Iarnród Éireann
Irish Rail

Rosslare ORE Hub

EIAR Environmental Topic Chapters

Chapter 20:

Shipping and Navigation

venterra | GDG GAVIN & DOHERTY GEOSOLUTIONS | NICHOLAS O'DWYER an RSK company

Co-funded by the European Union

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
AtoN	Aids to Navigation
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
CSO	Central Statistics Office
EIA	Environmental Impact Assessment
ESREL	European, Safety and Reliability Conference
ETA	Estimated Time of Arrival
FSA	Formal Safety Assessment
HLV	Heavy Lift Vessels
HNS	Hazardous and Noxious Substances
ICW	Intracoastal Waterway
IEMA	Institute of Environmental Management and Assessment
IMO	International Maritime Organisation
IRCG	Irish Coastguard
LOA	Length Overall
LPS	Local Port Services
MARPOL	International Convention for the Prevention of Pollution from Ships
MCIB	Marine Casualty Investigation Board
MSO	Marine Survey Office
NMPF	National Marine Planning Framework
NRA	Navigation Risk Assessment
NtM	Notice to Mariners
ORE	Offshore Renewable Energy
PPE	Personal Protection Equipment
QRA	Quantitative Risk Assessment
RNLI	Royal National Lifeboat Institution
RoRo	Roll on Roll off
SAR	Search and Rescue
SOLAS	Safety of Life at Sea
VHF	Very High Frequency

Funded by the European Union. Views and opinions expressed are however those of the Author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor any granting authority can be held responsible for them.

20 SHIPPING AND NAVIGATION

20.1 INTRODUCTION

Iarnród Éireann – Irish Rail is applying for development permission for the Rosslare Offshore Renewable Energy Hub (hereafter the 'Proposed Development'), located immediately adjacent and to the northwest of the existing Rosslare Europort at Rosslare Harbour in County Wexford, which is operated by Iarnród Éireann. The Proposed Development includes capital dredging to achieve navigable depths for vessels delivering ORE components; land reclamation to create a storage area for these components; and construction of two new berths to facilitate loading and unloading of ORE components. The land reclamation works include infilling the existing small boat harbour, after the construction of a new small boat harbour. The Proposed Development also includes the installation of a new slipway and facility for local clubs, such as the Sea Scouts.

The purpose of the Proposed Development is to provide a facility for the efficient handling and storage, marshalling, staging and integration of ORE components to facilitate installation of offshore wind energy projects by ORE developers and operators. The Proposed Development is designed to provide facilities that accommodate a wide range of infrastructure uses, both for current requirements and anticipated future needs. For instance, the Proposed Development could be used for traditional port activities if required, including during periods of reduced ORE-related activity. Refer to EIAR Chapter 6: Project Description for further detail.

This chapter of the Environmental Impact Assessment (EIA) Report presents the assessment of the likely significant effects of the Proposed Development on Shipping and Navigation receptors arising from the construction and operation of the Proposed Development, both alone and cumulatively with other projects. The scope of this chapter was determined following issue of a scoping report to the following topic-relevant stakeholders (please see Chapter 4: Scoping and Consultation for full details of consultation):

- Marine Safety Office, Department of Transport
- Commissioners of Irish lights

The assessment presented in this chapter is informed by the following EIAR Technical Appendix:

- Technical Appendix 20: Navigation Risk Assessment (NASH Maritime Ltd, 27 September 2024)

This chapter provides a summary of shipping and navigation relevant guidance and outlines the data sources used to characterise the shipping and navigation Study Area. Building on the general EIAR methodology outlined in Chapter 1: Introduction and Methodology, the shipping and navigation-specific methodology followed in assessing the impacts of the Proposed Development on shipping and navigation environmental receptors is set out, as is the assessment of likely effects on the shipping and navigation environmental receptors on arising from the construction and operation of the Proposed Development. Relevant mitigation measures, following the 'mitigation hierarchy' of avoidance, minimisation, restoration and offsets, and/or monitoring requirements, are proposed in respect of any significant effects and a summary of residual impacts is provided.

20.1.1 RELEVANT LEGISLATION AND GUIDELINES

20.1.1.1 LEGISLATION AND POLICY CONTEXT

The National Marine Planning Framework (NMPF) (Department of Housing, Planning and Local Government, 2021) sets out the Irish Government's vision, objectives and marine planning policies for each marine activity. The NMPF sets out a clear direction for managing the seas, clarifies objectives and priorities, and directs decision-makers, users and stakeholders towards strategic, plan-led and efficient use of marine resources. Relevant sections to shipping and navigation are:

- Section 4 – Overarching Marine Planning Policies.
- Section 10 – Defence and Security: Any proposal that has the potential to interfere with the performance by the Defence Forces of their security and non-security related tasks must be subject to consultation with the Defence Organisation. This includes potential interference with:
    - Safety of navigation and access to naval facilities.
    - Firing, test or exercise areas.
    - Communication, and surveillance systems.
    - Fishery protection functions.
- Section 18 – Ports, Harbours and Shipping, including:
    - Safeguarding operation of ports.
    - Facilitate maritime transport services.
    - Sustainable development of the ports sector.
    - Avoidance of significant adverse impacts on marine activities or uses of the maritime area.
    - Requirements for a Navigation Risk Assessment and analysis of maritime traffic.
- Requirements for consultation with the Department of Transport, Marine Survey Office (MSO) and Commissioner of Irish Lights.
- Section 19 – Safety at Sea, including:
    - Ensure that safety at sea and navigational safety are key considerations in the assessment of proposals for the development or expansion of port facilities, or the development of infrastructure in or adjacent to the maritime area.
    - Safeguard the Marine Emergency Response (Search and Rescue, Maritime Casualty and Pollution Response) capacity of the State.
    - Proposals for infrastructure that have the potential to significantly reduce under-keel clearance must be avoided, minimised or mitigated.
    - All proposals for temporary or permanent fixed infrastructure in the maritime area must ensure navigational marking in accordance with appropriate international standards and ensure inclusion in relevant charts where applicable.
    - Establishing, changing or disestablishing Aids to Navigation (AtoN) must be sanctioned, in advance of works, by the Commissioners of Irish Lights.

The National Ports Policy (Department of Transport, Tourism and Sport, 2019) was issued to facilitate a competitive and effective market for maritime transport services. It recognises the challenges and opportunities facing Irish Ports. Within the National Ports Policy, Rosslare Europort is categorised as a Tier 2 port given it is responsible for at least 2.5% of overall tonnage through Irish ports, has clear, demonstrable potential to handle higher volumes of unitised traffic and has existing transport links to serve a wider, national marketplace.

The Proposed Development will progress in accordance with the Maritime Area Planning Act 2021 (the Department of Housing, Local Government and Heritage, 2021) and the Planning and Development Act 2000, as amended (the Department of Housing, Local Government and Heritage, 2000). Rosslare Europort falls outside of the Harbours Act 1996-2009.

The assessment in this chapter considers that vessels will navigate in adherence to the requirements under the Safety of Life at Sea (SOLAS), International Convention for the Prevention of Pollution from Ships (MARPOL) and Standards of Training, Certification and Watchkeeping for Seafarers Conventions. Furthermore, vessels will navigate in accordance with the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs).

20.1.1.2 GUIDANCE

The International Maritime Organisation (IMO) Formal Safety Assessment (FSA) process has been used as the underlying approach for the Navigation Risk Assessment (NRA). The guidelines for FSA were approved in 2002 and were most recently amended in 2018 by MSC-MEPC.2/Circ.12/Rev.2. The assessment methodology details are referred to in section 20.2.

20.2 ASSESSMENT METHODOLOGY

20.2.1 STATEMENT OF COMPETENCE

NASH Maritime are specialists in shipping, navigation and maritime risk. The multi-disciplinary team have worked in the maritime, ports and offshore renewable energy sectors, understanding the value of risk-based decision-making and taking an active role in driving new approaches to safety and cost reduction. NASH Maritime has extensive experience throughout the world in conducting NRAs in port and harbour environments.

Dr Andrew Rawson is a maritime consultant with more than 14 years of experience, specialising in data analysis, modelling and NRAs. He has worked on a multitude of projects for developers, ports and governments as a project manager or technical lead. His specialism lies in developing and applying innovative quantitative methods to measure the risk of maritime accidents and predict the impact of developments such as offshore renewables. Andrew has an extensive track record in authoring NRAs, EIA technical chapters, quantitative risk assessments (QRAs) and providing specialist technical advice to clients. Andrew has led the development of scientific approaches to navigation risk, with numerous peer-reviewed academic publications in high-impact journals. In 2022, Andrew was awarded a PhD from the University of Southampton investigating the use of machine learning and big data to support maritime risk assessment. In 2023, Andrew acted as Chair of the Technical Committee at the European, Safety and Reliability Conference (ESREL). Andrew was responsible for managing and delivering the EIA chapter.

Captain Nigel Bassett is a Senior Marine Pilot, consultant and ISM Lead Auditor. Nigel is a career mariner since 1976, with 15 years of worldwide merchant navy sea-going experience including early tanker command and 25 years as a Class 1 specialist pilot in a major UK port (Southampton). In tandem, Nigel completed 30 years as a Royal Navy Reservist in training, management, and operational roles before retiring as the senior Captain in 2013. Nigel has considerable consultancy experience as a subject matter expert with expertise in ship handling, navigation and pilotage in port and infrastructure developments and maritime operations. Nigel is also experienced in training, navigation audits, ship simulation, expert witness, incident investigation and risk assessment. Nigel, as an experienced mariner, was responsible for contributing expert opinion on vessel manoeuvring and safety.

Amber Hutchinson is a graduate consultant and analyst at NASH Maritime. Amber has worked on projects related to offshore wind farms, ports and harbours, and maritime innovations, utilising analytical skills with GIS, reporting, stakeholder engagement, and assisting in producing NRAs and EIA chapters. Amber has a bachelor's degree and academic background in marine biology and oceanography. Amber was responsible for the analysis and developing the narrative for the EIA chapter.

20.2.2 SHIPPING AND NAVIGATION CONSULTATION

To facilitate engagement with local stakeholders and ensure their views were incorporated into the shipping and navigation assessment, a consultation letter was prepared and issued via email to ferry operators, port officials, local associations, search and rescue organisations, and navigation and marine safety groups. Consultees were invited to provide feedback in writing, attend a hazard workshop, or conduct a one-to-one virtual consultation meeting.

Table 20.1 summarises the consultation meetings and workshops undertaken as part of this Proposed Development and where any issues raised are addressed within the shipping and navigation assessment.

Table 20.1: Consultation summary table

Date	Consultee	Key issues raised	Where addressed within this chapter
5th July 2024 Meeting	Irish Coastguard	Impacts on search and rescue.	Section 20.4.4.6, 20.4.5.6
19th July 2024 Meeting	Irish Lights	Had the South Shear Channel been considered regarding previous close-quarters incidents near the West Holdens Buoy.	Section 20.4.5.720.4.5.7
		Would a strong NE wind push commercial vessels towards the quay development during their manoeuvres.	Section 20.4.4.3, 20.4.5.3
		Would additional vessels present a problem with conflicting ferry operations.	Section 20.4.4.1, 20.4.5.1
24th July 2024 Email	Stena Line	Safe distance for vessels approaching Berth 1 and Berth 2 with blade overhang.	Section 20.4.4.3, 20.4.5.3

Date	Consultee	Key issues raised	Where addressed within this chapter
		Suitability of risk controls.	Section 20.5
30th July 2024 Hazard Workshop	Harbour Master Stena Line DFDS Irish Ferries Finnlines	In regards, to the existing passenger tracks, does the blade overhang create a collision risk depending on the carrier's location along the quay, especially with proposed longer ferry vessels. With the history of close-quarters situations; is hazard 1 'Ferry Commercial Vessel ICW Project Vessel' scored too low.	Section 20.4.4.1, 20.4.5.1
		Is remote pilotage and LPS sufficient management with additional vessels unfamiliar with the harbour. Would additional risk controls be required.	Section 20.5
		Is there likely to be an increase in recreational craft when facilitated by the new Small Boat Harbour infrastructure.	Section 20.4.4.5
		Would strong swell from the NE, unable to dissipate due to the confines of the quayside, cause a surge and increase the risk of breakout.	Section 20.4.5.7

20.2.3 SHIPPING AND NAVIGATION STUDY AREA

The Study Area for this assessment focuses on activity within a 1km buffer from the Proposed Development Boundary (i.e., the perimeter of the proposed development area), composed of reclaimed land and dredge area (Figure 20.1).

Navigational features immediately outside of that radius such as the West Holdens Buoy and any relevant traffic activity up to 5km from the development area are also considered covering approaches of vessels through the South Shear Channel as well as anchoring and loitering behaviour towards the North Shear Channel upon preparation to enter port. Navigation features of interest are described in further detail in section 20.3.1.

