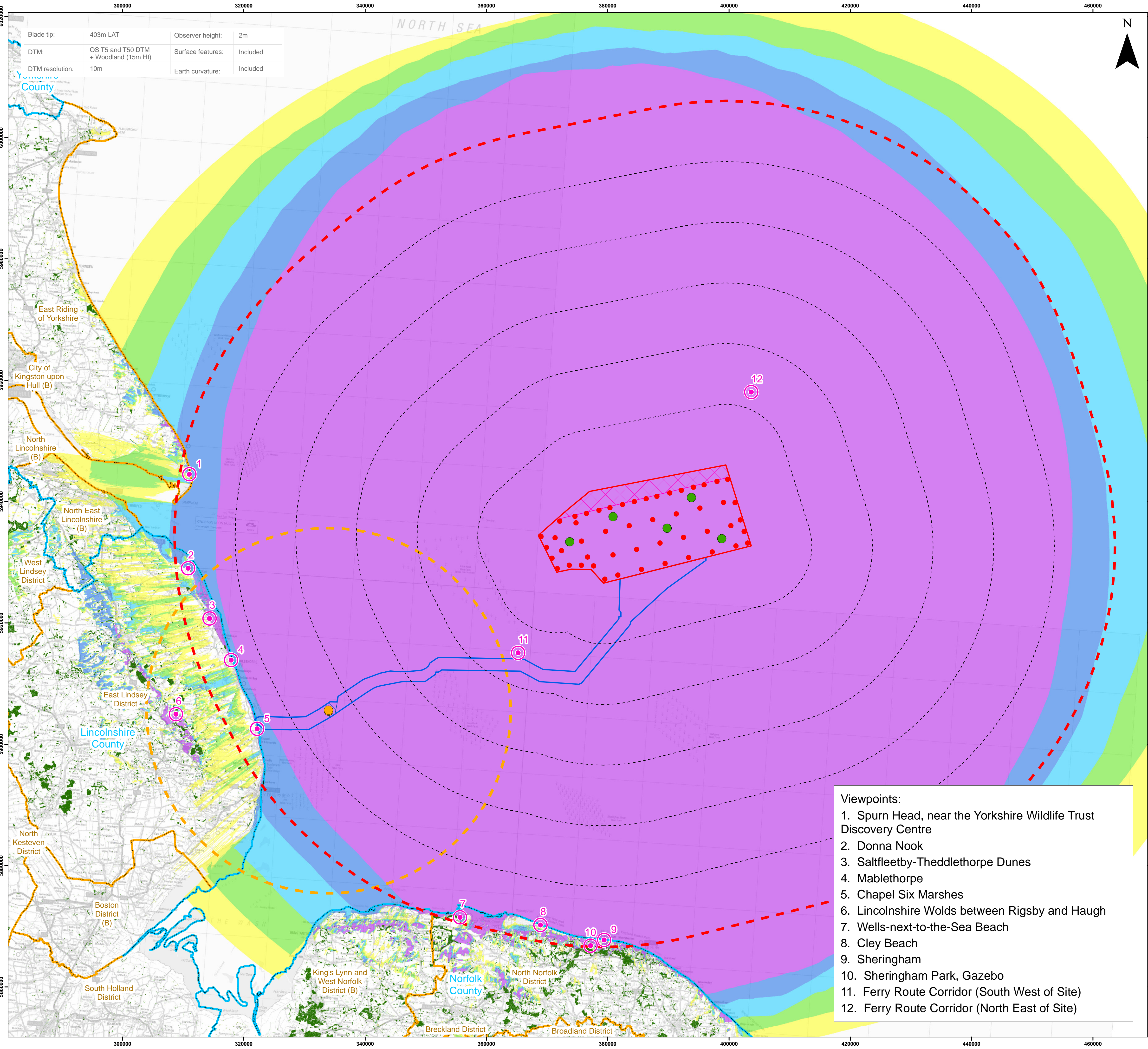
OFZ and ECC Amendment Report  
 Array Area Blade Tip ZTV with Surface Feature Screening (A3)  
 Figure 11.5

Date: 28/08/2024  
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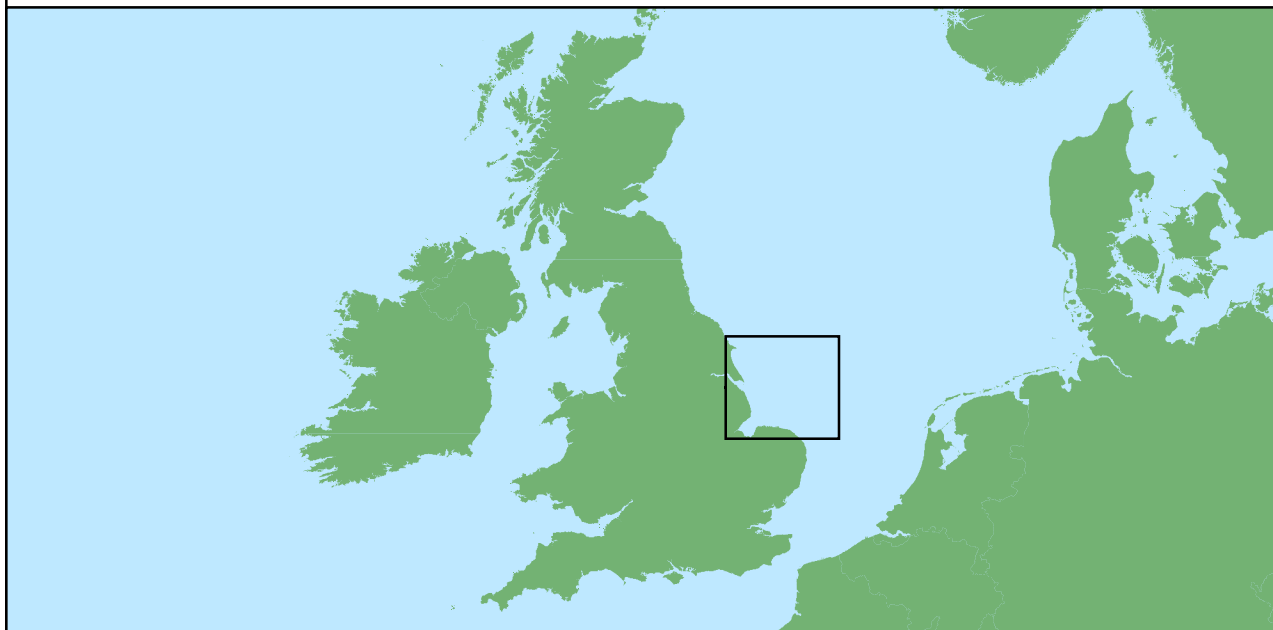
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Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM + Woodland (15m Ht)	Surface features:	Included
DTM resolution:	10m	Earth curvature:	Included

### Legend

- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - Array Area
  - Offshore Export Cable Corridor (ECC)
  - Offshore Reactive Compensation Platform (ORCP) Area
  - Offshore Restricted Build Area
  - 10km Radii
  - 60km Study Area
  - Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - County Boundary
  - District / Unitary Authority Boundary
  - Woodland
- Screening Blade Tip ZTV
- No of Blade Tips Theoretically Visible
- |  |         |
|--|---------|
|  | 1 - 10  |
|  | 11 - 20 |
|  | 21 - 30 |
|  | 31 - 40 |
|  | 41 - 50 |



Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

Scale: 1:300,000 A1 Page Size

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

OFZ and ECC Amendment Report

Array Area Blade Tip ZTV with Surface Feature Screening (A1)

Figure 11.6

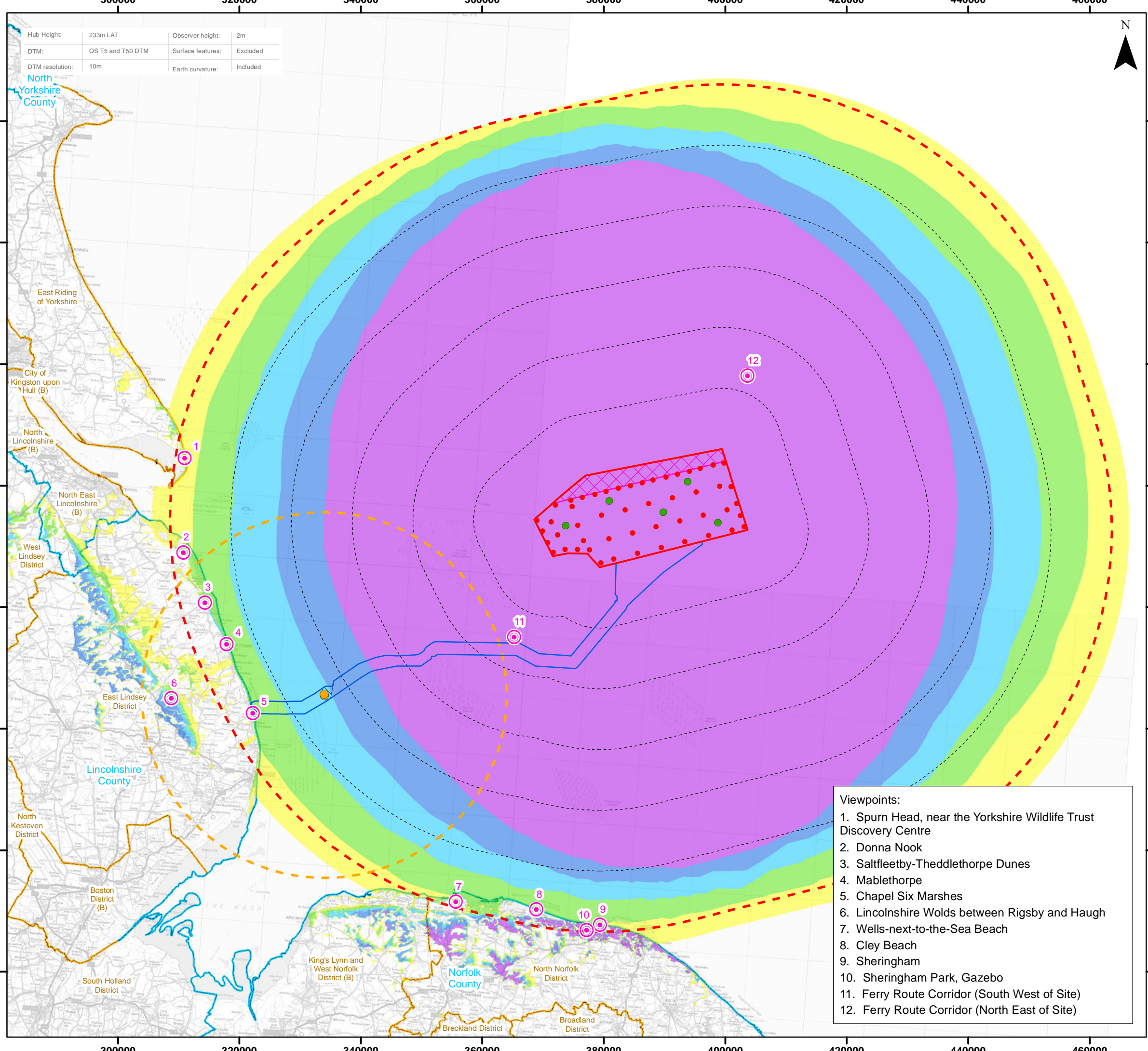


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 Revision: v0.1

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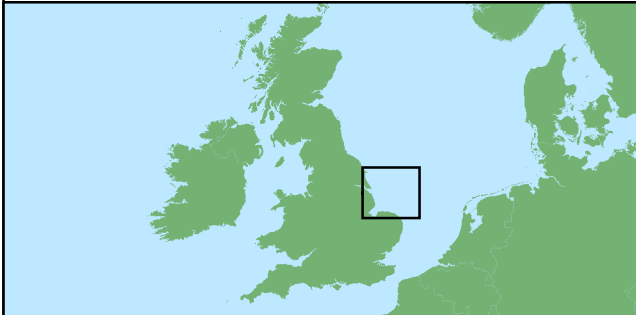


Hub Height:	233m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included



### Legend

- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - Array Area
  - Offshore Export Cable Corridor (ECC)
  - Offshore Reactive Compensation Platform (ORCP) Area
  - Offshore Restricted Build Area
  - 10km Radii
  - 60km Study Area
  - Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - County Boundary
  - District / Unitary Authority Boundary
- Hub Height ZTV
- No of Hubs Theoretically Visible
- 1 - 10
  - 11 - 20
  - 21 - 30
  - 31 - 40
  - 41 - 50



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km

Scale: 1:600,000

A3 Page Size

OFZ and ECC Amendment Report

Array Area Hub Height ZTV (Maximum Hub Height) (A3)

