Gunfleet Sands 2 & 3 Offshore Wind Farms Safety Zone Application

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Version	Date	Summary of Change
A	13 July 2026	Initial Draft
B	05 August 2026	Updates
C	17 August 2026	Updates
D	24 August 2026	Updates
E	14 September 2026	Final submission version

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Abbreviations Table

Abbreviation	Definition
AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
CD	Chart Datum
COLREGs	Convention on the International Regulations for Preventing Collision at Sea
DECC	Department for Energy and Climate Change
DESNZ	Department for Energy Security and Net Zero
GFS 1	Gunfleet Sands 1
GFS 2	Gunfleet Sands 2
GFS 3	Gunfleet Sands 3
GT	Gross Tonnage
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IMO	International Maritime Organization
IPS	Intermediate Peripheral Structure
kV	Kilovolt
LAT	Lowest Astronomical Tide
m	Metre
MCA	Maritime and Coastguard Agency
MSL	Mean Sea Level
MW	Megawatt
nm	Nautical Mile
OREI	Offshore Renewable Energy Infrastructure
OSS	Offshore Substation
SOLAS	International Convention for the Safety of Life at Sea
SOV	Service Operation Vessel
SPS	Significant Peripheral Structure
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
VHF	Very High Frequency

Abbreviation	Definition
WTG	Wind Turbine Generator

1 Introduction

1.1 Background

1. Gunfleet Sands 2 & 3 Offshore Wind Farms (hereby referred to together as the 'project') are operated by Ørsted and are located approximately 4.5 nautical miles (nm) off the Essex coast. The project has been operational since 2010 (Gunfleet Sands 2 (GFS 2)) and 2013 (Gunfleet Sands 3 (GFS 3)), respectively, and does not currently have statutory safety zones granted for major maintenance activities.

2. Gunfleet Sands 1 (GFS 1) is adjacent to GFS 2 and GFS 3, however this site already has the ability to implement safety zones and therefore has not been included in this application.

1.2 Scope of the Safety Zone Application

3. This document presents the primary supporting information in Ørsted's application for safety zones to be implemented for the project. The application will be submitted to Department for Energy Security and Net Zero (DESNZ).

4. The proposed safety zones are intended to make clear to passing traffic the areas where site maintenance activities are taking place. This will alert passing vessels to which areas should be avoided, with a view to minimising the risk of an incident which may threaten life, property or the environment.

5. Safety zones are applied for around the wind turbine generators (WTGs) under the circumstances detailed in the following sections. The offshore substation (OSS) is shared with GFS1 and is not included in this application as it already has the ability to have a safety zone implemented as per Section 1.1.

1.2.1 Plan Objectives

6. As per Section 95 and Schedule 16 of the Energy Act 2004 and Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007 (Electricity Regulations, 2007) respectively, a Safety Zone Application can be made to DESNZ requesting the formal implementation of safety zones around structures associated with an Offshore Renewable Energy Installation (OREI).

7. On this basis, this document presents the safety case for the implementation of safety zones around the WTGs installed within the GFS 2 and GFS 3 sites. This represents the primary supporting document of the application made to DESNZ.

8. It is emphasised that the use of safety zones is to support the protection of human life, in addition to the other marine safety and navigation risk mitigation measures that will be implemented. On this basis, the proposed safety zones are designed to manage potential interactions between third-party vessels and the maintenance

activities undertaken, with a view to securing the safety of vessels and crews (both those associated with the project and those deemed as third-party), and to protect the structures themselves.

1.2.2 Operation and Maintenance

9. During any periods of major maintenance within the ongoing operation and maintenance phase, the following safety zones are applied for:

   - 500 metre (m) safety zones around all major maintenance being undertaken around a WTG, as denoted by the presence of a major maintenance vessel.

10. For reference, the definition of *major maintenance* given within the Electricity Regulations 2007 (United Kingdom (UK) Government, 2007) (which details regulations associated with application procedures and control of access related to safety zones) is as follows:

11. '*works relating to any renewable energy installation which has become operational, requiring the attachment to, or anchoring next to, such an installation of a self-elevating platform, jack-up barge, crane barge or other maintenance vessel.*'

12. Further details as to what will trigger these safety zones are provided in Section 8. For clarity, it is noted that the following safety zones are **not** being applied for:

   - Safety zones triggered by Service Operation Vessels (SOVs).
   - Permanent operational safety zones.

1.2.3 Decommissioning

13. Decommissioning safety zones are not applied for under this application but will be applied for prior to decommissioning of each site, when removal methodologies and timing of the works will be better understood.

1.3 Legislation and Guidance Compliance

14. This document has been drafted in compliance with the following legislation and guidance to ensure all necessary information required is included within this safety zone application:

   - Section 95 and Schedule 16 of the Energy Act 2004;
   - Electricity (Offshore Generation Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007; and
   - Guidance Notes: Applying for Safety Zones around Offshore Renewable Energy Installations (Department of Energy and Climate Change (DECC[1]), 2011).

[1] Now DESNZ

2 Project Overview

15. The sites are located approximately 4.5nm off the Essex coast and are presented in Figure 2.1, noting that GFS 1 is adjacent and visible on charts. The sites cover areas of approximately 1.7 square nautical miles (nm^2) (GFS 2) and 0.7nm^2 (GFS 3), with charted water depths ranging from 6m and 11m below Chart Datum (CD).

16. In summary:

17. **GFS 2**

- Consists of 18 WTGs, each with a generating capacity of 3.6 megawatts (MW).
- One OSS shared with GFS 1;
- WTGs constructed on monopile foundations;
- A network of four strings of inter-array cables to connect WTGs to the OSS; and
- An export cable with a length of approximately 5.5nm between the OSS and landfall at Holland-on-Sea, Essex.

18. **GFS 3**

- Consists of two WTGs, each with a generating capacity of 6 MW;
- WTGs constructed on monopile foundations; and
- A single intra-array cable, of length 4.7nm, connects WTGs to landfall at Clacton-on-Sea, Essex.

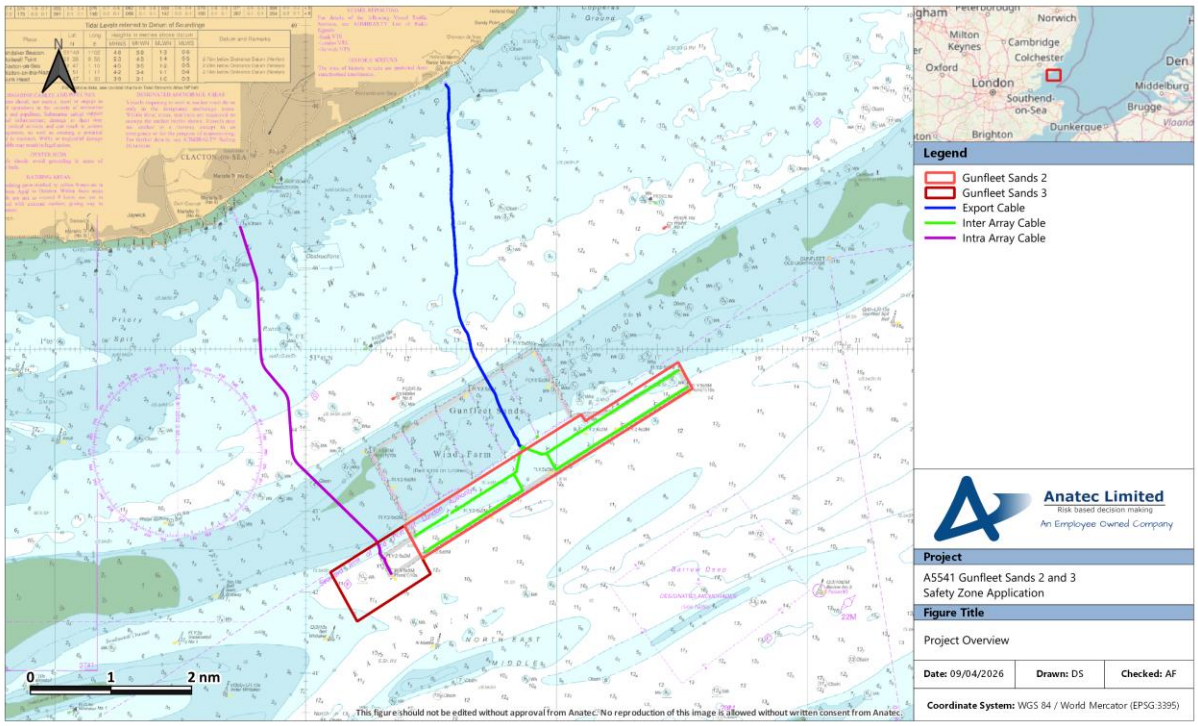


Figure 2.1 Project Overview

19. The layout of the structures across both sites is presented in Figure 2.2. The WTGs are arranged in a 10 x 2 grid layout, with spacing of approximately 330m x 780m (tip-to-tip). The GFS 1 / GFS 2 OSS is located approximately 590m (tip-to-tip) from the nearest WTG (excluding WTGs within GFS 1).

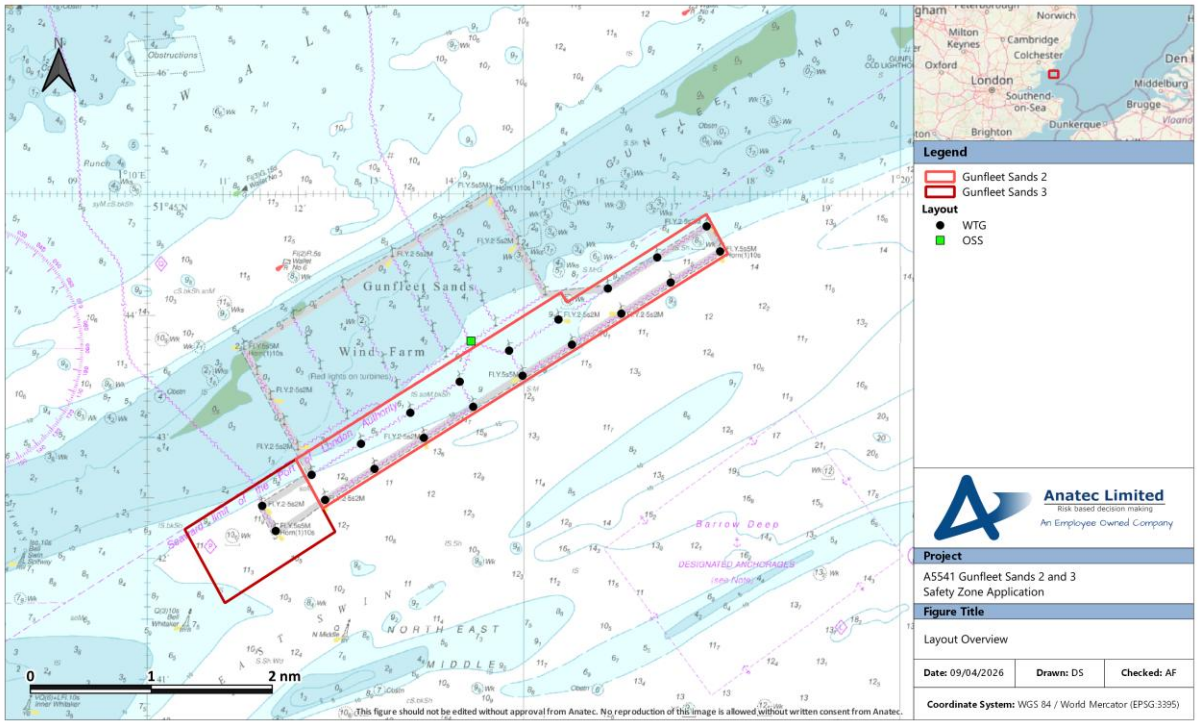


Figure 2.2 Layout Overview

3 Project Components

3.1 Wind Turbine Generator

20. Key specifications of the WTGs for each site are provided in Table 3.1. Following this, schematics of the WTGs at each site are presented in Figure 3.1 and Figure 3.2, with schematics of the monopiles at each site presented in Figure 3.3 and Figure 3.4.