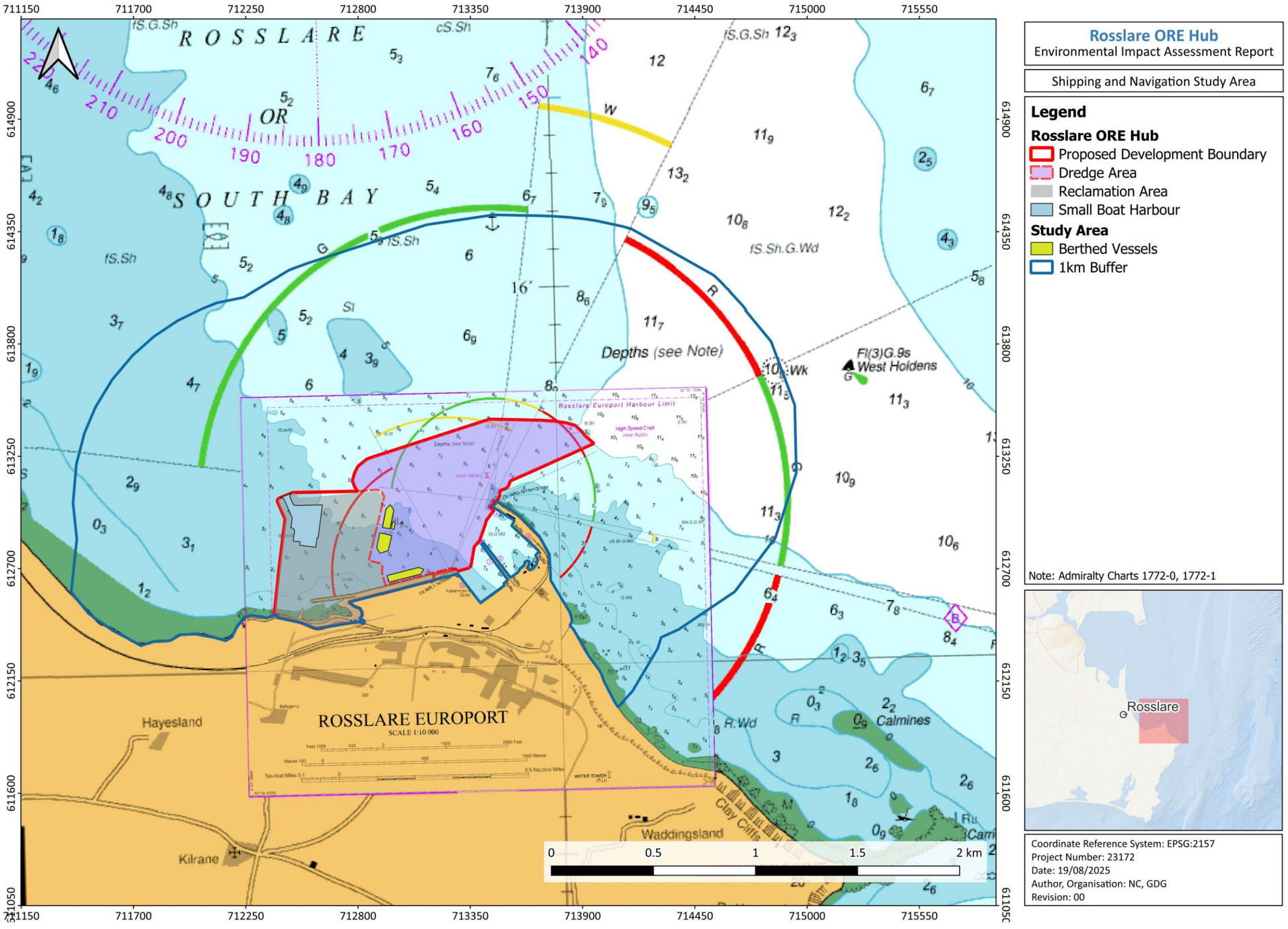

Figure 20.1: Rosslare Harbour Study Area with Mapped Proposed Developments

20.2.4 FULL BRIDGE NAVIGATION SIMULATIONS

Full mission bridge and real-time navigation simulations were undertaken for ship arrivals and departures from both the Proposed Development and Rosslare Harbour. The simulations were conducted at the National Maritime College of Ireland in Ringaskiddy, County Cork on 29th and 30th May 2024. Attendees at the simulations were:

- Clive Hotham (CRHSimulation/GTSS) – Simulator operator.
- Ivan Walsh (Port of Cork) – Pilot.
- Tom Curran (Rosslare Europort) – Harbour Master.
- Billy Hoey (Irish Rail) – Project Manager.
- William Brown (GDG) – Consultant Team Project Manager.
- Andrew Rawson (NASH Maritime) – Navigation Risk Expert.

In total 15 runs were undertaken. The runs tested several different vessel types, including the largest anticipated wind farm construction vessels, existing Roll-on / Roll-off (RoRo) ferries and general cargo ships in what was considered the worst credible conditions between up to 40 kts. The navigation simulation report is contained in Appendix C of the NRA (EIAR Technical Appendix 20).

20.2.5 DATA SOURCES

Table 20.2 summarises the primary datasets used within this shipping and navigation assessment.

Table 20.2: Primary Datasets Used in Assessment

Dataset	Description
Automatic Identification System (AIS) data between 1st May 2023 – 30th April 2024 was purchased from MadeSmart (2023).	AIS data for the Study Area was purchased for use within the NRA. The information contains the positional, speed, course, name and description of all commercial vessels over 500 gross tonnes, all passenger vessels, fishing vessels over 15 m and voluntarily carried by other small craft.
Marine Casualty Investigation Board (MCIB) Reports	Incident data published on the MCIB website.
Royal National Lifeboat Institute (RNLI) Incident Data	Incident data for 2008-2023 provided by RNLI across all UK waters.
Admiralty Nautical Charts	Relevant nautical charts were licensed from Triton.
Admiralty Total Tide	Tidal data
Rosslare Port Statistics from the Central Statistics Office (CSO)	Port arrivals and gross tonnage for commercial traffic between 2017-2023

20.2.6 FSA ASSESSMENT METHODOLOGY

The FSA is a structured and systematic methodology, aimed at enhancing maritime safety, including the protection of life, health, the marine environment and property, by using risk analysis and, if appropriate, cost-benefit assessment. The IMO FSA guidance defines a hazard as “a potential to threaten human life, health, property or the environment”, the realisation of which results in an incident or accident. The potential for a hazard to be realised (i.e., likelihood) can be combined with

an estimated or known consequence of outcome and this combination is termed 'risk'. There are five steps within the FSA process.

- Step 1: Identification of hazards
- Step 2: Risk analysis
- Step 3: Risk control options
- Step 4: Cost-benefit assessment (if applicable)
- Step 5: Recommendations for decision-making.

The NRA methodology based on the FSA is described in Figure 20.2.

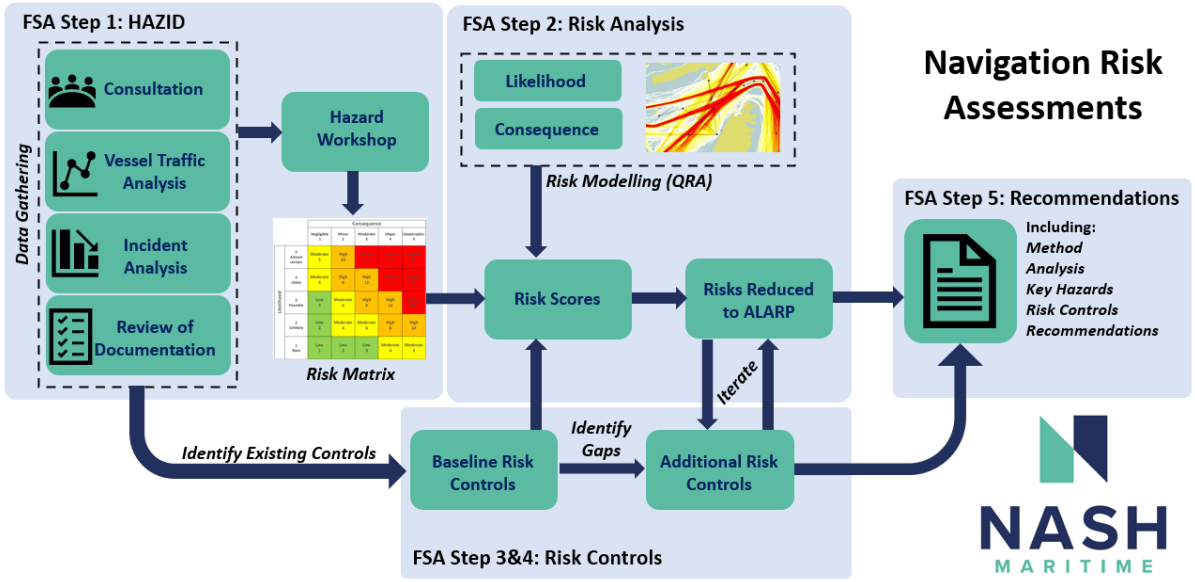

Figure 20.2: NRA Methodology

20.2.7 APPROACH TO ASSESSMENT OF EFFECTS

The baseline information obtained has been used to provide an understanding of existing activities within the shipping and navigation study area and its sensitivity to the potential impacts associated with the construction and operation of the Proposed Development. These potential shipping and navigation impacts have been assessed using a systematic approach to identify and evaluate the significance of the potential impacts both alone and in combination with other plans and projects. This has been supported through desktop assessments, analysis, consultation and full bridge simulations20.2.4.

The assessment includes consideration of embedded risk controls that are incorporated into the design (i.e., primary mitigation) as described in Table 20.7, and which are intended to prevent, reduce and where possible offset any significant adverse impacts on shipping and navigation.

Table 20.3 describes the four categories used for determining the magnitude/likelihood of an impact's occurrence. This encapsulates both hazard likelihood and the degree of operational disruption to non-hazard impacts.

Table 20.3: Criteria for determination of magnitude/likelihood of occurrence

Magnitude/ likelihood of impact	Definition
High	Hazard: Almost Certain – yearly Operational Impact: Continuous/daily occurrences.
Medium	Hazard: Likely – 1 per 1-10 years Operational Impact: Periodic/weekly occurrences.
Low	Hazard: Possible – 1 per 10-100 years Operational Impact: Infrequent/yearly occurrences.
Negligible	Hazard: Unlikely/Rare – 1 per 50-1000+ years Operational Impact: Rare/less than once per year occurrences.

Table 20.4 describes the five categories used for determining sensitivity/consequence where a hazard or impact occurs.

Table 20.4: Criteria for determination of sensitivity/severity of consequence

Sensitivity/ consequence of impact	Definition
Very High	Major consequence – multiple loss of life, loss of vessel (>€ 10 million), major pollution (Tier 3), international negative publicity, and long-term disruption to operators/marine users.
High	Serious consequence – fatality/serious injuries, serious damage to vessel (<€ 10 million), serious pollution (Tier 2), national negative publicity, and prolonged disruption to operators/marine users.
Medium	Moderate consequence – Serious injuries, moderate damage to vessel (<€1 million), moderate pollution (Tier 2), widespread negative publicity, and temporary disruption to operators/marine users.
Low	Minor consequence – Multiple minor injuries, minor damage (<€100 k) to the vessel, minor pollution (Tier 1), local negative publicity, and short-term disruption to operators/marine users.
Negligible	Negligible consequence – Minor injury, minor damage (<€10 k), minor spill, no perceptible impacts on business reputation, and minimal disruption to operators/marine users.

The magnitude/frequency (Table 20.3) and sensitivity/consequence (Table 20.4) are then combined to determine the level of significance using the matrix shown in Table 20.5. Impacts are therefore graded from Imperceptible to Profound. Effects determined as Slight or lower are considered to have 'no likely significant effect'. Any effect with a greater than Moderate significance is considered to have a 'likely significant effect'.

Table 20.5: Matrix used for the assessment of the significance of effect

Sensitivity/ consequence	Magnitude/likelihood: High	Medium	Low	Negligible
Very High	Profound	Very Significant	Significant	Moderate
High	Very Significant	Significant	Moderate	Slight
Medium	Significant	Moderate	Slight	Not Significant
Low	Moderate	Slight	Slight	Imperceptible
Negligible	Slight	Not Significant	Imperceptible	Imperceptible

20.2.8 MITIGATION

As discussed in Chapter 1: Introduction and Methodology, three types of mitigation measures are considered in this chapter.

- Primary mitigation
- Secondary mitigation
- Tertiary mitigation

20.2.9 RESIDUAL EFFECTS

Where relevant, residual effects have been determined for each significant effect, considering all proposed mitigation. In cases where residual uncertainty of impact is identified within the EIAR, or the success of implemented mitigation measures requires validation, commitments have been made for the provision of monitoring.

20.2.10 DIFFICULTIES AND UNCERTAINTIES

The use of AIS data to analyse historical vessel traffic assumes the vessel is under a legal obligation to broadcast on AIS and will do so. However, not all vessels are required to transmit AIS and therefore these vessel types may be underrepresented within this dataset, such as recreational or fishing vessels. Estimates nationally are that approximately half of all offshore cruising yachts may choose to carry AIS voluntarily to aid collision avoidance. It is likely that some recreational vessels, that are not transmitting AIS, are also utilising the existing small boat harbour. The AIS data has undergone thorough quality assurance to identify and correct any transmission errors to the point that there is a high degree of certainty that the data is sufficiently representative. In addition, where vessel counts are uncertain, a conservative approach to risk scoring has been taken to ensure that impacts to small craft are not underrepresented.

Data from the Central Statistics Office used within the study to inform past trends and supplement a future base case scenario features port arrivals and gross tonnage for commercial traffic between 2017-2023. It should be considered that traffic volumes and routeing may have been affected by the COVID-19 pandemic, in particular for 2020 and 2021 datasets, creating a temporary distortion in the data that has been considered.

The incident data is unlikely to capture all incidents, with underreporting of minor incidents likely. However, the combination of RNLI, MCIB and harbour master reports has been used to collate the most complete dataset possible. Not all information, particularly position, is captured in every incident report, but there were no data deficiencies that presented concern. Unreported minor incidents are highly unlikely to affect the results of this assessment. Extensive research and consultation provide confidence that all incidents that may have an effect on the outcomes of this assessment have been included.

Relevant nautical publications, such as Admiralty Charts, are updated periodically and therefore the information shown may not reflect the real-time features within the region with total accuracy. Additionally, not all navigational features may be charted. Consultation with local operators has been used to verify the baseline.

20.3 BASELINE: SHIPPING AND NAVIGATION IN RECEIVING ENVIRONMENT

20.3.1 NAVIGATION FEATURES

20.3.1.1 MANAGEMENT OF NAVIGATION

The Proposed Development is entirely within the limits of Rosslare Europort. Rosslare operates a manned Local Port Services (LPS) station to manage and coordinate arrivals or departures at the port. Ships are obliged to send an estimated time of arrival (ETA) for passing the Breakwater Light to Rosslare Europort LPS on Very High Frequency (VHF) channel 12 about 1.5 hours prior to arrival. Vessels are instructed not to approach within 0.5 nm of the breakwater light when awaiting clearance to proceed to the berth.

Pilotage for Rosslare Europort is not compulsory, but a pilot can be obtained locally. There is no designated pilot boarding station, but boarding can be arranged in the sufficiently extensive area in the approaches of the south shear channel when in contact with the LPS controller. LPS remote pilotage assistance is compulsory for the initial six visits, monitored from the LPS tower or on board.

On the approaches to the port, the South Shear channel is marked by lateral marker buoys beginning at the Long Shear Buoy until the West Holdens buoy 1 nm east of the breakwater. There is a directional sector light mounted on the Breakwater to aid the approach.

20.3.1.2 ANCHORAGE RESTRICTIONS

Vessels are not permitted to anchor within the breakwater or within an area bounded by a 0.4- nm-wide line from the breakwater to about 0.45 nm stretching in northwest and southeast directions to avoid interruption with commercial vessel traffic which has priority. A designated anchorage is located 0.5 nm north of the harbour in depths between 5-8 m.

20.3.1.3 TIDE REGIME AND METOCEAN CONDITIONS

Rosslare experiences a semi-diurnal tidal regime with two highs and two lows each day and is subject to strong tidal flow rates. At three hours on either side of high tide, tidal streams can exceed 3 knots in a north direction on a flood tide as the Irish Sea fills, or south direction on an ebb tide as it drains. The prominent wind directions are between WSW and S with less than 3% of occasions the wind speed exceeding 14 m/s (28 knots). The prominent wave direction is E ranging between ENE

and ESE. The maximum significant wave height (Hs) is approximately 1.5-2 m and is associated with a probability of non-exceedance of 99.2%.