Figure 11.7

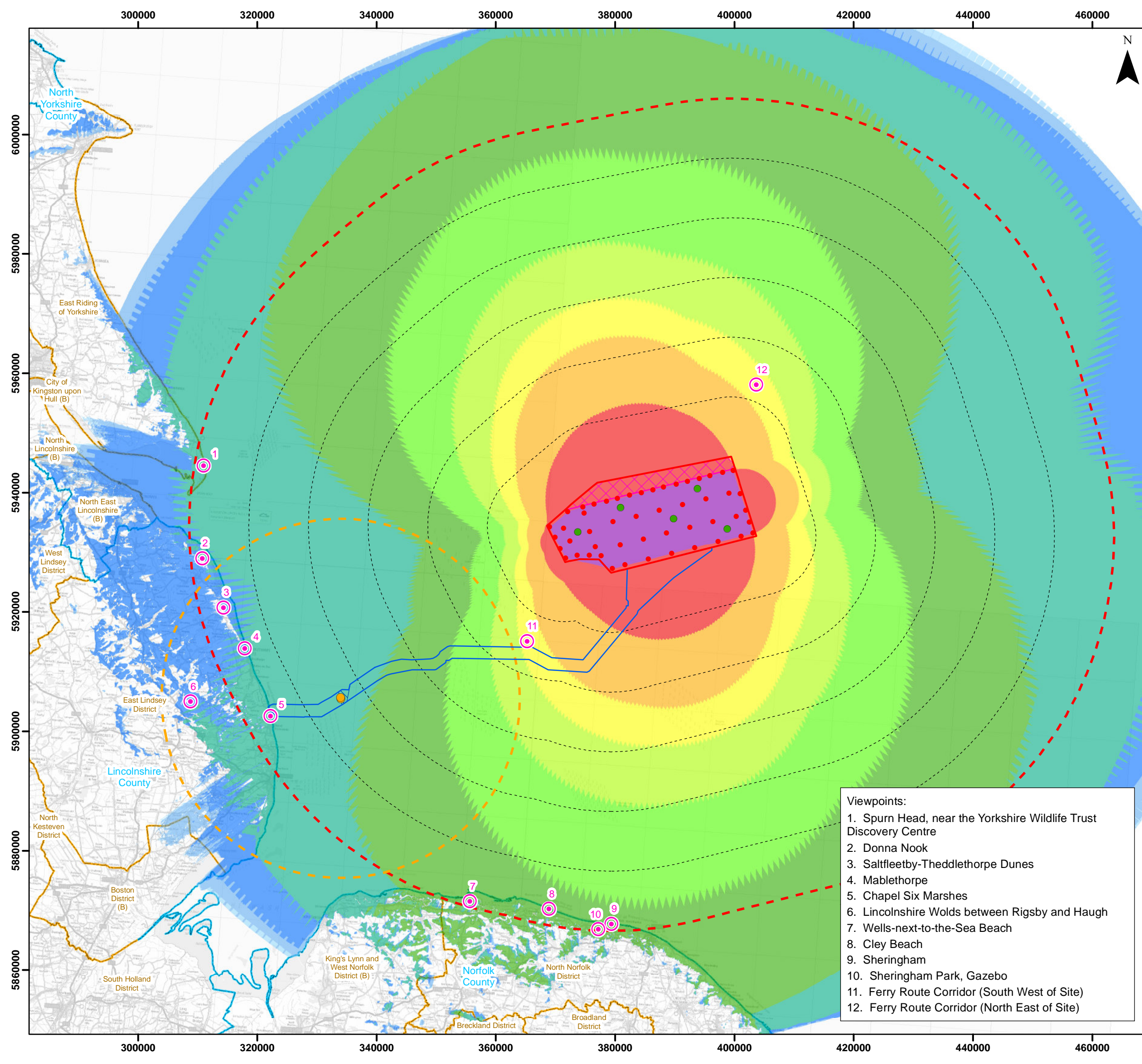


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 Produced By: OPEN  
 Revision: v0.1

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- Viewpoints:
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)



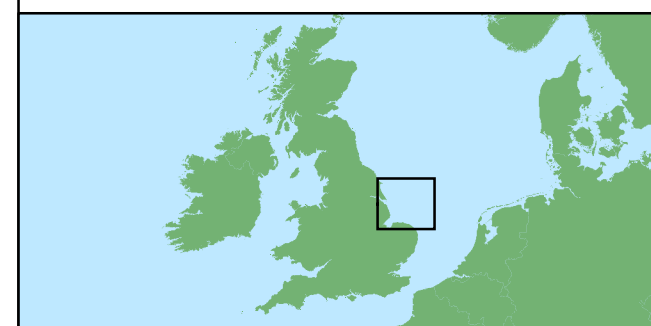


### Legend

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- ▭ Array Area
- ▭ Offshore Export Cable Corridor (ECC)
- ▭ Offshore Reactive Compensation Platform (ORCP) Area
- ▭ Offshore Restricted Build Area
- ⋯ 10km Radii
- ⋯ 60km Study Area
- ⋯ Offshore Reactive Compensation Platform (ORCP) Study Area - South
- ▭ County Boundary
- ▭ District / Unitary Authority Boundary

**HZTV (Angle in Degrees)**

0
0 - 1
1 - 5
5 - 10
10 - 20
20 - 30
30 - 40
40 - 50
50 - 60
60 - 90
90 - 180
180 - 360



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 15 20 km  
 Scale: 1:600,000  
 A3 Page Size

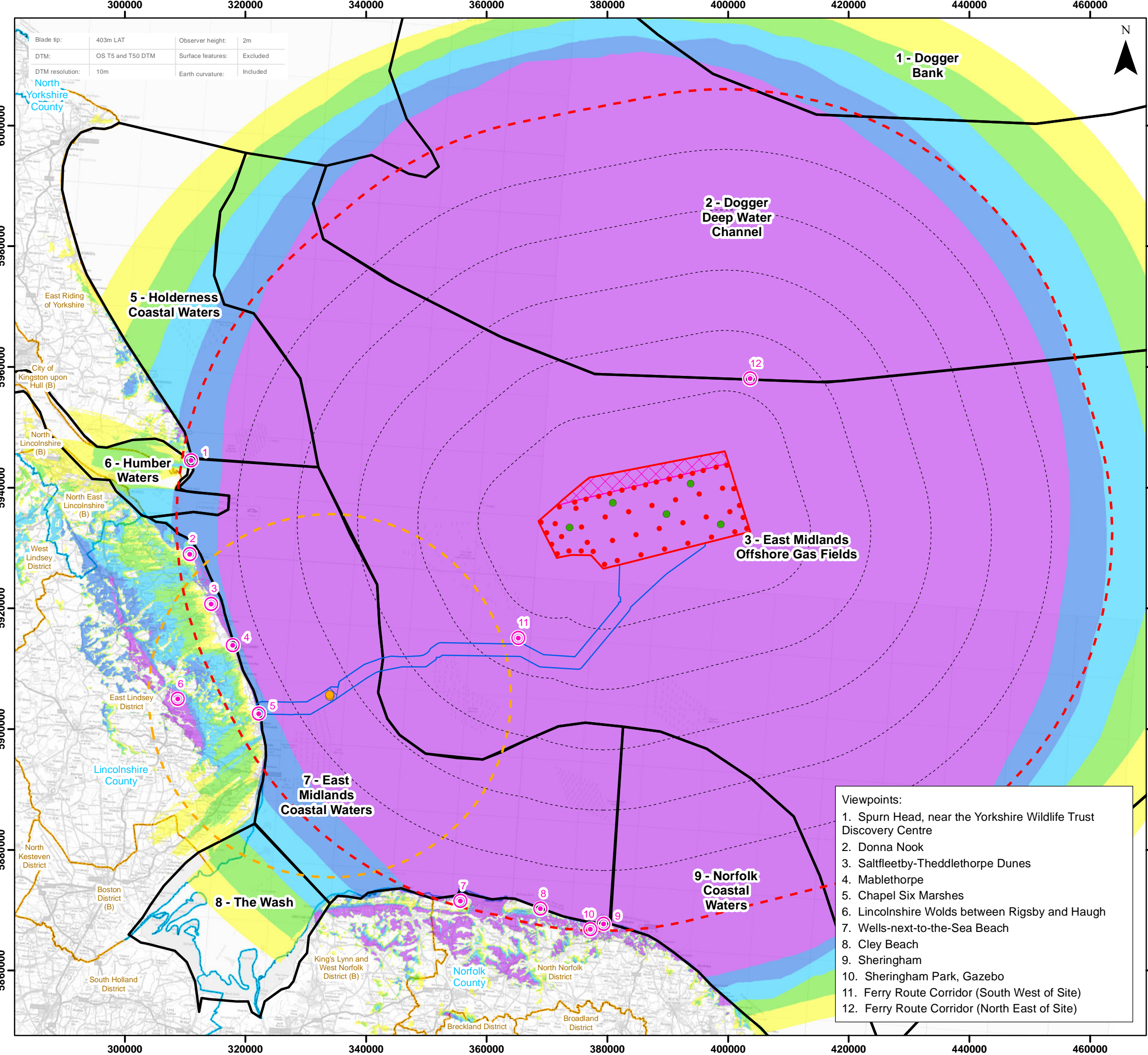
- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

OFZ and ECC Amendment Report  
 Array Area Horizontal Angle ZTV (Maximum Height) (A3)  
 Figure 11.8

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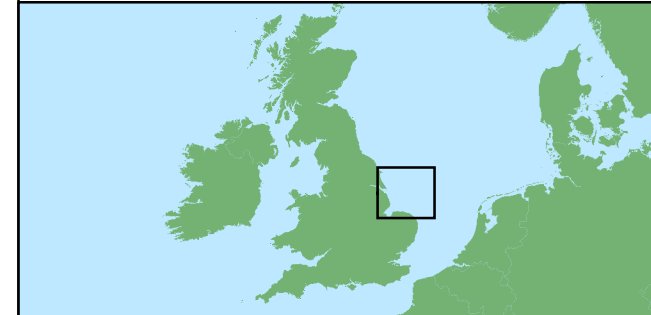
### Legend

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- ▭ Array Area
- ▭ Offshore Export Cable Corridor (ECC)
- ▭ Offshore Reactive Compensation Platform (ORCP) Area
- ▭ Offshore Restricted Build Area
- ⋯ 10km Radii
- ⋯ 60km Study Area
- ⋯ Offshore Reactive Compensation Platform (ORCP) Study Area - South
- ▭ County Boundary
- ▭ District / Unitary Authority Boundary
- ▭ Seascape Character Area

#### Blade Tip ZTV

No of Blade Tips Theoretically Visible

1 - 10	11 - 20	21 - 30	31 - 40	41 - 50
--------	---------	---------	---------	---------



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km

Scale: 1:600,000

A3 Page Size

OFZ and ECC Amendment Report

Array Area Blade Tip ZTV with Seascape Character)

Figure 11.9

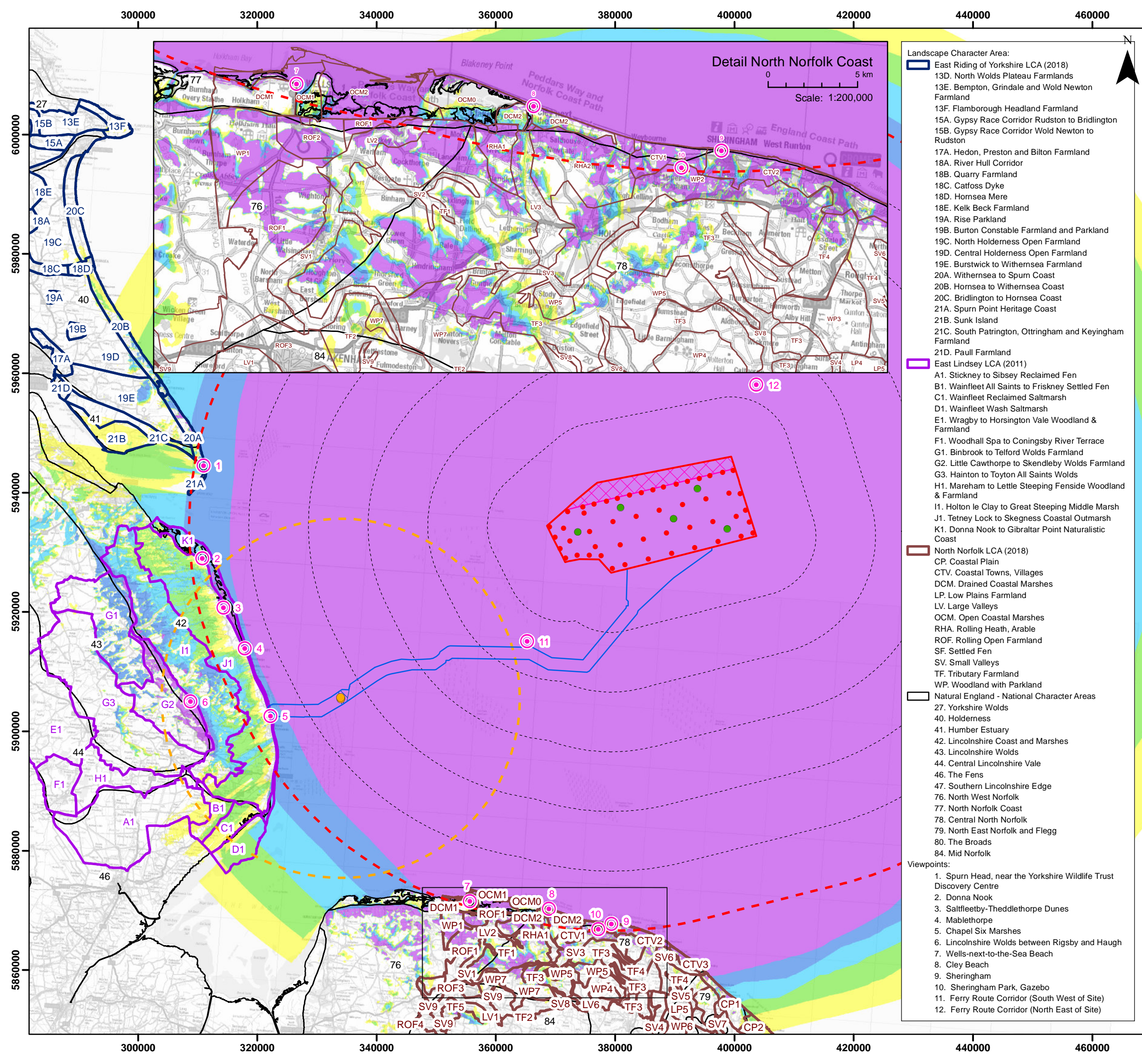
- #### Viewpoints:
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