Table 3.1 WTG Parameters

Specification	Value	
	GFS 2	GFS 3
Capacity (MW)	3.6	6.0
Foundation Type	Monopile	
Rotor Diameter (m)	107	121
Hub Height above Lowest Astronomical Tide (LAT)	81.5	84
Installed Water Depth (m)	0.5-15	10-15
Height above LAT (Mean Sea Level (MSL))	116	123

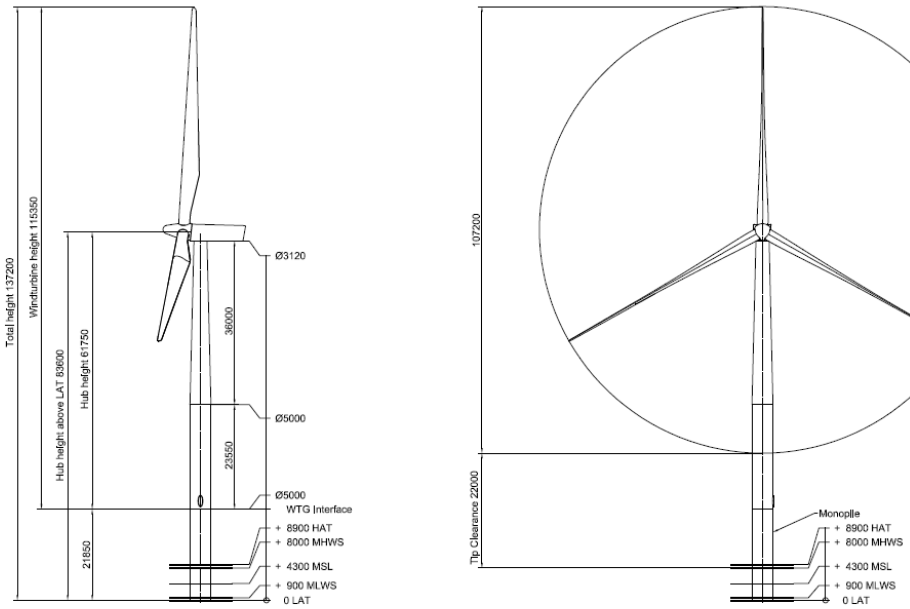


Figure 3.1 GFS 2 Turbine Schematic

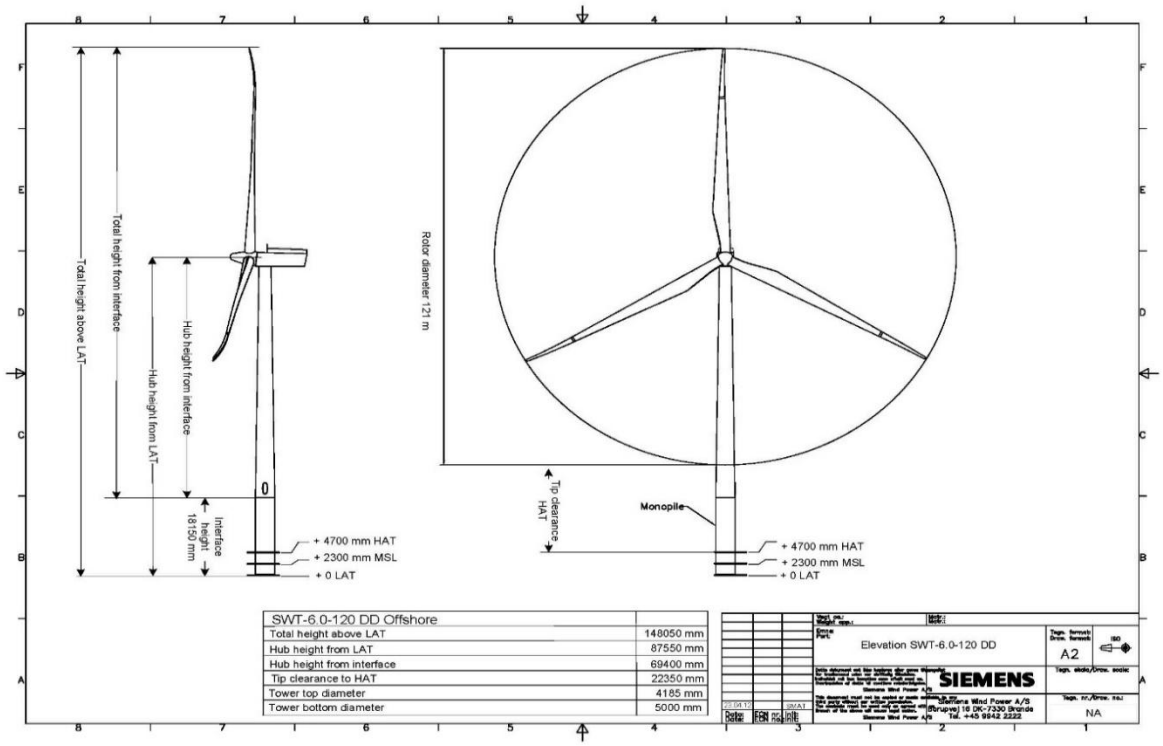


Figure 3.2 GFS 3 Turbine Schematic

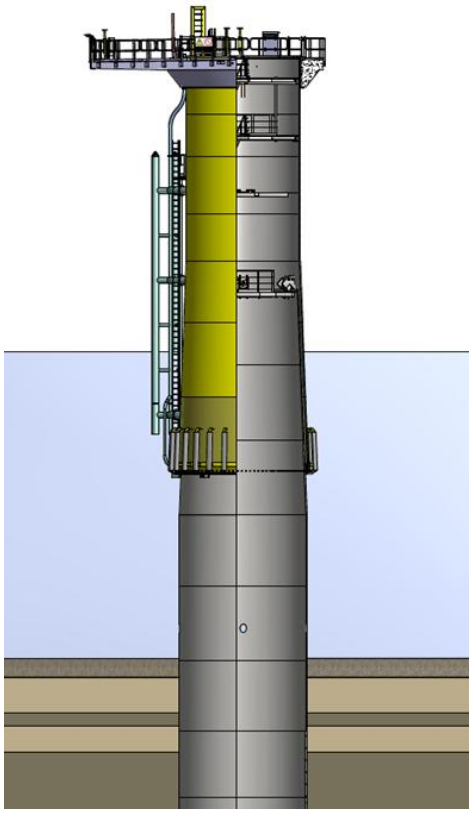


Figure 3.3 GFS 2 Monopile Schematic

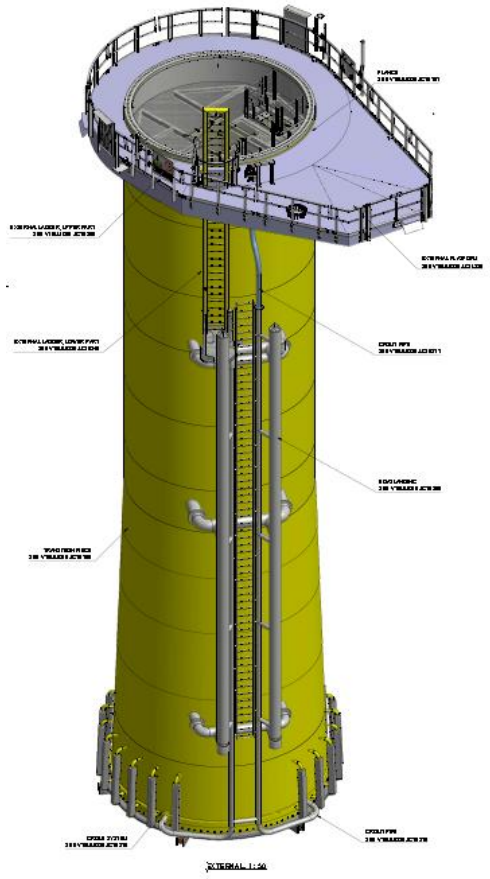


Figure 3.4 GFS 3 Monopile Schematic

3.2 Offshore Substation

21. Key specifications of the OSS are provided in Table 3.2, followed by schematics of the OSS in Figure 3.5.

Table 3.2 OSS Topside Parameters

Specification	Value
Length	29.9m
Width	20.4m
Height	38.6m above LAT
Foundation Type	Monopile

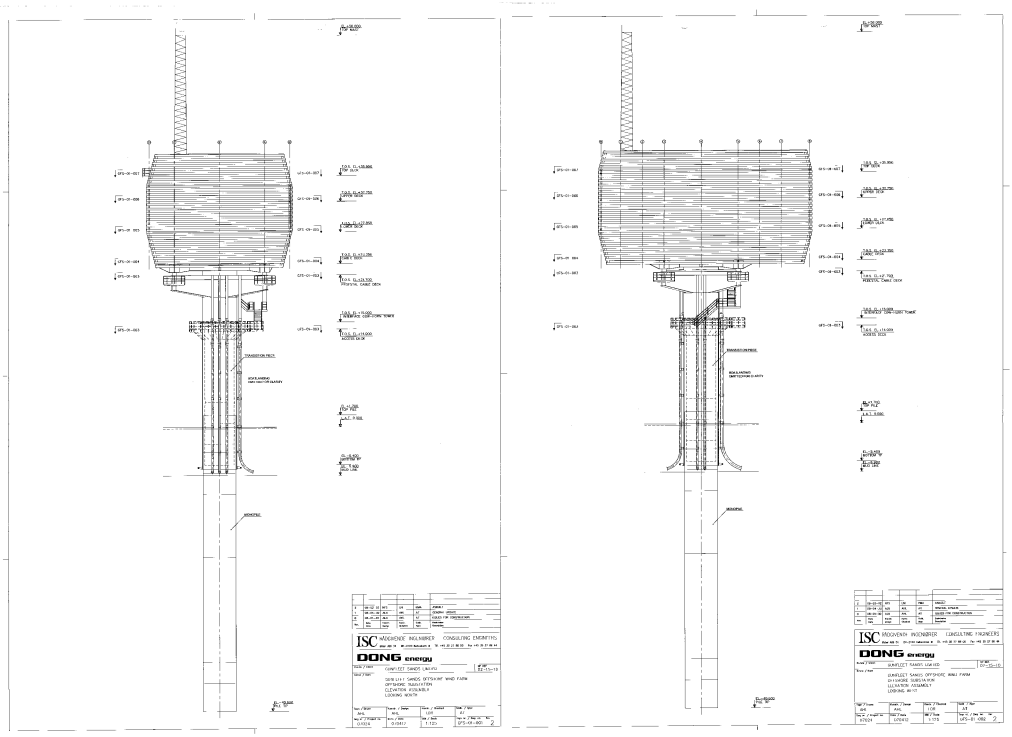


Figure 3.5 Substation Schematic

3.3 Cables

22. The offshore export cable is shown in Figure 2.1.

23. The approximate length of the export cable associated with GFS 2 is 5.5nm. The 132 kilovolt (kV) offshore export cable makes landfall near Holland-on-Sea, Essex. A network of four inter array cables connect the WTGs to the OSS.

