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MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Annex 3.1 to Response to Hearing Action Points 2 and 3: Shipping and Navigation

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Image of an offshore wind farm

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Morgan Offshore Wind Limited.

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Glossary

Term	Meaning
Applicant	Morgan Offshore Wind Limited.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Morgan Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, scour protection, cable protection and offshore substation platforms (OSPs) forming part of the Morgan Offshore Wind Project: Generation Assets will be located.
Morgan Offshore Wind Project: Generation Assets	This is the name given to the Morgan Generation Assets project as a whole (includes all infrastructure and activities associated with the project construction, operations and maintenance, and decommissioning).
The Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.

Acronyms

Acronym	Description
AIS	Automatic Identification System
ALARP	as low as reasonably practicable
CNRRA	Cumulative Regional Navigation Risk Assessment
ES	Environmental Statement
LOA	length overall
NRA	Navigation Risk Assessment
OWF	Offshore Wind Farm
TSS	Traffic Separation Scheme

Units

Unit	Description
m	metre
nm	Nautical Mile

1 Appendix to Response to Hearing Action Points: ISH2: Shipping and Navigation

1.1 Introduction

1.1.1.1 This document has been prepared in response to Action Points 2 and 3 arising from the ISH2 which was held on 26 to 27 November 2024 in respect of the Morgan Offshore Wind Project: Generation Assets (hereafter Morgan Generation Assets).

1.1.1.2 Morgan Offshore Wind Ltd. ('the Applicant') has reviewed each of these action points.

1.1.1.3 Action Point 2 and 3 is set out in the document Issue Specific Hearing 2 (ISH2) - 26 & 27 November 2024 - Action Points (EV5-014) and requires:

1.1.1.4 2. *Submit an illustrated note clarifying Environmental Statement (ES) Volume 2 Chapter 7 section 7.5.3 identifying location, size and frequency of deep draught vessels sheltering or transferring pilots east of Douglas in the northern part of the study area; including identification of what the likely routing would be to pass around the Proposed Development on passage to Liverpool.*

1.1.1.5 3. *Submit a note elaborating ES Volume 2 Chapter 7 section 7.6.3 on precedent (whether in the United Kingdom or elsewhere) for restricted "pinch-points" in navigation corridors or gaps between or alongside Wind Farm arrays, for which navigation risk has been assessed as tolerable if controlled to as low as reasonably practicable (ALARP), and providing diagrams or plans describing comparative context to the worst-case passage between the Proposed Development and the Agreement for Lease (AfL) area for the proposed Mooir Vannin Offshore Wind Farm (OWF).*

1.2 Response to Action Point 2: Deep Draught Vessels

1.2.1.1 Figure 1.14 of Volume 4, Annex 7.1 NRA (APP-060) shows the tracks of all vessels recorded through the Automatic Identification System (AIS) during 2022 by their draught (depth below the waterline). Whilst there is no definition of "deep draught", it could be considered that those vessels that are "constrained by their draught" due to shallow or constrained waterways, would be deep draught.

1.2.1.2 Figure 1.1 filters those transits to vessels with a draught above 8 m. A fishing vessel with an erroneous draught of 8 m shown in Figure 1.14 of the Application (APP-060) has been removed from this analysis.

1.2.1.3 The deepest draught vessel in the shipping and navigation study area during that period was 13.4 m, with only seven transits by vessels more than 10 m in draught throughout the 12 months of 2022. As can be seen in Figure 1.1, the majority of deep draught vessels are bound for Liverpool, and the majority of transits which intersect the Morgan Array Area are loitering in the centre of the Irish Sea, before then proceeding into Liverpool.

1.2.1.4 Commercial vessels use the Isle of Man to shelter from strong northwesterly conditions when they infrequently occur, however, they are typically small coaster vessels than large deep draught vessels. The southeast coast of the Isle of Man offer protection from the prevailing southwesterlies and therefore most anchoring and sheltering occurs due east of Anglesey, Wales.

1.2.1.5 Noting both the depths of water surrounding the Morgan Array Area are greater than 30 m below chart datum and the largest vessels in the shipping and navigation study area are relatively shallow, as well as the lack of any sheltering or anchoring activity

in vicinity to the Morgan Array Area, the Applicant does not consider that there would be any impact of the Morgan Array Area on the transits of deep draught vessels.

1.2.1.6 Paragraph 1.6.2.52 of Volume 4, Annex 7.1 NRA (APP-060) notes that information was provided to the Applicant on a specific phenomenon where vessels bound for Liverpool, which would usually take a pilot at Liverpool, would conduct pilot transfers to the southeast of the Isle of Man instead. This was explained to be caused by strong northwesterly winds making the sea conditions at the entrance to Liverpool more hazardous for conducting pilot transfers.

