Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Supporting Documents for the Applicant's Responses to the Examining Authority's Third Written Questions

Revision A
Deadline 5
June 2023
Document Reference: 19.2.1

China Resources
Better Life Together

Masdar
A MUBADALA COMPANY

equinor

Title:	
Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Examination submission **Supporting Documents for the Applicant's Response to the Examining Authority's Third Written Questions**	
PINS document no.: 19.2.1	
Document no.: C282-RH-Z-GA-00295	
Date:	Classification
June 2023	**Final**
Prepared by: **Royal HaskoningDHV**	
Approved by: **Emma Eshelby, Equinor**	Date: June 2023

Table of Contents

Appendix A.1

This appendix has been produced to support the Applicant's response to the Examining Authority's Third Written Questions – Q3.14.1.3. This document should be read alongside ***The Applicant's Response to the Examining Authority's Third Written Questions*** *[document reference 19.2]*

Our Ref: Sheringham Shoal/Dudgeon Extension projects – Loch Ryan Sandwich tern compensation proposals

Date: 13th June 2023

Felix Cryer
Equinor New Energy Limited
1 Kingdom Street
London W2 6BD
UK

Environment Team
Economy and Development
Dumfries and Galloway Council
Kirkbank House
English Street
Dumfries
DG1 2HS

Any enquiries please contact:
Karen Morley
Countryside Development Officer
E-mail: [redacted]@dumgal.gov.uk
Website: www.dumgal.gov.uk

Dear Mr Cryer

Sheringham Shoal and Dudgeon Extension Projects – Loch Ryan Sandwich tern compensation proposals

Dumfries and Galloway Council (the Council) are aware that the Examining Authority in respect of the Sheringham Shoal and Dudgeon Extension Projects has asked for confirmation that Equinor has engaged with the Council in respect of compensation measures for Sandwich terns proposed at Loch Ryan.

This letter is provided as confirmation that in principle and subject to planning permission, the Council supports Equinor's proposals to provide compensation for Sandwich tern at Loch Ryan as part of compensatory measures related to the Development Consent Order (DCO) application for the proposed Sheringham Shoal Offshore Wind Farm Extension Project and the Dudgeon Offshore Wind Farm Extension Project.

The Council has actively engaged with Equinor during the DCO process to provide consultation feedback on outline options for Sandwich tern compensation at Loch Ryan.

Dumfries and Galloway Council welcomes the consultation that has been undertaken to date and looks forward to further engagement as the detailed designs are progressed.

Yours sincerely,

[redacted]

Karen Morley, **Countryside Development Officer**

Dumfries & Galloway COUNCIL

Appendix A.2

This appendix has been produced to support the Applicant's response to the Examining Authority's Third Written Questions – Q3.19. This document should be read alongside ***The Applicant's Response to the Examining Authority's Third Written Questions*** *[document reference 19.2]*

Sheringham and Dudgeon Extensions Examination Submission
Vessel Passing Distances from UK Wind Farms

Prepared by	Anatec Limited
Presented to	Equinor New Energy Limited
Date	09/06/2023
Revision Number	00
Document Reference	A4523-EQ-PINS-2

	Aberdeen Office	Cambridge Office
Address	10 Exchange Street, Aberdeen, AB11 6PH, UK	Braemoor, No. 4 The Warren, Witchford Ely, Cambs, CB6 2HN, UK
Tel	01224 253700	01353 661200
Email	aberdeen@anatec.com	cambs@anatec.com

Revision Number	Date	Summary of Change
00	09 June 2023	Initial Draft

Table of Contents

Table of Figures

Table of Tables

Abbreviations Table

Abbreviation	Definition
AIS	Automatic Identification System
DEP	Dudgeon Extension Project
nm	Nautical Mile
SEP	Sheringham Shoal Extension Project
TSS	Traffic Separation Scheme
WTG	Wind Turbine Generator

1 Introduction

This submission into Deadline 5 of the Sheringham Shoal Extension Project (SEP) and Dudgeon Extension Project (DEP) examination provides examples of vessels passing within one nautical mile (nm) of existing wind farm developments. It has been drafted to provide additional information in relation to Q3.19.1.9 of the Examiner's Third Written Questions:

Does the Navigational Safety Technical Note [REP3-031, Figure 6.2] demonstrate that vessels are content with passing approximately 1 nautical mile from windfarms?