24. For GFS 3, a single intra-array cable of length 4.7nm, connects the 2 WTGs to landfall at Clacton-on-Sea, Essex.

4 Consultation

A consultation meeting was held with the Port of London Authority (PLA) and the Crouch Harbour Authority on the 11th of June 2026. A summary of the feedback received is provided below:

- PLA stated the River Works License issued to the project would need to be followed for any major maintenance operations. This includes the requirement to submit a Maintenance Plan to PLA in advance of any scheduled maintenance, and to notify the PLA in advance of any non-scheduled maintenance and provide vessel movement details. Ørsted confirm the River Works License requirements will continue to be followed for all major maintenance operations, and that at least seven days notice will be given for non-scheduled maintenance.
- The Crouch Harbour Authority noted that currently, vessels of less than 90m length and 6.0m draught have the option of "by request" pilot boarding at the Bell Whitaker buoy. However, this option will no longer be available from January 2027, with all vessels requiring pilotage needing to board the pilot in the Inner Sunk. This means that prior to January 2027, there may be cases of cargo vessels passing GFS2 and GFS3 without a pilot on board. It will therefore be necessary for the Crouch Harbour Authority to notify any such vessels in advance of the presence of any safety zones in the interim. Ørsted can confirm that the Crouch Harbour Authority will be given at least seven days notice of any major maintenance works that require a safety zone.

5 Lighting and Marking

25. This section summarises the marine lighting and marking of the project, which is as directed by Trinity House and the Maritime and Coastguard Agency (MCA). Aviation lighting is not considered pertinent to this safety zone application and has therefore not been included.

5.1 Significant Peripheral Structures

26. As part of the operational phase, select peripheral positions including all corner structures have been marked as Significant Peripheral Structures (SPS). Each SPS is fitted with three marine lights (spaced at 120° intervals) satisfying the following criteria:

- 5nm light Fl Y 5s, 360° visibility, flashing in synchronicity, International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) category 2 (> 99.0% availability).

5.2 Intermediate Peripheral Structures

27. Select structures have been marked as Intermediate Peripheral Structures (IPS). Each IPS is fitted with three marine lights (spaced at 120° intervals) satisfying the following criteria:

- 2nm light Fl Y 2.5s, 360° visibility, flashing in synchronicity, IALA category 2 (> 99.0% availability).

5.3 Sound Signals

28. Each SPS is also fitted with sound signals, which activate whenever visibility is less than 2nm. When activated, the signals sound a blast lasting 2 seconds, every 30 seconds. They fall under IALA category 3 availability requirements (> 97.0%).

6 Navigational Features

The key navigational features relevant to the safety zone application are considered to be those relating to local port authorities, as discussed in Section 4, and are presented below in Figure 6.1.

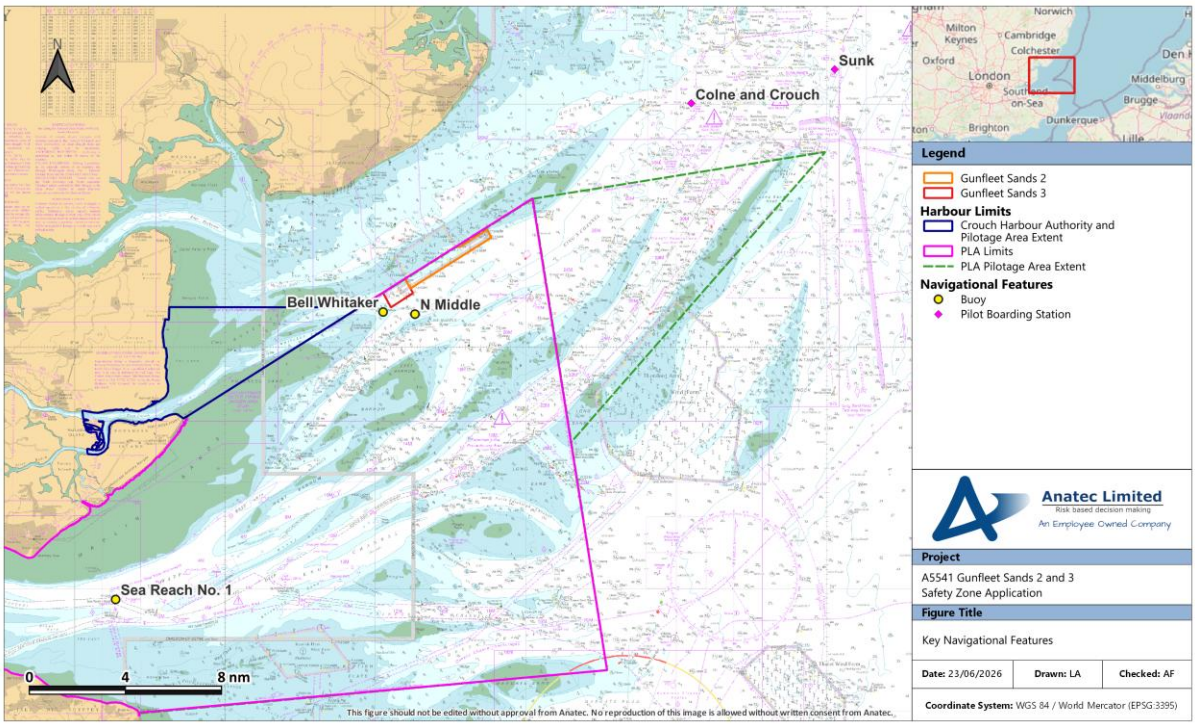


Figure 6.1 Key Navigational Features

The PLA harbour limits extend eastward from the Thames estuary and encompass GFS 2 and GFS 3 at its northern extent. The PLA pilotage area extends further, and includes the entrances to the Kings Channel and the Black Deep channel. Pilotage is compulsory for all vessels of 90m or more in length in the pilotage area eastward of the Sea Reach No. 1 buoy. Pilot boarding can be obtained from the Colne and Crouch and Sunk pilot boarding stations.

The Crouch harbour authority and pilotage area limits are directly adjacent to those of the PLA. GFS 3 is located 1.2nm to the northeast at its closest point. Pilotage is compulsory for all vessels of 50m or more in length within the Crouch pilotage area limits. Given that vessels have to transit through the PLA pilotage area prior to that of the Crouch harbour authority, pilotage must be obtained in the vicinity of the Sunk if vessels are 90m in length or more. If vessels are between 50m and 90m in length, Masters have the option to transit the PLA pilotage area before boarding a pilot in the vicinity of the Bell Whitaker and N Middle buoys prior to entering the Crouch harbour authority limits. The Bell Whitaker and N Middle buoys shown in Figure 6.1 are approximately 0.4nm and 0.8nm southwest and southeast of GFS 3, respectively. However, as per Section 4 the option to board pilots at the buoys will no longer be available from January 2027.

7 Vessel Traffic Data

7.1 Introduction

29. In line with DESNZ guidance (DECC, 2011), a vessel traffic assessment has been undertaken based on up-to-date vessel traffic data collected during 2025/26. The dataset used consists of 28 days of Automatic Identification System (AIS) data collected by coastal and satellite receivers between 18 and 31 July 2025 (the 'summer period') and between 18 and 31 January 2026 (the 'winter period') within a combined 10nm buffer of the GFS 1, 2 and 3 site boundaries (the 'study area').

30. Vessel traffic deemed as temporary has been removed from the analysis in order to focus the assessment on routine traffic (e.g., vessels engaged in surveys, vessel operations involved with the NeuConnect interconnector cable (and associated guard vessels)). Vessels recorded inshore and observed to be stationary during the entire 28-day period and which are assumed to be docked at local ports/harbours have also been excluded as not to influence the vessel counts in the study area.

31. The vessel tracks recorded within the study area during the summer period are colour-coded by vessel type and presented in Figure 7.1. Following this, Figure 7.2 presents the equivalent for the winter period.

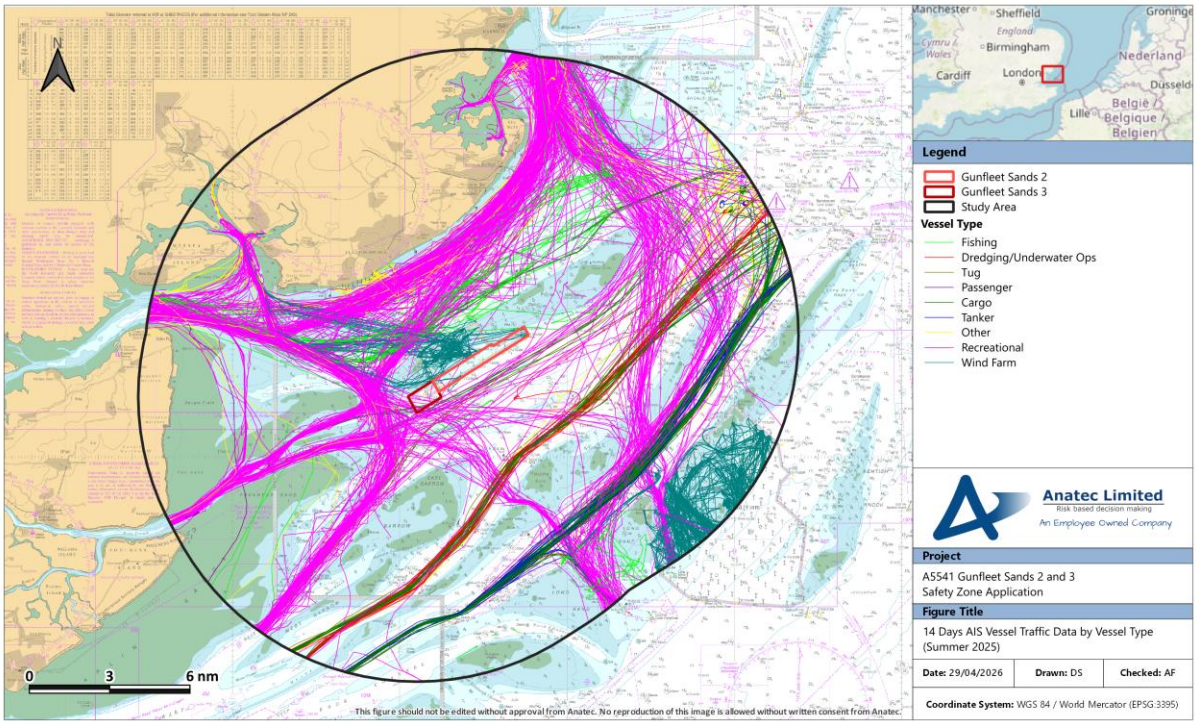


Figure 7.1 14 Days AIS Vessel Traffic Data by Vessel Type (Summer 2025)