20.3.1.4 SEARCH AND RESCUE

Search and Rescue in and around Rosslare Europort is supplied by the RNLI and the Irish Coastguard (IRCG). Three RNLI stations respond to distress calls in and around Rosslare Harbour. The primary station at Rosslare Harbour houses one Severn-class lifeboat. Wexford lifeboat station is equipped with two D-class lifeboats which are situated approximately 14km by sea from Rosslare. Another lifeboat station is located in the fishing village of Kilmore Quay to the southwest of Rosslare housing a Tamar-class lifeboat, approximately 30km by sea from Rosslare harbour. The IRCG have several lifeguard units in Country Wexford including at Carnsore, Fethard, Courtown, Kilmore Quay, and Rosslare. The IRCG's closest helicopter base is in the neighbouring County Waterford, 52km away by air. In 2026, a complete transition from the existing Search and Rescue (SAR) provider, CHC Ireland, to Bristow will take place. This will result in six new AW189 helicopters allocated to four bases in Sligo, Shannon, Waterford and Dublin. It is estimated the average flight time for an AW189 helicopter to travel 52km from Waterford to Rosslare Harbour is approximately 11 minutes. Two additional fixed-wing aircraft will also be on hand to support SAR from Shannon Airport. The SAR transition and resulting new provider is not expected to have an impact on the Proposed Development, and SAR operations will continue as normal.

20.3.2 VESSEL TRAFFIC

Vessel transits over the course of one year within and around Rosslare Europort using AIS data collected from May of 2023 to April 2024 is displayed in Figure 20.3. Vessels typically approach Rosslare from the southeast in the South Shear Channel and exhibit a dense/tight distribution when entering the port. The density map in Figure 20.3 depicting the most heavily tracked areas helps define this route. The immediate area around the five primary berths contains over 1,000 tracks per year. These vessels typically use Berths 1, 2 and 3, with fishing vessels and occasionally recreational vessels berthing at Fisherman's Quay at Berth 5. Rosslare Europort is primarily a commercial port with passenger ferries being the most abundant vessel type and given priority over available berths. An anchorage zone is apparent north-northeast of the port for passenger, cargo and tanker vessels waiting to enter.

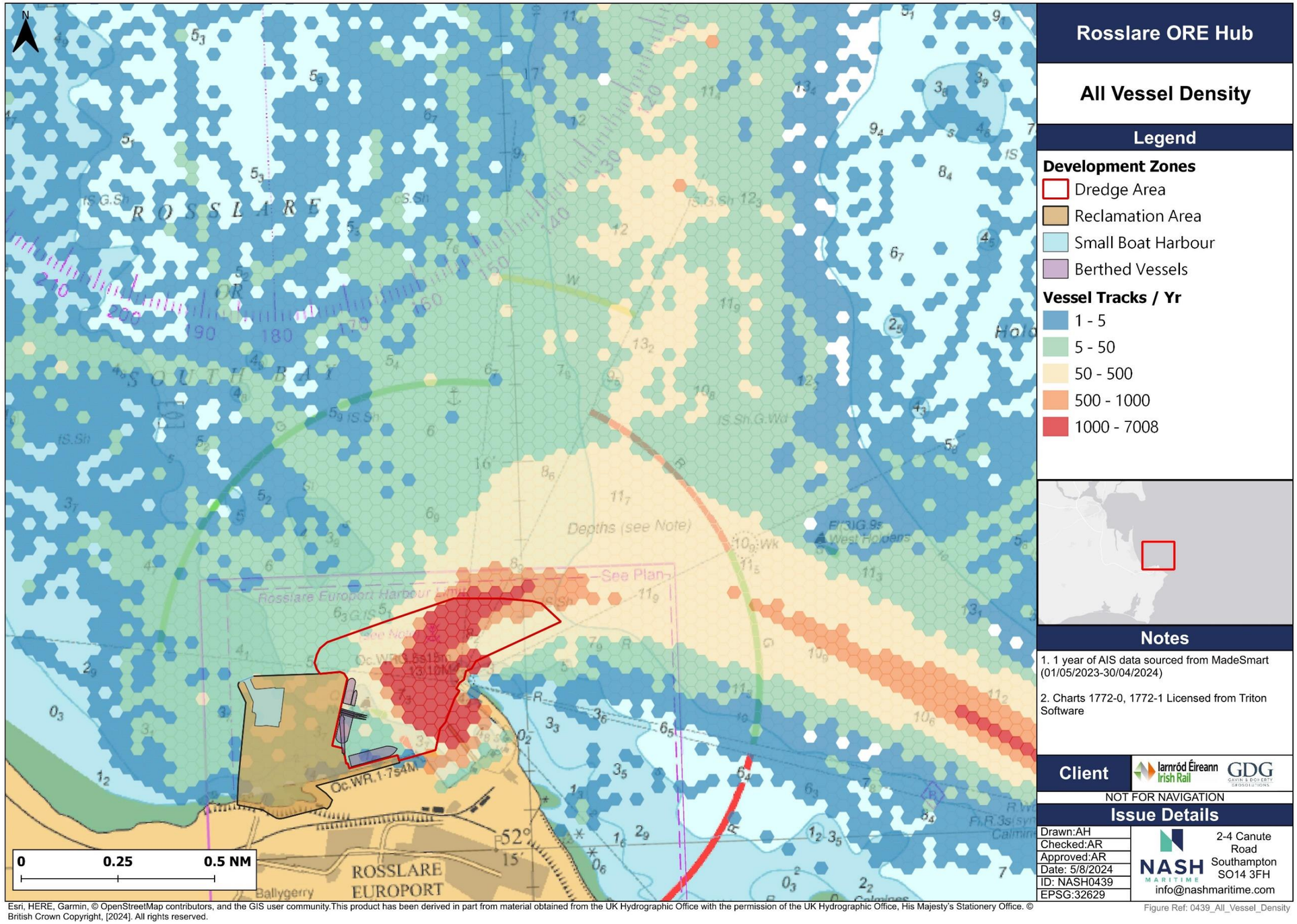

Figure 20.3: All Vessel Density (tracks per year) Between 1st May 2023 – 30th April 2024

A total of 5,910 transits took place between 1st May 2023 and 30th April 2024 by 383 unique vessels. The distribution of vessel categories is provided in Table 20.6. Transits also portray seasonal variability and particularly highlight a summer increase in recreational craft and additional ferry services.

Table 20.6: Frequency and Distribution of Transits by Vessel Type

Vessel Type	Count of Unique Vessels	Transits per Year	Avg. Transits per Day	Max Transits per Day	Percentage of Total Transits
Cargo	13	455	1.25	7	7.70%
Fishing	24	115	0.31	4	1.95%
Passenger	22	4127	11.31	22	69.83%
Recreational	286	468	1.28	22	7.92%
Tanker	2	126	0.35	7	2.13%
Tug & service	30	609	1.67	15	10.30%

20.3.2.1 COMMERCIAL VESSEL TRAFFIC

Figure 20.4 displays tracks of commercial vessels. There were 455 cargo vessel transits made within the years' worth of collected AIS data. A total of 13 unique cargo ships frequent the route, the majority of which transport wheeled cargo. General cargo vessels also frequented the route. 45% of transits were made by the Finnlines vessel 'FINNWAVE', a 218 m long RoRo cargo ship transporting vehicles and regularly travelling between Zeebrugge, Belgium and Rosslare, Ireland. All vessels approached from the South Shear channel heading southeast.

There were 126 tanker transits made within the years' worth of collected AIS data, entirely made by bunker tankers providing fuel to vessels operating out of Rosslare. Only two unique vessels frequent this route. CORALWATER, a 94 m long chemical products tanker makes up 88.1% of transits and KEEWHIT, a 77 m long oil tanker, makes up the remaining 11.9%. Cargo and tanker vessels approach from the southeast and wait in the anchorage zone to the north between South Bay and Holden's Bed before docking at Berths 1, 2 or 3.

There were 4,127 passenger vessel transits made in the years' worth of AIS data conducted by 20 unique vessels. The most frequent vessel is the Irish Ferries vessel 'OSCAR WILDE' a 186 m long ferry which travels between Rosslare, Ireland and Pembrokeshire, Wales making up 25% of the total yearly transits. 44% of transits are conducted by four Stena Line ferries which travel to Fishguard, Wales twice a day and Cherbourg, France six times a week. The largest vessel to enter Rosslare is the GALICIA, a 215 m long, 28 m wide Brittany Ferries travelling from Rosslare to Bilbao. Brittany Ferries makes up 7% of total yearly transits. DFDS Seaways operates routes to Dunkirk, France six times a week constituting 11% of total yearly transits. There were no cruise ship calls to Rosslare during the data analysis period.

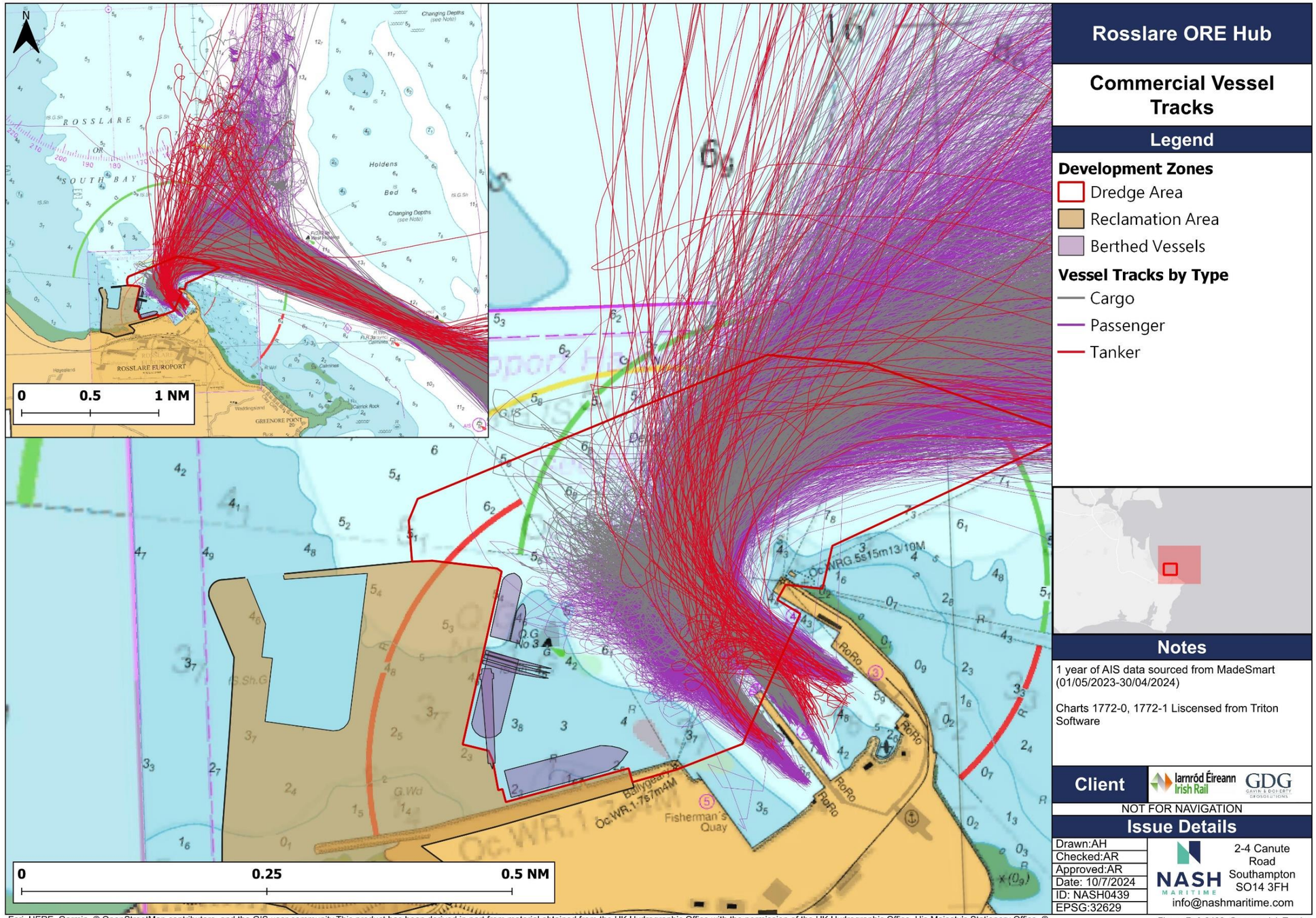

Figure 20.4: All Commercial Tracks Between 1st May 2023 – 30th April 2024

20.3.2.2 RECREATIONAL AND FISHING VESSEL TRAFFIC

Figure 20.5 displays tracks of recreational and fishing vessels. There is low-intensity recreational activity at Rosslare Europort due to the lack of port infrastructure targeted to leisure users. In total, there were 468 recreational and fishing transits conducted by 285 unique vessels from destinations in Ireland, the UK and mainland Europe. Vessels typically docked at Berth 5, Fisherman's Quay, as Berths 1, 2, 3 and 4 are allocated to commercial vessels as a priority. It is important to note that many small recreational craft do not carry AIS, which likely means that recreational vessel activity is underrepresented in the data. Estimates nationally are that approximately half of all offshore cruising yachts may choose to carry AIS voluntarily to aid collision avoidance. Some smaller recreational vessels will likely transit in/out of the existing small boat harbour, but the number of transits is unknown.

A total of 115 fishing transits were collated from the years' worth of AIS data in the study by were conducted by 24 unique fishing vessels ranging between 7-48 m LOA and 4-10 m wide. Fishing operates from Berth 5, Fisherman's Quay, with vessels heading southeast towards Kilmore Quay and local popular fishing spots around the Hook peninsula. Similarly to recreational vessels, many fishing vessels may not carry AIS and could be underrepresented in the data. It is likely that the small craft operating from the existing small boat harbour are small open day boats and would not carry AIS.

