

# Outer Dowsing Offshore Wind

## Outline Plans

### 8.20 Outline Vessel Management Plan

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## Acronyms & Definitions

### Abbreviations / Acronyms

Acronym	Description
<b>AIS</b>	Automatic Identification System
<b>ANS</b>	Artificial Nesting Sites
<b>AtoN</b>	Aid to Navigation
<b>CAA</b>	Civil Aviation Authority
<b>DCO</b>	Development Consent Order
<b>DP HLV</b>	Dynamic Positioning Heavy Lifting Vessel
<b>DPV</b>	Dynamic Positioning Vessel
<b>ECC</b>	Export Cable Corridor
<b>HVAC</b>	High Voltage Alternating Cable
<b>IALA</b>	International Association of Marine Aids to Navigation and Lighthouse Authorities
<b>dML</b>	deemed Marine Licence
<b>JUV</b>	Jack Up Vessel
<b>MCA</b>	Maritime and Coastguard Agency
<b>MGN</b>	Marine Guidance Note
<b>NRA</b>	Navigational Risk Assessment
<b>NSIP</b>	Nationally Significant Infrastructure Project
<b>NtM</b>	Notice to Mariners
<b>ODOW</b>	Outer Dowsing Offshore Wind
<b>OP</b>	Offshore Platform
<b>ORCP</b>	Offshore Reactive Compensation Platform
<b>RYA</b>	Royal Yachting Association
<b>SOV</b>	Service Offshore Vessel
<b>THLS</b>	Trinity House Lighthouse Service
<b>TSS</b>	Transport Separation Scheme
<b>UK</b>	United Kingdom
<b>UKHO</b>	UK Hydrographic Office
<b>VMP</b>	Vessel Management Plan
<b>WTG</b>	Wind Turbine Generator

### Terminology

Term	Definition
<b>Array area</b>	The area offshore within which the generating station (including wind turbine generators (WTG) and inter array cables), offshore accommodation platforms, offshore transformer substations and associated cabling will be positioned.
<b>deemed Marine Licence (dML)</b>	A marine licence set out in a Schedule to the Development Consent Order and deemed to have been granted under Part 4 (marine licensing) of the Marine and Coastal Access Act 2009.

Term	Definition
<b>Development Consent Order (DCO)</b>	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
<b>The Project</b>	Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure.
<b>Mitigation</b>	Mitigation measures are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
<b>Offshore Export Cable Corridor</b>	The Offshore Export Cable Corridor (Offshore ECC) is the area within the Order Limits within which the export cables running from the array to landfall will be situated.
<b>Offshore Reactive Compensation Station (ORCP)</b>	A structure attached to the seabed by means of a foundation, with one or more decks and a helicopter platform (including bird deterrents) housing electrical reactors and switchgear for the purpose of the efficient transfer of power in the course of High Voltage Alternating Current (HVAC) transmission by providing reactive compensation
<b>Outer Dowsing Offshore Wind (ODOW)</b>	The Project.
<b>Pre-construction and post-construction</b>	The phases of the Project before and after construction takes place.
<b>The Applicant</b>	GT R4 Ltd. The Applicant making the application for a DCO. The Applicant is GT R4 Limited (a joint venture between Corio Generation, Tota Energies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), TotalEnergies and GULF.

## Reference Documentation

Document Reference	Title
<b>6.1.3</b>	Project Description
<b>6.1.15</b>	Shipping and Navigation

# 1 Introduction

## 1.1 Background

1. GT R4 Limited (trading as Outer Dowsing Offshore Wind) hereafter referred to as the 'Applicant', is proposing to develop Outer Dowsing Offshore Wind ("the Project"). The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm) approximately 54km offshore of the Lincolnshire coast, export cables to landfall, Offshore Reactive Compensation Platforms (ORCPs), onshore cables, connection to the electricity transmission network, ancillary and associated development and areas for the delivery of up to two Artificial Nesting Structures (ANS) and the creation of a biogenic reef (if these compensation measures are deemed to be required by the Secretary of State) (see Volume 1, Chapter 3: Project Description (document reference 6.1.3) for full details).
2. This document provides the outline for the information which will be contained within the final Vessel Management Plan to be developed post-consent.

