8.0 Navigation & Safety

Introduction

8.1 This chapter of the Environmental Impact Assessment (EIA) Report (EIAR) assesses the potential impacts of the proposed development on shipping and navigational safety within the study area (defined below). In particular, the chapter includes:

- A review of current powers, legislation, and operational parameters including current Navigational Risk Assessment (NRA) to assess baseline;
- Records of consultation with identified interested parties which forms the basis of the NRA. No non-publicly available technical data was used;
- Assessment of the impacts on marine users from the construction works, revised layout design and new breakwaters being assessed through the NRA which is conducted in accordance with the Port Marine Safety Code and its Guide to Good Practice;
- Worst case and most likely scenario analysis, together with the potential impacts arising from these;
- Consideration of recreational boating and commercial fisheries in relation to navigation and safety and inclusion in the NRA; and
- The NRA being conducted over an area up to one nautical mile from the existing marina (**Figure 8.1**)

Figure 8.1 Area being assessed by the NRA

8.2 This EIA chapter is accompanied by the following appendices:

- **Navigational Risk Assessment (NRA) (Appendix 8.1 – Volume 2 of EIAR)**: A data driven interpretive matrix which summarises the key basis and findings of an assessment of navigational risk in relation to the operational phase and the construction phase of the proposed project;
- **Technical Note (Appendix 8.2 – Volume 2 of EIAR)**: This appendix includes a copy of all consultee basic question sets used and a summary of consultee feedback and responses.

8.3 In EIA terms, the NRA identified the key receptors as being:

- **Environment –** the marine and surrounding environment;
- **People –** including marine users, contractor's staff and general public;
- **Property –** belonging to any relevant party; and
- **Business –** business operations, financial status and reputation.

Competency Statement

8.4 This Chapter has been prepared by CRS Harbours Ltd (CRS) who have extensive experience in marine operations across the UK, including port, harbour & marine facility management. This includes development and conduct of marine navigation assessments supporting construction and aquaculture developments, environmental impact assessment and reporting, implementing marine safety management systems, managing infrastructure improvements of port redevelopments, site risk assessments and managing safe and efficient vessel traffic management within large and small statutory harbour areas. The team holds mariner and civil engineering qualifications supported by Harbour Master and Port Management Diplomas and have developed a broad spectrum of knowledge and experience on order to competently assess and report of the relevant aspects of navigation and safety in relation to the proposed development. The assessment and development of this chapter was further supported by BlueSea Consulting LLP (BSC).

Legislation, Guidance and Policy

Introduction

8.5 The broad legislative and policy framework relevant to environmental assessment of the Proposed Development is set out in Chapter 4 Legislative and Planning Context. This section summarises the legislation, policy, and guidance applicable to navigation and safety.

Legislative & Policy Framework for Navigation & Safety

8.6 Marine navigation is governed by a wide variety of international, United Kingdom and Scottish legislative and policy requirements. Details of some of the relevant and applicable legislative and framework elements which govern Scottish inshore waters within the limit of six nautical miles from land are outlined below. The Regulation, Codes and Guidance must be considered together in the delivery of safe navigation and mitigating any significant impacts on the marine environment as a result of developments.

The Marine (Scotland) Act 2010

8.7 The Marine (Scotland) Act 2010[1] provides a framework which helps balance competing demands on Scotland's seas. It introduced measures such a new marine planning system, marine licencing system, conservation of the marine environment and regulatory enforcement. The Act empowers Scottish Ministers to vary, suspend or revoke a marine licence in the interests of the safety of navigation, the ability of Scottish Ministers to issue an emergency safety notice requiring the recipient of such a notice to provide lights, signals or other aids to navigation and other emergency powers to ensure the safety of a vessel or marine structure.

The Merchant Shipping Act 1995

8.8 The Merchant Shipping Act 1995[2] is a comprehensive piece of legislation which aims to promote safer and more environmentally responsible maritime practices in the UK. The Act includes for, but it not limited to, provisions for ship registration, manning and crewing, safety requirements for navigation aboard, special provisions for fishing vessels, prevention of pollution and so on.

MARPOL

8.9 The International Convention for the Prevention of Pollution from Ships (MARPOL)[3] is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The MARPOL Convention was adopted on 02 November 1973 at the International Maritime Organization (IMO). The Protocol of 1978 was adopted in

[1] The Marine (Scotland) Act 2010
[2] The Merchant Shipping Act 1995
[3] The International Convention for the Prevention of Pollution from Ships (MARPOL)

response to a spate of tanker accidents in 1976-1977. As the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument entered into force on 02 October 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. MARPOL has been updated by amendments through the years.