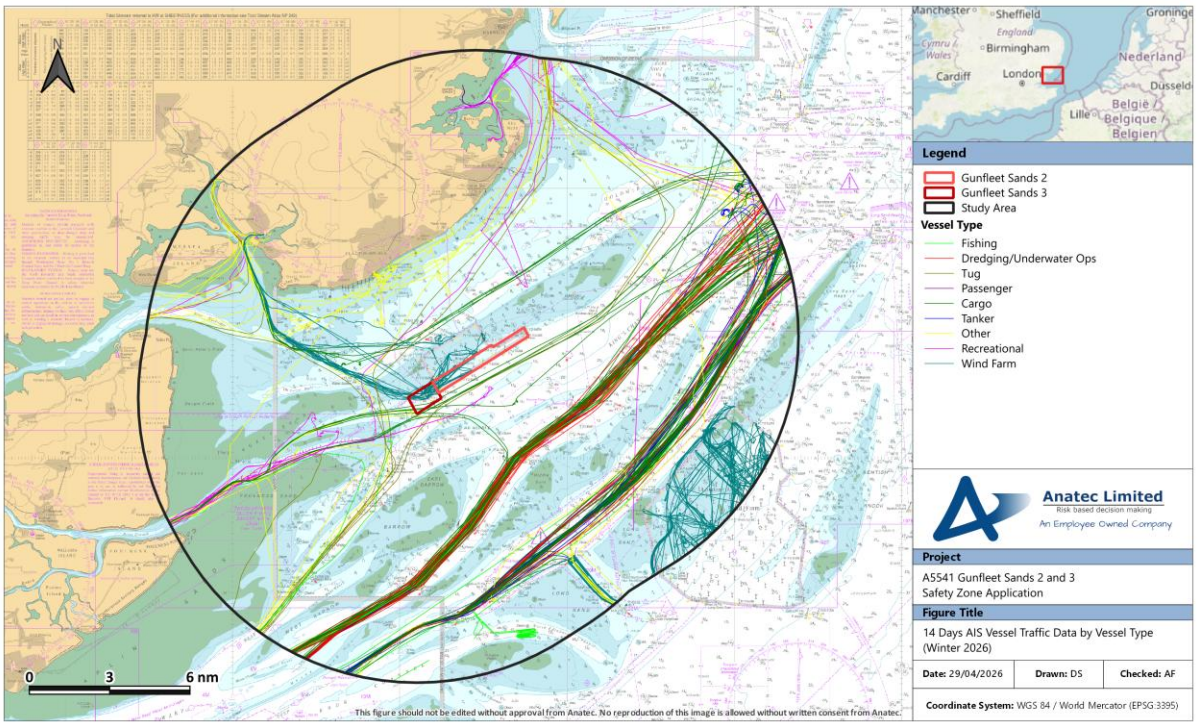


Figure 7.2 14 Days AIS Vessel Traffic Data by Vessel Type (Winter 2026)

7.2 Vessel Count

32. During the 14-day summer period, there was an average of 87 unique vessels recorded per day within the study area, and an average of between one and two unique vessels per day intersecting the array areas.

33. The busiest day within the study area during the summer period was the 26th July, on which 117 unique vessels were recorded.

34. The number of unique vessels recorded during each day of the summer period within the study area is presented in Figure 7.3.

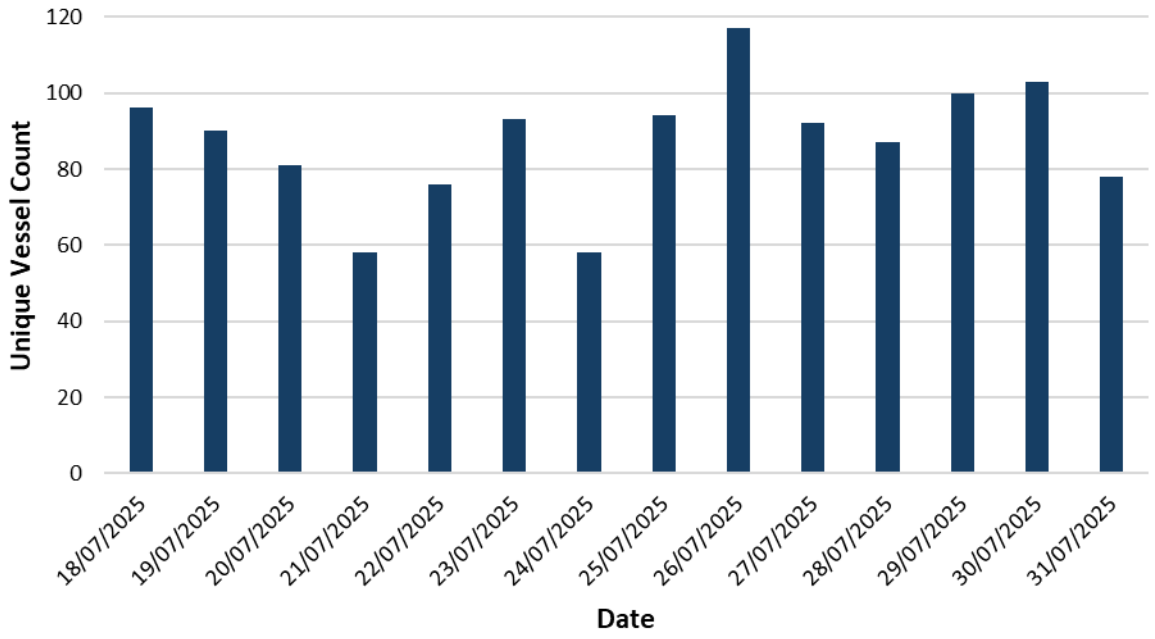


Figure 7.3 Distribution of Unique Vessel Count (Summer 2025)

35. During the 14-day winter period, there was an average of 22 unique vessels recorded per day within the study area, and an average of one unique vessel per day intersecting the array areas. This is a notable decrease in comparison to the summer period and is primarily due to the reduction in recreational vessel activity during the winter period. Lower volumes of fishing vessels and wind farm vessels were also recorded during the winter months, although not as significant a reduction.

36. The busiest day within the study area during the winter period was the 28th January, on which 30 unique vessels were recorded.

37. The number of unique vessels recorded during each day of the winter period within the study area is presented in Figure 7.4.

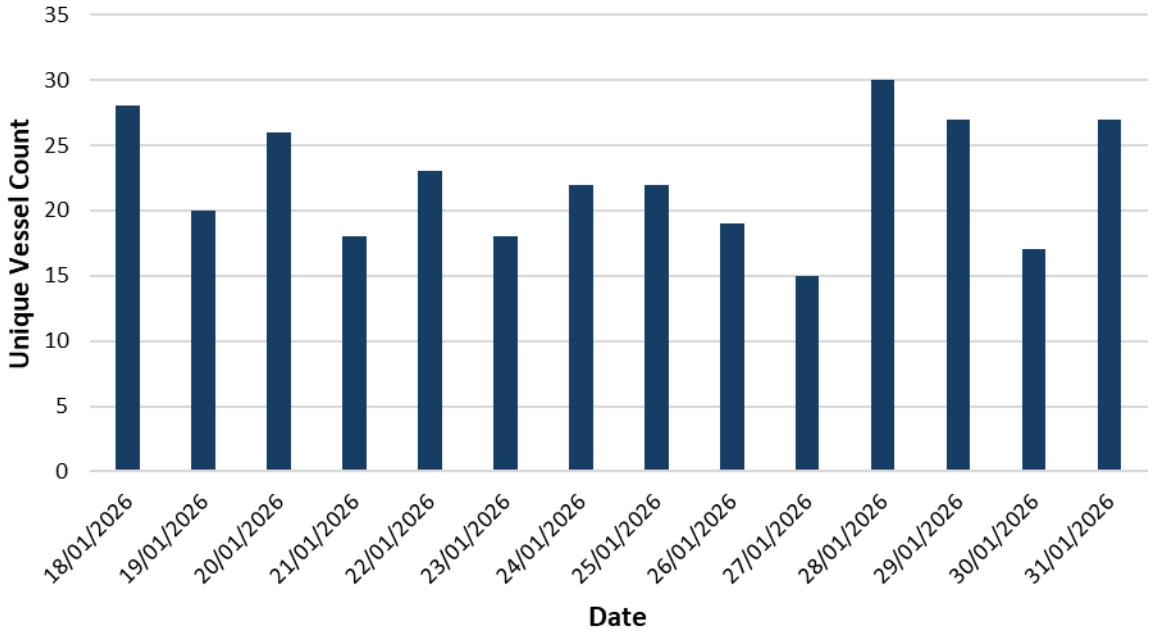


Figure 7.4 Distribution of Unique Vessel Count (Winter 2026)

7.3 Vessel Type

38. Figure 7.5 presents the vessel type distribution of vessels recorded within the study area during both the summer and winter periods.

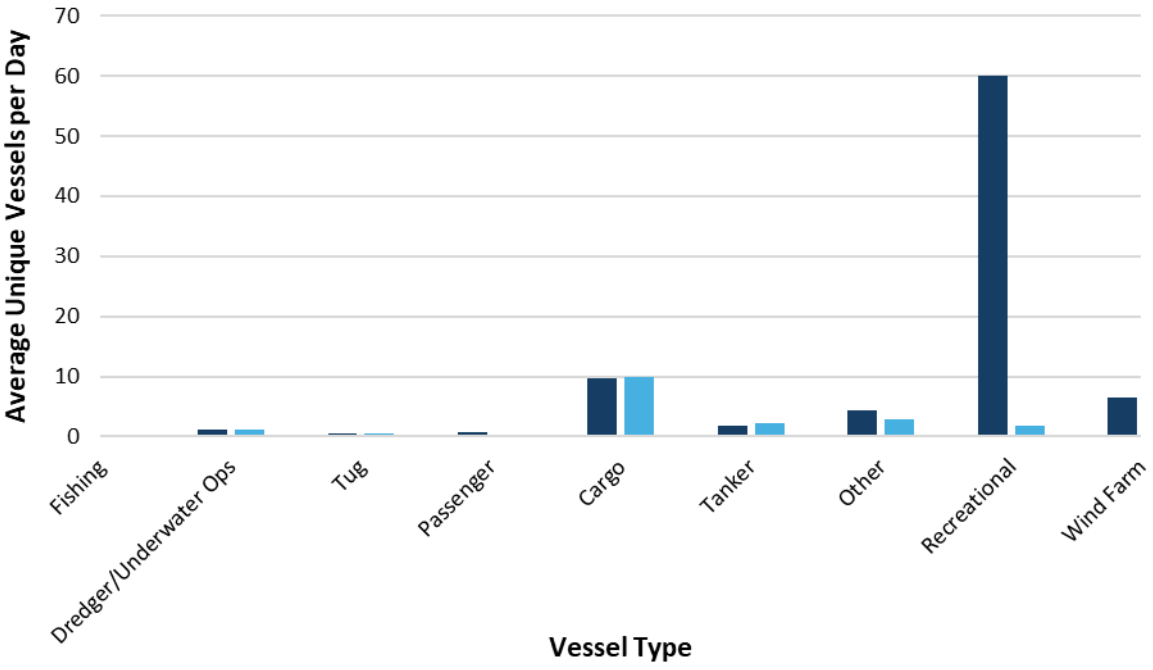


Figure 7.5 Distribution of Vessel Types

39. During the summer period, recreational vessels (69%) were the most commonly recorded vessel type within the study area. These were mainly recorded either inshore of the array areas, or further offshore using the Black Deep and King's Channels. The majority of recreational vessels do not pass in close proximity to the array areas, with further information on recreational vessel activity is presented in Section 7.3.1.