The Navigational Safety Technical Note referenced [REP3-031] in the question demonstrated that vessels often pass within 1nm of the existing Dudgeon Wind Farm. To demonstrate that this is not a unique scenario, Anatec Ltd have reviewed additional cases of wind farms where vessels pass in proximity to the structures and have produced this technical note to demonstrate that vessels passing closer than 1nm to wind farm structures is a regular (daily) occurrence.

A total of four operational projects have been included in this technical note:

- Barrow;
- West of Duddon Sands;
- Humber Gateway; and
- Rampion.

For each of the four projects, a year of Automatic Identification System (AIS) data (covering the entirety of 2022) has been analysed to determine the number of vessels that passed within 1nm of the structures over the 12 months.

It is noted that the projects presented were chosen to represent a variety of different developments, and are not a comprehensive list, nor the only cases where vessels pass closer than 1nm, with there being other examples across the UK.

2 Barrow and West of Duddon Sands

The West of Duddon Sands project has been operational since 2014 and the Barrow project since 2006. Based on the year of AIS data, an average of two to three vessels per day passes within 1nm of West of Duddon Sands and four per day within 1nm of Barrow. These vessels are shown in Figure 2.1.

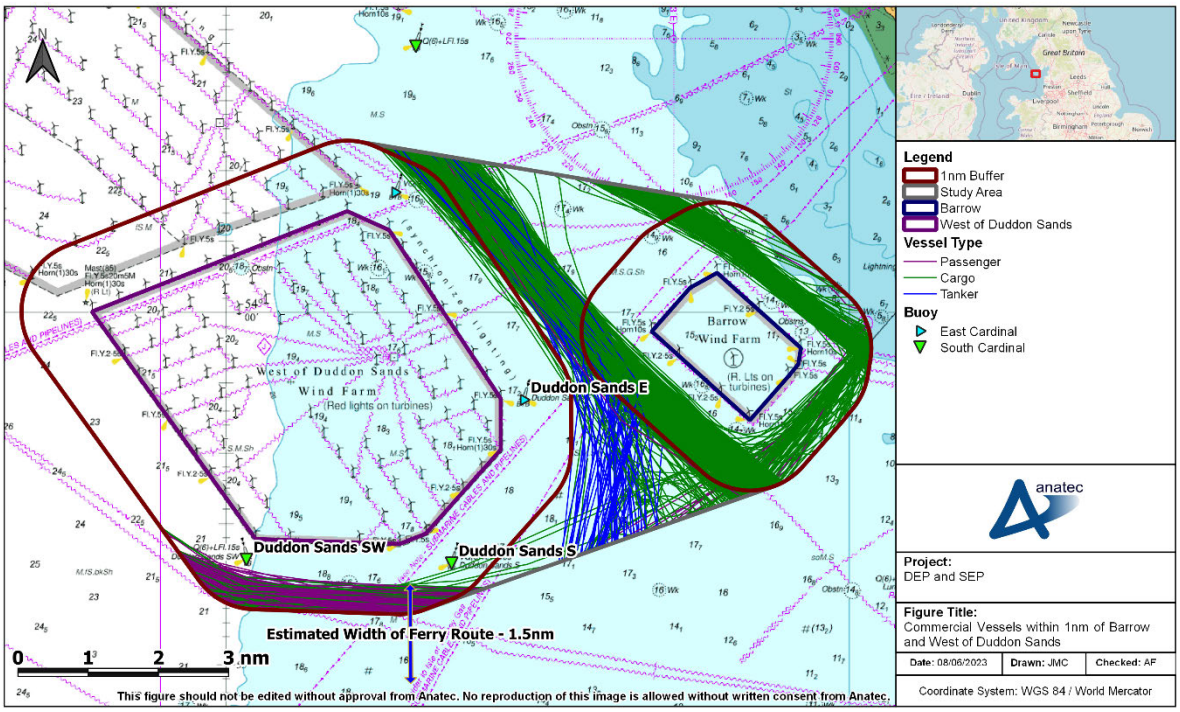


Figure 2.1 Commercial vessels within one nautical mile of Barrow and West of Duddon Sands

Vessels within 1nm passed both inshore and offshore of Barrow, and to the west and south of West of Duddon Sands noting that the Duddon Sands SW buoy limits how close vessels can pass the West of Duddon Sands structures as shown in Figure 2.1. Figure 2.1 also shows the estimated width of the vessel traffic altering course around the Duddon Sands SW buoy (which are observed to be predominantly ferries).