SOLAS

8.10 The International Convention for the Safety of Life at Sea (SOLAS, 1974, as amended) Convention[4], in its successive forms, is generally regarded as the most important of all international treaties concerning the safety of merchant ships. The first version was adopted in 1914, in response to the Titanic disaster. The second version was adopted in 1929, the third in 1948, and the fourth in 1960. SOLAS Chapter V (Safety of Navigation) identifies certain navigation safety services which should be provided by Contracting Governments and sets forth provisions of an operational nature applicable in general to all ships on all voyages. This is in contrast to the Convention as a whole, which only applies to certain classes of ship engaged on international voyages. The subjects covered include the maintenance of meteorological services for ships; the ice patrol service; routeing of ships; and the maintenance of search and rescue services. This Chapter also includes a general obligation for masters to proceed to the assistance of those in distress and for Contracting Governments to ensure that all ships shall be sufficiently and efficiently manned from a safety point of view. The chapter makes mandatory the carriage of voyage data recorders (VDRs) and automatic ship identification systems (AIS). Various key aspects of other chapters, not least including Chapter IV (Radiocommunications) and Chapter IX (Management for the Safe Operation of Ships), further support the requirements of the safety of navigation.

The Merchant Shipping (Safety of Navigation) Regulations

8.11 The Merchant Shipping (Safety of Navigation) Regulations 2020[5] implement SOLAS Chapter V, in its most recently amended form, into UK law. The Merchant Shipping (Safety of Navigation) (Amendment) Regulations 2025 came into force in February 2025 and supplement the 2020 regulations. Marine Guidance Note (MGN – see below) 610 (M+F) Amendment 1 navigation: SOLAS chapter V – guidance on the merchant shipping (safety of navigation) regulations 2020[6], provides clarification and guidance on the 2020 and 2025 Regulations.

[4] The International Convention for the Safety of Life at Sea (SOLAS) Convention, 1974
[5] The Merchant Shipping (Safety of Navigation) Regulations 2020
[6] Marine Guidance Note 610 (M+F) Amendment 1

COLREGS

8.12 The Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)[7] are, put simply, the 'highway code' or 'rules of the road' when at sea and they set out the conduct of vessels in any condition of visibility and the positioning, use of and technical details of aids to safe navigation. The first version was adopted on 20 October 1972 and came into force on 15 July 1977. The 1972 Convention was designed to update and replace the Collision Regulations of 1960 which were adopted at the same time as the 1960 SOLAS Convention. The COLREGs include 41 rules divided into six sections: Part A - General; Part B - Steering and Sailing; Part C - Lights and Shapes; Part D - Sound and Light signals; Part E - Exemptions; and Part F - Verification of compliance with the provisions of the Convention. There are also four Annexes containing technical requirements concerning lights and shapes and their positioning; sound signalling appliances; additional signals for fishing vessels when operating in close proximity, and international distress signals.

COSWP

8.13 The Code of Safe Working Practices for Merchant Seafarers (COSWP)[8] covers the regulatory framework and provides best practice guidance for health and safety on board a ship and relates to matters that are the subject of regulations made from The Merchant Shipping Act 1995. This includes matters relating to ship handling and safe navigation practices. The code is published by the MCA, is an authoritative best practice manual on health and safety on board ships and is endorsed by the National Maritime Occupational Health and Safety Committee (NMOHSC). It deals with the regulatory framework for health and safety on board ship, safety management and statutory duties underlying the advice and gives practical information on safe working. The code describes in detail the requirements placed on applicable ships to ensure that measures are in place and followed to ensure the safety of navigation.

Marine Guidance Notes and Merchant Shipping Notices

8.14 Marine Guidance Notes (MGN) and Merchant Shipping Notices (MSN) are published by the Maritime and Coastguard Agency (MCA). MGNs provide guidance regarding the application of UK maritime and other relevant regulations. MSNs contain the technical detail of regulations called ‘statutory instruments’, which is mandatory information, must be complied with under UK legislation and can apply to merchant ships, fishing vessels or both.

[7] The Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)
[8] The Code of Safe Working Practices for Merchant Seafarers (COSWP), 2025 Edition

PMSC

8.15 The most appropriate overarching statement of the regulatory framework surrounding navigation in harbours, ports and marine facilities and in particular with reference to the undertaking of NRA, is defined by and detailed within:

- Ports & Marine Facilities Safety Code[9] (PMSC)
- A Guide to Good Practice on Port and Marine Facilities[10] (GTGP)

8.16 The PMSC and the associated GTGP provide a pragmatic and proportionate approach to safety standards which enable everyone who is involved to proportionately apply the principles upon which the requirements are based. The PMSC and GTGP clearly identifies the key requirements of NRA which include:

- The risks associated with marine operations need to be assessed and a means of controlling them needs to be deployed. The aim of this process is to eliminate the risk or, failing that, to reduce risks as low as reasonably practicable. Formal risk assessments should be used to:
  - identify hazards and analyse risks,
  - assess those risks against an appropriate standard of acceptability, and
  - where appropriate consider a cost-benefit assessment of risk-reduction measures.
- Risk assessments should be undertaken by people who are competent especially when deciding which techniques to use and when interpreting the results. Risks should be judged against objective criteria, without being influenced by the financial position of the authority, to ensure they are reduced to the lowest possible level, so far as is reasonably practicable (that is such risks must be kept as low as reasonably practicable or “ALARP”). The greater the risk, the more likely it is that it is reasonable to go to the expense, trouble and invention to reduce it. There is a hierarchy of risk control principles:
  - minimise risks – by suitable systems of working,
  - combat risks – by taking protective measures to prevent risk, and
  - eliminate risks – by avoiding a hazardous procedure, or substituting a less dangerous one.
- The process of assessment is continuous so that both new hazards to navigation and marine operations and changed risks are properly identified and addressed.
- Risk assessments should be reviewed on a planned periodic basis. The MSMS should prescribe the organisation’s policy on review frequency as well as any related procedures or processes. The MSMS should also refer to a procedure which ensures that risk assessments are reviewed appropriately in the following circumstances:

[9] The Port & Marine Facilities Safety Code, April 2025
[10] A Guide to Good Practice on Port and Marine Facilities, April 2025

- on a planned periodic basis,
- post-incident/accident, and
- post-review of relevant marine accident or health check trend report.

- Risk assessment reviews are best conducted by utilising user groups or representatives who use the harbour or facility regularly. This helps to ensure that practical and relevant experience can be captured, promotes good consultation and demonstrates the organisation's commitment to engaging with users.

International Industry Standards for NRA

8.17 The methodology adopted for this NRA is as defined by accepted international industry standards deemed appropriate for the type of assessment required for this project. These standards and the methodology adopted are fully detailed within the Methodology section of this report.

National Planning Policy Context

National Planning Framework 4 (NPF4)

8.18 Overarching planning policies for Scotland are contained within the 'National Planning Framework 4' (NPF4)[11], which is a long-term plan looking to 2045 that guides spatial development, sets out national planning policies, designates national developments and highlights regional spatial priorities. It is part of the development plan, and so influences planning decisions across Scotland. Whilst NPF4 identifies and supports the regeneration of Stranraer as a National Development, which includes the expansion of the marina, the strategy document does not identify or place any requirements or stipulations in relation to the safety of navigation.

Scotland's National Marine Plan

8.19 Scotland's National Marine Plan (Scottish Government, 2015)[12] provides a comprehensive overarching framework for all marine activity in Scottish waters. It is intended to enable sustainable development and use of national marine area in a way which will protect and enhance the marine environment whilst promoting both existing and emerging industries.

8.20 General Policy 18 in relation to Engagement states:

- "*Early and effective engagement should be undertaken with the general public and all interested stakeholders to facilitate planning and consenting processes…Marine users and potential users…should all contribute where necessary.*"

[11] Scottish Government: National Planning Framework 4: February 2023
[12] Scotland's National Marine Plan (Scottish Government, 2015)

8.21 Recreation and Tourism Marine Planning Policy 2 states:

- "*The extent to which any proposal interferes with access to and along the shore, to the water, use of the resource for recreation or tourism purposes and existing navigational routes or navigational safety…should be taken into account when deciding on uses of the marine environment and the potential impact on recreation and tourism.*"

8.22 Shipping, Ports, Harbours and Ferries (Transport) Policies state:

- Policy 1: "*Navigational safety in relevant areas used by shipping now and in the future will be protected, adhering to the rights of innocent passage and freedom of navigation contained in UN Convention on the Law of the Sea (UNCLOS). The extent to which the locational decision interferes with existing or planned routes used by shipping, access to ports and harbours and navigational safety…will be taken into account when reaching decisions regarding development and use…This includes commercial anchorages and defined approaches to ports.*"
- Policy 2: "*Regional marine plans should identify regionally important ports and harbours, giving consideration to social and economic aspects of the port or harbour and the users of the facility subject to policies and objectives of this Plan. Regional plans should consider setting out criteria against which proposed activities and developments should be evaluated. (applies to inshore waters only)*"
- Policy 3: "*Ferry routes and maritime transport to island and remote mainland areas provide essential connections and should be safeguarded from inappropriate marine development and use that would significantly interfere with their operation. Developments will not be consented where they will unacceptably interfere with lifeline ferry services.*"
- Policy 6: "*Marine planners and decision makers and developers should ensure displacement of shipping is avoided where possible to mitigate against potential increased journey lengths (and associated fuel costs, emissions and impact on journey frequency) and potential impacts on other users and ecologically sensitive areas.*"

National & Regional Strategies

8.23 There are numerous National or Regional Strategies which have a direct impact on the proposed project. These include, but are not limited to, aspects under the regulatory authority of the Scottish Environment Protection Agency (SEPA), NatureScot (NS) and other such agencies. However, unless specifically identified, specific reference to these aspects have been considered as beyond the scope of this chapter and, instead, matters have been assessed against the general requirements of the PMSC and GTGP in relation to the conduct of the NRA.