1.2.1.7 Figure 1.2 reproduces Figure 1.32 of the NRA whereby the Applicant manually identified those vessels which it believed to be undertaking such operations, a total of 76 vessels during 2022, consisting of 50 tankers, 18 cargo ships and eight cruise ships. Only eight of these were greater than 8 m draught (11%), and 15 were greater than 7 m (20%). Therefore, the vessels undertaking such activities are not of a particularly deep draught.

1.2.1.8 These transfers take place offshore of Douglas Harbour and approximately 10 nm from the Morgan Array Area. Therefore, the presence of the Morgan Array Area will have a negligible impact on the ability to undertake these transfers.

1.2.1.9 Figure 1.2 also highlights that the majority of these tracks pass clear of the Morgan Array Area. A direct passage between the entrance to Douglas harbour and the entrance to the Off Liverpool Bay Traffic Separation Scheme (TSS) passes more than 1.5 nm clear of the western boundary of the Morgan Array Area. It is therefore expected that all of these vessels would pass to the west of the Morgan Array Area, with a negligible deviation on their passage.

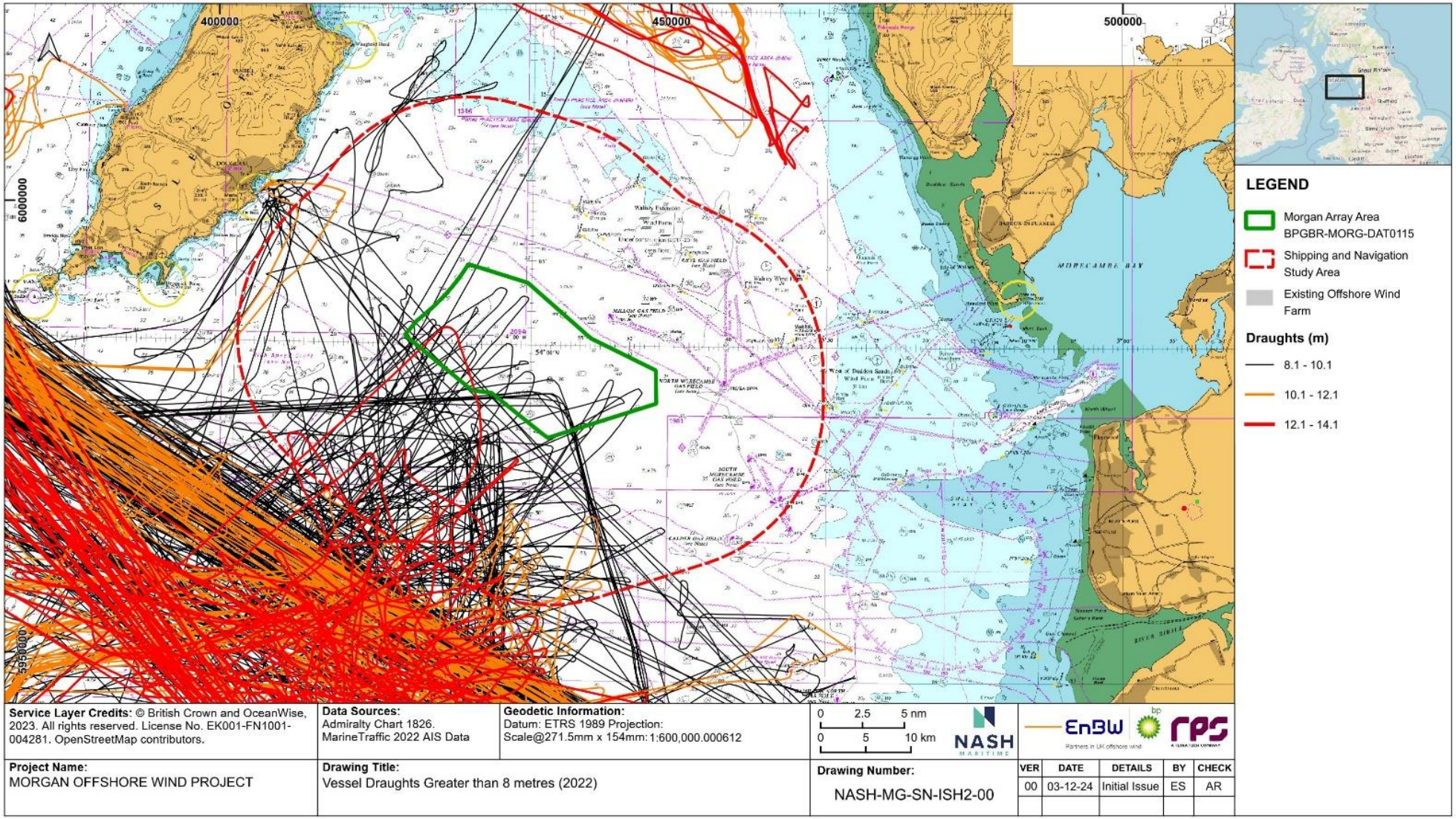


Figure 1.1: Vessel tracks by draught during 2022 (filtered above 8 m).