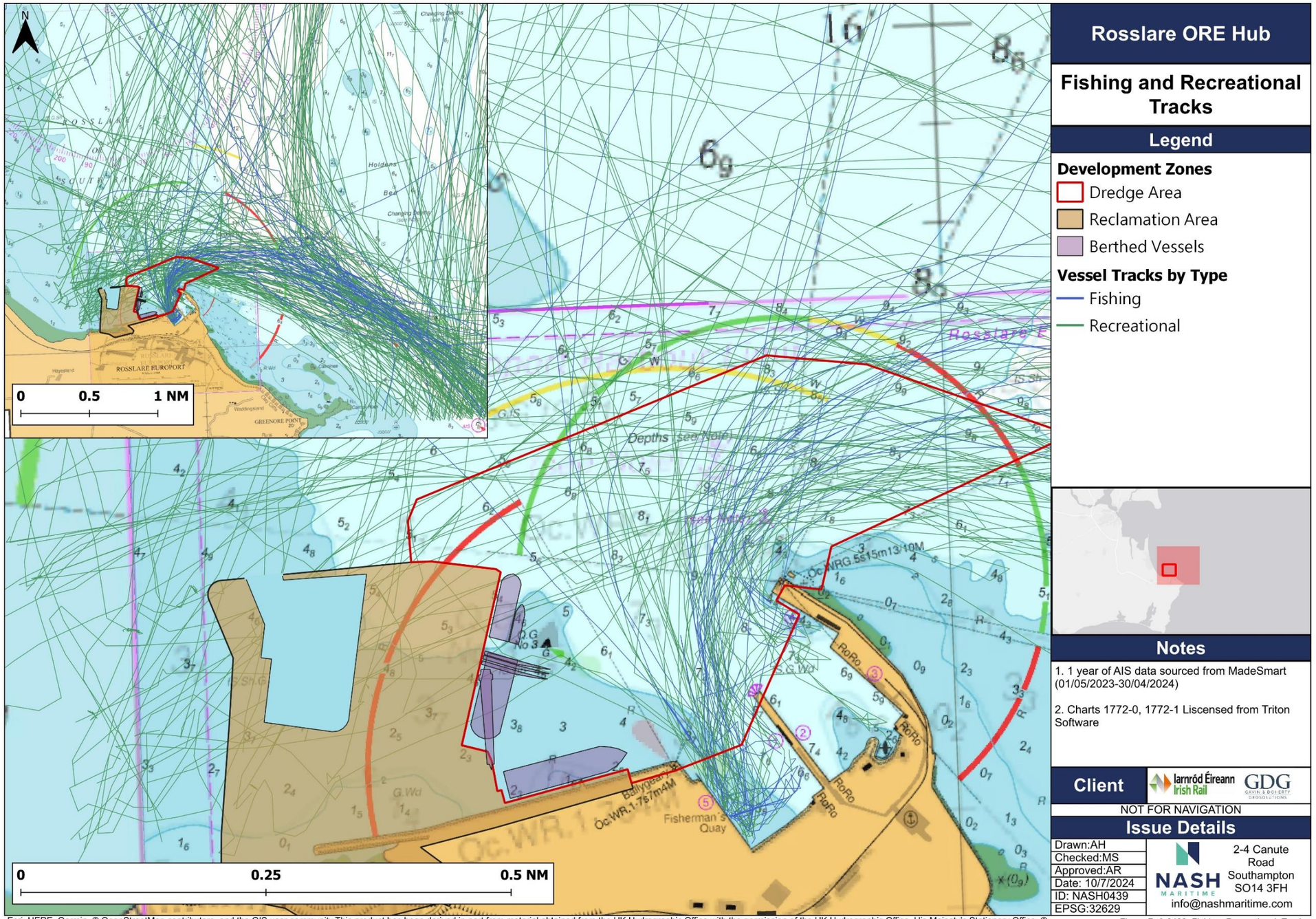

Figure 20.5: All Fishing and Recreational Tracks Between 1st May 2023 – 30th April 2024

20.3.2.3 TUG & SERVICE VESSEL TRAFFIC

There was a total of 609 tug and service transits collated from the years' worth of AIS data in the study by 30 unique vessels. The majority are classified as tugs, making up 64% of transits, and dredgers, making up 15%. Other vessels included mooring vessels, offshore support vessels, patrol vessels, four RNLI lifeboats, research vessels, buoy and lighthouse tenders and crane vessels. Some vessel tracks were directly involved in the ground investigation works for the ORE Hub development. These include the geophysical survey works conducted by the tender vessel ROS AINE on the 27th and 28th of October and the geotechnical survey works supported by the tug BARNACLE later on the 7th November and 12th December 2023.

Dredging works commenced on the 11th January until the 18th January 2024 (Rosslare Europort, 2024). Dredging works began around Berth 4 where sand had gradually built up. Fine sand was exported to a beach nourishment site in South Bay and coarser materials were exported to an offshore dump site.

20.3.2.4 SWEPT PATH ANALYSIS

Swept paths were generated for each vessel track which depicts their passage by representing both velocity and vessel dimensions to scale. By visualising swept paths, the effect of weather conditions and their positioning or proximity to surrounding infrastructure can be established. Figure 20.6 depicts an example of a ferry manoeuvring into Berth 1. Ferries typically slow their approach and conduct their manoeuvre to come astern into the berth in the centre of the harbour. Aligning with Berth 1 brings vessels close to the current depth limit, marked by a green lateral buoy, which is occasionally exacerbated by strong NE winds.

A density heatmap generated from all 5,910 swept paths is also depicted in Figure 20.6. Predictably, the areas alongside the berths show the greatest density represented by the deepest red hue. There are also various pockets of activity dotted throughout the harbour area, predominantly by anchored tug and service vessels. The orange and red grid rid cells making up the centre of the approach channel and central harbour are between 10 and 50 times denser than that of the surrounding yellow grid cells, emphasising the area of harbour used most frequently by manoeuvring ferries.

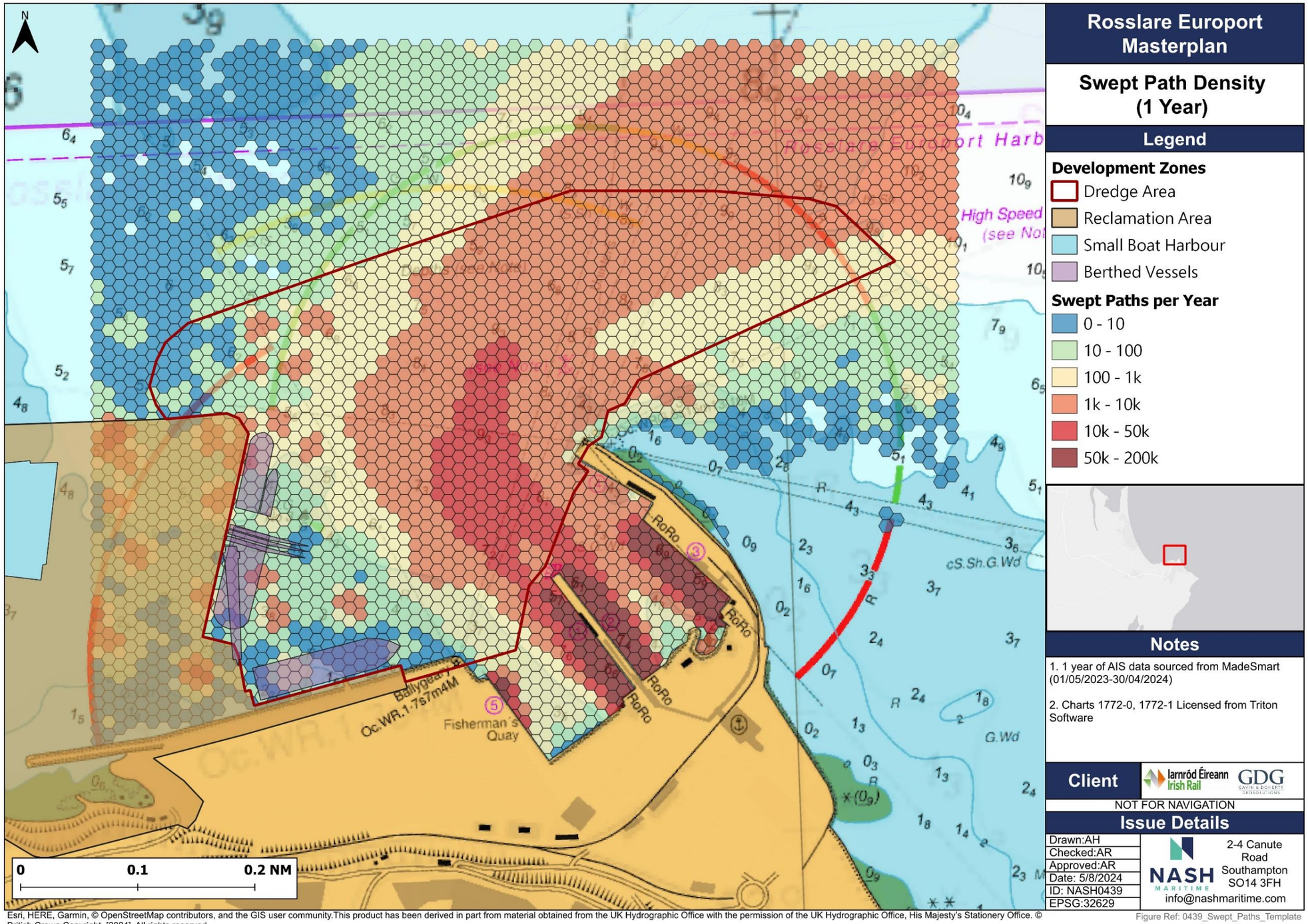

Figure 20.6: Swept Path Density Plot Between 1st May 2023 – 30th April 2024

20.3.3 HISTORICAL INCIDENTS

Incident analysis into the type and frequency of incidents in and around Rosslare Europort was carried out to inform the baseline. Data sourced from RNLI (2008-2023), Marine Casualty Investigation Board (MCIB) (1992-2023) and directly from Harbour Master reports (2015-2022) each contributed 74%, 11% and 15% of the data respectively. A total of 54 incidents within 5km of the Proposed Development Boundary were consolidated and are displayed in Figure 20.7.

The most common incident type was mechanical failure, accounting for 22 incidents constituting 40% of incidents. The second most common incident type was contact, with 9 incidents representing 17% of incidents. Most instances of contact were from RoRo vessels making minor contact with fenders when arriving at their berths, which is an expected occurrence in commercial ports. Close-quarter situations, persons in the water, adverse weather, grounding, capsize/foundering and sinking made up the remainder of incidents.

Some contacts were a result of strong winds, but the majority were minor miscalculations in port during berthing resulting in some damage to fenders/ship hulls.

Another repeated incident is the flooding/sinking of fishing vessels on the approaches to the port. All of these incidents resulted from mechanical problems on board as opposed to other external factors.

One instance of mechanical damage took place within the proposed reclamation area.

The close-quarters situation took place as a result of a misunderstanding between an inbound vessel and an outbound vessel. The inbound ferry was not aware it was instructed to wait at the West Holdens buoy before arrival, and the two vessels passed in very close proximity (MCIB, 2022).

It should be noted that not all possible incidents that occurred may be recorded here. This is due to variations in the recording start dates of the different data sources, minor incidents that may have occurred during the management of a different harbour master that have not been provided as well as unreported incidents.

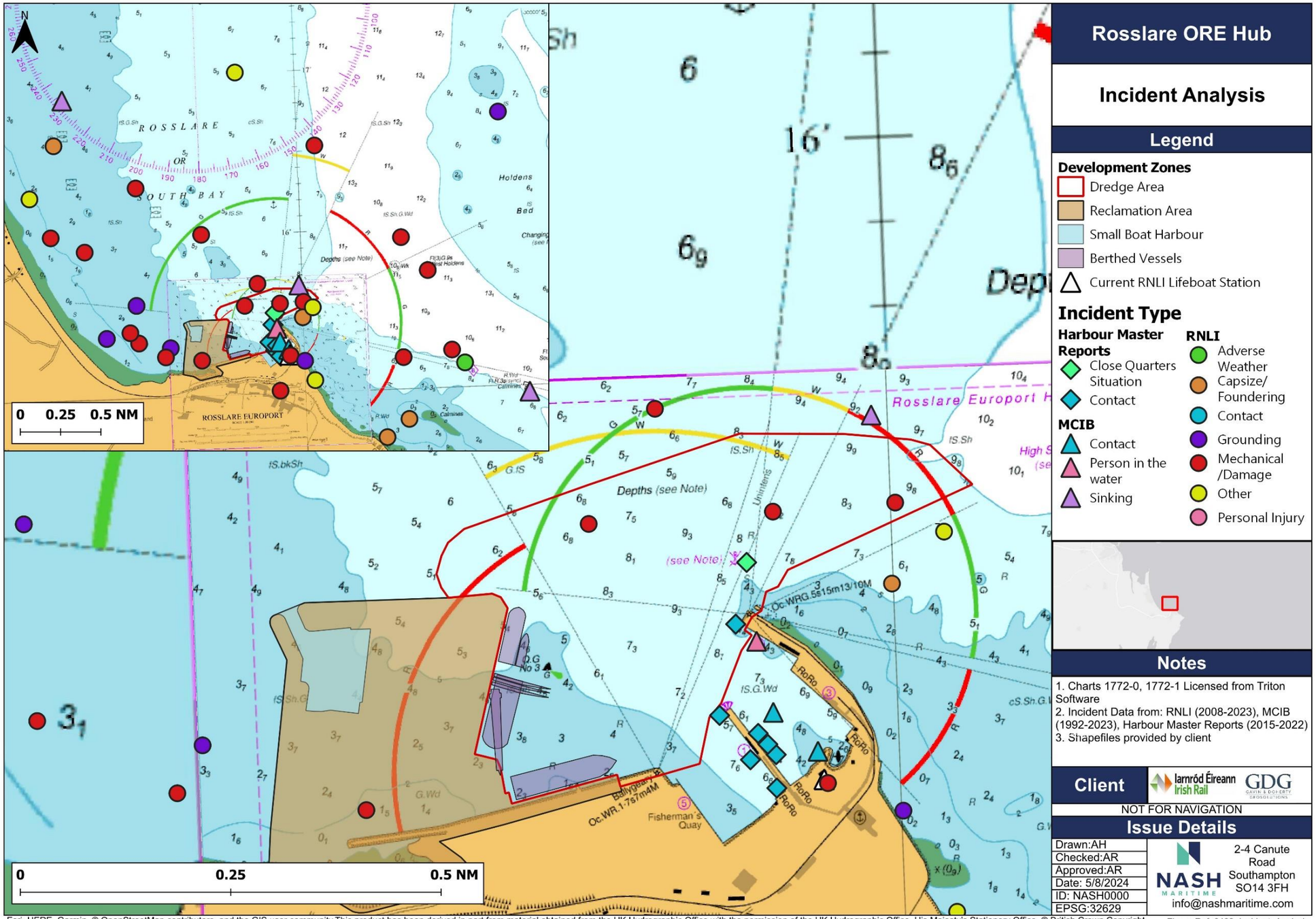

Figure 20.7: Incident Analysis of RNLI, MCIB, and Harbour Master Reports

20.4 ASSESSMENT OF EFFECTS

20.4.1 "DO-NOTHING" SCENARIO

The "Do-nothing" scenario refers to the future case scenario should the Proposed Development not take place. Using historical trends, a future case scenario can be modelled.