SWestrans Regional Transport Strategy 2023-42

8.24 The SWestrans Regional Transport Strategy 2023-42[13] makes references to the regeneration of Stranraer, the relocation of the Stranraer railway station and the Stranraer Gateway, but does not present any specific detail in relation to the marina or aspects relating to the safety of navigation.

A Place Plan for Stranraer 2023-2033

8.25 The document A Place Plan for Stranraer 2023-2033[14] makes reference to the council's investment of £2m in the marina expansion project and its role in developing the waterfront and town centre but does not present any specific detail in relation to the marina or aspects relating to the safety of navigation.

Local Policy and Guidance

Dumfries and Galloway Council Local Development Plan 2 (LDP2)

8.26 Dumfries and Galloway Councils (D&GC) second Local Development Plan (LDP2)[15] covers all of Dumfries and Galloway; it provides the planning framework and guides the future use and development of land in towns, villages and the rural area. It also indicates where development, including regeneration, should happen and where it should not. Whilst the LDP2 does not make specific references to navigation or safety, it makes reference to the regeneration masterplan for Stranraer waterfront and Policy T3, in relation to Established Harbours, Marinas and Slipways, states:

- "*The Council will support the development and use of harbours, marinas and slipways by…encouraging development proposals which support the use of such facilities, particularly those with a potential commercial, recreational, sporting or tourist function…and by…ensuring that improvement, maintenance or development of harbours and ports and their associated transport connections is co-ordinated with, and aligned to, improvements in other transport infrastructure.*"

Dumfries and Galloway Council as Statutory Harbour Authority

8.27 D&GC, as Statutory Harbour Authority, are responsible for the making of policy, legislation and guidance that applies to the harbour area. Further, D&GC, as the operator of the existing marina, are responsible for its function and safety and for the making and enforcement of operational controls. In terms of such local policy, the following is publicly available and is referred to as part of this assessment:

[13] SWestrans Regional Transport Strategy 2023-42
[14] A Place Plan for Stranraer 2023-2033
[15] Dumfries and Galloway Council Local Development Plan 2 (LDP2)

- Terms and conditions of Harbour Use[16];
- D&GC Marine Safety Management System – Purpose and Policy[17];
- The D&GC (Stranraer) Harbour Revision Order 2024[18]; and
- Guide to Vessels Entering Loch Ryan and associated Code of Practice[19].

8.28 Further detail relating to local policy and standards beyond the above was not available at the time of the assessment.

[16] Terms & Conditions of Harbour Use, Feb 2025
[17] D&GC Marine Safety Management System – Purpose and Policy, Issue B, Rev 03 Jan 2024
[18] The D&GC (Stranraer) Harbour Revision Order 2024
[19] Guide to Vessels Entering Loch Ryan and associated Code of Practice, Issue B, Rev 01, May 2021

Methodology Used for Assessment

Introduction

8.29 The purpose of this chapter is to identify likely significant environmental effects of the proposed development which could derive from its impact on navigation and safety. This applies to both the construction and operational phases of the proposed development. The chapter also seeks to address the requirement for the conduct of a technical NRA as identified in the EIA Scoping Opinion (February 2023)[20].

8.30 The methodology used for this assessment sought to adopt the use of accepted marine industry standards for NRA whilst adapting the outcomes from this NRA to align with accepted environmental assessment terminology and descriptions.

Regulatory & Consenting Consultation

EIA Scoping

8.31 The scope of this chapter is defined by the pre-application scoping opinion for the Stranraer Marina Expansion project[21] as provided by Marine Scotland – Licensing Operations Team (MS-LOT).

8.32 The Pre-Application Scoping Opinion states that: "*The impacts on marine users from the construction works, revised layout design and new breakwaters must be assessed through the inclusion of an appropriate Navigation and Risk Assessment ("NRA") in accordance with the Marine Safety Management System under the Port Marine Safety Code and its Guide to Good Practice. The Scottish Ministers direct the Applicant to representation from the MCA which advise that it is fully addressed in the EIA Report.". It also states that: "The Scottish Ministers acknowledge representation from the RYA which advises that recreational boating can be scoped out from further assessment within the EIA Report in relation to population, human health and socioeconomics. The Scottish Ministers agree with representation from RYA, however advise that recreational boating must be included in the NRA and is therefore scoped in for further assessment in the EIA Report in relation to navigation and safety. In addition, the Scottish Ministers acknowledge advice from MSS in relation to commercial fisheries, however advise that commercial fisheries should still be included in assessing impacts on marine users within the NRA. For the avoidance of doubt, the Scottish Ministers advise that recreational boating and commercial fisheries must be included within the NRA.*"

[20] Marine Scotland: Scoping Opinion adopted by the Scottish Ministers under Part 4 of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 Dumfries and Galloway Council Stranraer Marina Development: February 2023
[21] Stranraer Marina Development, Scoping Opinion – February 2023

Stakeholder Consultation

The Purpose of Consultation & Questions

8.33 Stakeholder consultation is conducted with the express purpose of gathering key local knowledge and experience from those who use, access and have experience of existing Stranraer Marina and its approaches and the types of activities that take place. The consultation exercise seeks stakeholder views in relation to the proposed development, its potential impact on safety of navigation and on the environment and the environmental conditions within the harbour, during both the project construction phase and operational phase of the marina.