40. This was followed by cargo vessels (11%). During the winter period the most common vessel type was cargo (45%), followed by wind farm (14%), other (13%) and tankers (10%). The 'other' vessel category mainly consisted of RNLI Lifeboats and pilot vessels.

41. Within the array areas, recreational vessels (67%), wind farm vessels (17%) and cargo vessels (13%) were the most common during the summer period. During the winter period, wind farm vessels (62%) and cargo vessels (31%) were the most common.

42. The following subsections detail each of the main vessel types individually.

7.3.1 Recreational Vessels

43. Figure 7.6 presents the recreational vessel traffic recorded within the study area during both summer and winter periods.

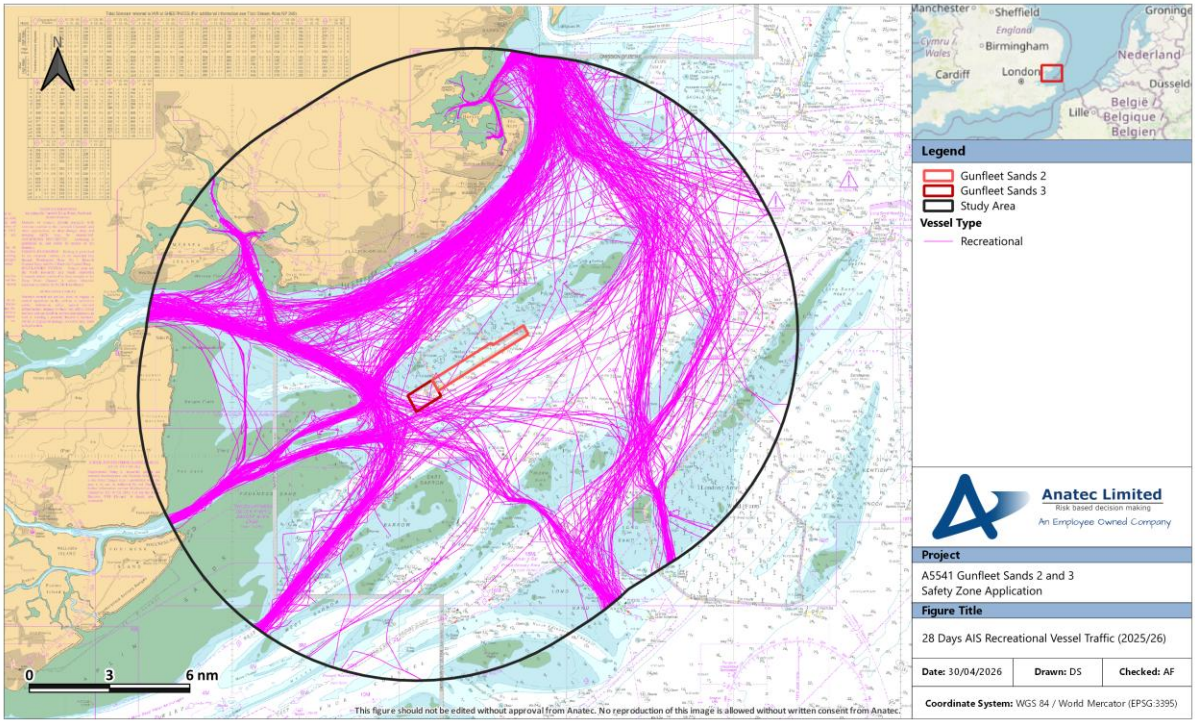


Figure 7.6 28 Days AIS Recreational Vessel Traffic (2025/26)

44. There was an average of 60 unique recreational vessels recorded within the study area per day during the summer period, and an average of two per day during the winter period.

45. Recreational vessels were overall the most prominent vessel type during the study period, with an average of 60 per day recorded within the study area per day during the summer period, and an average of two per day during the winter period. However, the majority of this activity is coastal and inshore of the sites. There are popular marinas within the River Crouch, River Blackwater and River Colne to the west of the sites, as well as further north including the Walton Backwaters, River Stour and River Orwell. With recreational vessels typically preferring to transit nearer the coast, a large proportion of their activity was recorded within the study area, inshore of the sites.

46. Of the recreational vessels recorded within 1nm of GFS 2 and GFS 3 in which subtype could be identified, approximately 80% of tracks were from sailing vessels – the remaining 20% was comprised of powered yachts.

47. Figure 7.7 presents a detailed overview of the recreational vessel transits within the array areas.

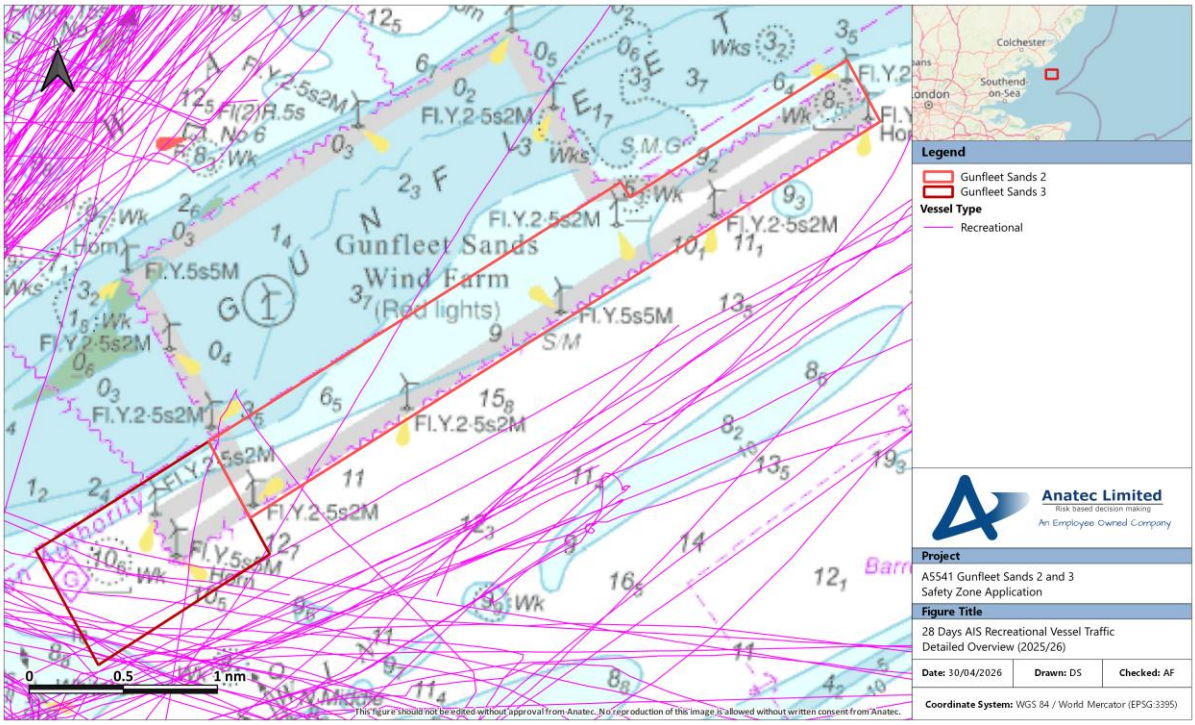


Figure 7.7 28 Days AIS Recreational Vessel Traffic Detailed Overview (2025/26)

48. It can be seen that a proportion of eastbound / westbound recreational vessels were recorded intersecting the GFS 3 array area, with the closest vessel passing within 100m of a WTG. A total of 18 recreational vessel tracks were recorded intersecting the GFS 2 array area, with two of these tracks also intersecting the GFS 3 array area.

49. However, the majority of tracks did not pass through the array of turbines and are passing at a distance that would not be impacted by a 500m safety zone around a structure. A total of seven recreational vessel tracks passed within 500m of a structure.

50. It should be considered that, as regulation 19 of the International Convention for the Safety of Life at Sea (SOLAS) Chapter V (International Maritime Organization (IMO), 1974) states that it is mandatory for AIS equipment to be fitted on vessels of 500 gross tonnage (GT) or above (or any vessel of 300 GT or above when travelling internationally, as well as fishing vessels with length of 15m and greater), recreational vessels under these thresholds are not obliged to broadcast on AIS and so may be underrepresented.

7.3.2 Cargo Vessels

51. Figure 7.8 presents the cargo vessel traffic data recorded within the study area during both the summer and winter periods.

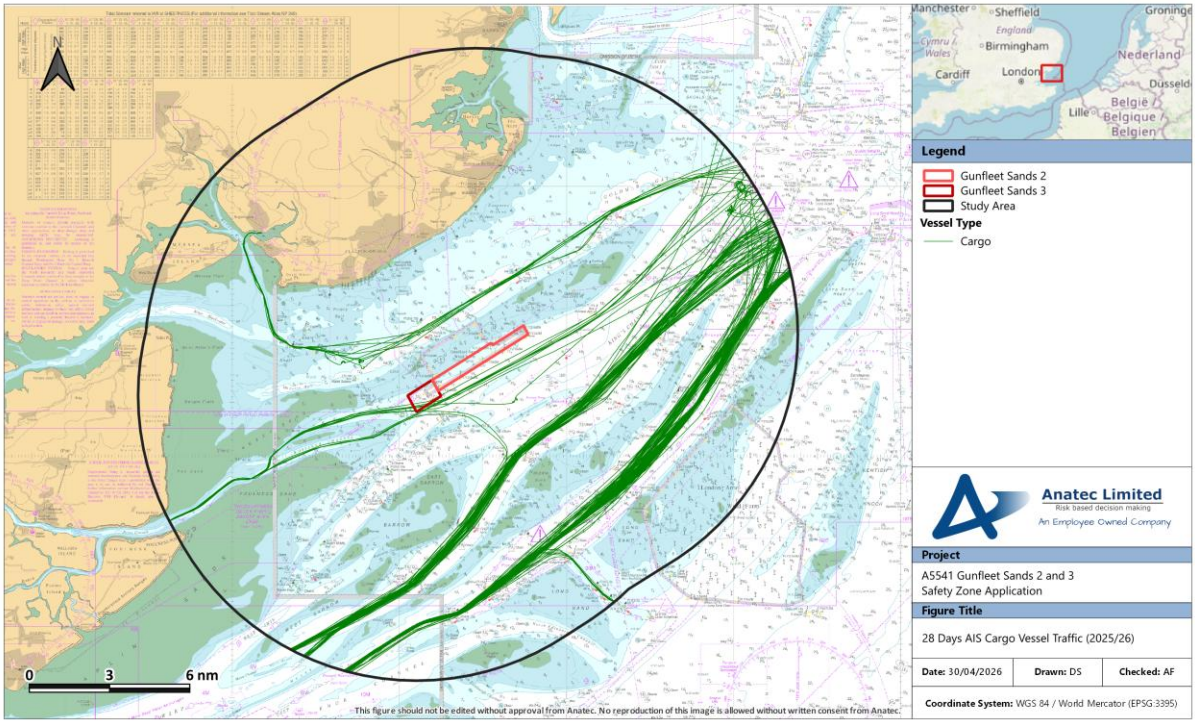


Figure 7.8 28 Days AIS Cargo Vessel Traffic Data (2025/26)

52. Cargo vessels were commonly recorded within the study area during both the summer and winter periods. There was an average of 10 unique cargo vessels recorded per day during each seasonal period.