## 1.2 Purpose of the Vessel Management Plan

3. During the construction of the Project, a number and variety of vessels will be utilised for installation, support and transport of personnel, equipment and infrastructure to the Project array area, offshore Export Cable Corridor (ECC) and ORCP.
4. This Outline Vessel Management Plan (VMP) is provided as part of the Development Consent Order (DCO) application in order to provide the required information concerning vessel management during the construction, and operation and maintenance phases.
5. The main purpose of this Outline VMP is to set out the framework for the final VMP which will be produced post-consent, including securing the controls that are proposed to manage vessel movement and the associated environmental risks of the construction and operation of the Project.

## 1.3 Scope of the Vessel Management Plan

6. In line with current best practice, the final VMP will cover the following:
  - The numbers, types and specifications of the vessels required;
  - Working practices, including a code of conduct for vessel operators, that will be implemented so as to minimise the impact on marine mammals and ornithology receptors;
  - Locations of the working port(s), and vessel routing to and from construction sites and ports; and
  - Indicative vessel transit corridors during construction and operation.

## **1.4 Approach to Updates and Amendments**

7. The final VMP will be produced prior to construction and will set out controls and processes that are to be adopted to mitigate environmental impacts of the Project, once final parameters are known.
8. Requirements within the VMP will be communicated to contractors as required, and adherence to the final VMP will be a contractual requirement for contractors engaged on the Project.

## **1.5 Structure of the Vessel Management Plan**

9. The VMP will include the following information:
  - Consultation;
  - Vessels (Types, Specifications and Numbers);
  - Operational Health and Safety;
  - Ports, Harbours and Related Facilities;
  - Navigation;
  - Environmental Sensitivities Relevant to Vessel Management; and
  - Monitoring.



## 2 Consultation

10. This section will contain the relevant consultation regarding the VMP and the measures outlined within the plan.

### 3 Vessels (Types, Specifications and Numbers)

#### 3.1 Vessel Types and Specifications

11. This section will provide an overview of the types of vessels that will be used during the key construction works.

12. Those identified within the project design envelope include:

- Jack Up Vessel (JUV);
- Dynamic Positioning Vessel (DPV);
- Crew transfer vessels;
- Supply vessels;
- Autonomous surface vessels (ASVs);
- Tugs;
- Guard Vessels; and
- Anchor Handling Vessels.

#### 3.2 Number of Vessels

13. This section will detail the number and types of vessels be used in each phase of the Project.

14. The indicative number of vessels and vessel movements anticipated to be used on for the Project are presented in Table 1 below. Each vessel movement represents a return trip to and from the Project construction areas.

##### 3.2.1 Construction

Table 1: Total Values for Vessel Activities During Construction

Vessels	Number of Vessels	Maximum Number of Return Trips Per Vessel Type
<b>WTG Installation</b>		
Installation vessel (JUV or anchored)	2	50
Wind Turbine Generator (WTG) installation - Number of support vessels (including SOV, service vessels for pre-rigging of towers, diver vessels)	18	1,480
Transport vessels	10	150
<b>WTG Foundation Installation</b>		
Installation vessel (JUV or Dynamic Positioning Heavy Lifting Vessel (DP HLV))	3	54
Support vessels (including tugs crew boats, drilling vessels and guard boats)	10	67
Transport/feeder vessels (including tugs)	8	400
Anchored transport/feeder vessels	8	400

Vessels	Number of Vessels	Maximum Number of Return Trips Per Vessel Type
<b>OP Topside Installation (All OSSs, ORCPs and Accommodation Platform)</b>		
Installation vessel	2	24
Support vessel	12	96
Transport vessel	4	48
<b>OP Foundation Installation (All OSSs, ORCPs and Accommodation Platform)</b>		
Installation vessel	2	16
Support vessel	12	48
Transport vessel	4	32
<b>Array and Offshore Interlink Cable Installation</b>		
Main cable laying vessel	3	24
Main cable burial vessel	2	18
Support vessel	14	1,099
<b>Offshore Export Cables Installation</b>		
Main cable laying vessel	3	20
Main cable jointing vessel	3	16
Main cable burial vessel	3	16
Support vessel	16	1,070
<b>ANS Topside Installation</b>		
Installation Vessel	2	8
Support Vessel	12	16
Transport Vessel	4	12

### 3.2.2 Operation and Maintenance

15. An indicative 2,480 return trips per year is assumed to be a worst case for shipping and navigation over an anticipated maximum 35-year operational lifetime O&M phase.

## 4 Operational Health and Safety

16. This section will outline the relevant health and safety requirements and how they relate to the environmental risks associated with vessel movements. This may include:

- Roles and responsibilities;
- Incident and accident procedures;
- Vessel lighting;
- Implementation; and
- Inspections and audits.