8.34 In seeking and gathering input from users and other stakeholders, outline question sets have been developed and used with the intention to illicit relevant and applicable feedback from a range of users, depending on their role and experience of marine matters in the area. The outline question sets used are provided in **Appendix 8.2** (**Volume 2**).

Range of Consultations and Consultees

8.35 Consultation meetings in specific relation to the safety of navigation for this project have been undertaken using a virtual meeting approach, across the period from 09 December 2024 to 03 January 2025.

8.36 A total of 13 individuals and representatives have been consulted with during this period, using the question sets detailed in **Appendix 8.2** as the basis of each consultation. However, the conduct and outcomes from each consultation varied depending on the individuals experience, knowledge, involvement with or use of Stranraer Marina and what organisation(s) they might represent.

8.37 Consultees were identified through a combination of methods, including discussions with the project applicant, the project design team and through direct discussions with the local community. The range of consultees included representation from the following areas:

- The Applicant, Dumfries & Galloway Council (D&GC);
- The expected contractor, Balfour Beatty Civil Engineering Limited (BBCEL);
- The statutory harbour authority & marina operator;
- The project principal contractor;
- The project design team;
- Leisure & recreational users of the marina;
- Berth holders from the marina;
- Stranraer Water Sports Association (SWSA);
- Loch Ryan Sailing Club;
- Stranraer Coastal Rowing Club (SCRC);
- Ferry port and vessel operations; and
- Water and other event organisers and sponsors.

8.38 Despite several attempts, including support from D&GC, it has not yet been possible to make contact with nor consult with any of the existing commercial users of the Stranraer marina and harbour area, either resident or visiting.

Consultee Feedback and Responses

8.39 **Appendix 8.2** summarises the input and feedback gathered from the selection of stakeholders.

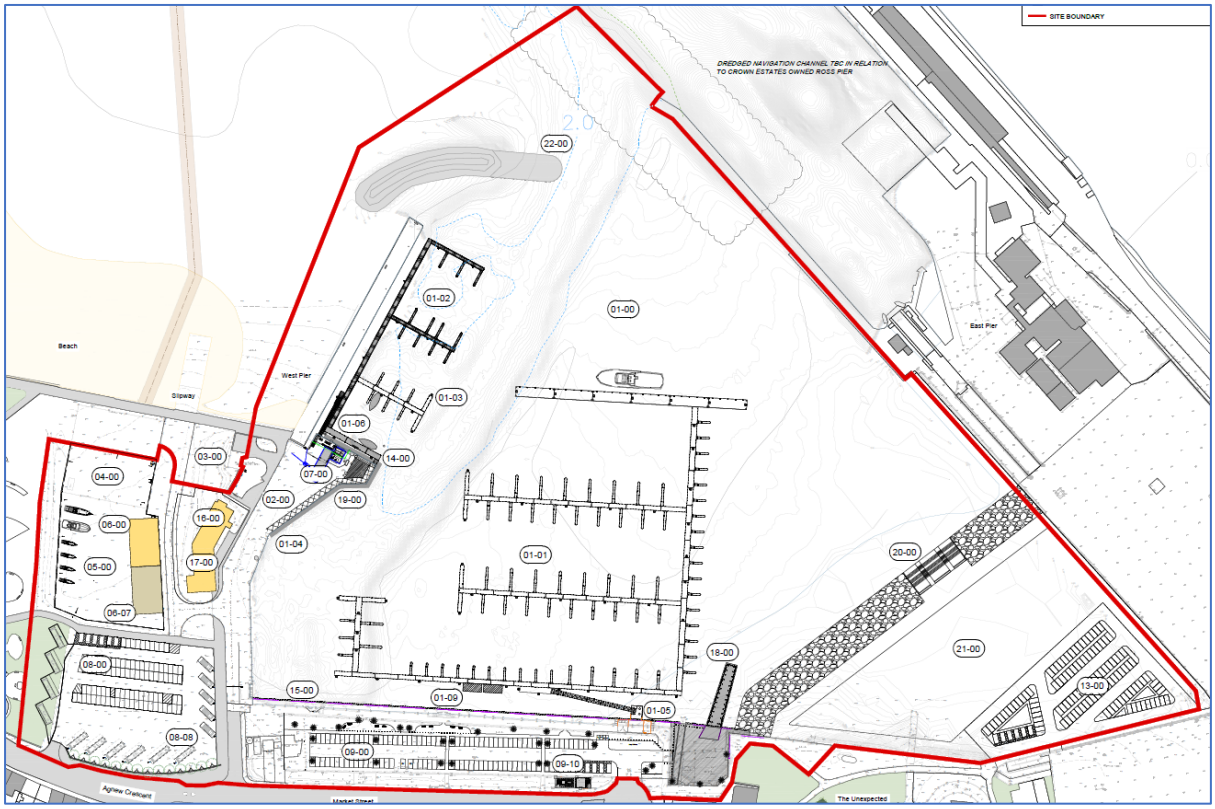
Adaption and Use of Consultee Feedback and Responses