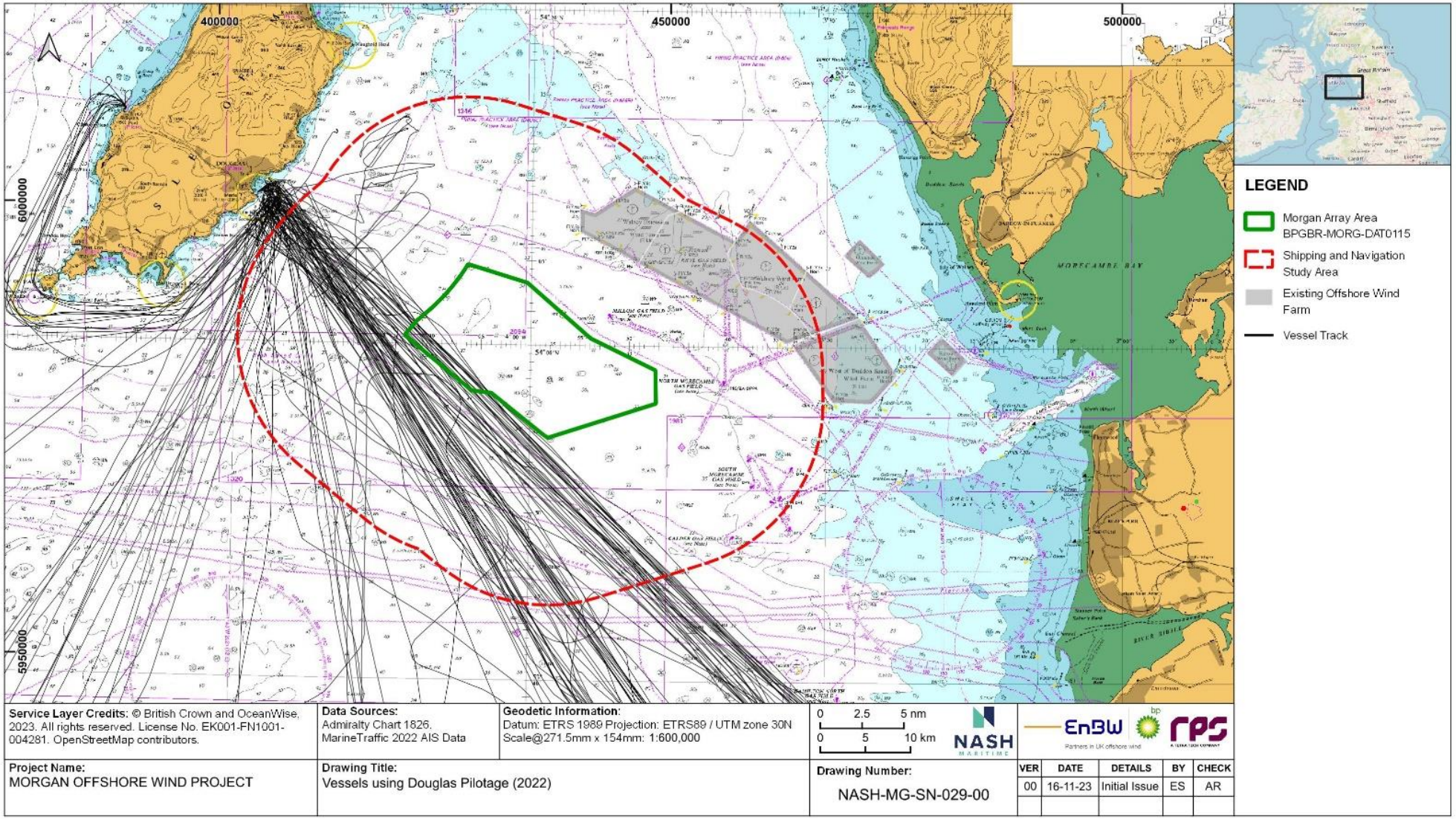


Figure 1.2: Vessels using Douglas pilotage (Figure 1.32 of NRA APP-060).