53. Cargo vessels were generally recorded transiting in a northeast / southwest direction, with a higher volume of traffic recorded further offshore. These offshore routes were split into traffic utilising Barrow Deep, broadcasting destinations of

Rochester (UK) and Rotterdam (the Netherlands), and vessels using the Black Deep with destinations including Hamburg (Germany), London Gateway Port (UK) and Rotterdam. Less frequent routes were recorded heading to / from Brightlingsea (UK) and the River Crouch (UK), with vessels on these routes being smaller cargo vessels, with lengths of between 75m-100m.

54. Figure 7.9 presents a detailed overview of the cargo vessel transits within the array areas.

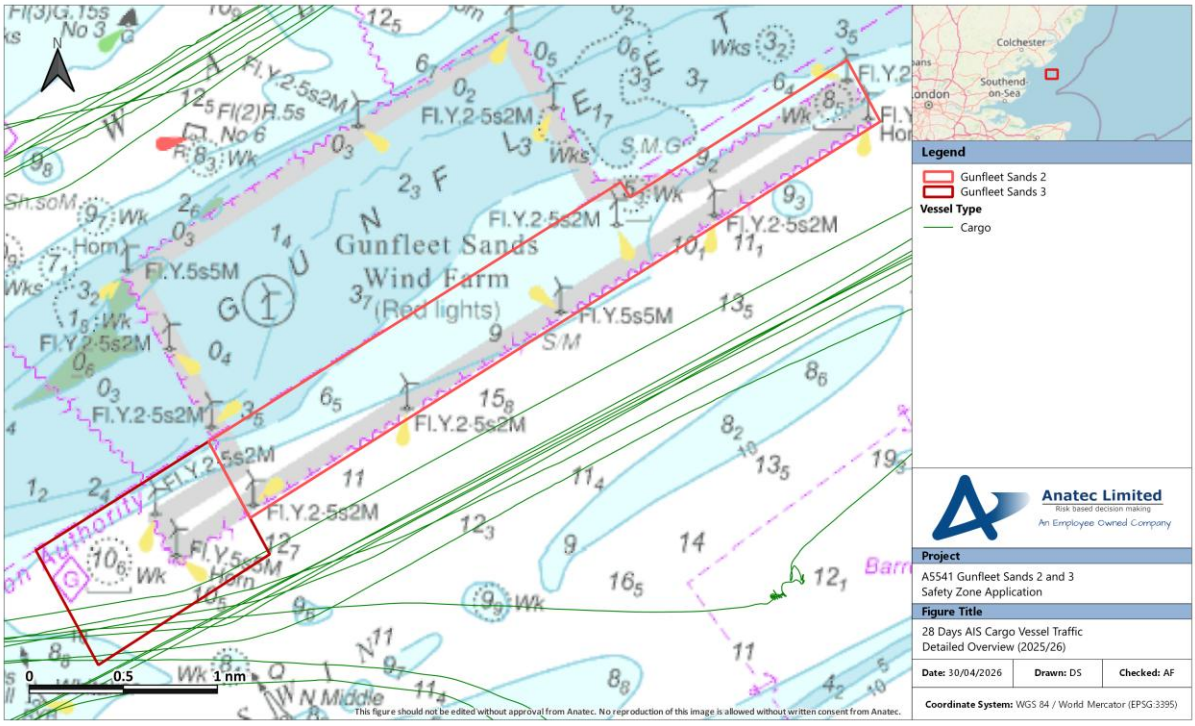


Figure 7.9 28 Days AIS Cargo Vessel Traffic Data Detailed Overview (2025/26)

55. A total of seven cargo vessel tracks were recorded heading to / from the River Crouch, intersecting the southwest corner of the GFS 3 array area. Of these, only one track was recorded within 500m of a turbine, passing at approximately 370m to the south.

7.3.3 Fishing Vessels

56. Figure 7.10 presents the fishing vessel traffic data recorded within the study area during both the summer and winter periods.

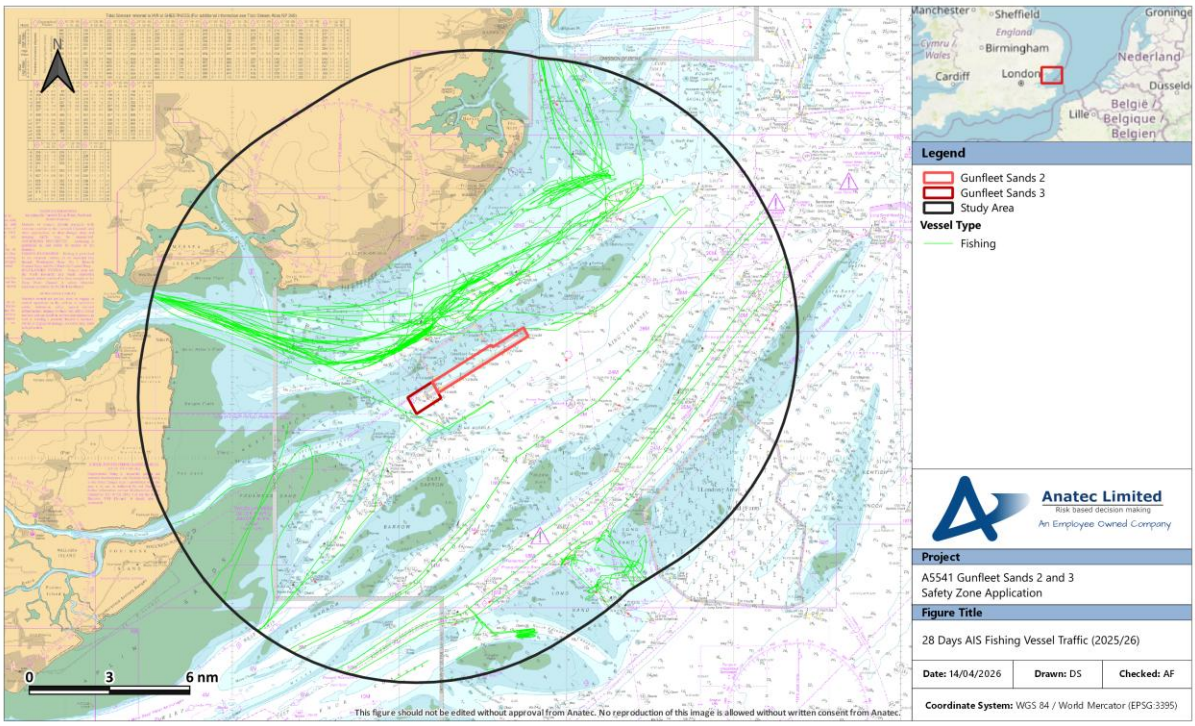


Figure 7.10 28 Days AIS Fishing Vessel Traffic Data (2025/26)

57. During the summer period, there was an average of between two and three unique fishing vessels per day recorded within the study area, whilst during the winter period there was an average of less than one per day.

58. Fishing vessel activity was most commonly recorded inshore, north of the array areas, as vessels transited between fishing grounds and the River Blackwater. Fishing vessels in the study area were generally small, with an average length of 11m recorded over the 28-day period.

59. The majority of fishing vessel tracks were indicative of active fishing. Fishing vessels actively engaged in fishing can be estimated using track behaviour, analysis of speed, and information broadcast over AIS such as navigational status. From this, it was deemed that approximately 41% of vessels were involved in active fishing across the 28-day period.

60. One fishing vessel was recorded intersecting the GFS 2 array area. This was a 12m demersal trawler passing within 100m of the nearest structure.

61. Figure 7.11 presents a detailed overview of the fishing vessel activity in proximity to the array areas.

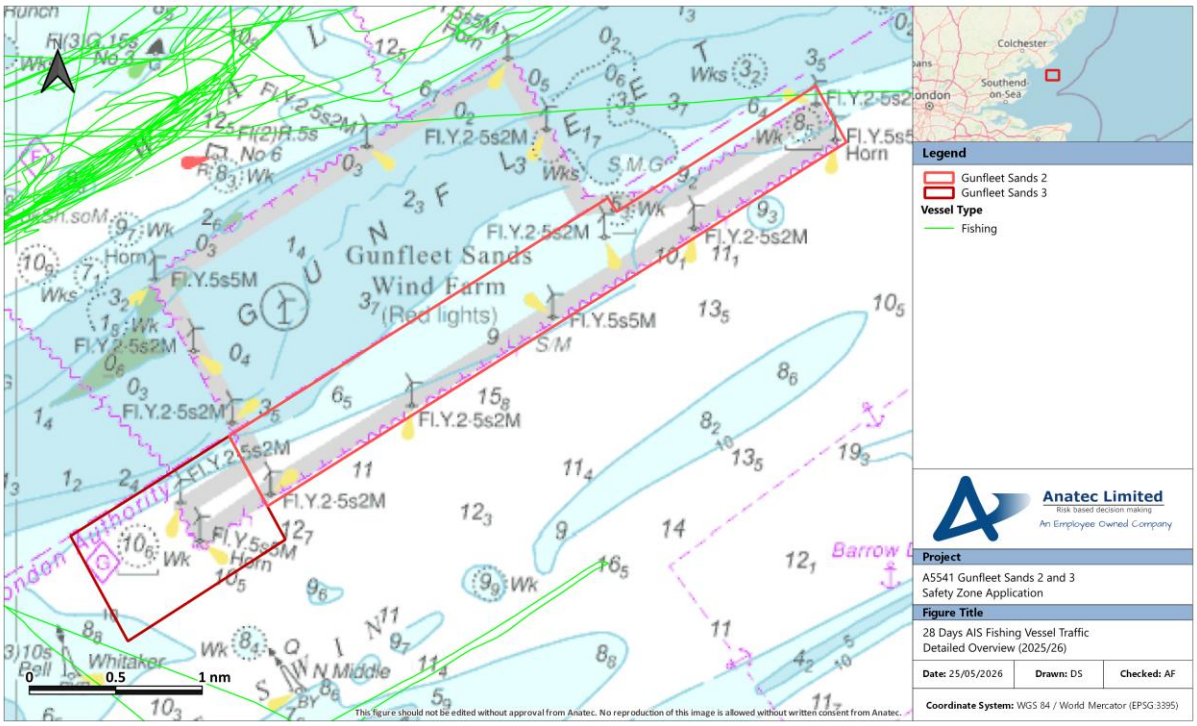


Figure 7.11 28 Days AIS Fishing Vessel Traffic Detailed Overview (2025/26)

62. As noted in Section 7.3.1, fishing vessels under 15m in length are not required to broadcast on AIS under SOLAS regulations, and therefore smaller fishing vessels may be underrepresented. Input from the Ørsted commercial fisheries indicates an understanding that fishing activity taking place within the array area is primarily comprised of fishing vessels utilising static gear.