Date: 28/08/2024  
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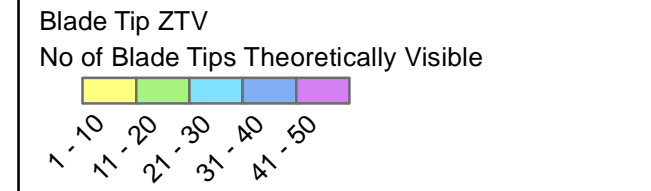
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- ### Legend
- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - ▭ Array Area
  - ▭ Offshore Export Cable Corridor (ECC)
  - ▭ Offshore Reactive Compensation Platform (ORCP) Area
  - ▭ Offshore Restricted Build Area
  - ⋯ 10km Radii
  - ⋯ 60km Study Area
  - ▭ Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - ▭ Natural England - National Character Areas
  - ▭ East Riding of Yorkshire LCA (2018)
  - ▭ East Lindsey LCA (2011)
  - ▭ North Norfolk LCA (2018)



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km

Scale: 1:600,000 A3 Page Size

OFZ and ECC Amendment Report

Array Area Blade Tip ZTV with Landscape Character

Figure 11.10a

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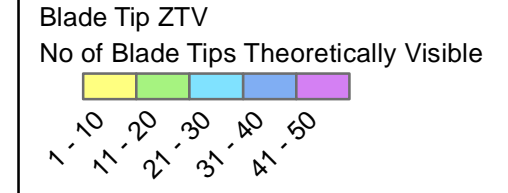
380000

400000



### Legend

- Viewpoints
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South
- Natural England - National Character Areas
- North Norfolk LCA (2018)



Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

Landscape Character Area:

- North Norfolk LCA (2018)
- CP. Coastal Plain
- CTV. Coastal Towns, Villages
- DCM. Drained Coastal Marshes
- LP. Low Plains Farmland
- LV. Large Valleys
- OCM. Open Coastal Marshes
- RHA. Rolling Heath, Arable
- ROF. Rolling Open Farmland
- SF. Settled Fen
- SV. Small Valleys
- TF. Tributary Farmland
- WP. Woodland with Parkland
- Natural England - National Character Areas
- 76. North West Norfolk
- 77. North Norfolk Coast
- 78. Central North Norfolk
- 79. North East Norfolk and Flegg
- 80. The Broads
- 84. Mid Norfolk

Viewpoints:

- 7. Wells-next-to-the-Sea Beach
- 8. Cley Beach
- 9. Sheringham
- 10. Sheringham Park, Gazebo

5880000

5880000

5860000

5860000

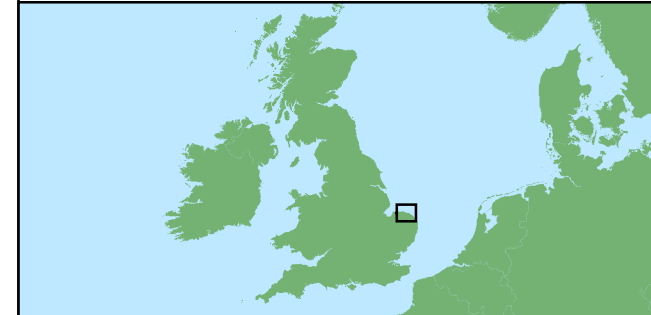
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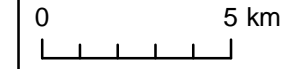
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Coordinate System: WGS 1984 UTM Zone 31N



Scale: 1:200,000 A3 Page Size

OFZ and ECC Amendment Report

Array Area Blade Tip ZTV with Landscape Character

Figure 11.10b

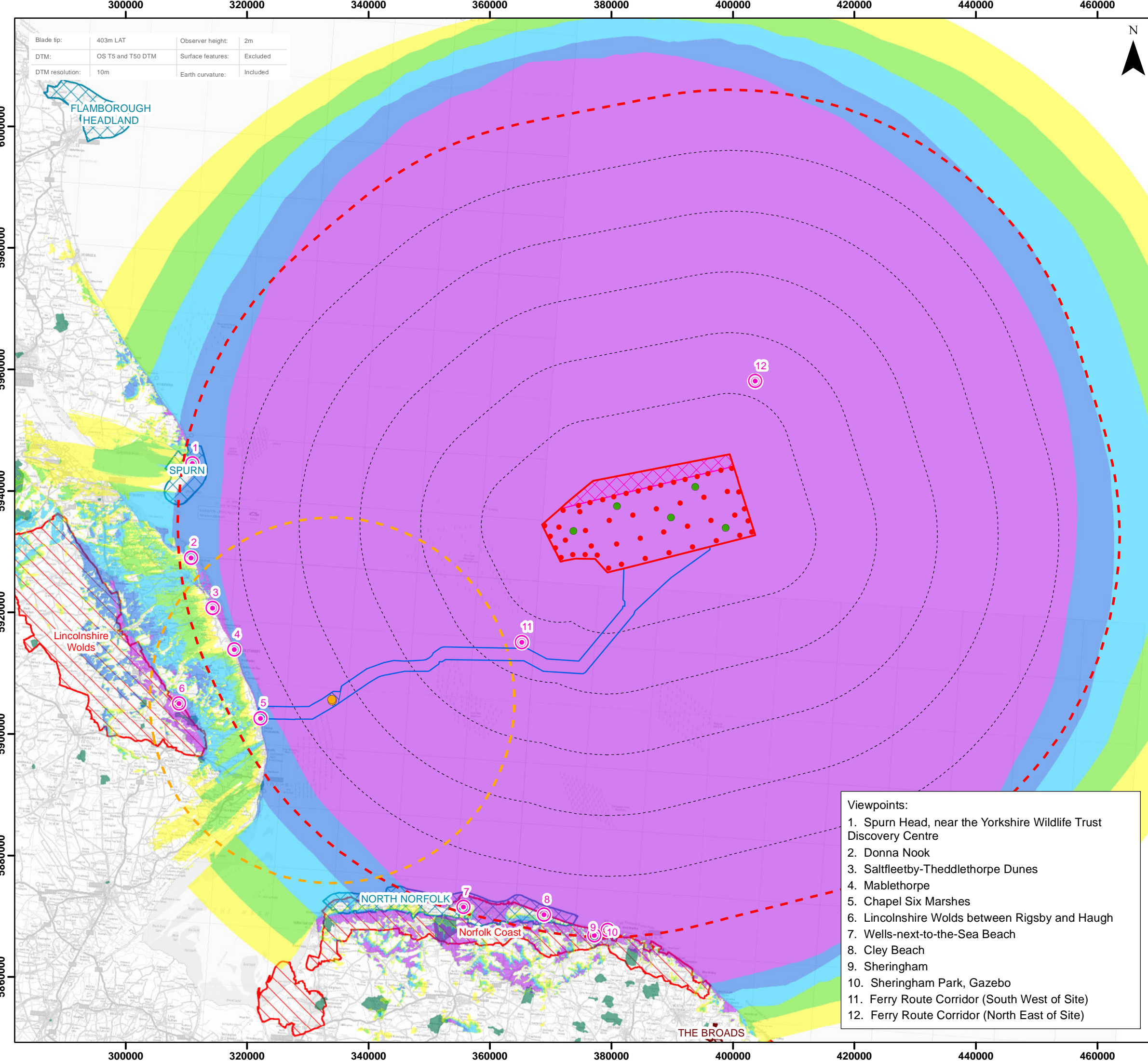


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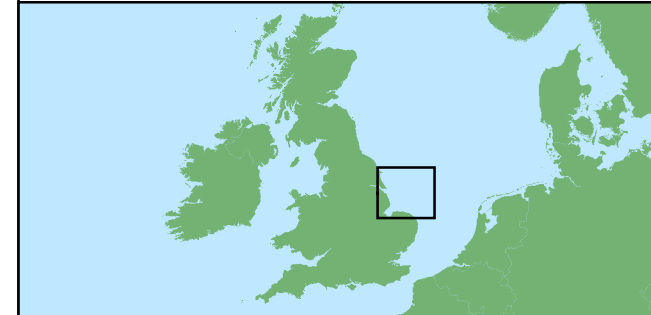
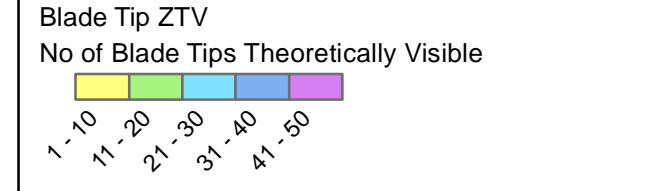
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Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

- ### Legend
- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - ▭ Array Area
  - ▭ Offshore Export Cable Corridor (ECC)
  - ▭ Offshore Reactive Compensation Platform (ORCP) Area
  - ▭ Offshore Restricted Build Area
  - ▭ Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - ▭ National Parks
  - ⋯ 10km Radii
  - ⋯ 60km Study Area
  - ▭ Heritage Coast
  - ▭ Parks and Gardens
  - ▭ Areas of Outstanding Natural Beauty



- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

Coordinate System: WGS 1984 UTM Zone 31N  
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 Scale: 1:600,000  
 A3 Page Size

OFZ and ECC Amendment Report  
 Array Area Blade Tip ZTV  
 with Landscape Designations  
 Figure 11.11

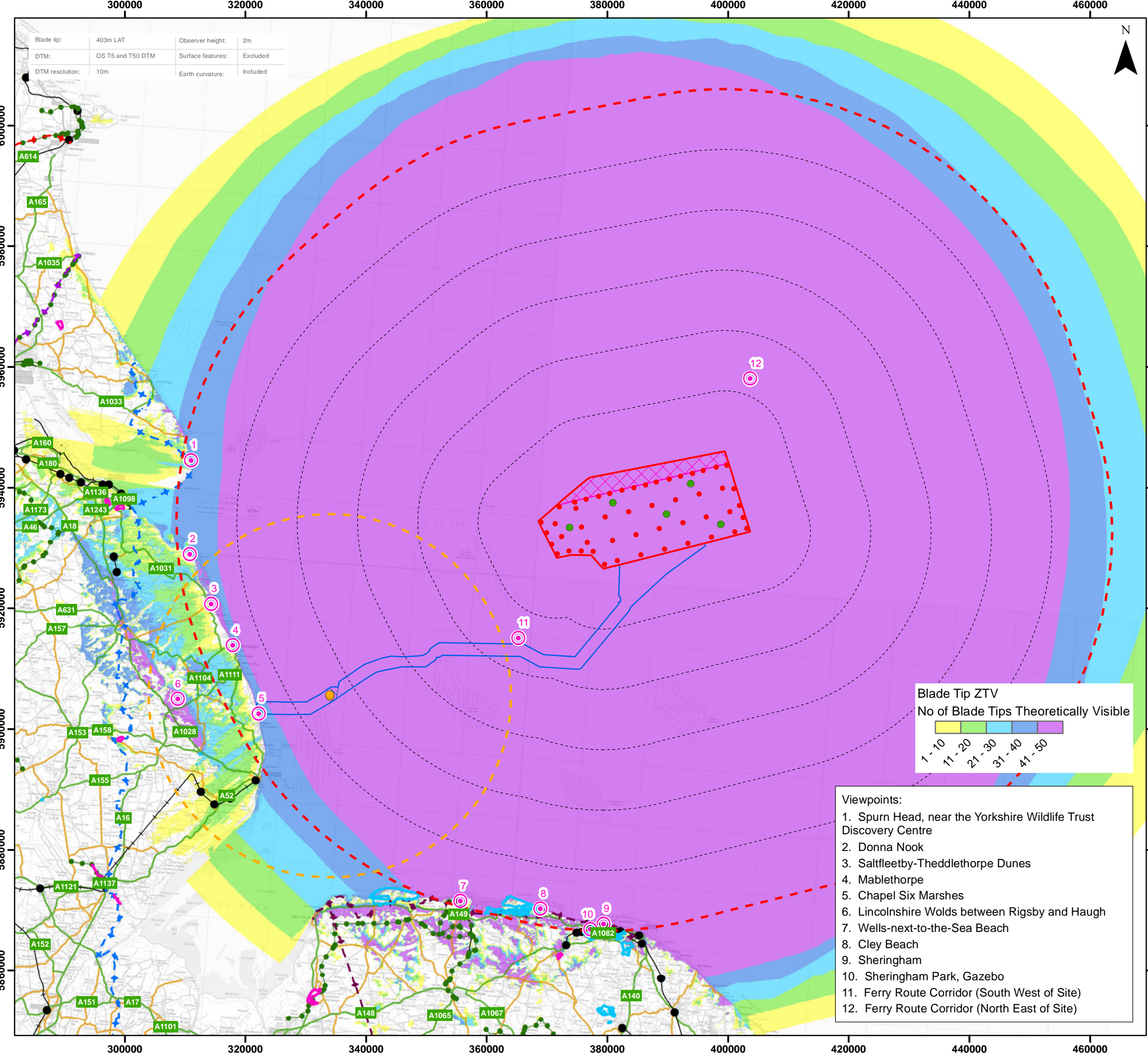


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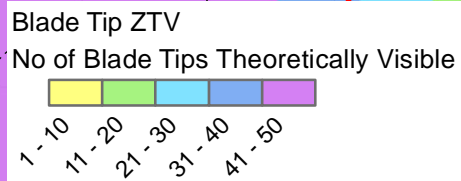
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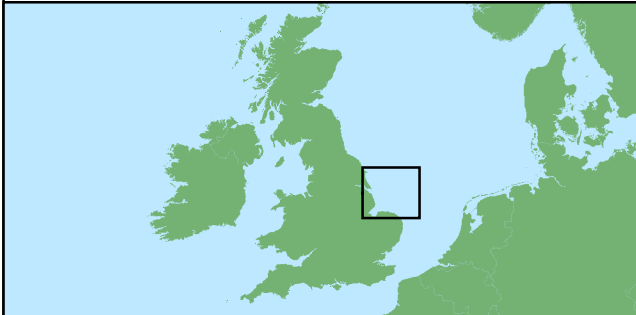


Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included



- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

- Legend**
- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - Array Area
  - Offshore Export Cable Corridor (ECC)
  - Offshore Reactive Compensation Platform (ORCP) Area
  - Offshore Restricted Build Area
  - 10km Radii
  - 60km Study Area
  - Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - Country Parks
  - National Trust Estate
  - Long Distance Walks
    - Aerospace Way
    - Greenwich Meridian Trail
    - Peddars Way And Norfolk Coast Path
    - Trans Pennine Trail
  - National Cycle Network
  - Railway Station
  - Railway Track
  - A Road
  - B Road



Coordinate System: WGS 1984 UTM Zone 31N  
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 Scale: 1:600,000  
 A3 Page Size

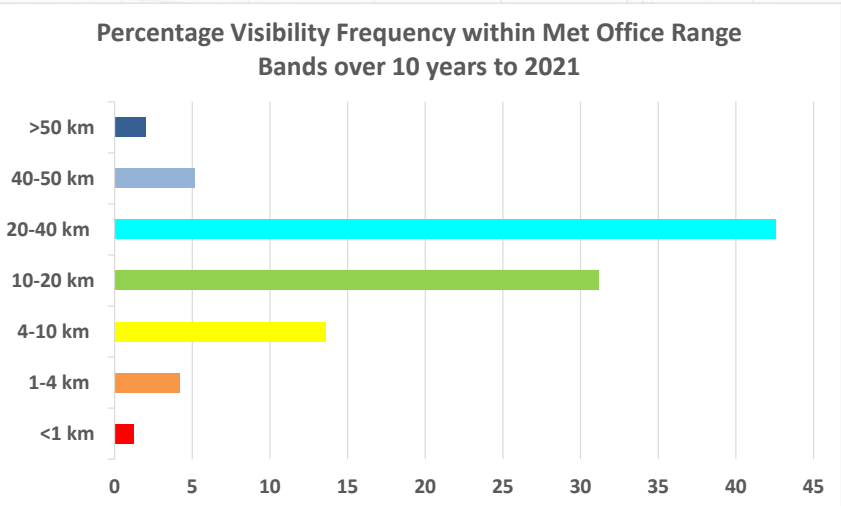
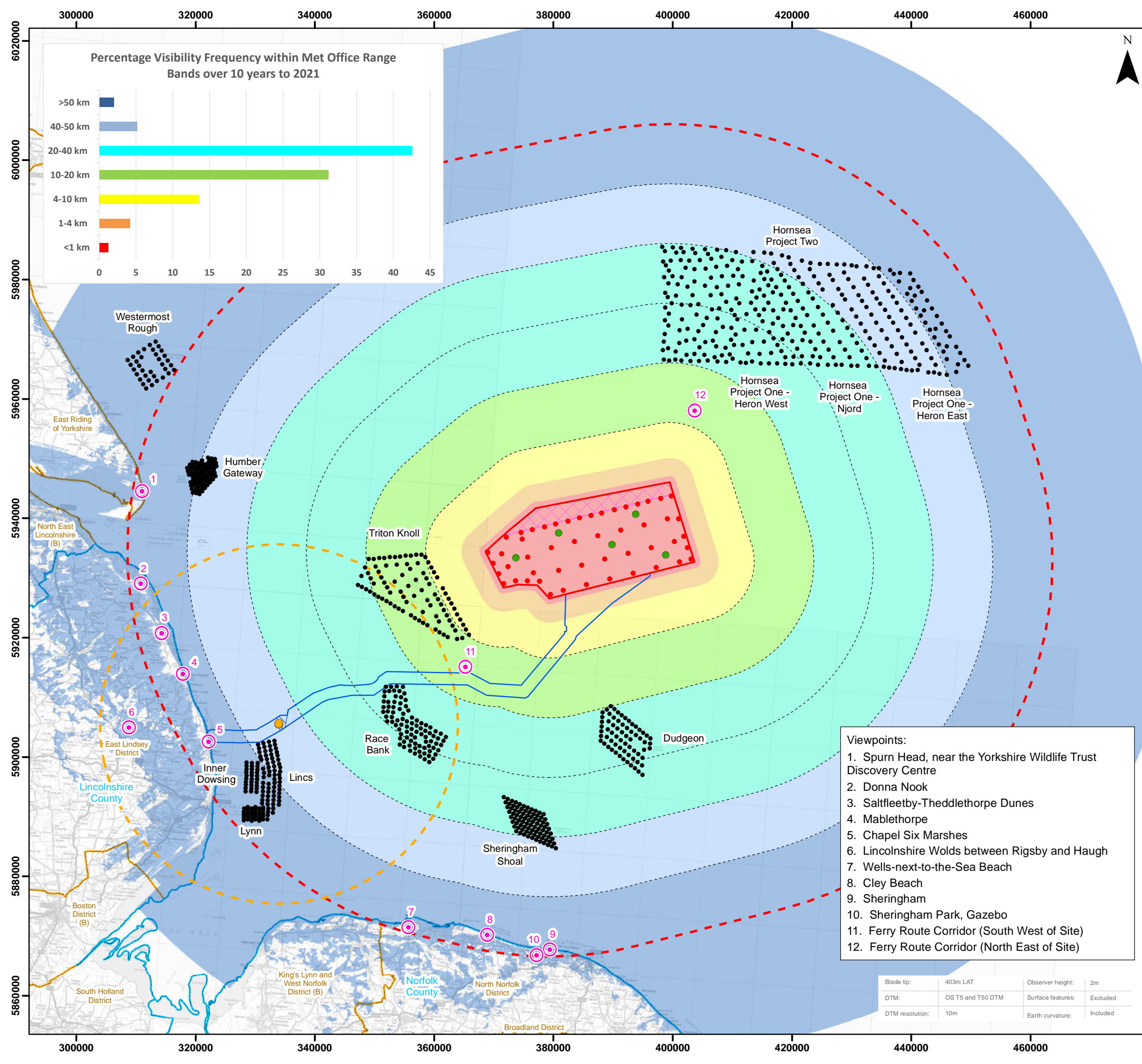
OFZ and ECC Amendment Report  
 Array Area Blade Tip ZTV with Visual Receptors  
 Figure 11.12



Date: 28/08/2024  
 Produced By: OPEN  
 Revision: v0.1

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 National Cycle Route data supplied by Sustrans contains Ordnance Survey data © Crown copyright and database rights (2024).

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### Legend

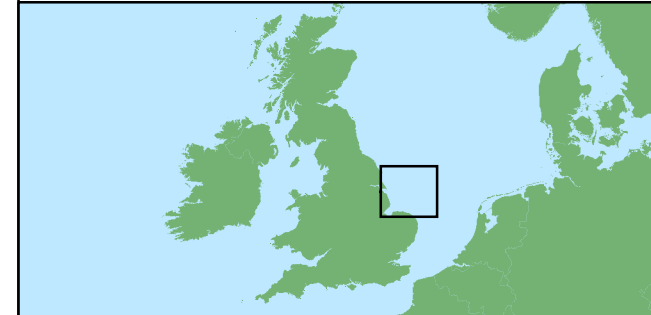
- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South
- County Boundary
- District / Unitary Authority Boundary

**Cumulative Wind Farm Status:**

- Operational

**Met Office Visibility Range**

- < 1km Very Poor Visibility
- 1 - 4km Poor Visibility
- 4 - 10km Moderate Visibility
- 10 - 20km Good Visibility
- 20 - 40km Very Good Visibility
- 40 - 50km Excellent Visibility
- > 50km Excellent Visibility



- Viewpoints:**
- Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  - Donna Nook
  - Saltfleetby-Theddlethorpe Dunes
  - Mablethorpe
  - Chapel Six Marshes
  - Lincolnshire Wolds between Rigsby and Haugh
  - Wells-next-to-the-Sea Beach
  - Cley Beach
  - Sheringham
  - Sheringham Park, Gazebo
  - Ferry Route Corridor (South West of Site)
  - Ferry Route Corridor (North East of Site)

Blade tip:	403m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included

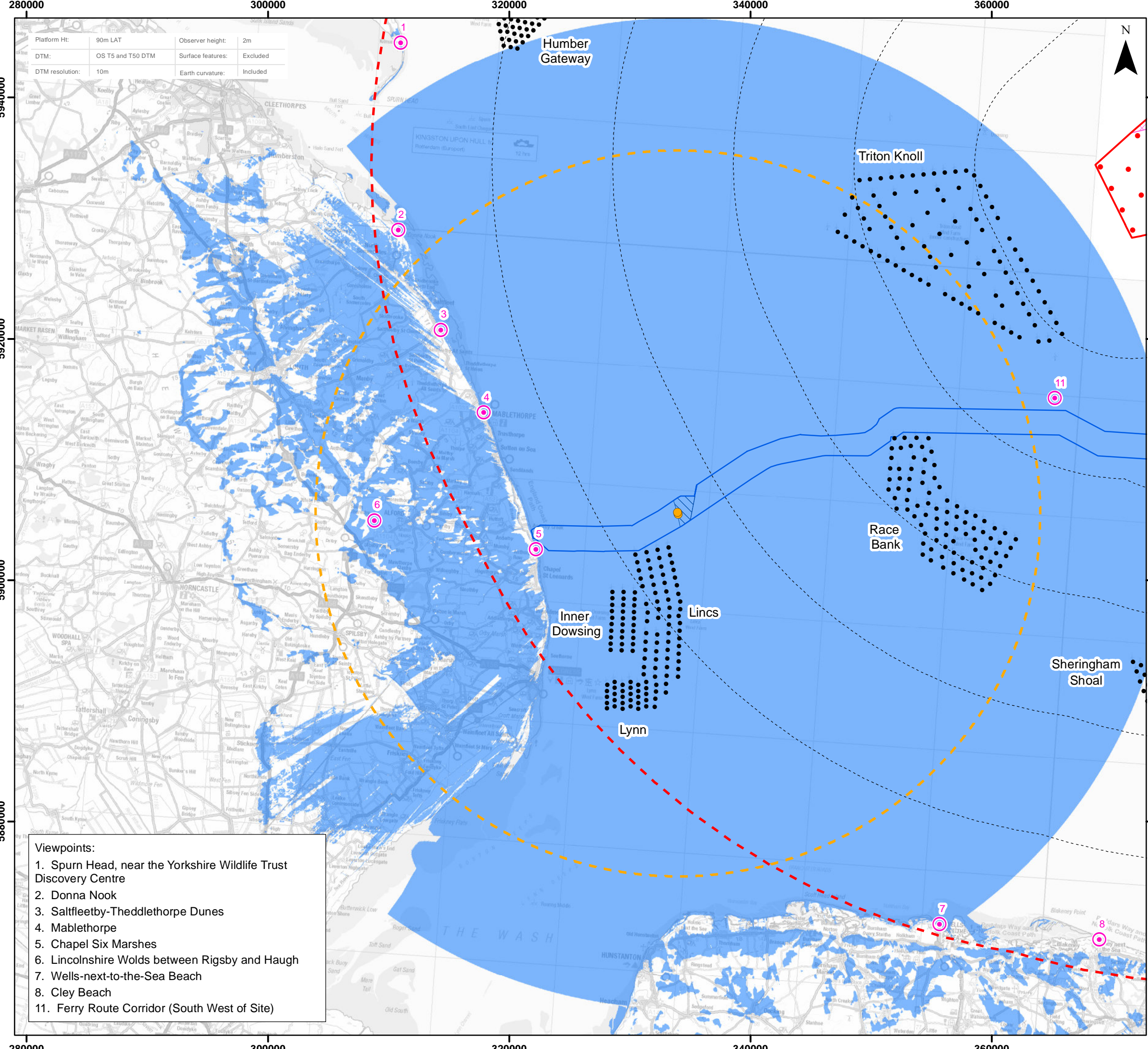
Coordinate System: WGS 1984 UTM Zone 31N  
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 Scale: 1:600,000  
 A3 Page Size

OFZ and ECC Amendment Report  
 Array Area Blade Tip ZTV with Visibility Range  
 Figure 11.13

Date: 28/08/2024  
 Produced By: OPEN  
 Revision: v0.1

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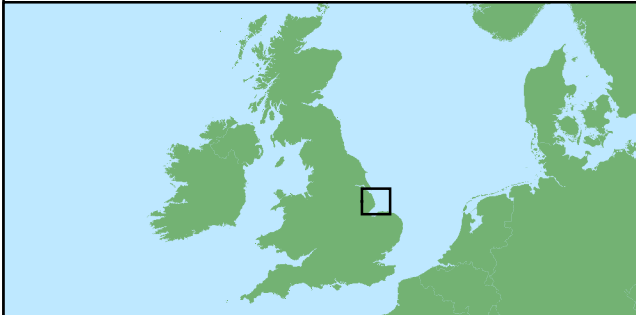
- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  11. Ferry Route Corridor (South West of Site)

**Legend**

- Indicative Layout
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- ▭ Array Area
- ▭ Offshore Export Cable Corridor (ECC)
- ▨ Offshore Reactive Compensation Platform (ORCP) Area
- ▨ Offshore Restricted Build Area
- ⋯ 10km Radii
- ⋯ 60km Study Area
- ⋯ Offshore Reactive Compensation Platform (ORCP) Study Area - South

**Cumulative Wind Farm Status:**

- Operational
- ▭ ORCPs Theoretically Visible



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 km  
 Scale: 1:300,000  
 A3 Page Size