1.2.1.10 Section 5.2.6 of the Cumulative Regional NRA (APP-060 Appendix E) also reproduced in Figure 1.3 shows the Douglas pilotage tracks overlaid with the Mona Array Area and Morecambe Array Areas. It is apparent that for those vessels using the Off Liverpool Bay TSS, their anticipated passage would be to pass to the west of the Morgan and Mona Array Areas. However, a proportion of those vessels which do not use the TSS may choose to take a route passing west of the Morgan Array Area, between the Mona and Morgan Array Areas and then between the Mona and Morecambe Array Areas, as this is the most direct passage.

1.2.1.11 It was also noted that these vessels might operate in groups where multiple vessels would arrive at Douglas at the same time so that the same pilot launch can efficiently service multiple ships. This could result in increased collision risk were multiple commercial ships to meet between the Morgan and Mona offshore wind farms.

1.2.1.12 Noting the concerns raised on potential increases in collision risk, the navigation simulations undertaken with the Stena Line and CLdN reported in Appendix E of the CNRRA (APP-060) included several runs that considered these activities, all of which were achieved successfully:

- Stena Line Run 11: included two commercial vessels transiting from Douglas to Liverpool and three commercial vessels transiting from Liverpool to Douglas, meeting between Morgan and Mona Array Areas with a northwesterly wind and sea state. The conclusions noted that "*Stena Estrid is able to develop a situational picture and take safe manoeuvring action as required by the rules to maintain CPA> 1nm on other vessels and fixed structures*."
- CLdN Run 4: included three commercial vessels transiting from Douglas to Liverpool and three commercial vessels transiting from Liverpool to Douglas, meeting between Morgan and Mona Array Areas with a strong northwesterly (30-40 knots wind and 3 m significant wave height). The conclusions noted that "*Sea room with revised boundaries is adequate to take normal avoiding manoeuvres*."
- CLdN Run 7: a repeat of Run 4 but undertaken at night with the addition of a second CLdN ferry on a contrary direction. This run was also completed successfully.

1.2.1.13 Therefore, the NRA concluded that the impact on pilotage operations at Douglas would be minor and there would be no significant increase in navigational risk (collision or allision) as a result.