3 Humber Gateway

The Humber Gateway project has been operational since 2015. Based on the year of 2022 AIS data, an average of 1-2 commercial vessels per day pass within 1nm of the Humber Gateway WTGs (noting this number excludes portions of vessel tracks within the Traffic Separation Scheme (TSS) to the east). These vessels are shown in Figure 3.1.

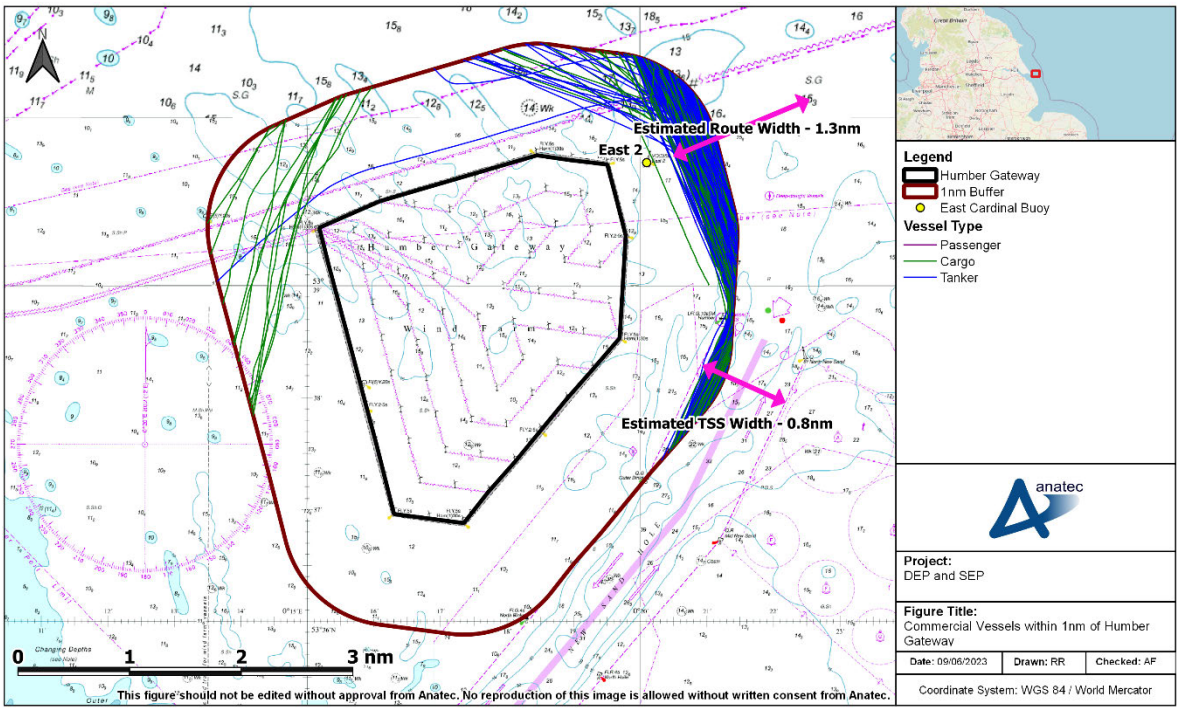


Figure 3.1 Commercial vessels within one nautical mile of Humber Gateway

The majority of vessels within 1nm passed to the northeast, and did so past the buoy shown in Figure 3.1. The estimated width of this traffic is shown in Figure 3.1 (noting this is not the only route accessing the TSS i.e, the full traffic extends beyond the marked area).

It is also noted that the TSS is located less than 1nm from the Humber Gateway structures, meaning vessels can and do pass closer than 1nm whilst within the southbound lane.

4 Rampion

The Rampion project has been operational since 2018. Based on the year of 2022 AIS data, an average of one commercial vessel every three days pass within 1nm of Rampion. These vessels are shown in Figure 4.1.