7.3.4 Wind Farm Vessels

63. Figure 7.12 presents the wind farm vessel traffic data recorded within the study area during both the summer and winter periods.

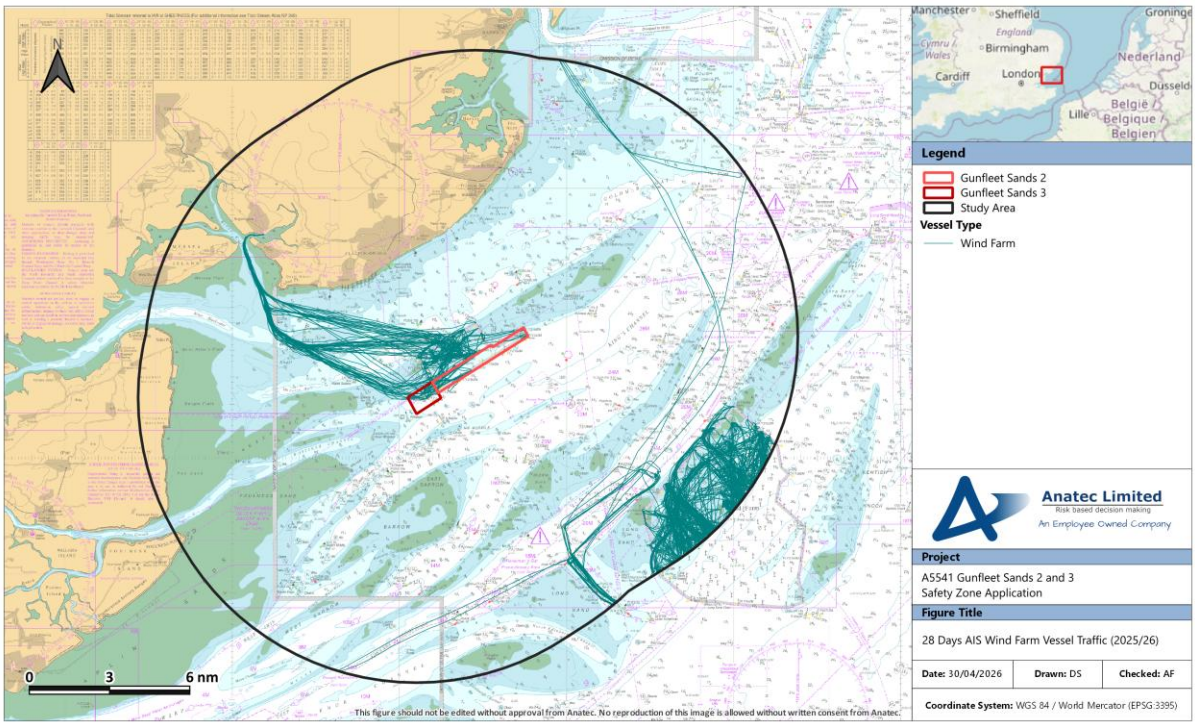


Figure 7.12 28 Days AIS Wind Farm Vessel Traffic Data (2025/26)

64. During the summer period, there was an average of between six and seven unique wind farm vessels per day recorded within the study area, whilst during the winter period there was an average of three.

65. Wind farm vessels were generally identified undertaking operational activities at the GFS projects and London Array OWF. Those heading to / from GFS were from Brightlingsea, while those associated with London Array OWF from Ramsgate (UK).

7.4 Anchored Vessels

66. Vessels can broadcast their navigational status over AIS including whether they are at anchor. However, as this information requires manual input, it is not always kept up to date and reliable. Therefore, along with navigational status, analysis of speed and track behaviour have been utilised to identify any vessels deemed to be at anchor within the study area during both the summer and winter periods. The resulting vessel traffic is presented in Figure 7.13, colour-coded by vessel type.

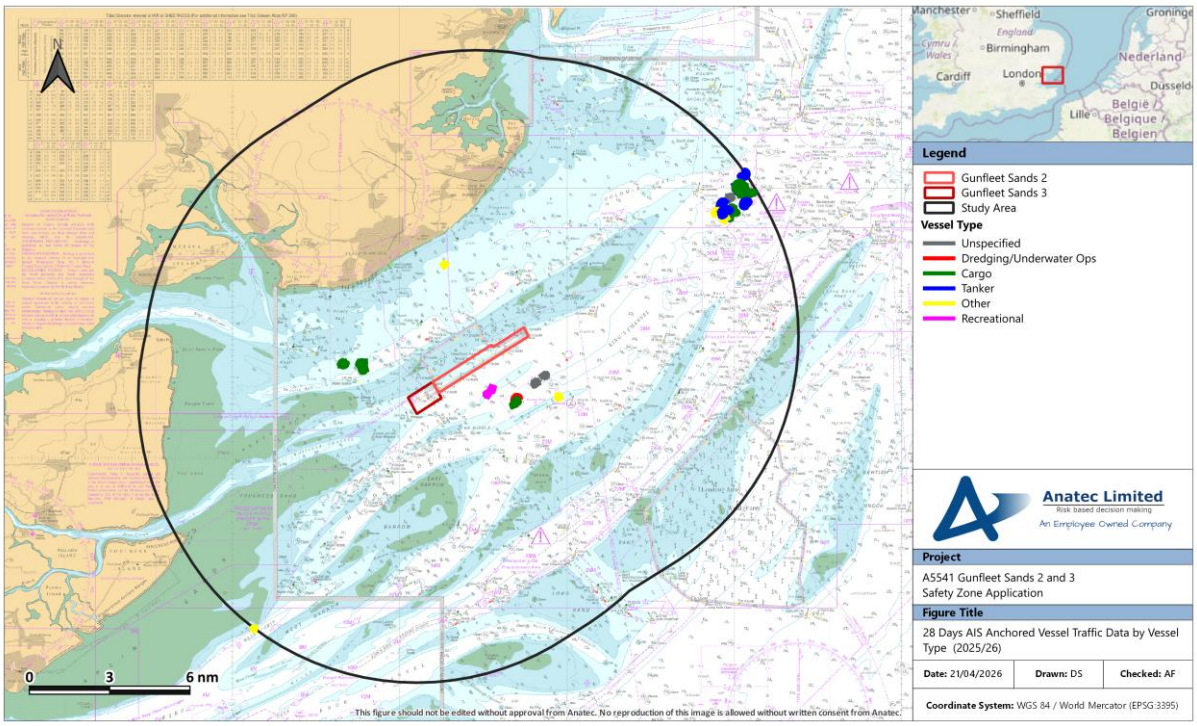


Figure 7.13 28 Days AIS Anchored Vessel Traffic Data by Vessel Type (2025/26)

67. During both the summer and winter periods, there was an average of between one and two unique vessels recorded to anchor per day. Overall, anchoring vessels were most commonly cargo vessels (43%), followed by tankers (24%).

68. Vessels deemed to be at anchor were primarily observed using designated anchorage areas, including the Sunk Inner anchorage area to the northeast and the Barrow Deep anchorage area to the southeast. Vessels recorded further inshore were typically anchored waiting to access Brightlingsea.

69. The closest anchored vessel, in relation to the array areas, was a recreational vessel situated 0.9nm southeast, recorded during both the summer and winter periods in a similar location. It was recorded at anchor for approximately 8 hours in each seasonal instance.

8 Safety Zone Overview

70. This section provides an indication as to what vessel scenarios are considered as triggering a safety zone during major maintenance at Gunfleet Sands. The list of scenarios presented is not considered to be exhaustive but does provide an indication of the types of activities that may require a safety zone.

71. The activities listed have been identified on the basis that they satisfy the following criteria:

- The activities are considered as being allowed safety zones under the relevant guidance and legislation as listed in Section 1.3; and
- Risk assessment has identified that where safety zones are able to be deployed under the legislative framework, such safety zones are a relevant mitigation measure to bring relevant risks (as per Section 9) to within As Low As Reasonably Practicable (ALARP) parameters.

72. The definition of 'major maintenance' given within the Electricity Regulations 2007 (which details regulations associated with application procedures and control of access related to safety zones) is as follows:

73. *'works relating to any renewable energy installation which has become operational, requiring the attachment to, or anchoring next to, such an installation of a self-elevating platform, jack-up barge, crane barge or other maintenance vessel.'*

74. It is noted that SOVs are not generally used as part of the maintenance strategy. Regardless no safety zones for SOV operations including Walk to Work are applied for under this application.

75. Permanent operational safety zones are also not applied for under this application.

76. Throughout any periods of major maintenance, details of the work being undertaken will be promulgated through Notice to Mariners, radio warnings as designated by the United Kingdom Hydrographic Office (UKHO) and the Kingfisher bulletin.

9 Justifications for Safety Zones

77. This section details the key hazards for which safety zones are a relevant mitigation. The justification considers the findings of operational experience of other wind farms and the vessel traffic assessment undertaken for this application (see Section 6).

9.1 Reduction in Collision Risk

78. Major maintenance will involve the use of vessels on site, including those that are anchored next to, or attached to, the structure, as per Section 8.

79. Commercial vessels (cargo, tanker, passenger) typically avoid offshore wind farms, and this assumption aligns with the vessel traffic data studied for the site (Section 6), with no such vessels recorded within the array areas. However, smaller cargo vessels were recorded heading to/from the River Crouch between the SW corner of GFS3 and the N Middle and Bell Whitaker buoys. Of these smaller cargo vessels, one passed within 500m of the southernmost WTG. Currently, vessels of between 50 and 90m have the option of boarding a pilot at the Bell Whitaker buoy (see Section 4), and therefore may not have a pilot on board when passing the array areas (noting this option is expected to no longer be available from January 2027).

80. Small vessels are more likely to choose to transit through array areas, and this can be seen in the analysis of recreational vessel activity (Section 7.3.1) where vessels were recorded on transit through both array areas during the summer period. One fishing vessel track was also recorded within the GFS 2 array area during the study period (Section 7.3.3).

81. Given the possibility of vessel transits through or near the array areas, the implementation of 500m safety zones around relevant structures to protect any major maintenance activities will ensure that vessels are aware of the ongoing sensitive operation and that collision risk to both project and third-party vessels is ALARP.

9.2 Protecting Site Personnel

82. During periods of major maintenance, there is expected to be an increase in the number of crew / personnel on site. This includes those onboard vessels anchored, or attached to, a structure which are at a particular risk of collision (as per Section 9.1), as well as those onboard passing third-party vessels.

83. Therefore, there is a need to ensure the safety of such crew / personnel. The implementation of mandatory 500m safety zones provides an alert to vessels transiting in the general area that a sensitive operation is underway and would limit the likelihood of third-party vessels in the area being in close proximity (and therefore potentially at risk and/or requiring monitoring).

9.3 Accounting for Inexperienced Mariners

84. As discussed in Section 7.3.1, recreational vessels were the most common vessel type recorded within the study area. Instances of recreational vessels intersecting the array areas and also passing in close proximity were observed. There may be instances of transits from recreational vessels that carry a lower standard of navigational equipment than commercial vessels in the array areas, and/or with crew that may not be as experienced or have few formal qualifications.

85. Implementation of mandatory safety zones in conjunction with other embedded mitigation measures (e.g., issue of Notice to Mariners, and monitoring and policing of safety zones) is therefore necessary to mitigate the risks to any recreational users.