## 5 Ports, Harbours and Related Facilities

### 5.1 Ports and Harbours

17. There are several ports and harbours in the proximity to the Project. The closest to the array is Wells Harbour which is located approximately 32nm to the southwest on the Norfolk coast. The Admiralty Sailing Directions describe Wells as a "small port for fishing and recreational craft". Therefore, the closest commercial port or harbour is Port of Immingham (38nm northwest), Port of Grimsby (42nm northwest), Port of Killingholme (44nm northwest), Port of Boston (49nm southwest), and Bridlington Harbour (53nm northwest) are also situated within the vicinity as well as many others along the River Humber and within The Wash estuary.
18. This section will discuss the relevant ports and harbours in relation to vessel management, once the final construction and operation base ports have been identified.



## 6 Navigation

### 6.1 Indicative Vessel Routing

#### 6.1.1 Vessel Traffic

19. This section will define the preferred vessel routes and assesses the indicative routes.
20. The current understanding of vessel traffic within offshore order limits is presented within Part 6, Volume 1, Chapter 15: Shipping and Navigation (document reference 6.1.15).
21. The proximity of the Project to the Humber Estuary and the main shipping routes out to the array area from those ports is clearly apparent in the Automatic Identification System (AIS) data, shown as heatmaps in Figure 1 and Figure 2
22. Figure 3 and Figure 4 show the nearshore routing of vessels crossing the cable corridor and the region around the ORCPs.

#### 6.1.2 Mitigation

23. Mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) or considered as industry standard for shipping and navigation and that are relevant to vessel management are listed below:
- Where possible, minimising vessel traffic during the most sensitive time in October to March;
  - Where possible, restricting vessel movement to existing navigation routes;
  - Where possible, maintaining direct transit routes, minimising transit distances through areas used by key species;
  - Where possible, avoidance of rafting birds when necessary to go outside of navigational routes, and where possible avoid disturbance to areas with consistently high diver density;
  - Avoidance of over-revving engines to minimise noise disturbance; and
  - Briefing of vessel crew on the purpose and implications of these vessel management practices.
24. Embedded mitigation relating to shipping and navigation are listed in Table 2

Table 2: Embedded mitigation relating to Shipping and Navigation

Description	Mitigation measures embedded into the project design
Compliance with Marine Guidance Note (MGN) 654	The Project will comply with MCA requirements as detailed within MGN 654 and its annexes.
Charting	Project infrastructure (including structures and subsea cables) will be charted.
Promulgation of information	Circulation of relevant project information including via all usual means (e.g., Kingfisher Bulletin, Notice/Notifications to Mariners).
Buoyed construction area	Agreement of extent of buoyed construction area with Trinity House including buoy locations and types.

Description	Mitigation measures embedded into the project design
Application for safety zones	Application for safety zones around structures during construction and periods of major maintenance: <ul style="list-style-type: none"> <li>▪ 500m around structures where construction is ongoing; and</li> <li>▪ 50m around all structures prior to commissioning of the Project.</li> </ul> Advisory exclusion area 500m around structures where major maintenance is ongoing.
Marine coordination	Marine coordination and communication to manage project vessel movements.
Lighting and marking	Lighting and marking in agreement with Trinity House, MCA, and CAA, and in compliance with International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) G1162 (IALA, 2021).
Guard vessels	Use of guard vessels where identified as necessary via risk assessment.
Layout design	Ongoing consultation with Maritime and Coastguard Agency (MCA) and Trinity House in relation to layout design, including MCA and Trinity House sign off on final layout.
Blade clearance	Blade clearance in line with RYA requirements (RYA, 2019 (a)) and MGN 654 to ensure potential for recreational mast interaction with the blades is minimised.
Cable protection	Cable burial risk assessment process to determine required cable protection and monitoring requirements.

25. Greater detail pertaining to vessel routing in relation to the consideration of environmental sensitivities is discussed in Section 7.

## 6.2 Aids to Navigation and Marking

26. This section will detail the considerations for navigational safety as it relates to existing aids to navigation and marking around the Project.

27. All surface infrastructure throughout all stages of the Project (including WTGs, and Offshore Platforms (OPs)) will be marked in accordance with relevant guidance from THLS, the Civil Aviation Authority (CAA) and the Maritime and Coastguard Agency (MCA). The positions of all infrastructure will be conveyed to the UK Hydrographic Office (UKHO) so that they can be incorporated into Admiralty Charts and the Notice to Mariners (NtM) procedures.