OFZ and ECC Amendment Report  
 Offshore Reactive Compensation Platforms (ORCPs) ZTV  
 Figure 11.14



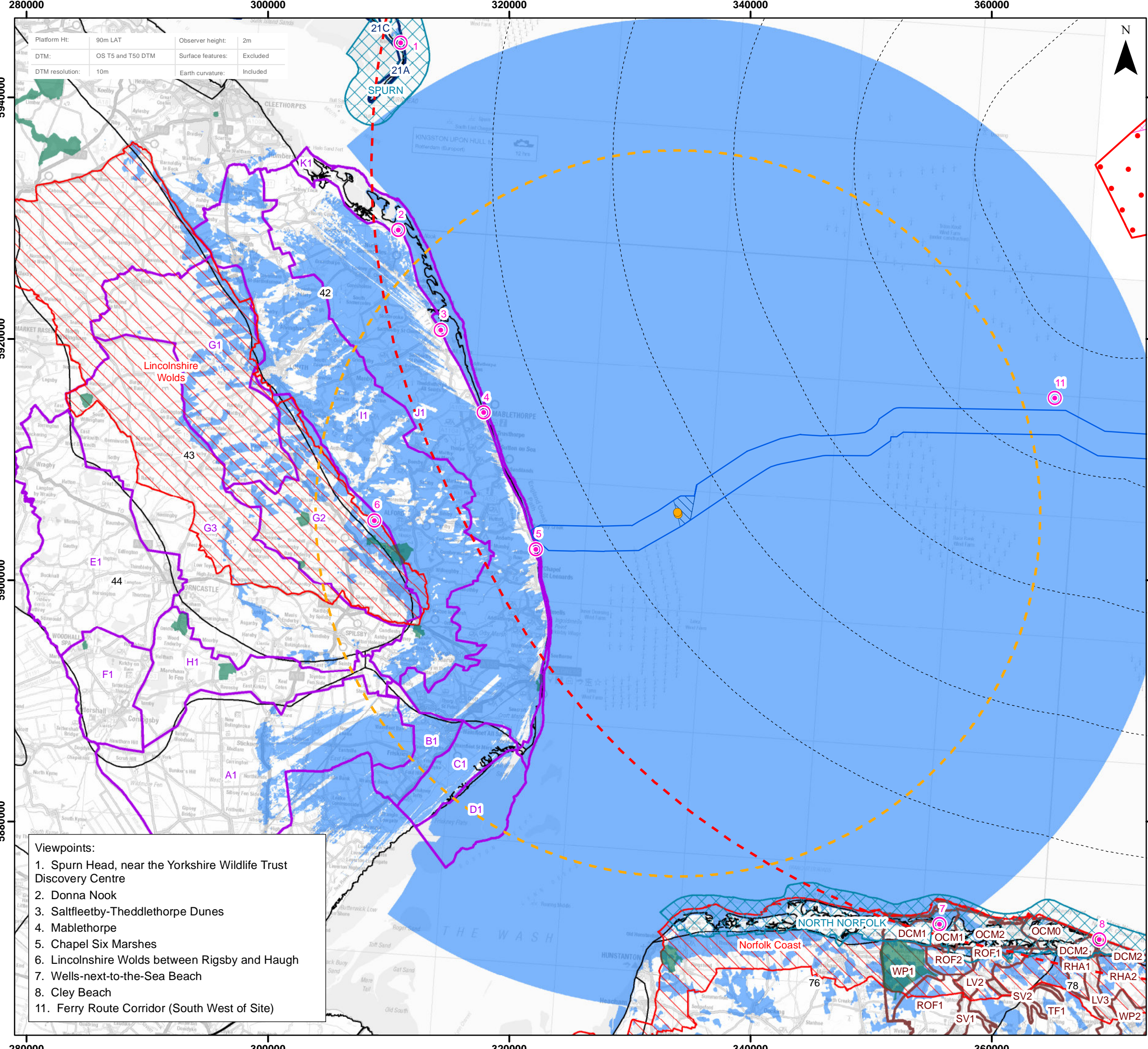
Date: 28/08/2024  
 Produced By: OPEN  
 Revision: v0.1

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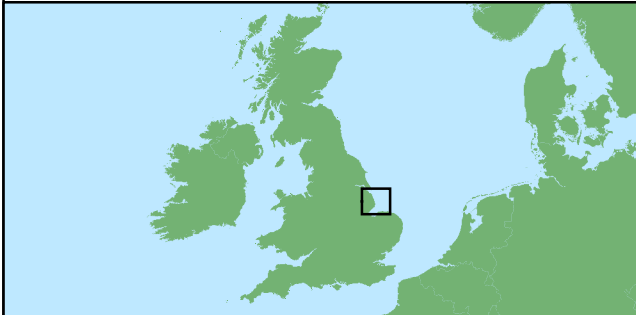




- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  11. Ferry Route Corridor (South West of Site)

**Legend**

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South
- National Parks
- Heritage Coast
- Parks and Gardens
- Areas of Outstanding Natural Beauty
- East Riding of Yorkshire LCA (2018)
- East Lindsey LCA (2011)
- North Norfolk LCA (2018)
- Natural England - National Character Areas
- ORCPs ZTV
- ORCPs No Theoretical Visibility
- ORCPs Theoretically Visible



Coordinate System: WGS 1984 UTM Zone 31N  
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 Scale: 1:300,000  
 A3 Page Size

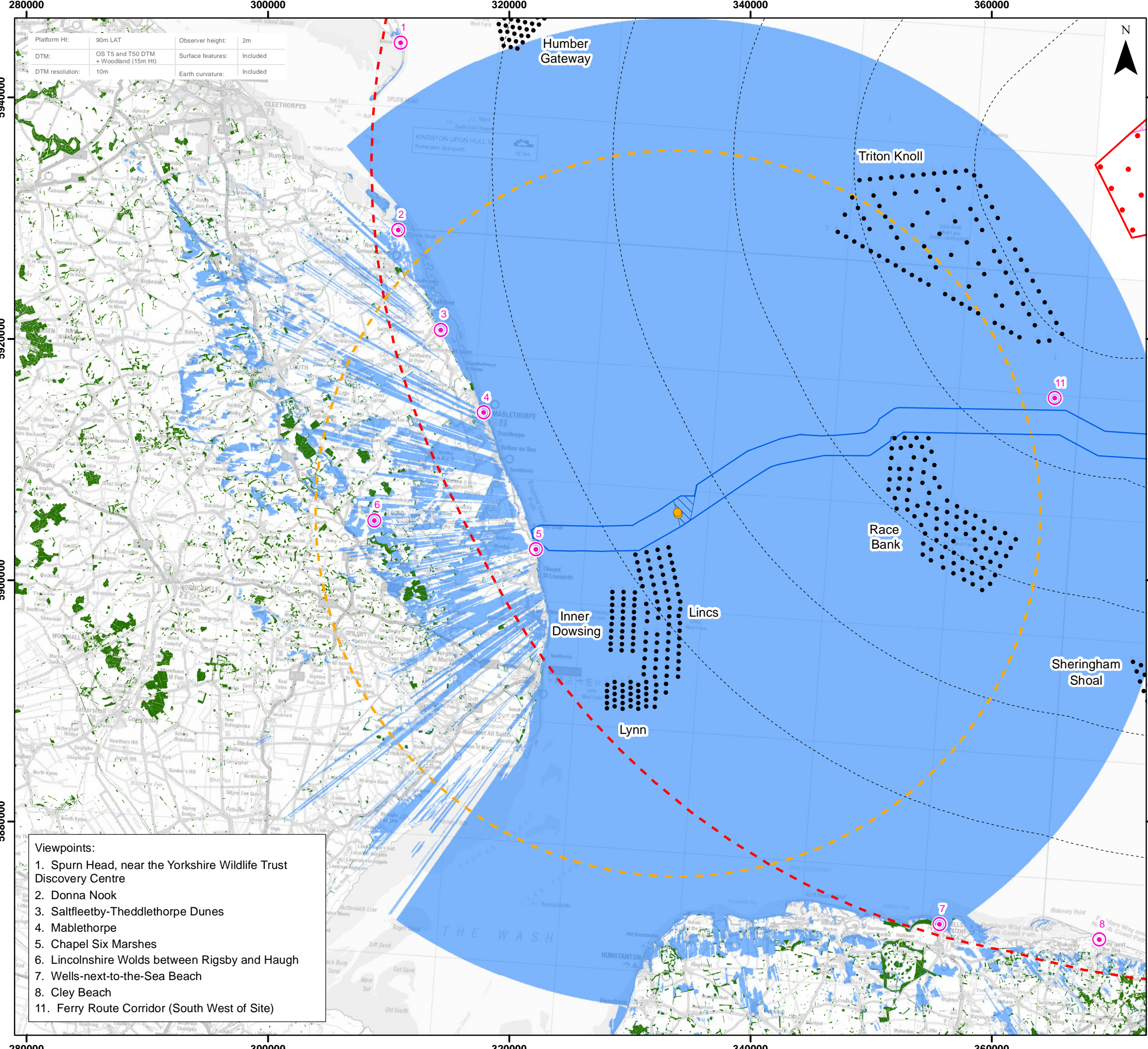
OFZ and ECC Amendment Report  
 Offshore Reactive Compensation Platforms (ORCPs) ZTV with landscape character and designations  
 Figure 11.15



Date: 28/08/2024  
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Platform Ht:	90m LAT	Observer height:	2m
DTM:	OS T5 and T50 DTM + Woodland (15m HI)	Surface features:	Included
DTM resolution:	10m	Earth curvature:	Included

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  11. Ferry Route Corridor (South West of Site)

### Legend

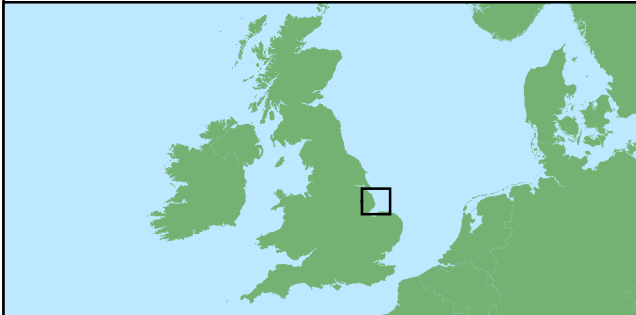
- Indicative Layout
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South

**Cumulative Wind Farm Status:**

- Operational
- Woodland

**ORCPs Screening ZTV**

- ORCPs No Theoretical Visibility
- ORCPs Theoretically Visible



Coordinate System: WGS 1984 UTM Zone 31N  
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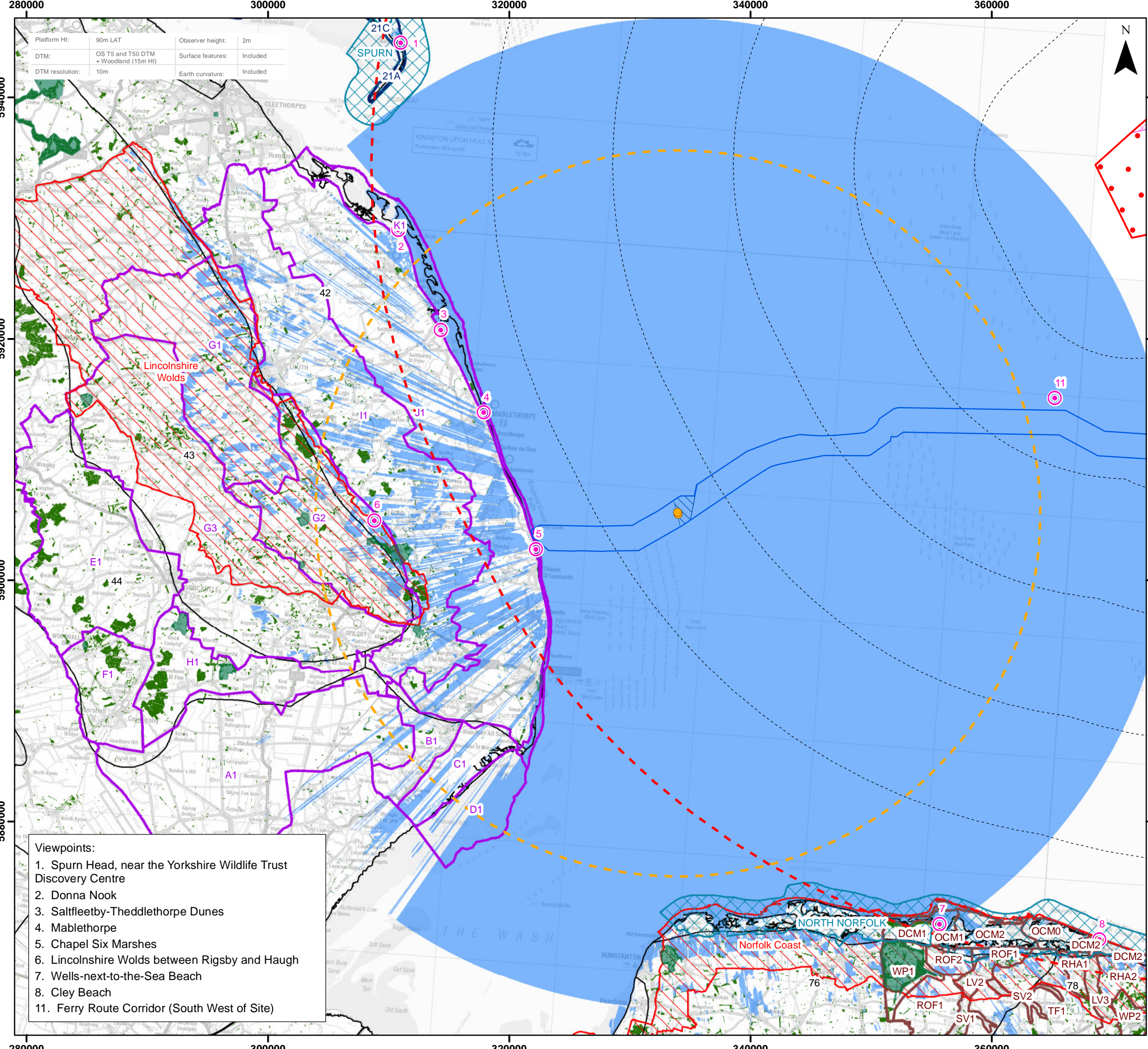
OFZ and ECC Amendment Report  
 Offshore Reactive Compensation Platforms (ORCPs) ZTV with Surface Feature Screening  
 Figure 11.16