To get an overview of the yearly commercial port activity and future projections, statistics extracted from four datasets for commercial traffic arrivals at Rosslare Europort between 2017 and 2023 were sourced from the CSO (2024) and are summarised in Figure 20.8.

'No. Vehicle Arrivals by Type / Year' shows a reduction in arrivals between 2019 and 2021 as a result of the COVID-19 pandemic. Only in 2023 does the number of vehicle arrivals exceed that of 2017, which is also reflected in 'Commercial Vessel no. Arrivals / Year', which has the same reduction around 2020 with a combined increase beyond pre-COVID-19 arrivals in 2023, where commercial vessel arrivals reach 2,000 in a year with a steady projected increase. As a result, these trends suggest that there could be an increase in commercial vessel movements at Rosslare Europort over the next decade. In addition, the berths at Rosslare could cater for larger capacity RoRo's, up to 240 m in length, were the wider macroeconomic trends in the Irish economy to support larger vessels with more capacity.

No anticipated change to small boat movements is anticipated in the "do-nothing" scenario.

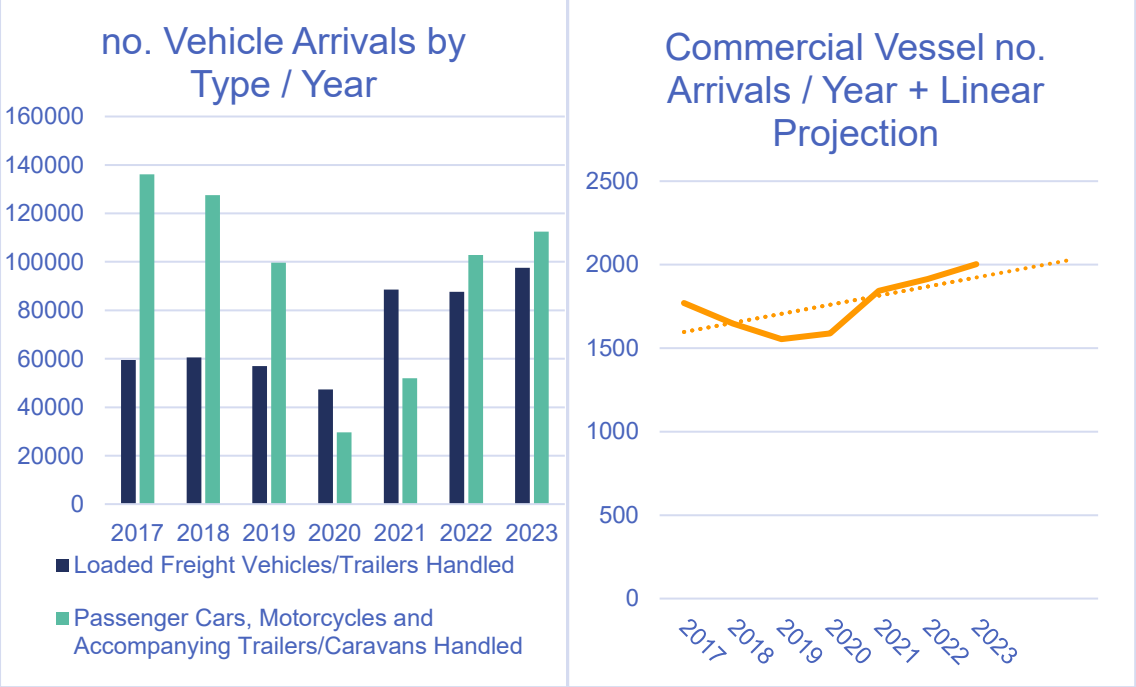

Figure 20.8: Vessel and vehicle statistics at Rosslare (CSO 2024)

20.4.2 PRIMARY MITIGATION

The assessment of effects described below includes consideration of integrated measures built into the project design (i.e., primary mitigation), which are intended to prevent, reduce and where possible offset any significant adverse effects on shipping and navigation receptors.

Table 20.7 describes the risk control measures existing within Rosslare Europort and the risk control measures indicated for the Proposed Development.

Table 20.7: Primary Mitigation

ID	Risk Control	Description
Existing Port Risk Controls		
1	Local Port Services (LPS)	Rosslare Europort operates an LPS which is manned 30 minutes prior to the arrival or departure of any cargo ship or RoRo. The LPS offers four key risk controls: • Monitoring of vessel movements. • Provision of clearance for vessel movements. • Remote pilotage assistance. • MetOcean Monitoring. Further details are provided in the Local Port Services Manual (Rosslare Europort, 2023).
2	Clear Channel Policy	No vessels may move within the harbour unless given clearance by the Harbour Master or delegated to the Duty LPS Controller. In particular, vessels are required to wait west of the West Holdens Green Lateral until their berth is vacant and the approaches are clear of other manoeuvring vessels.
3	Port Emergency Plan	The Emergency Plan provides guidance for all staff that may be involved in dealing with a marine or terminal incident that occurs within the Port of Rosslare Europort, its approaches, or on passage to or from the port (Rosslare Europort, 2022).
4	Oil Spill Response Plan	The Oil Spill Response Plan is designed to guide response personnel at Rosslare Europort through the process required to manage an oil/Hazardous and Noxious Substances (HNS) spill originating from operations within the Harbour Limits (Rosslare Europort, 2018).
5	Incident Investigation and Reporting	All incidents that occur within the harbour are investigated and lessons learnt are disseminated to relevant parties.
6	Notice to Mariners (NtM)	NtM will be issued for any major activities within the harbour.
7	Weather Limits	Arrival and departure weather limits are set within the Local Port Services Manual (Rosslare Europort, 2023).
8	Hydrographic Surveys	The harbour and approach channels are regularly surveyed.
9	Health and Safety Policy	Activities within the harbour, including the use of Personal Protection Equipment (PPE), are followed as per the Health and Safety Policy (Rosslare Europort, 2021).

ID	Risk Control	Description
10	Training	Staff are appropriately trained for the types of activities they are required to undertake.
Embedded Project Risk Controls		
11	Marking and Charting	Relevant nautical charts and publications will be updated with the extent of the Proposed Development.
12	Construction Method Statement	Development and adherence to a construction method statement.
13	Marine Operating Guidelines	Development and adherence to a marine operating guideline, including wind limits for vessel arrivals at the Proposed Development.
14	Maintenance Dredging	Regular hydrographic surveys and maintenance dredging of the approach channel to ensure declared depths are maintained.
15	Fendering/Impact Protection	Installation of appropriate fendering and impact protection for the types and sizes of vessels operating at the Proposed Development.
16	Inspection and Maintenance	Undertake regular inspection and maintenance to identify any signs of wear and tear and correct any defects.
17	Vessel Standards	Compliance with relevant vessel standards, international/national conventions (such as COLREGs) and use of appropriate lights, navigation aids and equipment onboard project vessels.

20.4.3 TERTIARY MITIGATION

Tertiary mitigation measures are imposed as a result of legislative requirements and/or standard sectoral practices. As these measures are standardised and covered by other forms of legislation or controls, they are not presented in extensive detail in the EIAR (IEMA, 2024).

The following tertiary mitigation measure based on legislative requirements will minimise the risk of impacts on shipping and navigation receptors within the receiving environment:

- The Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS). Specifically: Rule 18 states:

  Responsibilities between vessels

I. A vessel engaged in fishing when underway shall, so far as possible, keep out of the way of: (i) a vessel not under command; (ii) a vessel restricted in her ability to manoeuvre

20.4.4 CONSTRUCTION PHASE IMPACTS

Seven potential impacts arising from the construction of the Proposed Development on shipping and navigation receptors have been identified. The expected construction duration is 24 months from commencement to completion (see Chapter 6: Project Description). Marine construction requirements include the following activities which might impact shipping and navigation activities within Rosslare Europort:

- Temporary site establishment.
- Piling and blasting.
- Dredging of approach channels and berth pockets.
- Reclamation, including reusing dredged material and import of additional rock by barges.
- Formation of solid quay walls.
- Rock armour revetments construction and placement of breakwater armour units.
- Concrete works.

20.4.4.1 IMPACT 1: IMPACT ON PORT OPERATIONS

The presence of construction vessels and their activities described in section 20.2.2 will increase vessel traffic in the approaches to the port and in the main harbour which may impact usual port operations. This could cause either additional transit distance to avoid Proposed Development infrastructure, or delays for existing operators, including ferries, when awaiting access to the harbour.

The full methodology of dredging operations is not known at this time; however, the construction phase is anticipated to take up to 24 months during which time a significant quantity of dredging will be required. The dredging activities will involve dredger and barge vessels, shuttling material between the dredge site and the reclamation area.

The construction activities will be managed through embedded risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the impact on ferry schedules.
- Clear Channel Policy – ensures adequate space for arrivals and departures is maintained to avoid disruption to port operations.
- Construction Method Statement– agreed written procedures improves planning and reduces the risk of human error and resulting conflict with vessel activities

Movements of construction vessels in and out of the harbour may cause congestion that impacts the operations of ferries. Analysis of port capacity within the NRA (EIAR Technical Appendix 20) determined that there was sufficient time to enable increased vessel movements into the harbour.

The average large commercial vessels arriving at Rosslare on an hourly basis throughout the day is plotted in Figure 20.9. The average was taken for the summer months (June, July and August) to account for seasonal influxes of passenger vessels and portray the most conservative data. It highlights two peaks in daily activity, five hours between 03:00 - 08:00 and five hours between 16:00 – 21:00. The results of the Navigation Simulations reveal that an arrival at Rosslare takes a commercial vessel approximately 15 minutes to berth. This means that in the morning peak, there would be 3 hours 58 minutes available for other vessels to transit. During the afternoon/evening peak, there would be 3 hours, 32 minutes available for other vessels to transit. Whilst there is sufficient capacity during both peak times for additional ORE support vessels to arrive at Rosslare,

there is ample capacity for additional vessels during the six hours around mid-day where traffic is quieter between 09:00 and 15:00. During this window, there are on average 1.4 vessels which occupy a total of 21 minutes (6% of the time). Equally, between 22:00 – 02:00, where there are on average 0.8 vessels in the four-hour window occupying 12 minutes (or 5% of the time).

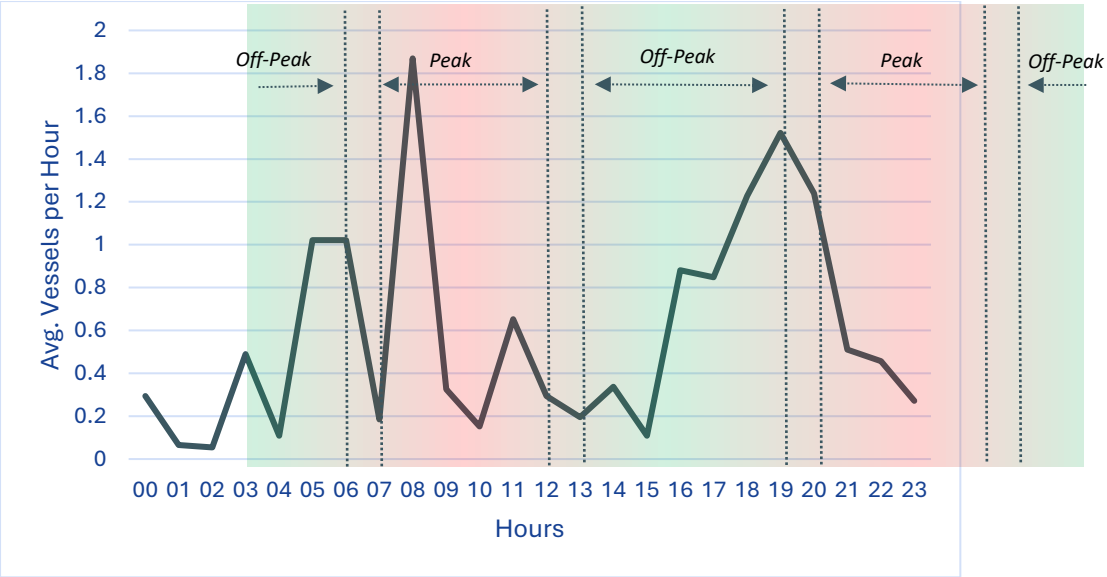

Figure 20.9: Commercial Vessel Arrivals per Hour (Summer Average)

Due to the planned dredging works, construction vessels may operate in the main harbour area and approaches as well as the reclamation area, which could conflict with inbound/outbound ferries. These have been operationally managed previously as part of regular maintenance dredging.

The primary anchorage area, utilised by passenger, cargo, tanker and tug and service vessels waiting to enter the harbour, lies approximately 0.6nm northeast of the harbour breakwater in the North Shear channel, offering ample space for increased use by vessels working on the Proposed Development without conflicting with traffic transiting to and from the harbour. However, the depths of the anchorage are such that it is unlikely that large construction vessels would be able to use this anchorage.

On the basis that there are likely to be periodic delays to vessel movements and disruption to ferry operations, the magnitude of the impact is considered to be **medium**.

The consequences of disrupting port operations may have knock-on effects on ferry scheduling. However, the duration of a delay is anticipated to be a few minutes, for the construction vessel to complete a manoeuvre or depart, which is small in comparison with the multi-hour-long transit time the ferries undertake. There is anticipated to be sufficient contingency in ferry timetables to address these minor delays. In addition, ferries accommodate operational delays during loading, unloading and transit times which are managed successfully. Therefore, the sensitivity of the impact is considered to be **low**.

Overall, the magnitude of the impact is deemed to be **medium**, and the sensitivity of the receptor is considered to be **low**. The effect will, therefore, be of '**Slight' adverse** significance, which is not significant in EIA terms.

20.4.4.2 IMPACT 2: IMPACT ON RISK OF COLLISION

The presence of construction vessels and their activities described in section 20.2.2 can increase the risk of collision by acting as an obstacle that constricts vessel movements, increasing interactions and collisions, or introducing new traffic which could collide with existing traffic. As described in section 20.4.4, a dredger and shuttle barge will be required to operate within the main harbour during construction and operations and maintenance which poses a risk of collision with inbound and departing RoRo ferries.

The construction activities will be managed through embedded risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of a collision
- Clear Channel Policy – ensures adequate space for arrivals and departures is maintained thus reducing the likelihood of a collision.
- Notice to Mariners (NtM) – Alerts port users of the planned construction activities reducing the likelihood of a conflict between vessels and subsequent collision.
- Weather Limits – imposes safe limitations to avoid a situation where the loss of control of a vessel could contribute to a collision event.
- Training – ensures crew are prepared for events that may lead to a collision and are equipped with the skills to prevent or reduce the consequences of one.
- Construction Method Statement – facilitates agreed written procedures, improving planning and reducing the risk of a misunderstanding that could result in the mishandling of a vessel and subsequent collision.
- Vessel Standards – reduces the likelihood of a collision as a result of mechanical failure.