28. Lighting and marking of subsea structures will be discussed with THLS, having a statutory duty as a General Lighthouse Authority, where there may be a risk to shipping. In this case, the marking would be based on the recommendations of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA, 2021).

### 6.2.1 Navigational Features

29. This section will detail the considerations for navigational safety as it relates to navigational features relevant to the Project.

A plot of known navigational features within the shipping and navigation study area is shown in Figure 5.

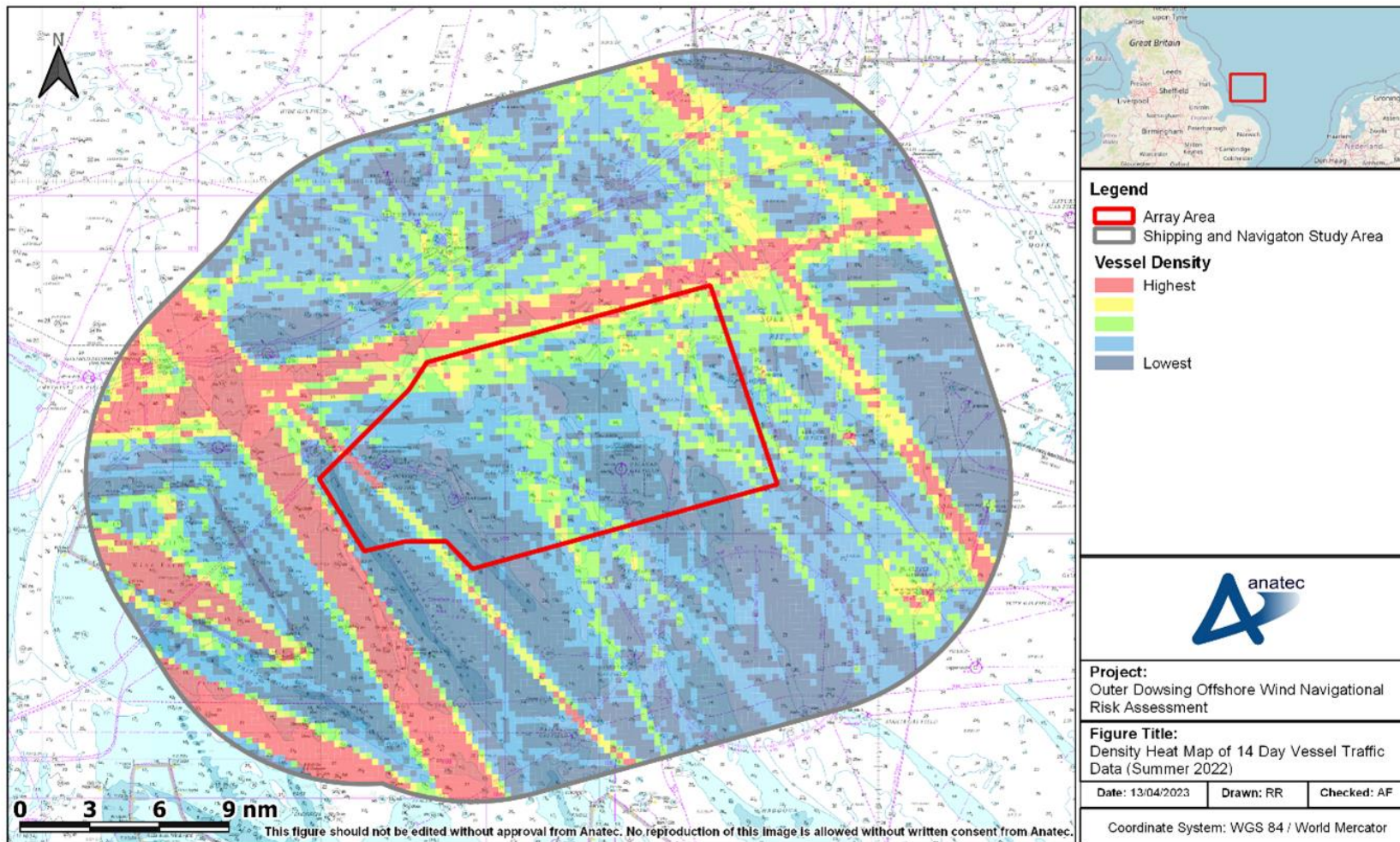


Figure 1: Vessel Traffic Density Heat Map (14-Days, Summer 2022)