8.40 All feedback and responses obtained from consultees has been reviewed and considered within the scope of this chapter and, where relevant, adapted to form part of the NRA.

Study Area

8.41 The scope of the NRA identified that the study area, or assessment zones, would include an area up to one nautical mile from the existing marina (**Figure 8.1** above). Through review, it was established that the critical areas for this study would be the marina harbour area and its immediate approaches, as extracted from the latest Extent of Works Plan at **Figure 8.2**.

Figure 8.2 Extract Showing Study Area



Baseline conditions

8.42 A review was undertaken to identify all relevant sources of information required in order to accurately establish baseline conditions in terms of navigation and safety. The information contained in **Table 8.1** summarises the data identified, gathered and reviewed for this chapter.

Table 8.1 Baseline Data Identified

Data Title	Data Source	Data Description
Existing Navigational Risk Assessment	Consultation	All available elements relating to the existing assessment(s) of navigational risk in the areas required
Existing Navigational Safety Information	Consultation	Data such as existing hazards and existing control measures
Existing Operational Information	Consultation	Data such as existing vessel traffic profiles
Historic & Anecdotal Incident Data	Consultation	All types of incidents and near miss information collected from formal and informal sources
Existing Environmental Data	Consultation & Public Access	All relevant information available, including tidal ranges and tidal streams
Current Regulatory or Legislative Controls	Consultation & Public Access	All available regulation or legislation which is relevant to or has a direct or potential impact on the project and its environment
Existing System Processes & Controls	Consultation & Public Access	Regional or local system processes which are in place to govern and inform the safety of navigation in the defined areas
Proposed Project Design	Consultation	Project proposals as they are relevant to the assessment of navigational safety and risk
Proposed Project Operational Information	Consultation	Data such as anticipated vessel traffic profiles and future plans for the project
Proposed Project Construction Information	Consultation	Data relevant to the undertaking of the construction phase, as far as such is available at this stage, including any reasonable assumptions which could be identified at EIA stage

8.43 Relevant baseline data has been primarily gathered through consultation with a wide variety of relevant stakeholders. In some cases, public access sources were also referenced to establish any relevant legislative considerations and to supplement data gathered in relation to environmental data and local navigational controls.

8.44 A desk-based review was conducted, taking into consideration all of the information gathered, to establish the baseline conditions in relation to navigation and safety and to assist in the conduct of the NRA forming part of this chapter.

Impact Assessment Methodology

8.45 The assessment used in this chapter initially diverges from the EIA methodology presented in Volume 1, Chapter 6: Approach to Environmental Impact Assessment and instead follows a Formal Safety Assessment (FSA) (International Maritime Organization (IMO)) approach which is an internationally recognised system for assessing impacts on navigation receptors. This approach is to satisfy the requirements identified at the EIA Scoping Opinion stage.