86. If a vessel were to infringe a safety zone, and therefore become at risk of a collision, the monitoring and policing procedures would be actioned as detailed in Section 11. Any infringements to these safety zones shall be noted by the on-site vessel(s) and efforts made to contact the vessel using standard marine procedures, altering it to the safety zone infringement.

87. Furthermore, on-site vessel(s) shall be contactable (via Very High Frequency (VHF)) and be able to provide information to recreational vessels navigating in, or in proximity to, the sites should they require.

88. Therefore, the implementation of safety zones in combination with other mitigation measures shall bring the risk to within ALARP parameters.

9.4 Accounting for Unforeseen Risk

89. During any periods of major maintenance, there is potential for a number of events to occur which may result in previously unforeseen risk. Such events could include:

- Fire/explosion;
- Machinery Failure (including steering);
- Cargo (e.g., structure components) shifting;
- Structural failure of wind farm component;
- Dropped object(s);
- Accidental interaction with unexploded ordnance/wreck; or
- Accident associated with adverse weather.

90. If any of these incidents were to occur during periods of major maintenance, there is potential for loss of life and/or serious environmental damage. While safety zones would not necessarily directly mitigate any of these events in of themselves, they would decrease the likelihood of a third-party vessel being exposed to a hazard by sterilising the immediate working areas of existing vessel traffic. This greatly reduces the overall severity of consequence to third-party users of any potential incident.

91. The safety zones will be implemented alongside other mitigation measures, bringing the risk to within ALARP parameters.

10 Impact of Safety Zones

92. This section considers the potential impact of safety zones on relevant traffic, which has been identified based on the vessel traffic assessment undertaken (see Section 6).

10.1 Commercial Vessel Routeing

93. Other than wind farm vessels, no commercial vessels were recorded transiting within the array area. This is expected, due to the presence of the WTGs. However, as per Section 7.3.2 a number of smaller cargo vessels on transits to or from the River Crouch were recorded passing proximity to the southernmost WTG and therefore may have been impacted by a 500m safety zone at that WTG.

94. Input from the Crouch Harbour Authority (see Section 4) was that from January 2027, all such cargo vessels would have a pilot on board who would be aware of the projects and potential for safety zones. However, prior to January 2027, cargo vessels of less than 90m and 6m draught have the option of pilot boarding at the Bell Whitaker buoy, meaning they may not have a pilot on board when passing the array areas. The Crouch Harbour Authority noted advanced notice of the use of any safety zones would allow the associated vessels and their operators to be contacted to ensure they were aware of active safety zones when no pilot was on board prior to January 2027.

95. On this basis, assuming advanced notice of the safety zones is provided to the Crouch Harbour Authority, it is expected that the presence of the safety zones will have limited impact on commercial vessels due to the small size of the sites.

96. In any case, it is noted that promulgation of information will be undertaken including details of active safety zones which will facilitate passage planning of commercial vessels.

10.2 Recreational Vessels

97. As per Section 7.3.1, the available data indicates that recreational vessels were recorded intersecting both sites, with the closest passing vessel recorded at a distance of within 100m from a structure. However, the vast majority of these vessels did not enter into the array areas.

98. Any recreational vessel that did choose to transit through or near the array areas would be free to do so in areas where safety zones were not active, noting that safety zones would only be active temporarily while works were ongoing, and spatially limited to a small part of the site where the associated vessels were operating. The vessel types required to trigger a major maintenance safety zone (e.g., jack up, see Section 8) are unlikely to be present at multiple structures at any one time, with the more likely scenario being a single major maintenance vessel working on one

structure before moving to the next i.e., multiple 500m safety zones would not be considered a likely occurrence.

99. It should also be considered that promulgation of will be undertaken in advance of any major maintenance activities in relation to associated safety zones.

100. It is therefore expected that there will be limited impact on recreational vessel activity from any safety zones.

10.3 Fishing Vessels

101. As per Section 7.3.3, the available data indicates that only one fishing vessel passed within the array areas. No active fishing (i.e., gear deployed) was recorded within either array area. The analysis may underrepresent smaller fishing vessels (less than 15m), however input from the Ørsted commercial fisheries team indicates an understanding that some fishing activity (typically using static gear during summer months) occurs.

102. Any fishing vessel that did choose to transit through either array area would be free to do so in areas where safety zones were not active, noting that safety zones would only be active temporarily while works were ongoing. As per the equivalent recreational vessel discussion (Section 10.2), multiple 500m safety zones at any one time would not be considered a likely occurrence.

103. It should also be considered that promulgation of information (i.e., Notice to Mariners and Kingfisher notification) will be undertaken in advance of any major maintenance activities in relation to associated safety zones.

104. It is therefore expected that there will be no notable impact on fishing vessel activity from the safety zones, provided clear and advance notice is provided to the fishing industry, resulting in increased awareness of any period of major maintenance.

10.4 Anchored Vessels

105. Generally, it is considered unlikely that vessels would choose to anchor within a wind farm given the presence of infrastructure. This aligns with the assessment in Section 7.4, with no vessels identified as being at anchor within either array area, or within 500m. Therefore, any impact from the safety zones on vessel anchoring is likely to be minimal.

11 Monitoring and Policing

11.1 Monitoring

106. All vessels associated with the sites will be supplied with safety zone procedures as summarised in this application.

107. Whenever a 500m safety zone is active, vessel-based site monitoring will be undertaken to identify any vessels approaching or infringing the safety zones. This may be undertaken by the associated major maintenance vessel that has triggered the safety zone, or another on-site vessel available (likely a crew transfer vessel). The monitoring vessel will have responsibility for monitoring that safety zone via Radar, AIS, VHF communications and visual observations. It is noted that site monitoring via AIS is also undertaken by the Offshore Coordination team from the onshore East Coast Hub.

108. Where a third-party vessel is observed to be approaching either array area, early contact will be made by the designated on-site vessel to advise the passing vessel of maintenance work underway, and alert them to the presence of any active or soon to be active safety zones.

109. Where a third-party vessel is observed to come in close proximity to an active safety zone, the designated on-site vessel will make contact using standard marine procedures to inform the vessel it has infringed, or is close to infringing, the safety zone. The vessel will be warned to increase their passing distance and instructed against entering in the future. In the case where the vessel is a fishing vessel, the Commercial Fisheries Manager will look to engage with the vessel through the local Fishing Industry Representative before escalating to more formal evidence-based processes.

110. Where feasible, contact will be made with the associated vessels at the earliest opportunity, and details of any incidents will be logged, with the evidence retained for submission to DESNZ where appropriate. Further, London VTS will be contacted for any navigational safety matters including any concerns around third party vessels potentially entering into danger. Any near misses and incidents within the arrays will also be reported to PLA via their Resolver system (PLA, 2026).

111. Direct navigational advice will not be given to any third-party vessel, with the Convention on the International Regulations for Preventing Collision at Sea (COLREGs) (IMO, 1972/77) remaining the navigational priority for all vessels.

11.2 Policing

112. Where feasible, details and actions of any vessels which consistently ignore the warnings issued by the vessels on site or are considered to be causing a potential

danger to vessels, personnel or assets within the safety zone areas will be monitored and action (including steps taken) recorded.

113. The safety zones supplement more general regulations that are applicable to all sea users including the Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996 which implement COLREGs (IMO, 1972). These general regulations remain in force and require vessels to take appropriate action when encountering other vessels as well as the presence of safety zones. Any infringements of a safety zone or unsafe navigational acts (as required under the relevant regulations implementing international conventions) will be reported to DESNZ and the MCA.

12 Summary

114. This document represents the primary supporting document to the safety zone application submitted for the project. Safety zones have been applied for the both offshore wind farms, which consists of 500m safety zones around all major maintenance being undertaken around a WTG, as denoted by the presence of a major maintenance vessel.

115. A safety case has been provided, which indicates the safety zones (in combination with other mitigation measures) are necessary to bring risks to within ALARP parameters, including collision risk, and risk to crew, personnel, third parties and mariners.

116. The safety zones will also reduce consequences in the event of an unforeseen emergency incident by decreasing the likelihood that a third-party vessel will be in proximity.

117. The findings of the vessel traffic survey data have indicated that no significant impacts to third-party vessels are expected from the safety zones, noting traffic generally avoids the array areas. In addition, major maintenance safety zones are infrequent in nature and have limited spatial impact. The safety zones are therefore considered a proportionate mitigation measure.

118. The 500m safety zones shall be monitored for infringements by a nominated vessel (likely a crew transfer vessel). The primary response to potential infringement will be to warn passing traffic of the ongoing works and any active safety zones, and to alert any vessels where an infringement may occur or has already occurred.

119. Details of all infringements and/or near missus shall be recorded. Where necessary (i.e., where a vessel has infringed safety zones on multiple occasions or where a vessel has acted in a dangerous manner), details and relevant evidence shall be provided to DESNZ and MCA.

13 References

Energy Act 2004. https://www.legislation.gov.uk/ukpga/2004/20/contents (accessed Mar 2026).

Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007. https://www.legislation.gov.uk/uksi/2007/1948/contents/made (accessed Mar 2026)

DECC, 2011. Guidance Notes: Applying for Safety Zones around Offshore Renewable Energy Installations. London: DECC (now DESNZ).

IMO (1972/77). Convention on International Regulations for Preventing Collisions at Sea – Annex 3. London: IMO.

IMO, 1974. International Convention for the Safety of Life at Sea. London: IMO.

PLA (2026). Near miss and safety observations. London: PLA. https://pla.co.uk/near-miss-and-safety-observations (accessed Sept 2026).

Appendix A WTG Coordinates

ID	Structure	Wind Farm	World Geodetic System 1984 (WGS84)	
			Latitude	Longitude
G09	WTG	GFS 2	51° 44.530′ N	001° 17.607′ E
G08	WTG	GFS 2	51° 44.274′ N	001° 16.951′ E
G07	WTG	GFS 2	51° 44.018′ N	001° 16.295′ E
G06	WTG	GFS 2	51° 43.762′ N	001° 15.639′ E
G05	WTG	GFS 2	51° 43.506′ N	001° 14.983′ E
G04	WTG	GFS 2	51° 43.250′ N	001° 14.327′ E
G03	WTG	GFS 2	51° 42.994′ N	001° 13.671′ E
G02	WTG	GFS 2	51° 42.738′ N	001° 13.015′ E
G01	WTG	GFS 2	51° 42.483′ N	001° 12.359′ E
F09	WTG	GFS 2	51° 44.737′ N	001° 17.428′ E
F08	WTG	GFS 2	51° 44.481′ N	001° 16.772′ E
F07	WTG	GFS 2	51° 44.225′ N	001° 16.116′ E
F06	WTG	GFS 2	51° 43.969′ N	001° 15.460′ E
F05	WTG	GFS 2	51° 43.713′ N	001° 14.804′ E
F04	WTG	GFS 2	51° 43.457′ N	001° 14.147′ E
F03	WTG	GFS 2	51° 43.201′ N	001° 13.492′ E
F02	WTG	GFS 2	51° 42.945′ N	001° 12.836′ E
F01	WTG	GFS 2	51° 42.689′ N	001° 12.180′ E
G00	WTG	GFS 3	51° 42.227′ N	001° 11.703′ E
F00	WTG	GFS 3	51° 42.434′ N	001° 11.524′ E