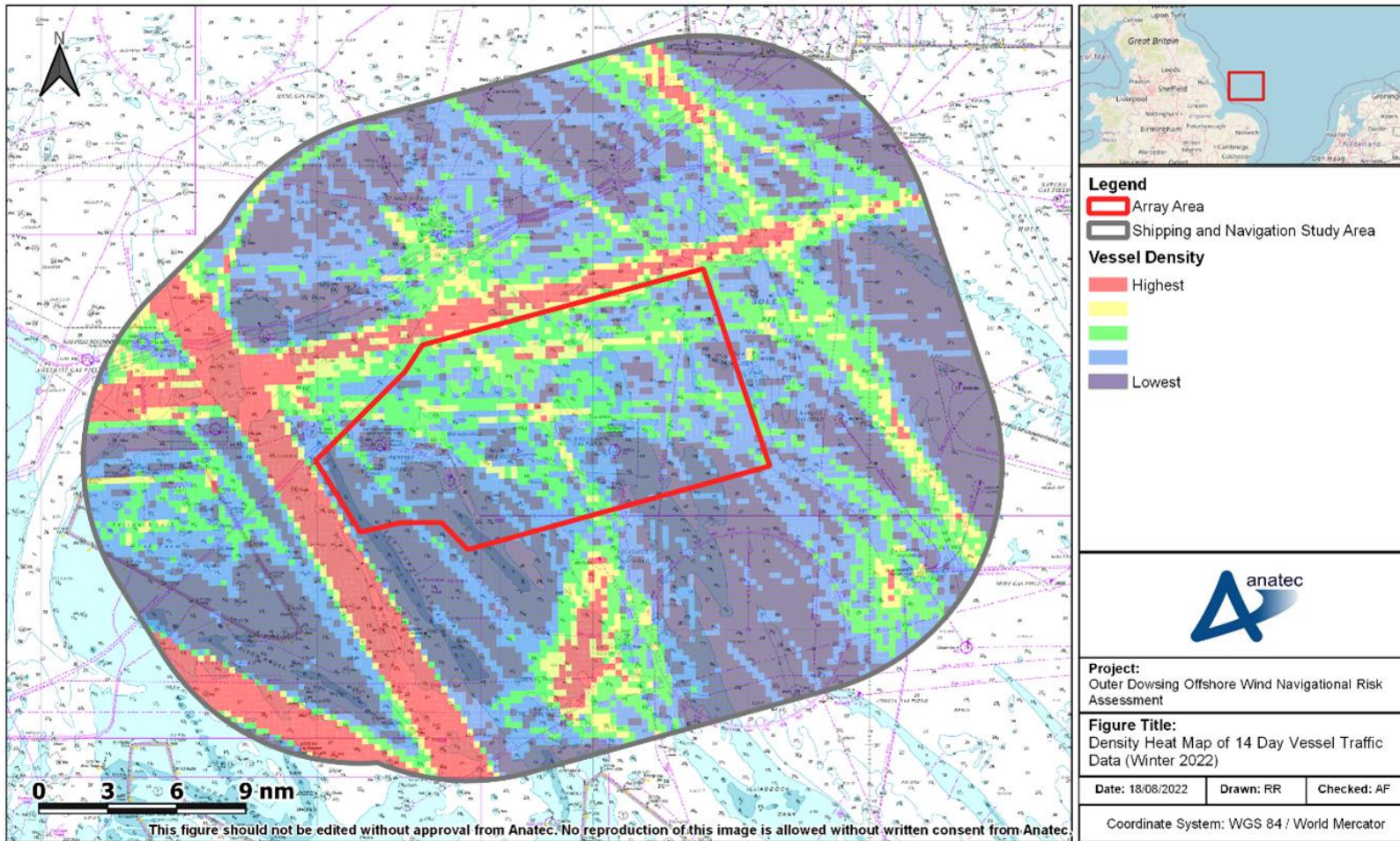


Figure 2: Vessel Traffic Density Heat Map (14-Days, Winter 2022)