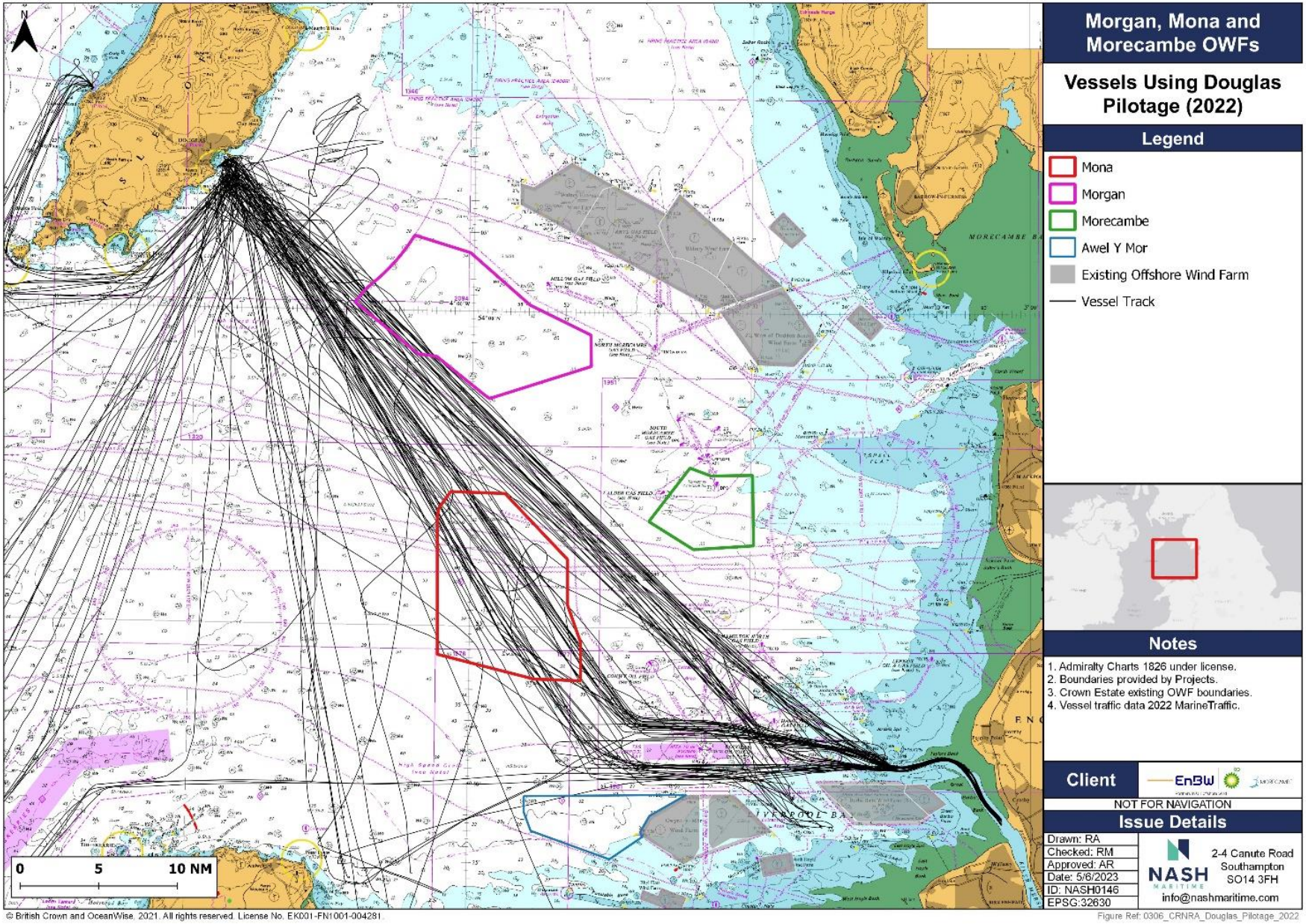


Figure 1.3: Vessels using Douglas pilotage (Figure 32 of CRNRA APP-060).

1.3 Response to Action Point 3: Navigational Corridors

1.3.1 Introduction

1.3.1.1 Section 7.6 of the CRNRA (NRA Appendix E APP-060), describes how the geometry of the passages between the Morgan Generation Assets, Mona Offshore Wind Project, Morecambe Generation Assets and existing offshore wind farms meets accepted guidance and existing precedent for navigation corridors or gaps between or alongside wind farm arrays. This section concluded that the geometry of the passages between these aforementioned developments was appropriate.

1.3.2 Passage between Morgan Array Area and Mooir Vannin Scoping Boundary/Agreement for Lease area

1.3.2.1 A passage between Mooir Vannin Scoping Boundary and Morgan Array Area was developed through the navigation simulations and is shown in Figure 1.4. It is assumed that the IoMSPC route between Heysham and Douglas would pass down the centre of the passage between Morgan Array Area and Walney wind farms, before turning to port and passing through the centre of the passage between Morgan Array Area and Mooir Vannin Scoping Boundary. This gives a clearance of 1.3 nm from each offshore wind farm boundary.

1.3.2.2 Following receipt of information from Mooir Vannin Offshore Wind Farm Limited on 01 September 2023, the navigation simulations undertaken with IoMSPC, reported in Appendix E of the CNRRA (APP-060), included a run with the presence of the Mooir Vannin Scoping Boundary. Run 11 included a single commercial vessel passing west to east, and three small fishing boats to the west of the Morgan Array Area, with the simulated vessel passing towards Douglas. With a distance of 2.6 nm between the wind farm boundaries, it would not be possible to maintain at least 1.0 nm from the offshore wind farms or other vessels and therefore it was deemed to be of insufficient width.

1.3.2.3 As described in Appendix D of the CRNRA (APP-060), it was anticipated that the vessel numbers passing between the Morgan Array Area and Mooir Vannin Scoping Boundary would likely be:

- Four IoMSPC ferry transits per day between Douglas and Heysham (principally the Manxman with length of 133 m)
- One transit every other day of the Silver River (45 m vessel length)
- Some small commercial vessels (under 100m in length) – including general cargo vessels and small tankers
- Tug and service vessels (refer to Figure 21 of the CRNRA)
- Yachts (refer to Figure 18 of the CRNRA)
- Fishing boats (refer to Figure 19 of the CRNRA).

1.3.2.4 It was noted through the assessment, and as shown in Figure 1.11 of the NRA (APP-060), that large concentrations of fishing boats occur due west of the passage between the Morgan Array Area and Mooir Vannin Scoping Boundary. This was assessed in Run 2 of the navigation simulations with the IoMSPC (Appendix E of the CRNRA APP-060) and demonstrated the need to pass clear of the Morgan Array Area with sufficient offset from where these fishing boats might be.

1.3.2.5 As described throughout the NRA (APP-060), the eastern Irish Sea regularly experiences severe weather conditions which can lead to disruption or cancellation of IoMSPC and other vessel sailings. These conditions warrant greater searoom from obstructions and other vessels than might be the case in more sheltered waters.