As described in section 20.3.2, a negligible number of existing vessel movements would be impacted by the positioning of the reclamation area as it is west and clear of the main harbour and its approaches. The use of a clear channel policy already significantly reduces the likelihood of vessels meeting within the confines of the harbour. Therefore, the presence of construction vessels should have minimal impact on the risk of collision between two other transiting vessels. Therefore, the primary risk of collision is posed by construction vessels colliding with transiting ferries. As noted above, there is anticipated to be a low number of construction vessel transits, and these will be managed through the clear channel policy and LPS. Therefore, the magnitude of the impact is considered to be **low**.

Construction vessels may be considerably large, therefore in the event of a collision with a passenger ferry, the consequences to people and property could be serious with loss of life and pollution. However, it is anticipated that construction vessels will be navigating at a slow speed in the confines of the harbour. Analysis of historical incident data globally also notes that approximately 1% of collisions result in loss of life, and typically there is no pollution or injuries. The sensitivity of the impact is therefore considered to be **medium**.

The NRA assessed nine collisions which could occur during the construction phase of the Proposed Development. Of these two were scored as “Medium Risk”, namely a ferry/commercial vessel in collision with a large project vessel, and a small project vessel in collision with a small craft. All other collision hazards were assessed as “Low Risk”. The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, where hazards were scored as Medium Risk, they could be defined as ALARP.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of **‘Slight’ adverse** significance, which is not significant in EIA terms.

20.4.4.3 IMPACT 3: IMPACT ON RISK OF ALLISION

The presence of construction vessels and their activities described in section 20.3.220.2.3 can increase the risk of allision (collision with a stationary object) by acting as an obstacle that constricts vessel movements and introduces new traffic, thus decreasing the width of navigable water.

The construction activities will be managed through embedded risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of an allision.
- Weather Limits– imposes safe limitations to avoid a situation where the loss of control of a vessel could cause an allision.
- Marking and Charting – ensures all hazards and AtoN’s are made aware of, reducing the likelihood of an allision with an unknown object.
- Construction Method Statement – facilitates agreed written procedures, improving planning and reducing the risk of a misunderstanding that could result in the mishandling of a vessel and subsequent allision.
- Fendering/Impact Protection – limits the consequences in the event of an allision.

As described in section 20.3.2, the vast majority of existing vessel movements into Rosslare Europort are RoRo ferries or freight vessels bound to the existing main berths within the harbour. Analysis of the tracks and manoeuvring areas used by these ferries demonstrates that the vast majority (>99.9%) already passed clear of the Proposed Development’s reclaimed area where the majority of construction will be taking place (Figure 20.6). Therefore, the likelihood of a ferry striking the reclamation area is low.

Construction vessels, including dredgers, may also strike existing infrastructure or the reclamation area when navigating within the harbour. As demonstrated within the navigation simulations (section 20.2.4), there was sufficient space for the largest vessels likely to be involved in construction to manoeuvre. However, an allision could occur following mechanical failure or human error. The magnitude of the impact is therefore considered to be **low**.

If a construction activity causes an allision, the consequences to people and property, especially in the instance of a passenger-laden RoRo ferry, could be severe. However, most allisions, including

those reported to have occurred in Rosslare in recent years have resulted in minor damage with no injuries or pollution. The sensitivity of the impact is therefore considered to be **medium**.

The NRA assessed four allision hazards which could occur during the construction phase of the Proposed Development. All four were scored as "Medium Risk", namely a ferry/commercial vessel allision, small craft allision, small project vessel allision, and large project allision. The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, the hazards could be defined as ALARP.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of **'Slight' adverse** significance, which is not significant in EIA terms.

20.4.4.4 IMPACT 4: IMPACT ON RISK OF GROUNDING

The presence of construction vessels and their activities described in section 20.2.2 can increase the risk of grounding by acting as an obstacle that constricts vessel movements and introducing new traffic, thus decreasing the width of navigable water and increasing the risk of a ferry running aground.

The construction activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of grounding.
- Clear Channel Policy – ensures adequate space for arrivals and departures is maintained thus reducing the likelihood of grounding.
- Weather Limits– imposes safe limitations to avoid a situation where the loss of control of a vessel could result in grounding.
- Hydrographic Surveys – provide accurate bathymetric data reducing the likelihood of an unexpected grounding event.
- Marking and Charting– ensures all depths and AtoN's marking dangers are made aware of reducing the likelihood of an unexpected grounding event.
- Maintenance Dredging – ensures charted depths are maintained to reduce the likelihood of grounding.

Given the offset of the reclamation area from the routes taken by ferries, the likelihood of a ferry grounding is not deemed to be worsened as a result of the presence of the Proposed Development footprint. The additional traffic introduced during construction could lead to increased encounters and may result in a vessel avoiding action and running aground. This risk is managed through the existing risk controls described above. In addition, construction vessels could suffer mechanical failure or through human error deviate from the main channel and run aground. Therefore, the magnitude of the impact is considered to be **low**.

Groundings typically result in minor consequences and are refloated on the next tide or with the support of tugs. However, in the worst credible situation, they may result in significant damage, loss

of life and pollution. In the event of a major grounding in the South Shear channel, the grounded ship could reduce access. Therefore, the sensitivity of the impact is considered to be **medium**.

The NRA assessed four grounding scenarios which could occur during the construction phase of the Proposed Development. Of these, one was scored as "Medium Risk", namely a large project vessel grounding. One grounding hazards was assessed as "Low Risk" – ferry/commercial grounding and two scored as "Negligible Risk". The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, where hazards were scored as Medium Risk, they could be defined as ALARP.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of '**Slight' adverse** significance, which is not significant in EIA terms.

20.4.4.5 IMPACT 5: IMPACT ON SMALL CRAFT NAVIGATION AND SAFETY

The presence of construction vessels and their activities described in section 20.2.2 can increase the risk of impact on small craft navigation and safety by conflicting with inbound/outbound small craft which are not bound to the clear channel policy.

At present, there is a small boat harbour located along the coast west of the commercial port. The small boat harbour completely dries out at low tide and contains slipways and a single pontoon, with a rock breakwater. Small day boats and fishing vessels less than 10 m use this harbour. During the construction phase, small craft are likely to continue to use the existing small boat harbour, which may result in conflict with dredging activity or barges shuttling dredged material offshore. However, as the vessel traffic analysis indicated no AIS-transmitting craft utilised the harbour, levels of non-AIS-transmitting craft are expected to be similarly low and infrequent. Potential for conflict with construction vessels is therefore even lower and can be sufficiently managed through the listed embedded controls.

The construction activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of a collision especially as small craft are not mandated to conform to the Clear Channel Policy.
- Notice to Mariners (NtM) – ensures recreational boat users are made aware of planned construction activities and can plan accordingly.
- Weather Limits – reduces the likelihood of a situation where the loss of control of a vessel results in an incident.
- Health and Safety Policy – provides written instruction to reduce the likelihood of misuse of the port facilities.
- Marking and Charting – ensures all depths and AtoN's marking dangers are explicit, reducing the likelihood of an unexpected incident and conflict with small vessels.
- Construction Method Statement - facilitates agreed written procedures, reducing the risk of a misunderstanding that could result in the mishandling of a vessel and subsequent conflict with small craft.

As shown in section 20.3.2, the majority of recreational and fishing vessels transit to Berth 5 to the east of the reclamation area and can easily stay clear of the area during the construction phase. In addition, the existing number of small craft movements within the harbour is relatively small. Therefore, the magnitude of the impact is considered to be **low**.

The slow operating speed of the construction vessels would, in the most likely scenario only result in a minor collision, however, it should be noted that small craft are vulnerable in the event of a collision where damage to the vessel is more likely to result in the loss of that vessel and potential harm to people. Collisions between large vessels with small craft can result in capsizing and potential loss of life. The sensitivity of the impact is therefore considered to be **medium**.

The NRA assessed the risk of foundering/swamping of small craft related to Small Craft Navigation and Safety which could occur during the construction phase of the Proposed Development. The hazard assessment concluded the risk as "Medium Risk". The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, the hazard could be defined as ALARP.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of **'Slight' adverse** significance, which is not significant in EIA terms.

20.4.4.6 IMPACT 6: IMPACT ON SEARCH AND RESCUE

The presence of construction vessels and their activities described in section 20.2.2 may affect the effectiveness of search and rescue by undertaking construction activities within the main harbour, potentially obstructing the existing RNLI launch point which is currently located between Berth 2 and Berth 3.

The construction activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – aids in coordinating lifeboat launches with inbound/outbound vessel movements.
- Port Emergency Plan – reduces the severity of consequences in the event of an emergency, reducing the demand on search and rescue resources.
- Oil Spill Response Plan - reduces the severity of consequences in the event of an oil spill, reducing the demand on search and rescue resources.
- Training – reduces the risk of accidental conflict with search and rescue deployment.
- Construction Method Statement -– agreed written procedures to improve planning and reduces the risk of human error and resulting conflict with search and rescue activities.

On average Rosslare Harbour RNLI lifeboat station received approximately 14 callouts per year between 2008 and 2023, with a number located to the north, east or south and therefore clear of the reclamation area. The likelihood of a construction vessel causing an impact on a call-out is therefore unlikely. Construction vessels will be managed in a way to reduce the requirement for search and rescue activities (such as first aid training and equipment) and therefore the Proposed

Development should not increase the demand for search and rescue. The magnitude of the impact is therefore considered to be **low**.

In the event of call out and lifeboat launch during construction activities, there is sufficient sea room within the main harbour and in the approaches to avoid conflict between vessels and minimise disruption to emergency response, therefore the sensitivity of the impact is considered to be **negligible**.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **negligible**. The effect will, therefore, be of **'Not Significant' adverse** significance, which is not significant in EIA terms.

20.4.4.7 IMPACT 7: IMPACT ON RISK OF BREAKOUT

The presence of construction vessels and their activities described in section 20.2.2 may affect the risk of a breakout by creating a wash which causes enough tension to part mooring lines of the RoRo's berthed in the main harbour, or small recreational or fishing vessels at Berth 5, Fisherman's Quay.

The construction activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – by maintaining traffic movements, LPS ensures sufficient space is maintained between passing vessels to reduce the impact of vessel wake on a moored vessel.
- Weather Limits – reduces the likelihood of severe weather causing a breakout.
- Construction Method Statement - agreement on written procedures reduces the risk of human error and the potential for the mis-operation of construction vessels to cause a breakout.

The slow speed of construction vessels engaged in dredging which is typically <3kts (Vlasblom, 2003) and construction works is likely too low to create a large enough wash to affect nearby vessels. It is not believed that the presence of the construction vessels would affect the existing risk of a breakout. Therefore, the magnitude of the impact is considered to be **negligible**.

In the event of a breakout, subsequent allisions or collisions could result in vessel or infrastructure damage albeit minor. Therefore, the sensitivity of the impact is considered to be **low**.

The NRA assessed four mooring failure hazards which could occur during the construction phase of the Proposed Development. All four were scored as "Low Risk", namely breakout/mooring incident large project vessel, breakout/mooring incident ferry/commercial, breakout/mooring incident small craft, and breakout/mooring incident small project vessel. The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, where hazards were scored as Low Risk, they could be defined as Broadly Acceptable.

Overall, the magnitude of the impact is deemed to be **negligible**, and the sensitivity of the receptor is considered to be **low**. The effect will, therefore considered to be of '**Imperceptible' adverse** significance, which is not significant in EIA terms.

20.4.5 OPERATIONAL PHASE IMPACTS

Seven potential impacts arising from the operational phase of the Proposed Development on shipping and navigation receptors have been identified. Operations in the Rosslare Europort ORE Hub will focus on Offshore Renewable Energy (ORE) support for Offshore Wind Farms but the port will remain a hub for cargo and ferry movements as well as existing levels of fishing and recreational vessel activity facilitated by the new Small Boat Harbour.

Operational activities include:

- Unloading of renewable components with laydown and storage.
- Loading of renewable components to barges or specialist heavy lift vessels (HLVs).
- Freight ferry movements.
- General cargo handling.
- Ongoing maintenance dredging.

The anticipated number of project vessels using the main berths is relatively low, with peak traffic numbers during an OWF lifecycle of up to one large vessel every two days to the Main Quay and multiple movements per day to the Small Boat Harbour. In off-peak periods this could be as low as one large vessel every two weeks.

20.4.5.1 IMPACT 1: IMPACT ON PORT OPERATIONS

The Proposed Development will necessitate the movements of large and small vessels from the Small Boat Harbour and Main Quay. It is anticipated there would be typically one large project vessel movement per week or up to one large project vessel movement per day during peak OWF activity. Small vessel traffic transiting to and from the Small Boat Harbour is likely to be multiple transits per day. The large project vessels will be bound by the same requirements as other large commercial vessels within Rosslare Europort, including the clear channel policy. A multitude of such movements could result in congestion and delays to existing operators.

The operation activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the impact on ferry schedules.
- Clear Channel Policy - ensures adequate space for arrivals and departures is maintained to avoid disruption to port operations.
- Marine Operating Guidelines - agreed written procedures improves planning and reduces the risk of human error and resulting conflict with vessel activities.

As described in section 20.3.2, the vast majority of existing vessel movements into Rosslare Europort are RoRo ferries or freight vessels bound to the existing main berths within the harbour. Analysis of the tracks and manoeuvring areas used by these ferries demonstrates that the overwhelming majority (>99.9%) already pass clear of the Proposed Development's reclaimed area. At present, this area has depths of less than five metres chart datum and therefore ferries, with a draught of

approximately 6 m, navigating too far west are at risk of running aground. Therefore, it is not considered that the physical reclamation area would have any impact on existing port operations.

During the operations and maintenance phase, further maintenance dredging will be required to maintain the declared channel depths, but this will be infrequent and therefore impacts are anticipated to be minor. Furthermore, existing dredging campaigns have been successfully managed in Rosslare Harbour to minimise the impact on operators.

As described in section 20.4.4.1, there is capacity to accommodate additional vessel movements without interfering with scheduled passenger operations during the peak and off-peak times of the day. There would also be sufficient space for additional vessels associated with the Proposed Development to anchor in the anchoring area if required, given the relatively low demand for this anchorage and the available sea room. Smaller vessel movements can continue to and from the Small Boat Harbour without disrupting existing port movements by passing clear to the north. Given the low number of additional vessel movements, it is not considered that Project vessel movements would have a substantial effect on port capacity. The ORE project vessels also do not have any operational constraints that limit their ability to fit into these time windows. Therefore, the magnitude of the impact is considered to be **low**.