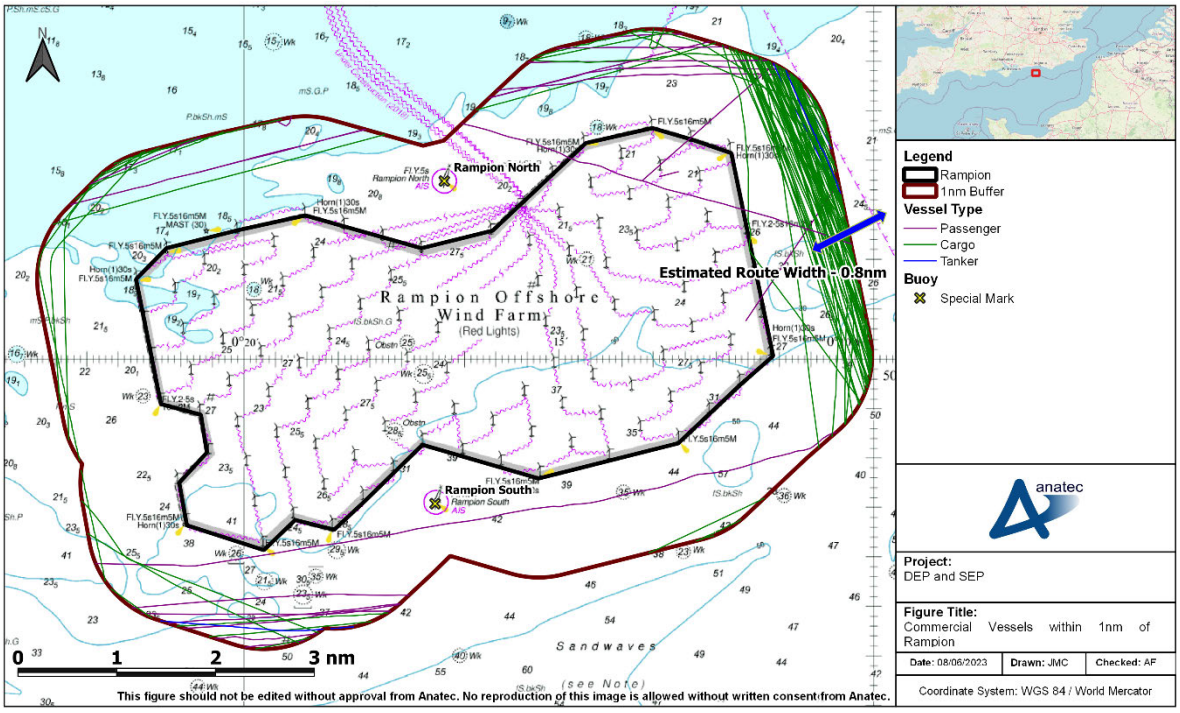


Figure 4.1 Commercial vessels within one nautical mile of Rampion

The majority of vessels within 1nm passed to the east. The estimated width of this traffic is included in Figure 4.1.