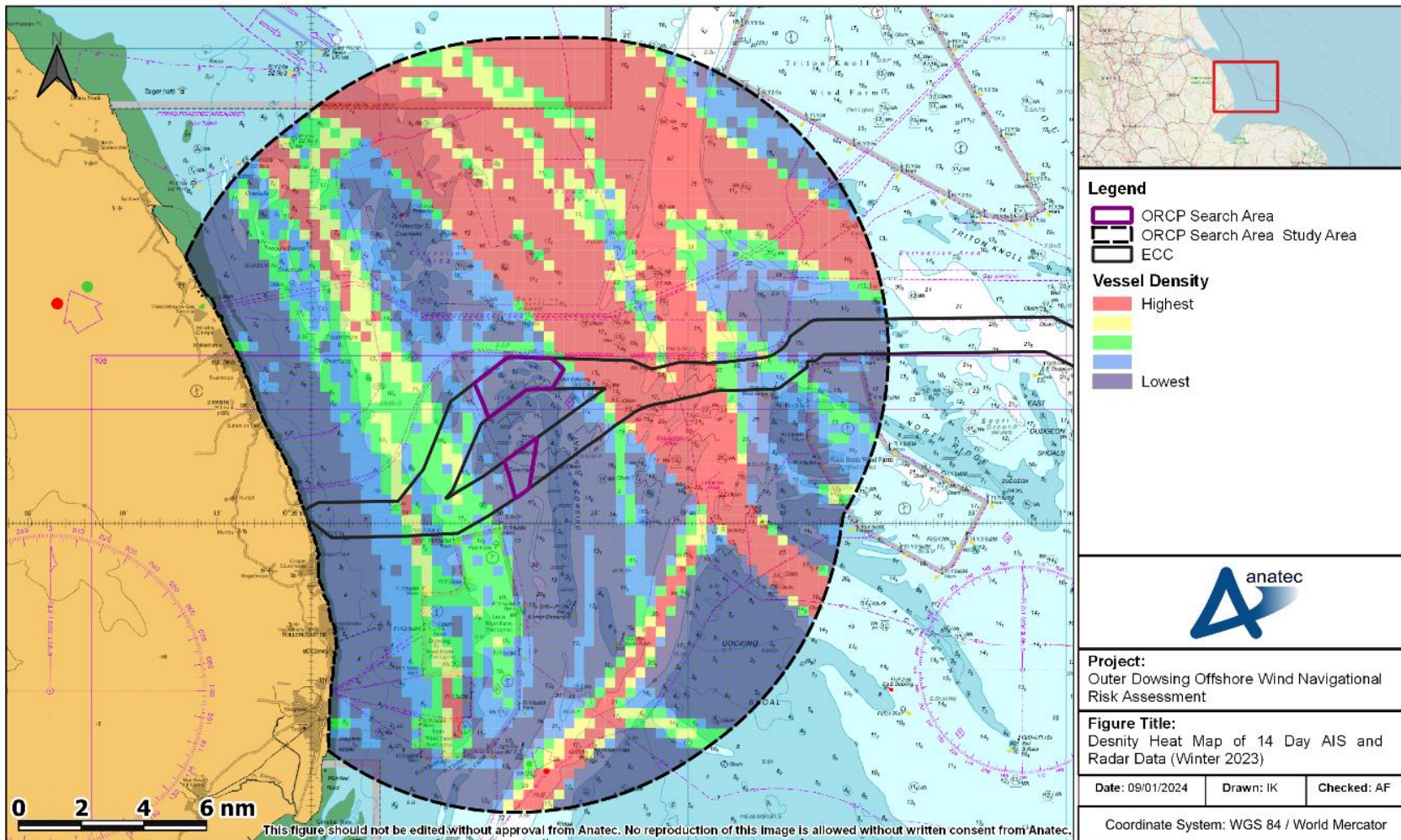


Figure 3: Vessel Traffic Density Heat Map (14-Days, Winter 2023)