However, in the event of a vessel operating to the Proposed Development impeding access into Rosslare Harbour, the consequences could include disruption to regular ferry services or congestion. As it is assumed that the maximum time to manoeuvre the largest anticipated vessels operating to the Main Quay is less than twenty minutes, the potential worst-case delays to operators would be minor. There is anticipated to be sufficient contingency in ferry timetables to address these minor delays. The sensitivity of the impact is therefore considered to be **low**.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **low**. The effect will, therefore, be of '**Slight' adverse** significance, which is not significant in EIA terms.

20.4.5.2 IMPACT 2: IMPACT ON RISK OF COLLISION

The additional vessel movements associated with the Proposed Development are described above in section 20.4.5.1 and would include large project vessels (>200 m), general cargo ships and smaller craft (survey vessels and Crew Transfer Vessels). As noted in section 20.4.5.1, there is sufficient capacity such that conflicts between project vessels and existing traffic are unlikely and this hazard is being already well mitigated by the use of a clear channel policy.

The operation activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of a collision
- Clear Channel Policy – ensures adequate space for arrivals and departures is maintained thus reducing the likelihood of a collision.
- Notice to Mariners (NtM) – Alerts port users of the planned operational activities reducing the likelihood of a conflict between vessels and subsequent collision.

- Weather Limits – imposes safe limitations to avoid a situation where the loss of control of a vessel could contribute to a collision event.
- Training – ensures crew are prepared for events that may lead to a collision and are equipped with the skills to prevent or reduce the consequences of one.
- Marine Operating Guidelines – facilitates agreed written procedures, improving planning and reducing the risk of a misunderstanding that could result in the mishandling of a vessel and subsequent collision.
- Vessel Standards – reduces the likelihood of a collision as a result of mechanical failure.

By maintaining the clear channel policy, a collision in the main harbour area is unlikely. In addition, the risk of collision within the South Shear Channel approach is deemed unlikely as there is sufficient space to facilitate the anticipated number of additional vessels. Where more space is available, such as the turn into the harbour between the West Holdens buoy and harbour breakwater, vessels use a wider area to initiate their turn. Equally, where the channel's width is narrow, between the Calmines and South Holdens buoys, vessel tracks condense. The existing AtoNs and channel widths are appropriate for the types of vessels proposed to be operating out of the Proposed Development as they are not significantly larger than the existing regular runners. The NRA determined that there was sufficient capacity within the port and given the relatively short length of the pilotage passage in the South Shear channel, the likelihood of a project vessel meeting another vessel is low. Vessels would be able to pass one another, maintaining suitable separation to reduce the risk of collision. Therefore, the magnitude of the impact is considered to be **low**.

As is the case in section 20.4.4.2, in the event of a collision with a passenger ferry, the large size of the project vessels and the vulnerability of a high volume of passengers onboard the ferries make the consequences of a collision to people, property and environment severe. However, as before in section 20.4.4.2, the project vessels would also be navigating at slow speeds in the confines of the harbour, and as stated in historical incident data, only 1% of collisions result in loss of life. Therefore, the sensitivity of the impact is considered to be **medium**.

The NRA assessed nine collisions which could occur during the operational phase of the Proposed Development. Of these, two were scored as "Medium Risk", namely a ferry/commercial vessel in collision with a large project vessel, and a small project vessel in collision with a small craft. All other collision hazards were assessed as "Low Risk". The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, where hazards were scored as Medium Risk, they could be defined as ALARP.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of **'Slight' adverse** significance, which is not significant in EIA terms.

20.4.5.3 IMPACT 3: IMPACT ON RISK OF ALLISION

The presence of project vessels and their activities can increase the risk of allision by acting as an obstacle that constricts vessel movements and introduces new traffic, thus decreasing the width of navigable water. In addition, the new quayside presents an obstacle close to the manoeuvring space

required to berth at Berths 1 and 2. The infrastructure and vessels berthed alongside could pose a risk of allision to existing RoRo traffic.

The operation activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of an allision.
- Weather Limits– imposes safe limitations to avoid a situation where the loss of control of a vessel could cause an allision.
- Marking and Charting – ensures all hazards and AtoN's are made aware of, reducing the likelihood of an allision with an unknown object.
- Marine Operating Guidelines – facilitates agreed written procedures, improving planning and reducing the risk of a misunderstanding that could result in the mishandling of a vessel and subsequent allision.
- Fendering/Impact Protection – limits the consequences in the event of an allision.

Vessel traffic analysis undertaken within the NRA identifies a few examples of ferry swept paths manoeuvring into Berth 1 that intersected the footprint of the Proposed Development (when including example vessels alongside), or a failed attempt of an arriving ferry to berth at Berth 1 in strong northeasterly winds which resulted in a drift to proximity of the footprint of the project which highlights the potential risk of allision.

However, at present, this area has depths of less than 5 m chart datum and therefore ferries (with draughts of approximately 6 m) navigating too far west are at risk of running aground and typically avoid this area (Figure 20.4). During the hazard workshop, it was noted that dredging the existing 5 m shoal may provide the opportunity for ferry masters to undertake an alternative manoeuvre to access Berth 1, closer to the reclamation area. Masters would need to perform a dynamic risk assessment to judge the benefits this might offer against the additional risks of proximity to infrastructure.

In the unlikely event that a vessel was to experience a blackout whilst manoeuvring within the main harbour, they could be swept onto the project quay due to northeasterly winds. Were such a situation to occur today, the vessel would run aground given the depths of water and therefore the presence of the Proposed Development does not make this situation any more or less likely.

During the hazard workshop, it was noted that some of the largest wind farm installation vessels may require wind turbine blades to be laid perpendicular to the vessel's deck creating an overhang of up to 70 m. As a result, a vessel alongside the Main Quay may have obstructions protruding from the vessel that pose a hazard to arriving and departing RoRo vessels. This is shown in all figures within this report and was used within the navigation simulations. For RoRo arrivals and departures, particularly during strong winds from the southerly sectors, masters could need to keep the bow to the west for alignment into Berth 1 which could bring it close to any overhang and present a risk of allision. It should be noted that it is likely that only a small percentage of the time would a wind farm installation vessel be berthed on the Main Quay in such a configuration, and it would be even less likely that this would be during periods of adverse weather. An example swept path of a typical

manoeuvre into Berth 1 is depicted in Figure 20.10. A minimum distance of 54 m is maintained between the approach RoRo ferry and the contour line representing the maximum potential overhang of blades depending on where the blade carrier is moored along the quay.

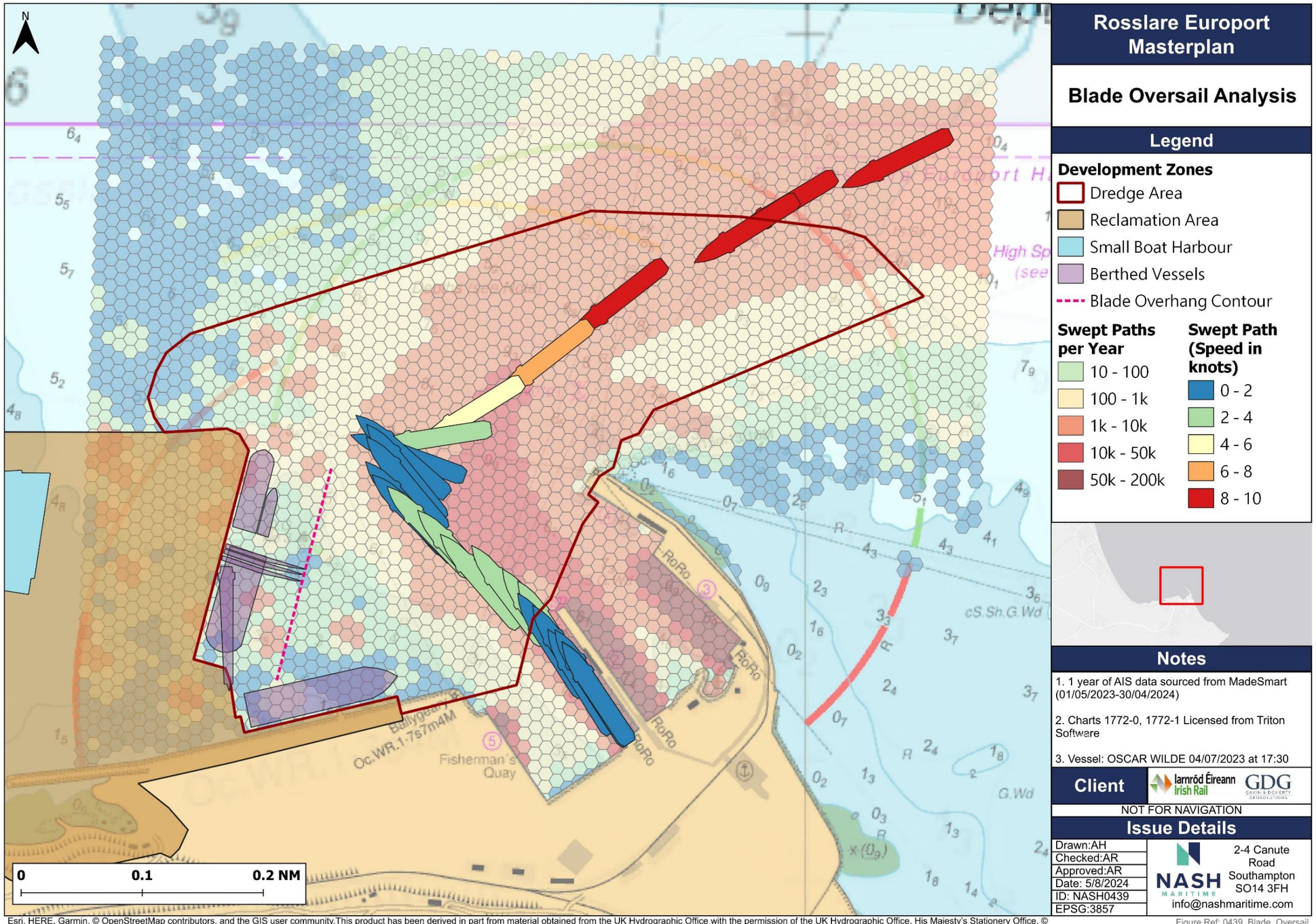

Figure 20.10: Swept Paths in Relation to Blade Overhang

The additional vessels, particularly large project vessels, may allide with either the existing Rosslare Europort facilities or the Project quays due to human error or mechanical failure. The risk of allision in extreme conditions was tested as part of the navigation simulations (section 20.2.4). 30-knot wind speeds were tested from a range of directions with a fully loaded maximum design vessel category, a conservative worst-case situation. It was noted that it is considered highly unlikely that project vessels will be berthing in such conditions. In all simulated cases, sufficient safe separation of the vessel from the breakwater was achieved. Following the navigation simulations, it was concluded that there was sufficient sea room within the harbour for the largest project vessels to manoeuvre safely. That being said, the project vessel masters could be less familiar with manoeuvring in the harbour so could be at higher risk of an allision with infrastructure than the existing regular runners. Therefore, the magnitude of the impact is considered to be **low**.

In the event that an allision occurs, the consequences to people and property, especially in the instance of a passenger-laden RoRo ferry, could be severe. However, most allisions, including those reported to have occurred in Rosslare in recent years have resulted in minor damage with no injuries or pollution. It is not anticipated that the damage caused by a Proposed Development vessel would be substantially worse than existing Ro-Ro incidents, albeit there is a lower potential for loss of life due to the reduced personnel on board. Therefore, the sensitivity of the impact is considered to be **medium**.

The NRA assessed four allisions which could occur during the operational phase of the Proposed Development. All four were scored as “Medium Risk”, namely a ferry/commercial vessel allision, small craft allision, small project vessel allision, and large project allision. The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, the hazards could be defined as ALARP.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of **‘Slight’ adverse** significance, which is not significant in EIA terms.

20.4.5.4 IMPACT 4: IMPACT ON RISK OF GROUNDING

The presence of project vessels and their activities can increase the risk of grounding by acting as an obstacle that constricts vessel movements and introduces new traffic, thus decreasing the width of navigable water and increasing the risk of a ferry running aground.

The operation activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of grounding.
- Clear Channel Policy – ensures adequate space for arrivals and departures is maintained thus reducing the likelihood of grounding.
- Weather Limits– imposes safe limitations to avoid a situation where the loss of control of a vessel could result in grounding.

- Hydrographic Surveys – provide accurate bathymetric data reducing the likelihood of an unexpected grounding event.
- Marking and Charting– ensures all depths and AtoN's marking dangers are made aware of reducing the likelihood of an unexpected grounding event.
- Maintenance Dredging – ensures charted depths are maintained to reduce the likelihood of grounding.

Given the proposed dredged works associated within the Proposed Development, the grounding of existing port traffic is not considered a credible impact. Groundings could occur of project vessels inbound to the port through human error or mechanical failure. Given the geometry of the port, this is more likely to happen for deep draught vessels on the northern boundary of the dredged approach channel where such a vessel is manoeuvring onto the Main Quay. The remainder of the approach channel from the east is of sufficient width for a deep draught vessel approach without concern and is marked by multiple AtoNs. A blackout event aboard the project vessel could occur but is highly unlikely and would have risks that would be independent of the Proposed Development or location.

The risk of grounding in extreme conditions was tested as part of the navigation simulations. It was noted that in some runs with vessels inbound to the Main Quay where port side to was required, the turn was undertaken well to the north, with the bow passing near the edge of the dredged area. Given the low likelihood of such conditions (with most manoeuvres likely in calmer conditions), the optionality to come starboard side to and that all simulations were achieved without a grounding, it is concluded there is sufficient searoom to manage the risk of grounding. It was agreed that weather limits for berthing in high wind conditions would be prudent mitigation. Therefore, the magnitude of the impact is considered to be **low**.

Groundings typically result in minor consequences and are refloated on the next tide or with the support of tugs. However, in the worst credible situation, they may result in significant damage, loss of life and pollution. In the event of a major grounding in the South Shear channel, the consequences to the port could be severe with reduced access. Therefore, the sensitivity of the impact is considered to be **medium**.

The NRA assessed four grounding scenarios which could occur during the operational phase of the Proposed Development. Of these, one was scored as "Medium Risk", namely a large project vessel grounding. One grounding hazards were assessed as "Low Risk" – ferry/commercial grounding and two scored as "Negligible Risk". The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, where hazards were scored as Medium Risk, they could be defined as ALARP.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of '**Slight' adverse** significance, which is not significant in EIA terms.

20.4.5.5 IMPACT 5: IMPACT ON SMALL CRAFT NAVIGATION AND SAFETY

The Proposed Development will replace the current small boat harbour with a purpose-built small boat harbour to the northwest of the reclamation area, including slipways, berths and quays,

protected by a breakwater. The new Small Boat Harbour includes provision for Crew Transfer Vessels, tugs and existing fishing boat and other small boat users.