1.3.2.6 On the basis of the proximity of these two developments, the likelihood of meeting other vessels either directly between the two array areas, or to the west, consensus was reached with stakeholders at the Morgan Generation Assets hazard workshop (29 September 2023) that there was insufficient searoom and therefore an unacceptable risk of collision and allision existed.

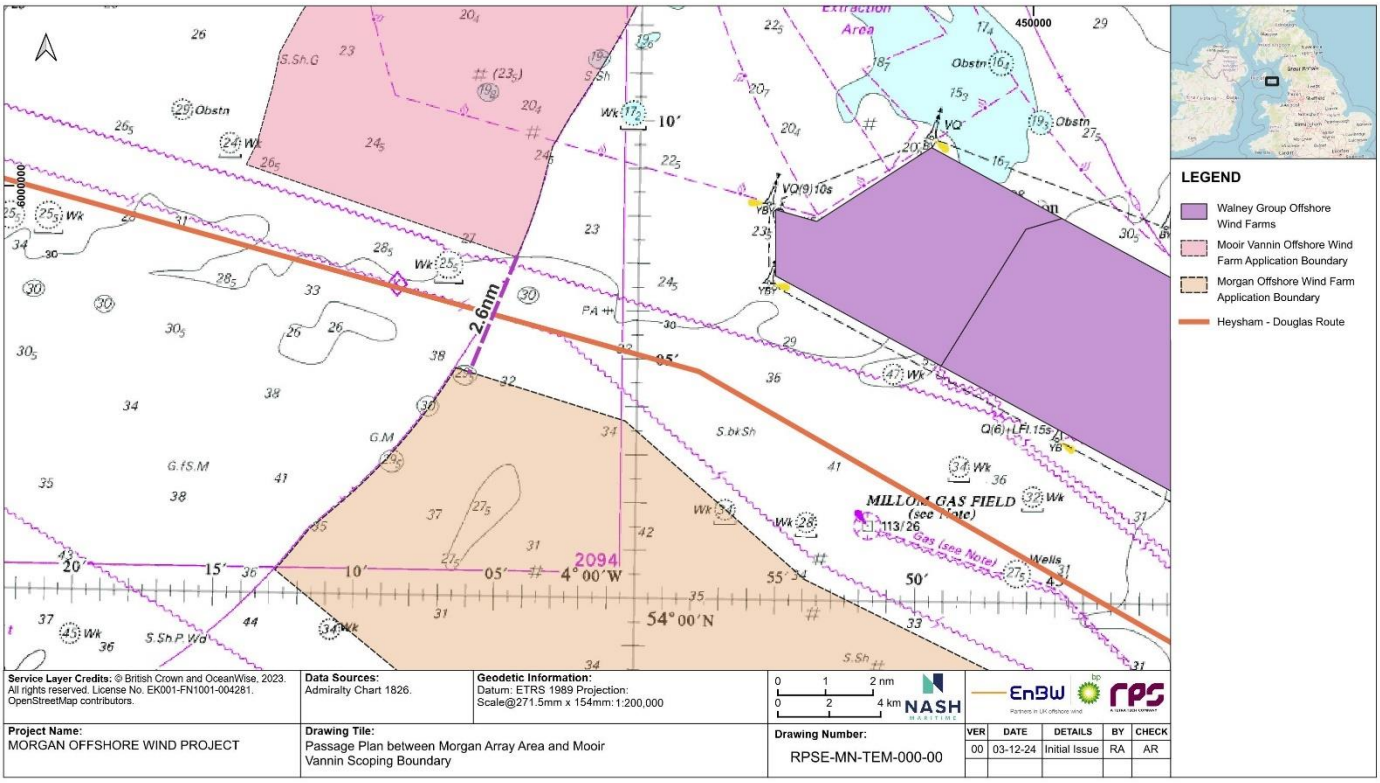


Figure 1.4: Passage plan between Morgan Array Area and Mooir Vannin Scoping Boundary.

1.3.3 Precedent

1.3.3.1 Section 7.6.3 of the CRNRA (NRA Appendix E APP-060), highlighted a number of existing or proposed cases which create narrow passages either between two adjacent offshore wind farms or an offshore wind farm and another existing constraint (e.g. shallow depths).

1.3.3.2 Table 31 of the CRNRA contained in Section 7.6.3 has been expanded in Table 1.1 below to include an explanation as to why these were determined to be ALARP and a comparison to the route between Mooir Vannin Scoping Boundary and Morgan Array Area. Furthermore, some additional examples have been included.

1.3.3.3 Whilst there is precedent for passages that narrow to 2.2 nm, as highlighted in Table 1.1, the route between the Morgan Array Area and Mooir Vannin Scoping Boundary includes a key ferry route, presence of much greater fishing activity and is susceptible to adverse weather in comparison to other examples listed. As a result this worst case passage, based on the Mooir Vannin Scoping Boundary was judged to be unacceptable for impacts on navigational safety in the CRNRA.