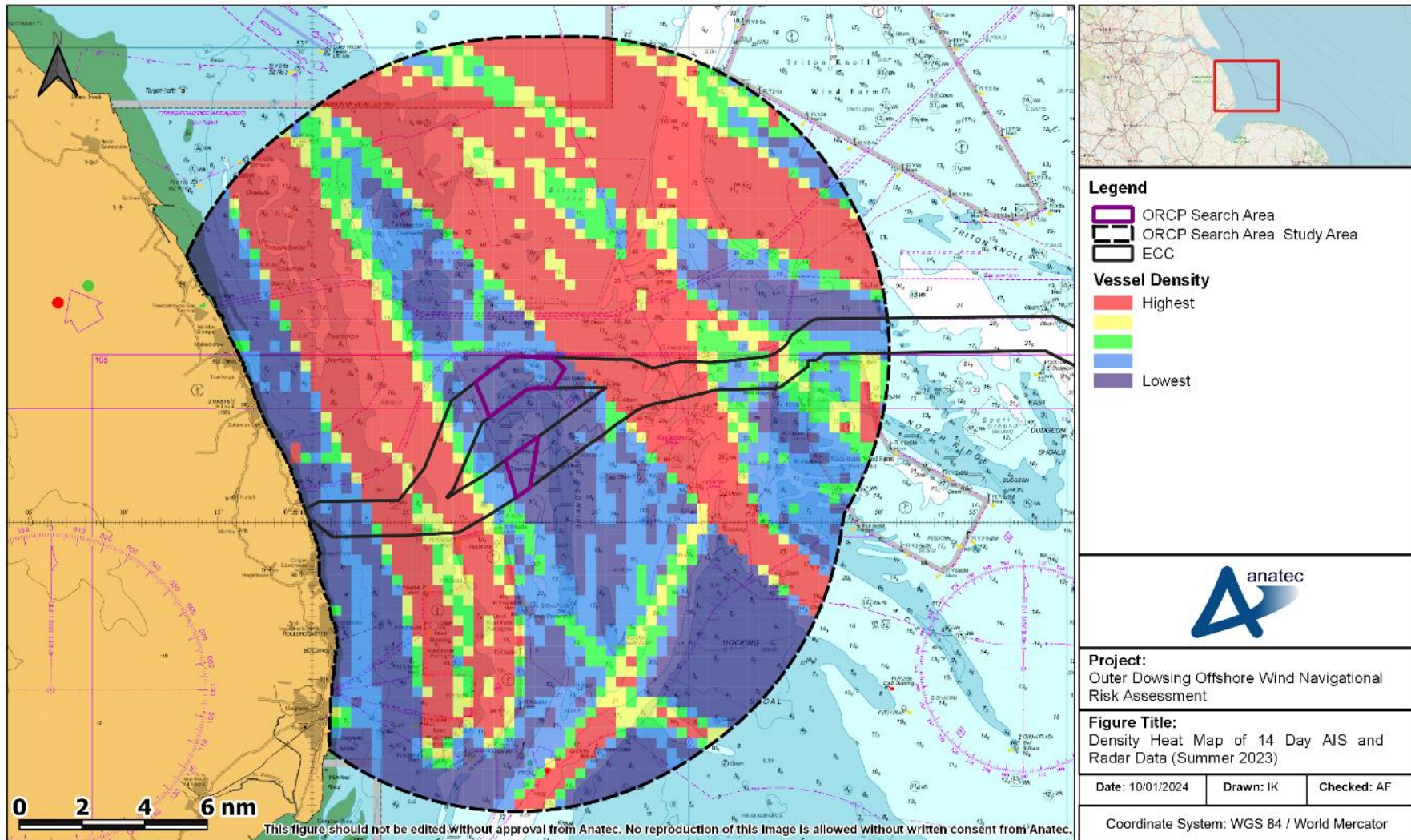


Figure 4: Vessel Traffic Density Heat Map (14-Days, Summer 2023)