Date: 28/08/2024  
 Produced By: OPEN  
 Revision: v0.1

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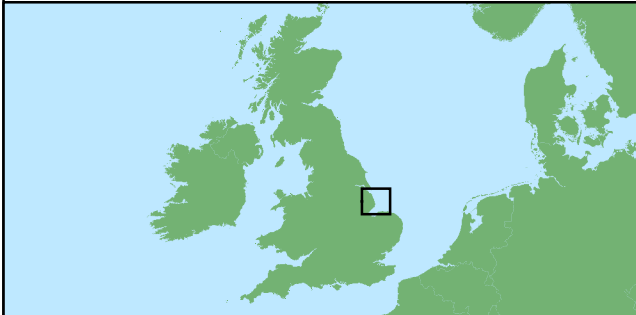
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- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  11. Ferry Route Corridor (South West of Site)

- Legend**
- Indicative Layout
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - Array Area
  - Offshore Export Cable Corridor (ECC)
  - Offshore Reactive Compensation Platform (ORCP) Area
  - Offshore Restricted Build Area
  - 10km Radii
  - 60km Study Area
  - Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - National Parks
  - Heritage Coast
  - Parks and Gardens
  - Areas of Outstanding Natural Beauty
  - East Riding of Yorkshire LCA (2018)
  - East Lindsey LCA (2011)
  - North Norfolk LCA (2018)
  - Natural England - National Character Areas
  - Woodland
  - ORCPs Screening ZTV
    - ORCPs No Theoretical Visibility
    - ORCPs Theoretically Visible



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 km  
 Scale: 1:300,000  
 A3 Page Size

OFZ and ECC Amendment Report  
 Offshore Reactive Compensation Platforms (ORCPs) ZTV with Surface Feature Screening and landscape character and designations  
 Figure 11.17

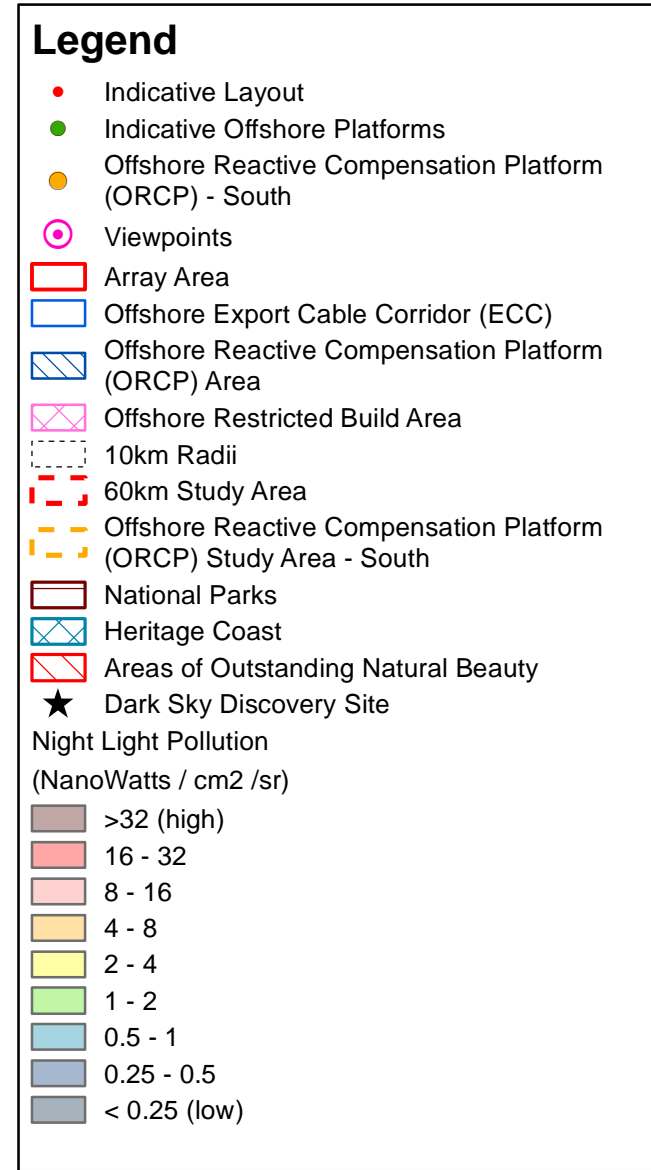


Date: 28/08/2024  
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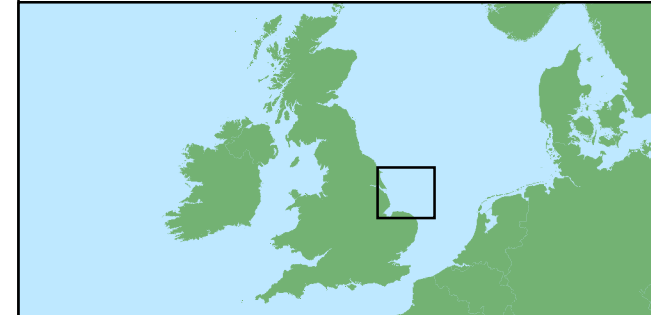


**Dark Sky Discovery Sites:**

1. RSPB Tichwell Marsh Nature Reserve
2. Barrow Common
3. Wiveton Downs Site of Special Scientific Interest (SSSI)
4. Kelling Heath Holiday Park - Sports Field

- Legend**
- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Viewpoints
  - ▭ Array Area
  - ▭ Offshore Export Cable Corridor (ECC)
  - ▭ Offshore Reactive Compensation Platform (ORCP) Area
  - ▭ Offshore Restricted Build Area
  - ⋯ 10km Radii
  - ⋯ 60km Study Area
  - ⋯ Offshore Reactive Compensation Platform (ORCP) Study Area - South
  - ▭ National Parks
  - ▭ Heritage Coast
  - ▭ Areas of Outstanding Natural Beauty
  - ★ Dark Sky Discovery Site
- Night Light Pollution**  
(NanoWatts / cm<sup>2</sup> / sr)
- >32 (high)
  - 16 - 32
  - 8 - 16
  - 4 - 8
  - 2 - 4
  - 1 - 2
  - 0.5 - 1
  - 0.25 - 0.5
  - < 0.25 (low)

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)



Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km

**Scale: 1:600,000** A3 Page Size

OFZ and ECC Amendment Report

Baseline Lighting

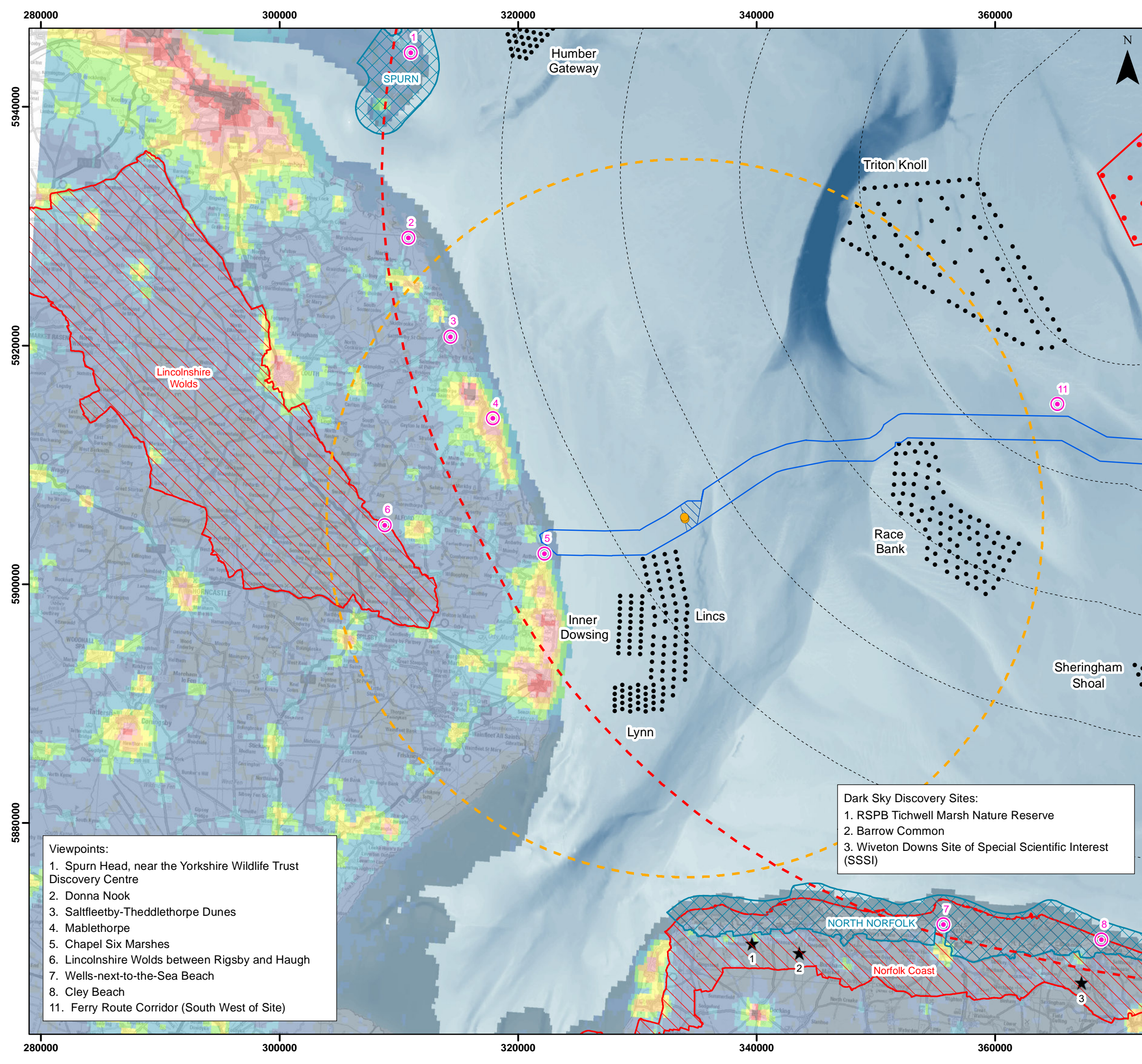
Figure 11.18

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Document Path: P:\2021\211613\_OuterDowsing\GIS\211613\_GTR4\OFZ and ECC Amend Report\OFFSHORE\03366\_0001\2\_1096\_0\_ODOW\_OFZ\_Rep\_SLVIA\_Fig11-18\_Baseline\_Lighting.mxd



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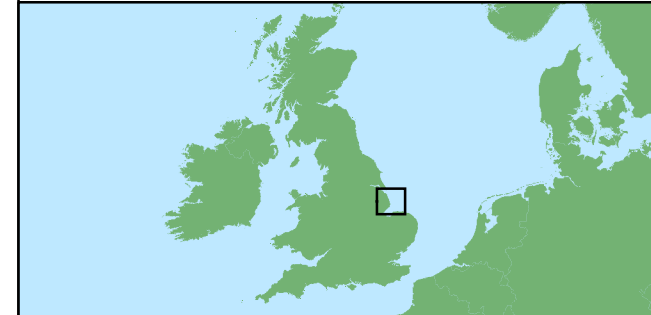
- Indicative Layout
- Offshore Reactive Compensation Platform (ORCP) - South
- ⊙ Viewpoints
- ▭ Array Area
- ▭ Offshore Export Cable Corridor (ECC)
- ▭ Offshore Reactive Compensation Platform (ORCP) Area
- ▭ Offshore Restricted Build Area
- - - 10km Radii
- - - 60km Study Area
- - - Offshore Reactive Compensation Platform (ORCP) Study Area - South
- ▭ Heritage Coast
- ▭ Areas of Outstanding Natural Beauty

Cumulative Wind Farm Status:

- Operational
- ★ Dark Sky Discovery Site

Night Light Pollution  
(NanoWatts / cm<sup>2</sup> / sr)

- >32 (high)
- 16 - 32
- 8 - 16
- 4 - 8
- 2 - 4
- 1 - 2
- 0.5 - 1
- 0.25 - 0.5
- < 0.25 (low)



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 km  
 Scale: 1:300,000 A3 Page Size

- Viewpoints:
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  11. Ferry Route Corridor (South West of Site)

- Dark Sky Discovery Sites:
1. RSPB Tichwell Marsh Nature Reserve
  2. Barrow Common
  3. Wiveton Downs Site of Special Scientific Interest (SSSI)