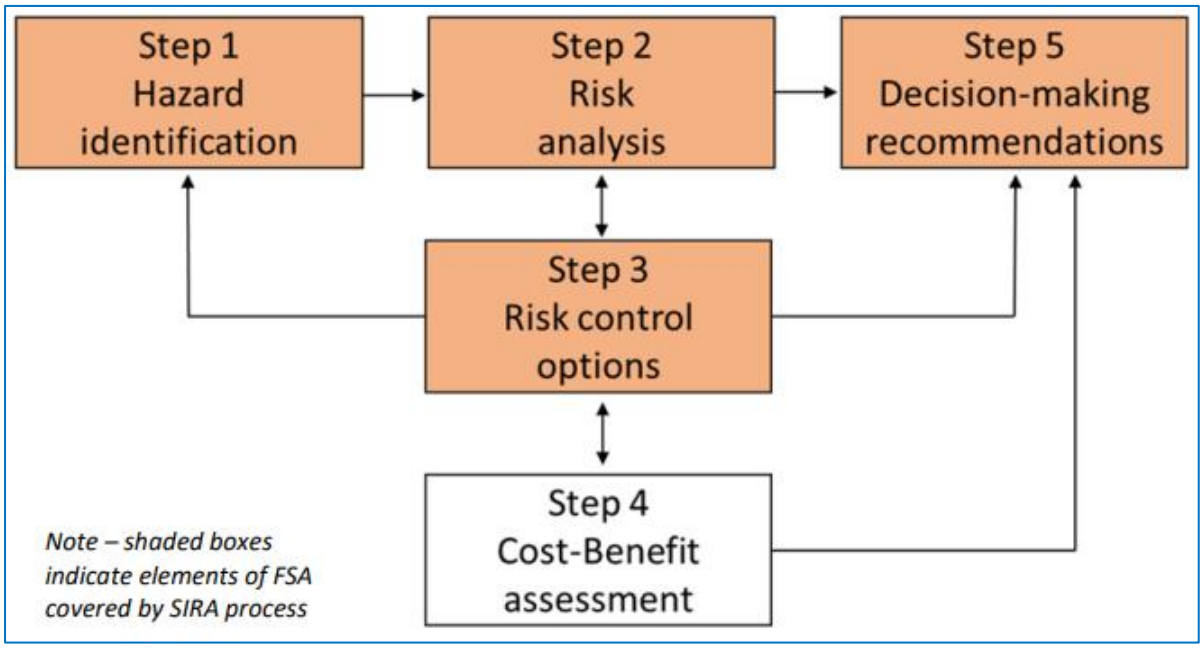
8.46 There are differences between standard EIA & FSA methodology and terminology used for navigation and safety. The resultant outcomes of the FSA are thereafter reviewed, considered and converted to terminology that aligns with the EIA terminology as contained within both The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

NRA Principles

8.47 The NRA produced for this project follows the IMO FSA methodology (**Figure 8.3**) which is fully detailed within the IMO document MSC-MEPC.2/Circ.12/Rev.2[22]. The specific NRA tool used for the NRA, referred to as SIRA, forms part of the International Organization for Marine Aids to Navigation (IALA) Toolbox which is defined in IALA Guideline G1018 Risk Management[23] and is fully detailed within IALA Guideline G1138 The Use of the Simplified IALA Risk Assessment Method (SIRA)[24]. SIRA was developed by IALA to provide a risk assessment methodology suitable for small, simple assessment requirements, based on current industry best practice.

[22] MSC-MEPC.2/Circ.12/Rev.2, IMO, 9 April 2018
[23] IALA Guideline G1018 Risk Management, Edition 4.0, June 2022
[24] IALA Guideline G1138 The Use of the Simplified IALA Risk Assessment Method (SIRA), Edition 2.0, December 2022