Table 1.1: Summary of precedent expanded from Table 31 of the CRNRA (APP-060).

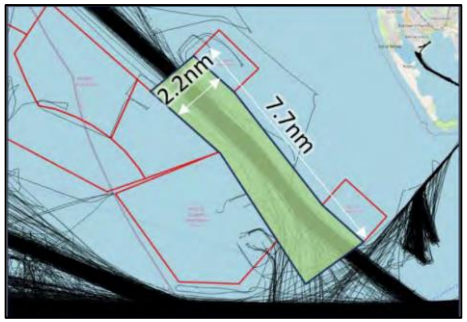
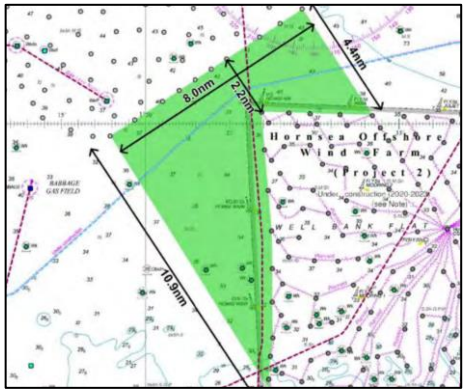
Figure	Description	Commentary	Context with Morgan-Mooir Vannin
	**Name**: Ormonde/Barrow-Walney/West of Duddon Sands **Dimensions**: 2.2 nm by 7.7 nm. **Approximate Transits/Year**: 1,333 **Average/Max Vessel Size**: 125 m / 142.5 m	**Status:** Operational Details of how the ALARP conclusion was reached are not available, but it is noted: • Route is marked by a series of cardinal marks approximately 600 m from WTGs • It is understood that that there is limited fishing activity within that passage • The majority of transits are by the same operator (Stena Line) with three sailings per day • Some commercial traffic but less than 100 m LOA (less than one per day) • Most recreational and fishing on transit (and higher density inshore to east of Ormonde/Barrow) • Significant CTVs crossing route from Barrow to OWFs • The 2.2 nm gaps are of limited length rather than a continual passage.	The full NRA for these offshore wind projects was not available. The situation and traffic profile is not dissimilar to the passage between Morgan-Mooir Vannin.
	**Name**: Hornsea Four-Hornsea Two **Dimensions**: 2.2 nm (at narrowest) by 8 nm. **Approximate Transits/Year**: 2,190 **Average/Max Vessel Size**: 165 m / Unknown *Image source: Hornsea Four Application.*	**Status**: Hornsea Two Operational, Hornsea Four Consented Section 19.3 of the Hornsea Four NRA noted: • The gap was not initially included in the Project design • The "bow" shape offers advantages in flexibility to enable course adjustments • Low meeting probability at the location of the narrowest point • Key stakeholders, including DFDS (the principal user) were satisfied with the width of the gap • There is a low volume of fishing vessels at the location of the gap • Concluded that gap does not pose a significant risk to safe navigation.	Morgan-Mooir Vannin has similar vessel movements but much more fishing activity in the area surrounding the pinch point compared to Morgan-Mooir Vannin. Furthermore, the DFDS route affected is a freight only service rather than a passenger service.

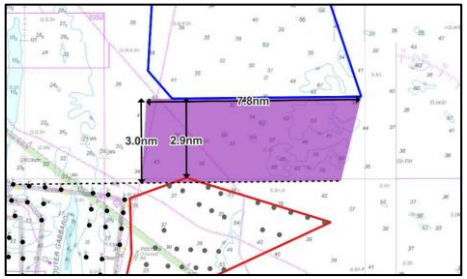
Figure	Description	Commentary	Context with Morgan-Mooir Vannin
	**Name**: Five Estuaries-East Anglia Two **Dimensions**: 2.86/3.0 nm by 7.8 nm **Approximate Transits/Year**: 5,100 **Average/Max Vessel Size**: 193 m / 240 m *Image source: Five Estuaries Application.*	**Status**: East Anglia Two consented, Five Estuaries Examination Section 17 of the Five Estuaries NRA noted: • Majority of transits are Stena Line and DFDS Seaways regular runners • The gap was of sufficient width to meet guidance requirements of MGN654/PIANC and others • Concluded that gap has relevant embedded mitigation measures in place for the corridor to be considered to meet safety of navigation expectations.	Morgan-Mooir Vannin has less vessel movements which are of a smaller size and includes a passenger ferry route. However, the Five Estuaries-East Anglia Two passage is c.0.4 nm wider.
	**Name**: Sheringham and Dudgeon Extension **Dimensions**: 3.2 nm wide **Approximate Transits/Year**: 4,745 **Average/Max Vessel Size**: Not known *Image source: Sheringham and Dudgeon Extension Application.*	**Status**: Consented There was significant debate during the Examination of Sheringham and Dudgeon Extension for the navigable width between the shallow waters in the Outer Dowsing Channel and the proposed extension. The Applicant's original proposal was a 2.3 nm gap but this was increased through the Examination to 3.2 nm by removing a section of the OWF.	Morgan-Mooir Vannin passage is slightly wider than originally proposed for Sheringham and Dudgeon (0.3 nm), but 0.6 nm narrower than the amended boundaries. The volume of traffic in this example is significantly more.