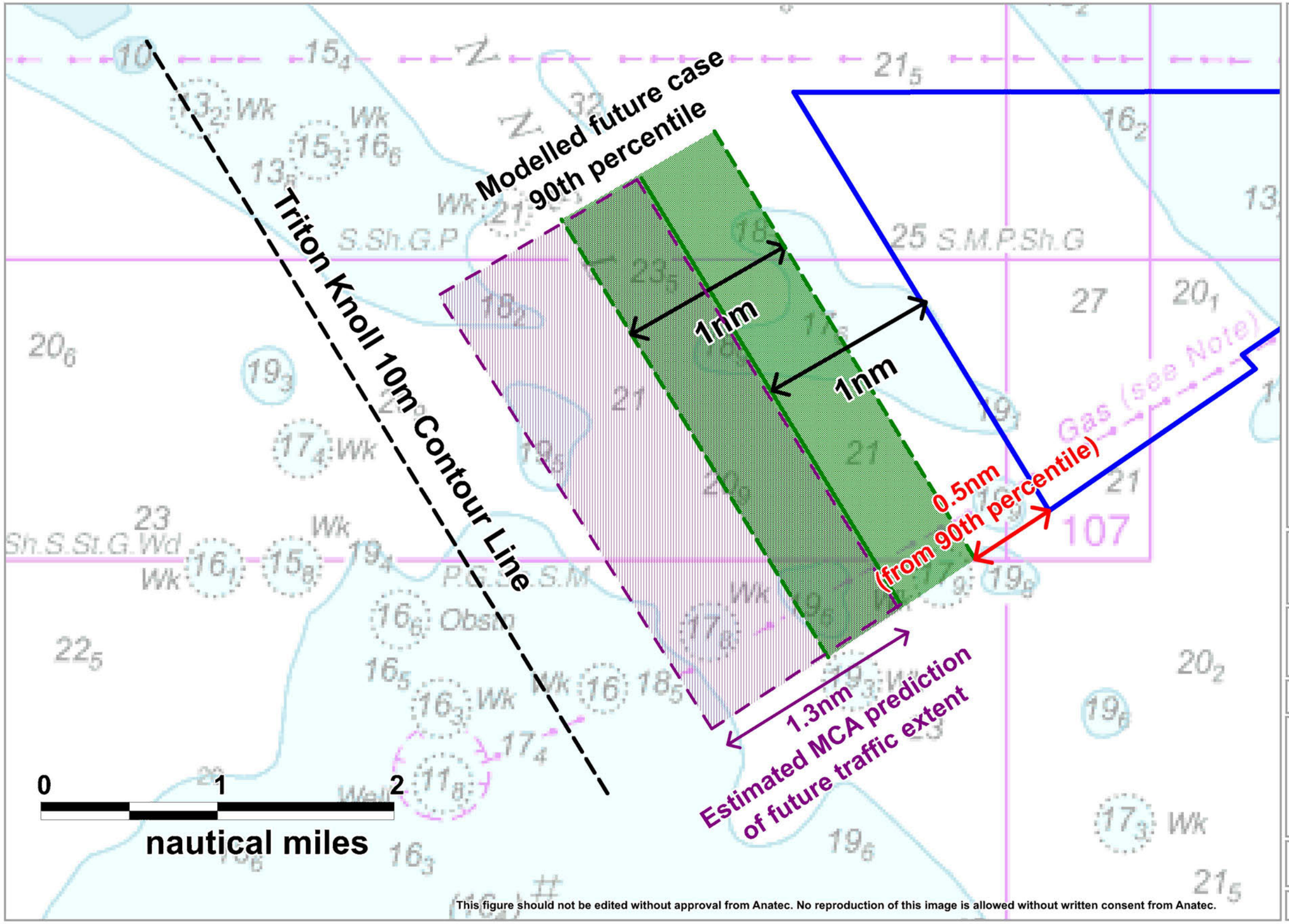
5 Summary

Table 5.1 presents a summary of the commercial vessel numbers within 1nm of the projects analysed in this note. For reference, the number of vessels passing within 1nm of the existing Dudgeon site are also included (further details are provided in the Navigational Safety Technical Note [REP3-031]).

Table 5.1 Summary of Commercial Vessel Numbers

Wind Farm	Number of Commercial Vessels per Day within 1nm
Barrow	4
West of Duddon Sands	2 – 3
Humber Gateway	1 – 2
Rampion	< 1 (1 every 3 days)
Dudgeon	< 1 (1 every 2 - 3 days)

This technical note is considered as demonstrating that vessels can and do routinely pass closer than 1nm to operational wind farms in the UK. As described in the Navigational Safety Technical Note [REP3-031], prudent mariners will define an appropriate passing distance based on a variety of factors including vessel type, size weather conditions and other relevant navigational features.



Legend

- DEP Wind Farm Site
- Mean Route Positions
- 90th percentile

PROJECT NAME
Sheringham and Dudgeon
Extension Projects

FIGURE TITLE
Comparision - NRA Worst Case Modelling
vs MCA Prediction of Future Case