OFZ and ECC Amendment Report  
 Baseline Lighting (ORCPs)  
 Figure 11.19

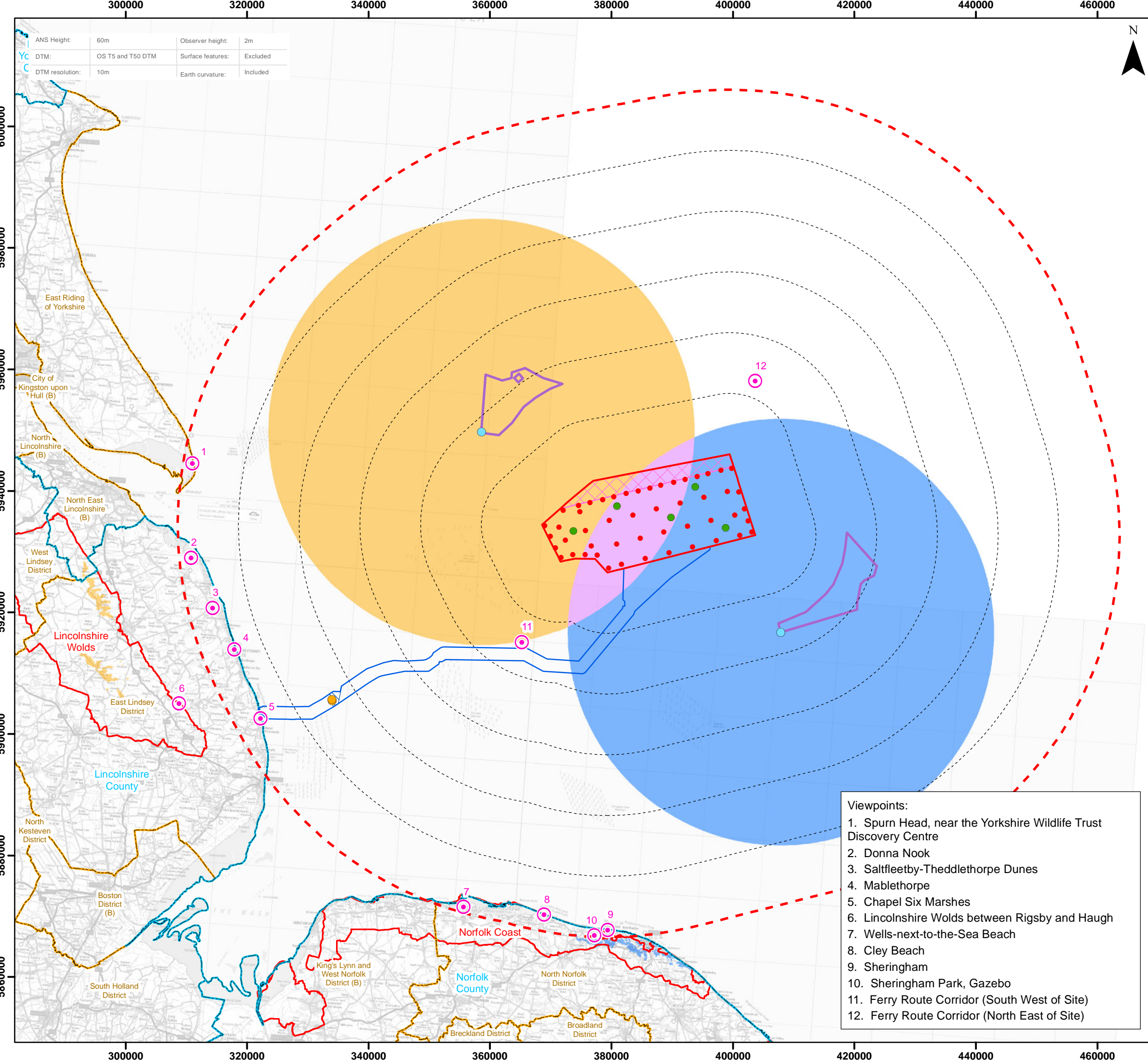


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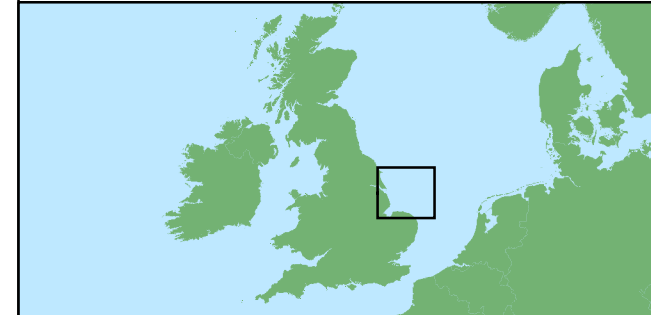
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ANS Height:	60m	Observer height:	2m
DTM:	OS T5 and T50 DTM	Surface features:	Excluded
DTM resolution:	10m	Earth curvature:	Included



- ### Legend
- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - Indicative Artificial Nesting Structure (ANS)
  - ▭ Array Area
  - ▭ Offshore Export Cable Corridor (ECC)
  - ▭ Offshore Reactive Compensation Platform (ORCP) Area
  - ▭ Offshore Restricted Build Area
  - ⋯ 10km Radii
  - ⋯ 60km Study Area
  - ▭ Artificial Nesting Structure (ANS) Area
  - ▭ County Boundary
  - ▭ District / Unitary Authority Boundary
- Cumulative Zone of Theoretical Visibility**
- ANS 1 (North) WCS Position Theoretical Visibility
  - ANS 2 (South) WCS Position Theoretical Visibility
  - Combined ANS WCS Theoretical



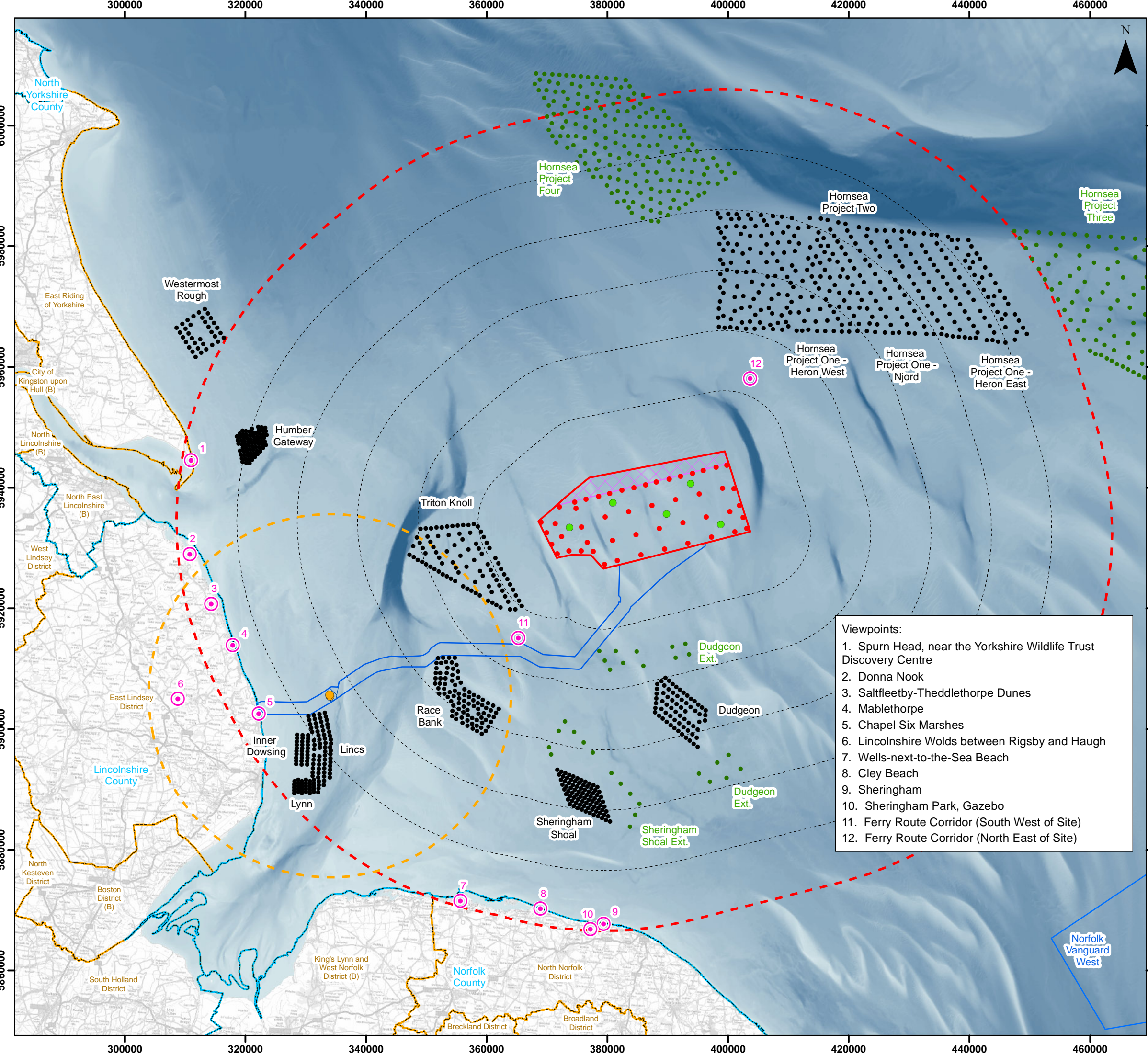
Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 15 20 km  
 Scale: 1:600,000  
 A3 Page Size

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

OFZ and ECC Amendment Report  
 Artificial Nesting Structure Search Area ZTV (WCS Position North and South) (A3)



Date: 28/08/2024  
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 Revision: v0.1



### Legend

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South

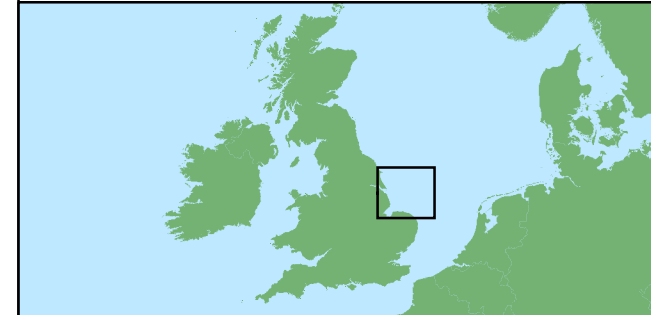
Cumulative Wind Farm Status:

- Operational
- Consented
- Appeal/Application\*
- County Boundary
- District / Unitary Authority Boundary

EMODnet DTM for European Sea Regions (m)  
High : 4.23  
Low : -98.28

\*No indicative layout available

- Viewpoints:**
- Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  - Donna Nook
  - Saltfleetby-Theddlethorpe Dunes
  - Mablethorpe
  - Chapel Six Marshes
  - Lincolnshire Wolds between Rigsby and Haugh
  - Wells-next-to-the-Sea Beach
  - Cley Beach
  - Sheringham
  - Sheringham Park, Gazebo
  - Ferry Route Corridor (South West of Site)
  - Ferry Route Corridor (North East of Site)



Coordinate System: WGS 1984 UTM Zone 31N  
0 5 10 15 20 km  
Scale: 1:600,000 A3 Page Size

OFZ and ECC Amendment Report  
Cumulative Projects  
Figure 11.21

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**Legend**

- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- Array Area
- Offshore Export Cable Corridor (ECC)
- Offshore Reactive Compensation Platform (ORCP) Area
- Offshore Restricted Build Area
- 10km Radii
- 60km Study Area
- Offshore Reactive Compensation Platform (ORCP) Study Area - South

Cumulative Wind Farm Status:

- Consented

Cumulative Zone of Theoretical Visibility

- Outer Dowsing Theoretical Visibility
- Hornsea 4 Theoretical Visibility
- Combined Theoretical Visibility

Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 15 20 km


Scale: 1:600,000

A3 Page Size

OFZ and ECC Amendment Report

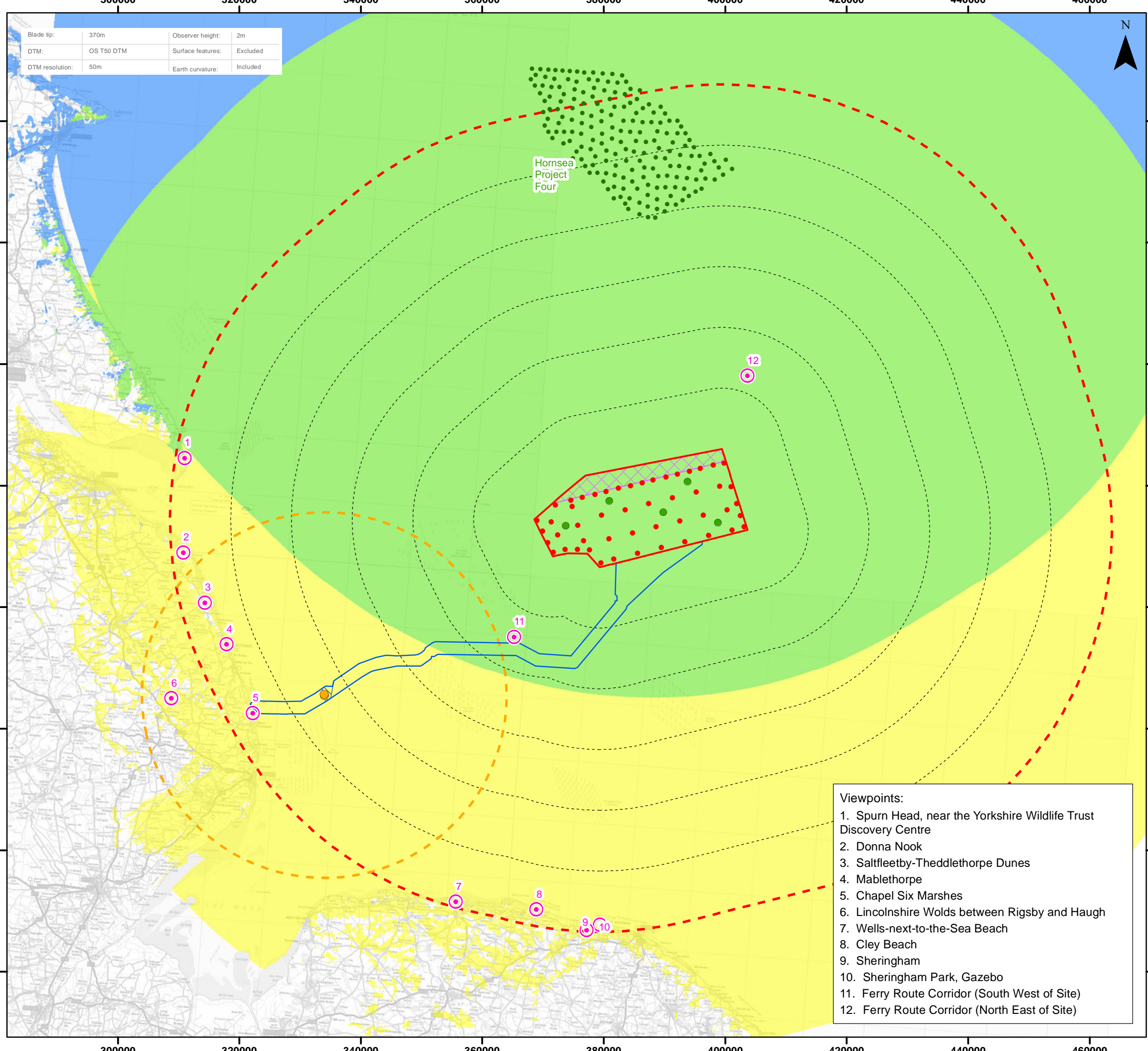
Cumulative ZTV - Hornsea Project Four

Figure 11.22



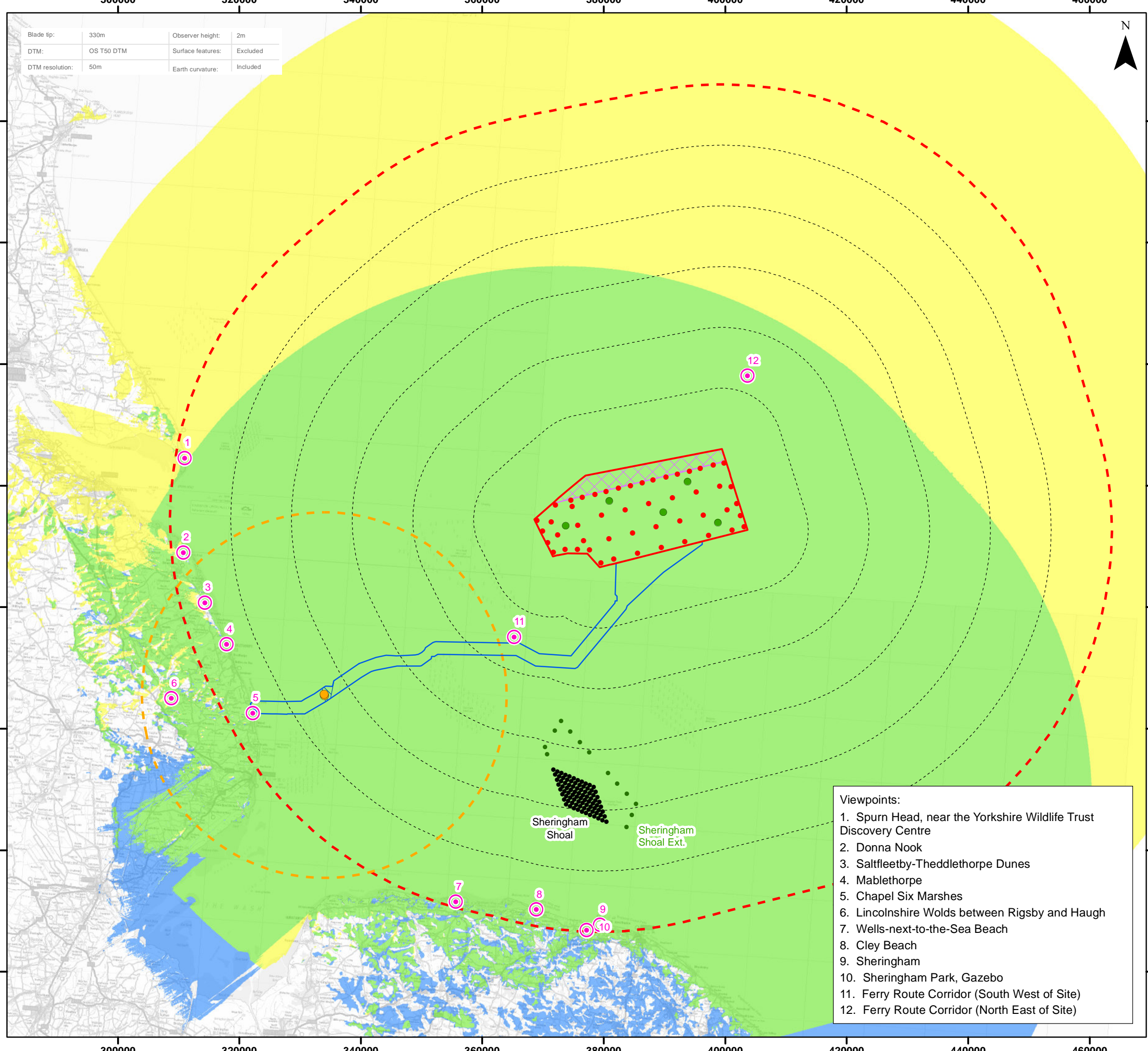
Date: 28/08/2024  
 Produced By: OPEN  
 Revision: v0.1

Contains ESRI Basemapping;  
 optimised environments  
 PART OF SLR



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### Legend

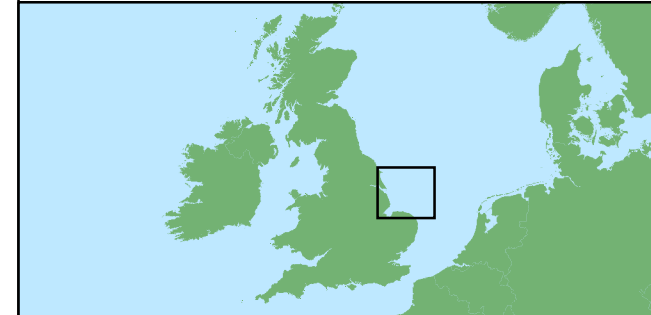
- Indicative Layout
- Indicative Offshore Platforms
- Offshore Reactive Compensation Platform (ORCP) - South
- Viewpoints
- ▭ Array Area
- ▭ Offshore Export Cable Corridor (ECC)
- ▨ Offshore Reactive Compensation Platform (ORCP) Area
- ▨ Offshore Restricted Build Area
- ⋯ 10km Radii
- ⋯ 60km Study Area
- ⋯ Offshore Reactive Compensation Platform (ORCP) Study Area - South

Cumulative Wind Farm Status:

- Operational
- Consented

Cumulative Zone of Theoretical Visibility

- Outer Dowsing Theoretical Visibility
- Sheringham Shoal Ext Theoretical Visibility
- Combined Theoretical Visibility



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 15 20 km  
 Scale: 1:600,000  
 A3 Page Size

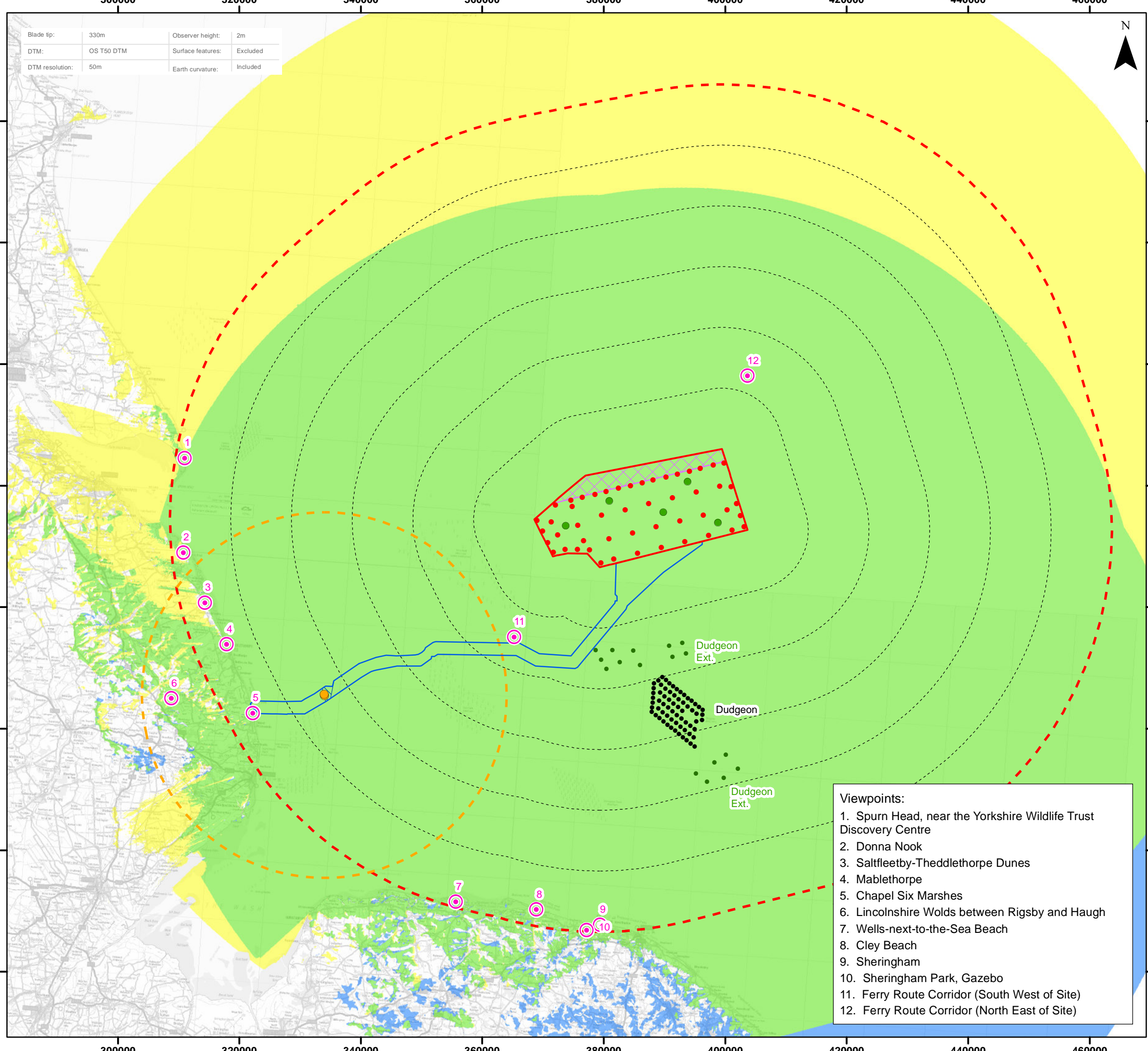
- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)

OFZ and ECC Amendment Report  
 Cumulative ZTV - Sheringham Shoal Extension  
 Figure 11.23

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 Produced By: OPEN  
 Revision: v0.1

Contains ESRI Basemapping;  
 PART OF SLR

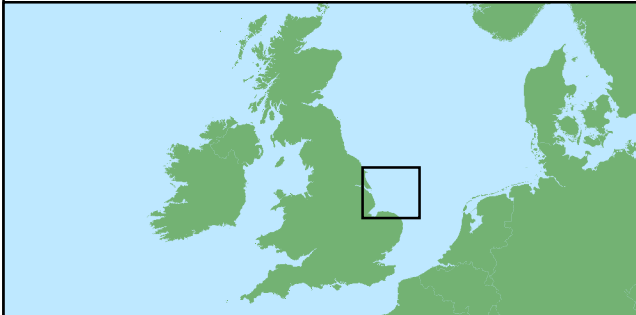
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Blade tip:	330m	Observer height:	2m
DTM:	OS T50 DTM	Surface features:	Excluded
DTM resolution:	50m	Earth curvature:	Included

### Legend

- Indicative Layout
  - Indicative Offshore Platforms
  - Offshore Reactive Compensation Platform (ORCP) - South
  - ⊙ Viewpoints
  - Array Area
  - Offshore Export Cable Corridor (ECC)
  - Offshore Reactive Compensation Platform (ORCP) Area
  - Offshore Restricted Build Area
  - 10km Radii
  - 60km Study Area
  - Offshore Reactive Compensation Platform (ORCP) Study Area - South
- Cumulative Wind Farm Status:
- Operational
  - Consented
- Cumulative Zone of Theoretical Visibility
- Outer Dowsing Theoretical Visibility
  - Dudgeon Ext Theoretical Visibility
  - Combined Theoretical Visibility



Coordinate System: WGS 1984 UTM Zone 31N  
 0 5 10 15 20 km  
 Scale: 1:600,000  
 A3 Page Size

OFZ and ECC Amendment Report  
 Cumulative ZTV - Dudgeon Extension  
 Figure 11.24



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 optimised environments  
 PART OF SLR

- Viewpoints:**
1. Spurn Head, near the Yorkshire Wildlife Trust Discovery Centre
  2. Donna Nook
  3. Saltfleetby-Theddlethorpe Dunes
  4. Mablethorpe
  5. Chapel Six Marshes
  6. Lincolnshire Wolds between Rigsby and Haugh
  7. Wells-next-to-the-Sea Beach
  8. Cley Beach
  9. Sheringham
  10. Sheringham Park, Gazebo
  11. Ferry Route Corridor (South West of Site)
  12. Ferry Route Corridor (North East of Site)