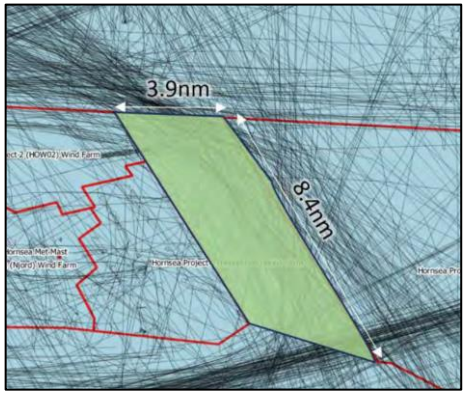
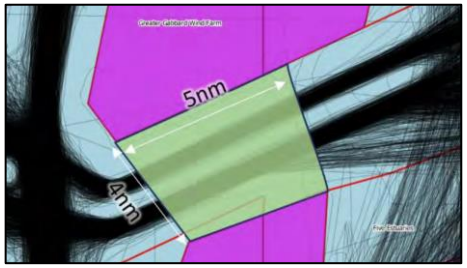
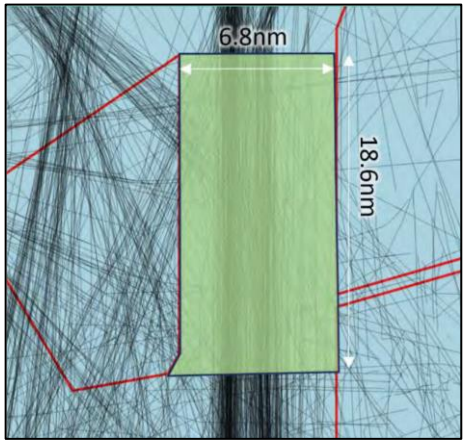
Figure	Description	Commentary	Context with Morgan-Mooir Vannin
	**Name**: Hornsea Three-Hornsea One **Dimensions**: 3.9 nm by 8.4 nm **Approximate Transits/Year**: 1,716 **Average/Max Vessel Size**: 133 m / 333 m	**Status**: Hornsea One operational, Hornsea Three consented Section 22.9 of the Hornsea Three NRA noted: • Route enabled regular freight services between the UK and Europe • Radar interference is anticipated to be limited • Modelling of collision and allision risk showed a modest change in risk • No significant concerns were raised by consultees	Hornsea Three-Hornsea One passage is 1.3 nm wider than Morgan-Mooir Vannin. When combined with Morgan-Walney, the passage length is not dissimilar. Vessel traffic profile is relatively similar between the two examples.
	**Name**: Galloper-Greater Gabbard **Dimensions**: 4 nm by 5 nm **Approximate Transits/Year**: 5,851 **Average/Max Vessel Size**: 182 m / 400 m Route exists on the east arm of the Sunk TSS and therefore traffic is bound by Rule 10 of the COLREGs, with Cardinal Marks providing a safe buffer from the OWFs.	**Status**: Operational This route has a Traffic Separation Scheme between the OWFs and it is noted that Cardinal Marks have been employed to provide a safe buffer for shipping from the OWFs.	Whilst the passage is 1.4 nm wider than Morgan-Mooir Vannin, it has significantly more traffic and is managed by a TSS as a further risk control.

Figure	Description	Commentary	Context with Morgan-Mooir Vannin
	**Name**: Vanguard-Boreas **Dimensions**: 6.8 nm by 18.6 nm. **Approximate Transits/Year**: 4,745 **Average/Max Vessel Size**: 155 m / 399 m	**Status**: Consented Proposed route between the Vanguard and Boreas sites. This route safeguards the existing Deep Water Route via DR1 light-buoy used by large commercial shipping.	Whilst the passage is 4.2 nm wider than Morgan-Mooir Vannin, it has significantly more traffic and is managed by a Deep Water Route as a further risk control.