REVISION: REV 00

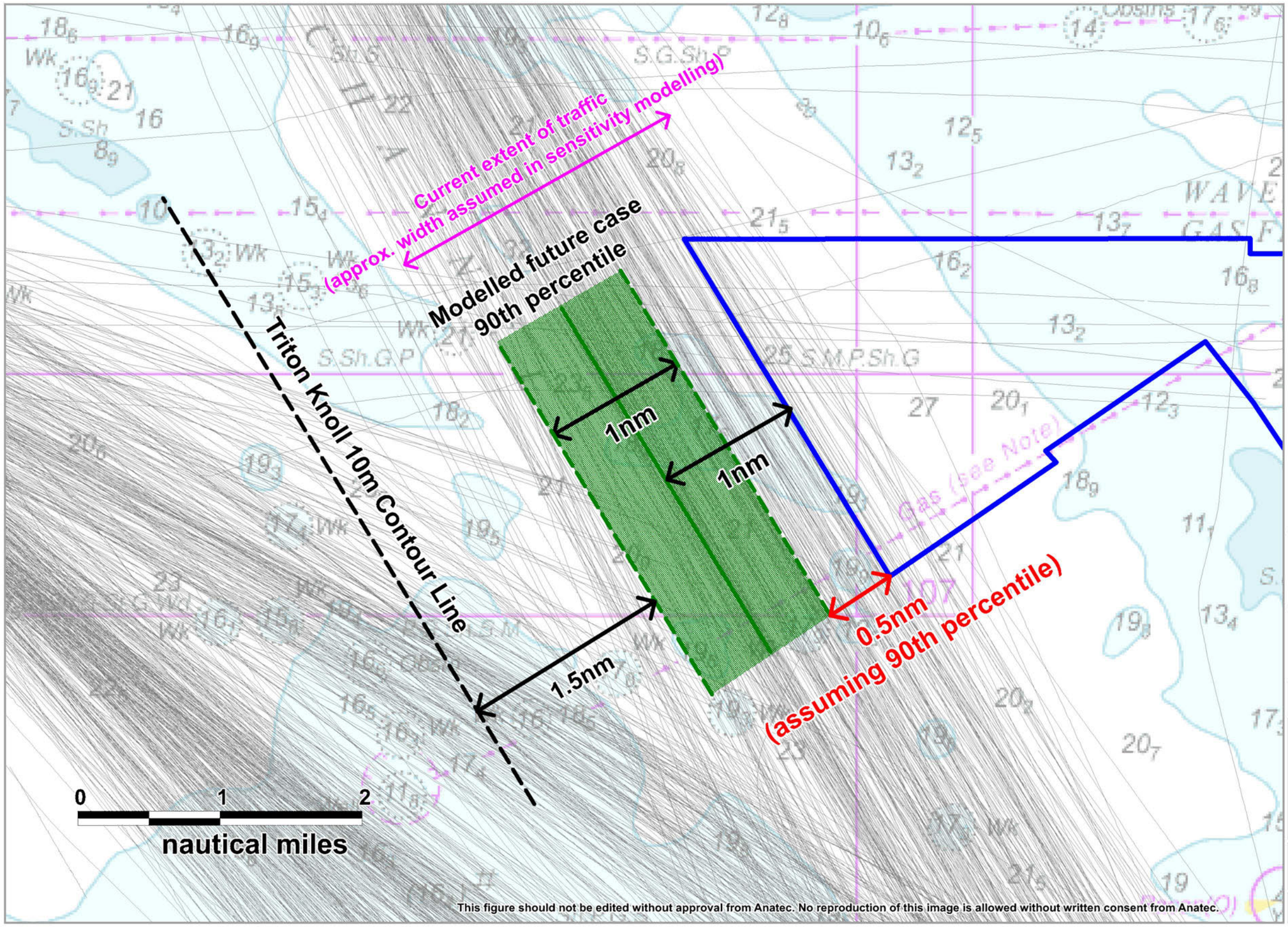
DATE: 09/06/2023

anatec

CO-ORDINATE SYSTEM
Mercator WGS84

DRAWN: AF

CHECKED: SW



Legend

- DEP Wind Farm Site
- Mean Route Positions
- 90th percentile

PROJECT NAME
Sheringham and Dudgeon Extension Projects

FIGURE TITLE
Modelling Visualisation

REVISION: REV 00

DATE: 08/06/2023

anatec

CO-ORDINATE SYSTEM
Mercator WGS84

DRAWN: AF

CHECKED: SW

Extent of 500m safety zones

Modelled future case
90th percentile

Triton Knoll 10m Contour Line

1nm

1nm

1.5nm

0.5nm
(assuming 90th percentile)

0 1 2
nautical miles

Legend

- DEP Wind Farm Site
- Mean Route Positions
- 90th percentile

PROJECT NAME
Sheringham and Dudgeon Extension Projects

FIGURE TITLE
Extent of 500m Safety Zones

REVISION: REV 00

DATE: 09/06/2023

anatec

CO-ORDINATE SYSTEM
Mercator WGS84

DRAWN: AF

CHECKED: SW