The operational activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – enables the coordination of vessel movements reducing the likelihood of a collision especially as small craft are not mandated to conform to the Clear Channel Policy.
- Notice to Mariners (NtM) – ensures recreational boat users are made aware of planned operational activities and can plan accordingly.
- Weather Limits – reduces the likelihood of a situation where the loss of control of a vessel results in an incident.
- Health and Safety Policy – provides written instruction to reduce the likelihood of misuse of the port facilities.
- Marking and Charting – ensures all depths and AtoN's marking dangers are explicit, reducing the likelihood of an unexpected incident and conflict with small vessels.
- Marine Operating Guidelines - facilitates agreed written procedures, reducing the risk of a misunderstanding that could result in the mishandling of a vessel and subsequent conflict with small craft.

There would be a greater mixture of craft interacting within the Small Boat Harbour than is presently the case. This carries a greater risk of collision but is not anticipated to be greater than would be expected with the application of good seamanship. Notably, commercial vessel berths (Crew Transfer Vessels and fishing boats) are spatially separate from other small craft. The proposed dimensions of the Small Boat Harbour are deemed sufficient for safe navigation and comparable to other equivalent harbours around the world.

Small craft such as recreational and fishing boats are susceptible to being swamped by large waves, including those caused by the wake of passing vessels. Such a risk already exists between RoRo vessels and small craft within the approaches to Rosslare Europort, and any additional large project vessel movements would likely share a similar risk profile. Crew Transfer Vessels are high-speed, capable of up to 25 knots, and navigating at speed near small boat traffic could result in risks of swamping. It is possible a wave generated could result in the loss of a small craft. This hazard has been experienced at other ports and harbours servicing the offshore wind industry.

The relocation of the small boat harbour to the northwest of the reclamation area may change the routes taken by small vessels across the harbour, offsetting them further north and away from the wash of large commercial vessels, reducing the likelihood of such incidents. Therefore, the magnitude of the impact is considered to be **low**.

Small craft can be particularly vulnerable to collisions and wash with capsizes possible, resulting in loss of the vessel or life. However, most incidents are likely to be minor. Therefore, the sensitivity of the impact is considered to be **medium**.

The NRA assessed the risk of foundering/swamping of small craft related to Small Craft Navigation and Safety which could occur during the operational phase of the Proposed Development. The

hazard assessment concluded the risk as "Medium Risk". The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, the hazard could be defined as ALARP. Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **medium**. The effect will, therefore, be of **'Slight' adverse** significance, which is not significant in EIA terms.

20.4.5.6 IMPACT 6: IMPACT ON SEARCH AND RESCUE

The operation of the Proposed Development may result in the relocation of the RNLI berth from the main harbour into the new Small Boat Harbour. Additional impacts on search and rescue may be experienced through increased demand associated with additional vessel movements into Rosslare.

The operation activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – aids in coordinating lifeboat launches with inbound/outbound vessel movements.
- Port Emergency Plan – reduces the severity of consequences in the event of an emergency, reducing the demand on search and rescue resources.
- Oil Spill Response Plan - reduces the severity of consequences in the event of an oil spill, reducing the demand on search and rescue resources.
- Training – reduces the risk of accidental conflict with search and rescue deployment.
- Marine Operating Guidelines – facilitates adherence to procedures to avoid conflict with search and rescue operations.

On average Rosslare Harbour lifeboat station received approximately 14 callouts per year between 2008 and 2023. Given the low frequency of callouts and port calls by Proposed Development vessels, the likelihood of a conflict is low. As shown in the NRA, the likelihood of a project vessel movement necessitating a SAR response is also low. The magnitude of the impact is therefore considered to be **low**.

In the event of call out and lifeboat launch during operational activities, there would be little disruption to emergency response, therefore the sensitivity of the impact is considered to be **negligible**.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **negligible**. The effect will, therefore, be of **'Not Significant' adverse** significance, which is not significant in EIA terms.

20.4.5.7 IMPACT 7: IMPACT ON RISK OF BREAKOUT

The presence of vessels operating to the Proposed Development and their activities described in section 20.4.5 may affect the risk of a breakout by creating a wash which causes enough tension to part mooring lines of RoRo's berthed in the main harbour, or small recreational or fishing vessels at Berth 5, Fisherman's Quay. Similarly, the presence of the reclamation area may alter the wave dynamics in the harbour which can result in additional forces action upon the mooring lines of both

vessels associated with the Proposed Development and existing RoRos. The operation activities will be managed through adopted risk controls listed in Table 20.7, specifically:

- Local Port Services – by maintaining traffic movements, LPS ensures sufficient space is maintained between passing vessels to reduce the impact of vessel wake on a moored vessel.
- Weather Limits – reduces the likelihood of severe weather causing a breakout.
- Marine Operating Guidelines - agreed written procedures to improve planning reduces the risk of human error and the potential for the mis-operation of Proposed Development vessels to cause a breakout.

The likelihood of a large project vessel moving at a fast enough speed to generate a wash in the vicinity of the harbour is unlikely as it will be manoeuvring on and off the berth of the Main Quay and likely to do so at safe speed. It is not believed that the presence of the development would affect the existing risk of a breakout. However, the introduction of infrastructure associated with the Proposed Development may result in changes to the wave dynamics within the harbour (see Chapter 8: Coastal Processes). Therefore, on a precautionary basis, the magnitude of the impact is considered to be **low**.

In the event of a breakout, subsequent allisions or collisions could result in vessel or infrastructure damage albeit minor. Therefore, the sensitivity of the impact is considered to be **low**.

The NRA assessed four mooring failures which could occur during the operational phase of the Proposed Development. All four were scored as “Low Risk”, namely breakout/mooring incident large project vessel, breakout/mooring incident ferry/commercial, breakout/mooring incident small craft, and breakout/mooring incident small project vessel. The NRA concluded that given the presence of suitable risk controls and the disproportionality of any additional risk controls, where hazards were scored as Low Risk, they could be defined as Broadly Acceptable.

Overall, the magnitude of the impact is deemed to be **low**, and the sensitivity of the receptor is considered to be **low**. The effect will, therefore, be of ‘‘**Slight’ adverse** significance, which is not significant in EIA terms.

20.4.6 CUMULATIVE EFFECTS AND OTHER INTERACTIONS

This assessment also considers the impact of other proposed projects in the vicinity of the Proposed Development. Existing navigational features and activities, such as anchorages and vessel routes, are included in the baseline assessment. The Proposed Development falls within the Rosslare Europort Masterplan within which there are further relevant developments, namely:

- Extension to Berth 3 and upgrades/replacements of associated infrastructure (linkspan/bollards etc.). This is anticipated to be completed before the construction of the Proposed Development. This will enable the port to accommodate wider vessels and therefore more cars and freight capacity.
- Shoreside developments include roads, roundabouts, kiosks and terminals. This will facilitate improved shoreside logistics and operations. Construction has already commenced and is due to be completed before the construction of the Proposed Development.

Consultation and screening concluded that no other proposed developments are likely to have a significant cumulative impact on shipping and navigation for this Proposed Development. Whilst it is noted that there are several proposed offshore wind farms on the east and southeast coast of Ireland, the role that Rosslare might play in their construction operations and maintenance is already considered within the activities of the Proposed Development, such as increased vessel movements. Therefore, no further cumulative assessment of shipping and navigation impacts was undertaken.

A screening of transboundary impacts has been carried out and any potential for significant transboundary effects with regard to shipping and navigation from the Proposed Development upon the interests of other states has been assessed as part of this chapter. Each vessel may be internationally owned or operating between ports in different states. These impacts have been captured and assessed within this chapter and NRA. Therefore, no additional transboundary impacts are anticipated.

20.5 SECONDARY MITIGATION MEASURES AND MONITORING FOR SHIPPING AND NAVIGATION

20.5.1 SECONDARY MITIGATION

The assessment of effects within section 20.4 has determined that all impacts of the Proposed Development during construction and operational phases would be not significant with embedded risk controls described in section 20.4.4. Therefore, no secondary mitigations have been identified as required for the construction phase of the Proposed Development.

As set out in section 1.4, the NRA (EIAR Technical Appendix 20) identified a number of recommendations for additional mitigation which could be implemented to further manage or reduce the level of impact or risk.

The following operational phase secondary mitigation measures will therefore be implemented prior to the operational phase of the Proposed Development.

- The LPS manual will be reviewed and updated by the Maritime Safety Office of the Department of Transport.
- Closed circuit TV monitoring of the Small Boat Harbour and periodic patrols by port personnel will be implemented by Iarnród Éireann.

20.5.2 MONITORING

Monitoring of vessel traffic within Rosslare Europort and vessels engaged in the Proposed Development is identified as primary mitigation in Table 20.7. This includes:

- LPS operations - Manned 30 minutes prior to the arrival or departure of any cargo ship or RoRo. The LPS enables the monitoring of vessel movements, provision of clearance, orchestrating remote pilotage assistance and MetOcean monitoring. Further details are provided in the Local Port Services Manual (Rosslare Europort, 2023).

- Construction method statement - Development and adherence to a construction method statement.
- Hydrographic surveys - The harbour and approach channels are regularly surveyed.

20.6 RESIDUAL EFFECTS

As no significant adverse effects on shipping and navigation were identified within Section 20.4, no residual effects are anticipated.

20.7 IMPACT INTERACTIONS

Interactions are considered to be the impacts and associated effects of different aspects of the Proposed Development on the same receptor, these can include different topics, spatially and temporally. Interactions may combine to be of greater significance than when assessed individually.

Interactions

may exist for commercial fisheries whereby impacts associated with loss of fishing grounds and impacts on navigational safety combine. The impact on fishing is assessed within the NRA and shown to be Medium Risk – Tolerable if ALARP or Low Risk and therefore any inter-relationship between impacts for commercial fisheries is not anticipated to be significant.

For all such impacts identified, across the Proposed Development's lifetime, the effects on shipping and navigation receptors are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each phase or when considered in conjunction with other topics.

20.8 SUMMARY

The shipping and navigation assessment for the Proposed Development has been undertaken following consultation with stakeholders, analysis of historical vessel traffic and incident data, a hazard workshop and full bridge simulations. Table 20.8 presents a summary of the potential impacts, measures adopted as part of the Proposed Development and residual effects with respect to shipping and navigation. The impacts assessed include impacts to port operations, search and rescue, and navigational safety hazards such as collision, allision and grounding.

Overall, it is concluded that there will be no significant effects arising from the construction and operations of the Proposed Development on any shipping and navigation receptors.

Table 20.8: Assessment Summary

Potential Effect	Construction/ Operation	Beneficial / Adverse/ Neutral	Magnitude/ Likelihood of Occurrence	Sensitivity/ Consequence of Occurrence	Significance of Effect (according to defined criteria)	Proposed mitigations	Residual Effects (according to defined criteria)
Impact on Port Operations	Construction/ Operation	Adverse	Medium (Construction) Low (Operation)	Low	Slight (Construction) Not Significant (Operation)	None	Slight (Construction) Not Significant (Operation)
Impact on Risk of Collision	Construction/ Operation	Adverse	Low	Medium	Slight	None	Slight
Impact on Risk of Allision	Construction/ Operation	Adverse	Low	Medium	Slight	None	Slight
Impact on Risk of Grounding	Construction/ Operation	Adverse	Low	Medium	Not Significant	None	Slight
Impact on Small Craft Navigation and Safety	Construction/ Operation	Adverse	Low	Medium	Slight	None	Slight
Impact on Search and Rescue	Construction/ Operation	Adverse	Low	Negligible	Not Significant	None	Not Significant
Impact on Risk of Breakout	Construction/ Operation	Adverse	Negligible (construction) Low (Operation)	Low	Imperceptible (Construction) Slight (Operation)	None	Imperceptible (Construction) Slight (Operation)

20.9 REFERENCES

Central Statistics Office. (2024). '*TBQ01 - Vessel Arrivals',* Retrieved July 10, 2024, from https://data.cso.ie/.

Department of Housing, Local Government and Heritage. (2021). *Project Ireland 2040: National Marine Planning Framework*. Retrieved July 28, 2024 from https://www.gov.ie/en/publication/60e57-national-marine-planning-framework/.

Department of Transport, Tourism & Sport. (2019). *National Ports Policy*. Retrieved July 28, 2024 from https://www.gov.ie/en/publication/4aa3cc-national-ports-policy/.

Gavin & Doherty Geosolutions. (2022). *Environmental Impact Assessment Scoping Report*. Retrieved November 14 2024.

International Maritime Organization (IMO). (1997). *Resolution A.857(20): Guidelines for vessel traffic services*. retrieved from: https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.857(20).pdf

International Maritime Organisation (IMO). (2018). *Revised Guidelines for Formal Safety Assessment*. MSC-MEPC.2/Circ.12/Rev.2. Retrieved from: https://wwwcdn.imo.org/localresources/en/OurWork/Safety/Documents/MSC-MEPC%202-Circ%2012-Rev%202.pdf

International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). (2009). *Recommendation V-119: Implementation of vessel traffic services* (Revised ed.). retrieved from https://www.iala-aism.org

MadeSmart. (2023). *Automatic Identification System (AIS) data* [Unpublished raw data]. MadeSmart.

MCIB. (2022). *Report of an Investigation into an Incident Involving two Passenger Ferries at Rosslare Harbour, Co. Wexford*. Retrieved August 7 2025, from https://www.mcib.ie/reports.7.html?r=313

Royal National Lifeboat Institution (RNLI). (2023). *RNLI Return of Service* [unpublished raw data].

United Kingdom Hydrographic Office. (2024). Sailing Directions.

UK Maritime and Coastguard Agency. (2002). *Safety of navigation: SOLAS Chapter V* (Merchant Shipping Notice MSN 1831). UK Government. https://assets.publishing.service.gov.uk/media/5a7f0081ed915d74e33f3c6e/solas_v_on_safety_of_navigation.pdf

United Kingdom Hydrographic Office. (2023). *Admiralty TotalTide: Global tidal predictions (Version 24,1,0,4)* [Software]. Retrieved from https://www.admiralty.co.uk/publications/admiralty-digital-publications/admiralty-totaltide

United Kingdom Hydrographic Office. (2023). *Admiralty chart 1772-0: Rosslare Europort and Wexford Harbours* [Nautical chart]. Triton Marine.United Kingdom Hydrographic Office. (2023). *Admiralty chart 1772-1: Rosslare Europor*t [Nautical chart]. Triton Marine.

Vlasblom. (2003). *Dredging Equipment and Technology, Chapter 2 Trailing Suction Hopper Dredging.* Central Dredging Association. Retrieved October 11, 2024, from https://dredging.org/dredging-equipment-and-technology/53

Iarnród Éireann
Irish Rail

venterra | GDG GAVIN & DOHERTY GEOSOLUTIONS | NICHOLAS O'DWYER an RSK company | Co-funded by the European Union