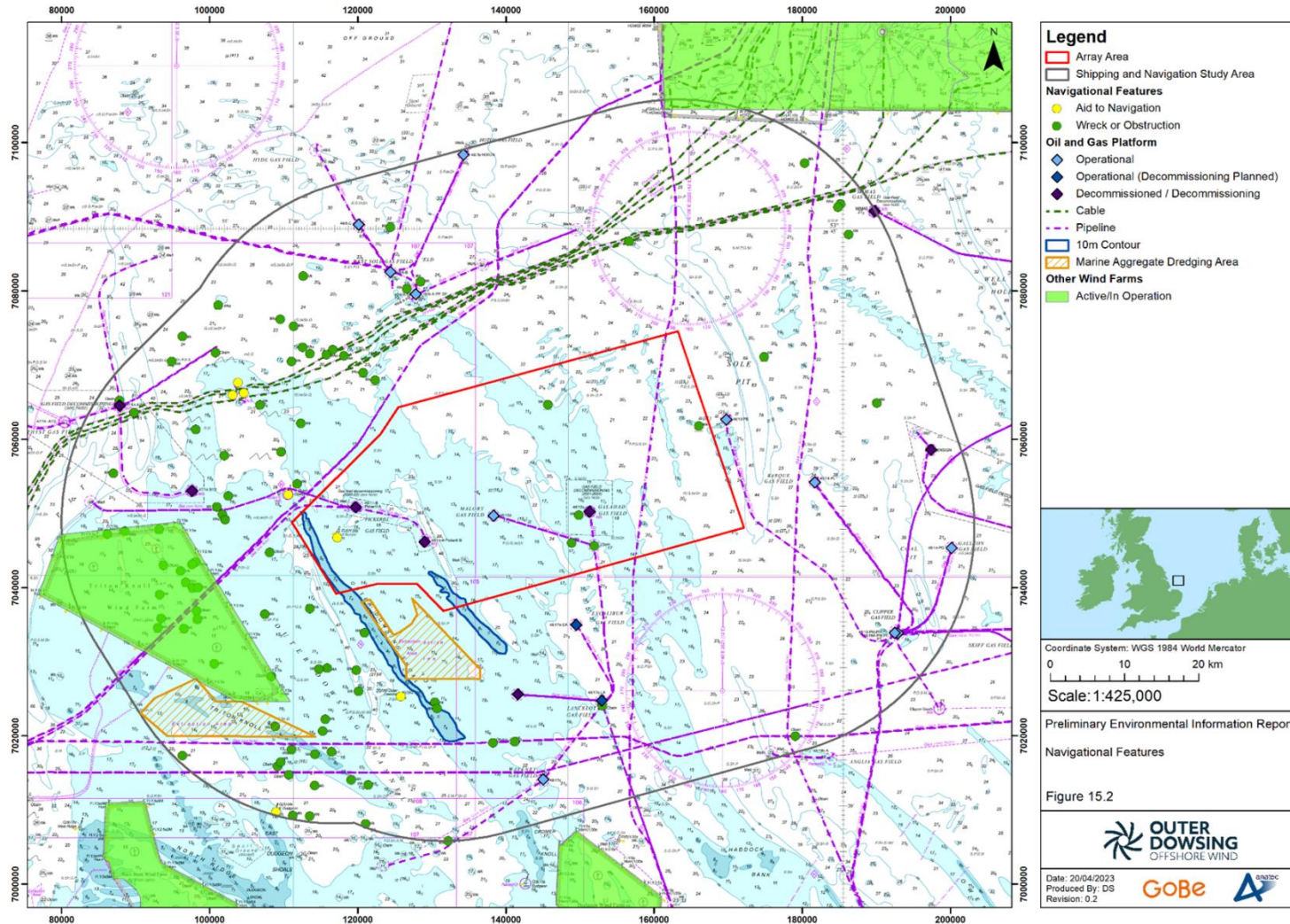


Figure 5: Navigational Features

## 7 Environmental Sensitivities Relevant to Vessel Management

### 7.1 Commitments Relevant to Vessel Management

#### 7.1.1 Offshore Ornithology

30. Vessel routes will be developed which consider best practice protocol during works to minimise disturbance of offshore ornithological receptors, especially red-throated divers and common scoter, through the following:

- Where possible, minimising vessel traffic during the most sensitive time in October to March;
- Where possible, restricting vessel movement to existing navigation routes;
- Where possible, maintaining direct transit routes, minimising transit distances through areas used by key species;
- Where possible, avoidance of rafting birds when necessary to go outside of navigational routes, and where possible avoid disturbance to areas with consistently high diver density;
- Avoidance of over-revving engines to minimise noise disturbance; and
- Briefing of vessel crew on the purpose and implications of these vessel management practices.

#### 7.1.2 Marine Mammals

##### 7.1.2.1 Seal Haul-Outs

31. The nearest known haul-out sites are all >1km from the landfall site of the export cables, and are already exposed to relatively high levels of vessel activity, including windfarm vessel activity transiting between the Humber estuary and the existing windfarms.

32. Where possible, vessel traffic associated with the Project will follow existing shipping routes.

##### 7.1.2.2 Vessel Disturbance and Collision Risk

33. Vessels associated with the Project may cause disturbance and increase collision risk with marine mammals. Where possible, vessel traffic associated with the Project will follow existing routes.

## **8 Monitoring**

### **8.1 Vessel Traffic**

34. This section will detail the proposed monitoring to be undertaken for vessel traffic during the relevant phases of the Project.

35. Vessel traffic monitoring is proposed to be undertaken throughout the construction phase to characterise changes to routing patterns. These will be compared against the anticipated deviations determined in Volume 3, Appendix 15.1: Navigational Risk Assessment to allow a comprehensive review of the mitigation measures applied at the time.