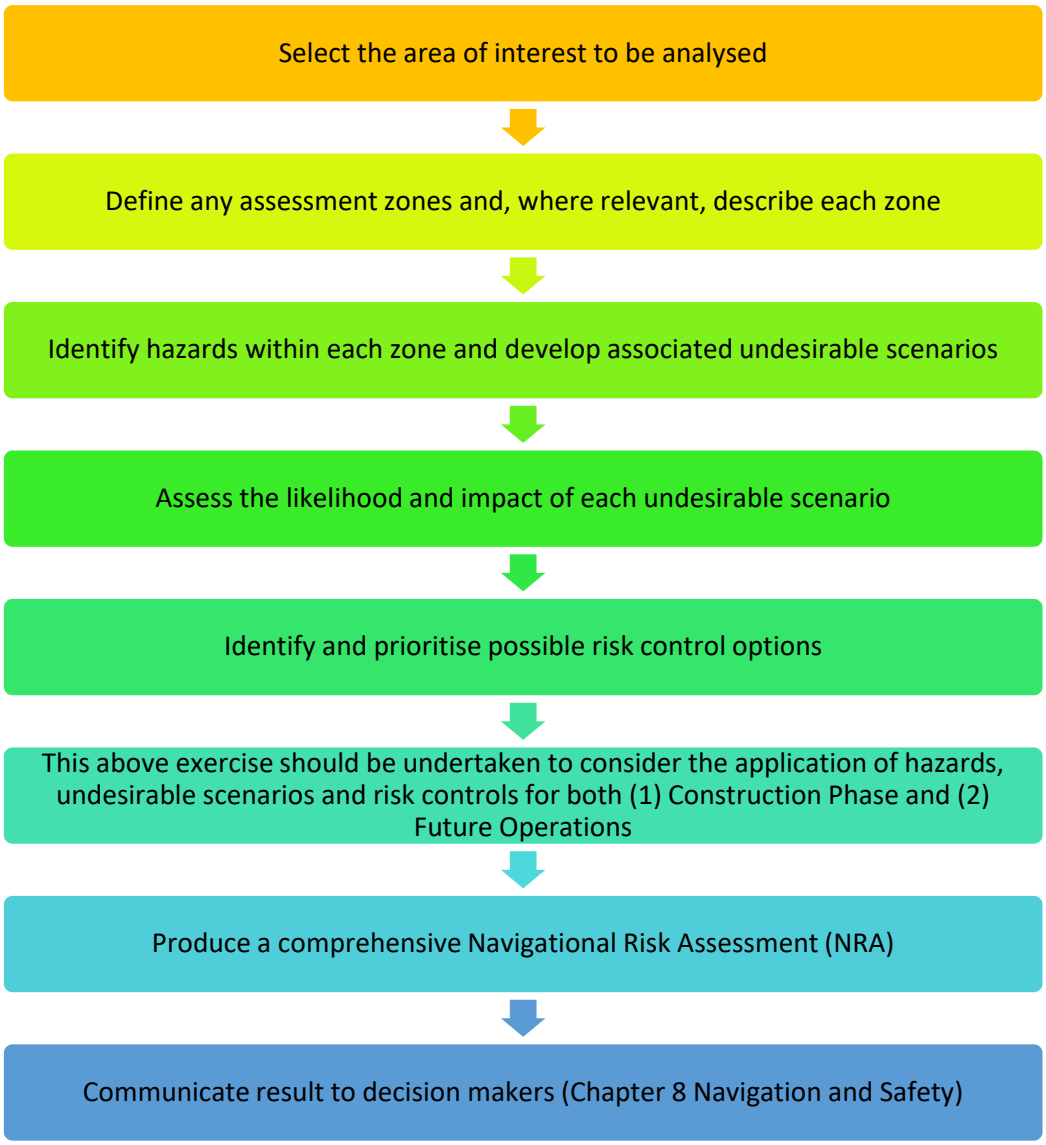
Figure 8.3 IMO FSA Process



8.48 The SIRA method allows the assessment of maritime and navigation risk such that responsible and competent bodies can meet their obligations for the safe management of navigation. In situations where comprehensive and complex assessment of risk may initially be unnecessary, SIRA provides a means of conducting a risk assessment and ensuring the results are appropriately considered and recorded for future reference. It is intended that a SIRA assessment is based on available data and information, together with expert opinion elicited from maritime stakeholders. The SIRA process does not include cost benefit appraisal of the identified risk control options.

8.49 The methodology used for this assessment, adapted from the FSA process and based on the principles of SIRA, as described in **Figure 8.4**.

Figure 8.4 NRA Methodology



NRA Methodology

8.50 The NRA is conducted by competent assessors, taking into consideration all of the relevant assessment information and data. The NRA, in particular, seeks to demonstrate:

- Each undesirable scenario as it is reasonably applied to all vessel types;
- A record of the existing control measures (embedded mitigation) relevant to that undesirable scenario;
- An assessment and scoring of the following:
  - The Most Likely existing outcome, based on likelihood and consequences of most likely risks, and
  - The Worst Credible existing outcome, based on likelihood and consequences of the worst credible risks.

- This produces an initial risk rating (potential / likely significant effect) for each undesirable scenario, based on the consideration of known existing control measures (embedded mitigation), which represents a value which places the undesirable scenario somewhere on the Risk Scoring Matrix;
- All risks should be 'As Low As Reasonably Practicable' (ALARP) and where this is not the case, additional control measures (additional mitigation) are considered and each relevant risk reassessed;
- Where any additional control measures (additional mitigation) are identified and applied, a re-assessment and scoring of the following:
  - The Most Likely outcome, based on likelihood and consequences of most likely risks, taking into consideration additional control measures (additional mitigation), and
  - The Worst Credible outcome, based on likelihood and consequences of the worst credible risks, taking into consideration additional control measures (additional mitigation).
- This produces a revised risk rating (residual effect) for each undesirable scenario, based on the consideration of the combination of all of the known existing and additional control measures (embedded and additional mitigation). This would normally show a reduced risk rating;
- This revised risk rating (residual effect), shall represent the NRA findings in terms of the assessment of undesirable scenarios and all control measures deemed as required to reduce the risk rating to ALARP;
- The conversion of NRA risk terminology to terminology consistent with EIAR requirements.

Hazards

8.51 Hazards data is collected through a detailed and thorough assessment of available baseline information, as a result of stakeholder consultation and by consideration of similar such assessments by experienced assessors.

8.52 For this assessment, the hazards identified are reviewed and allocated into four categories:

- **Existing Hazards:** Those hazards identified within the existing NRA or through consultation with marina and harbour users and other stakeholders, in specific relation to the safety of navigation within the existing marina and harbour areas;
- **Future Operations Hazards:** Those hazards identified through consultation with marina and harbour users and other stakeholders, in specific relation to the safety of navigation within the marina and harbour areas as defined by the new marina development proposals;

- **Construction Hazards:** Those hazards identified through consultation with marina and harbour users and other stakeholders, in specific relation to the safety of navigation within the marina and harbour areas during the anticipated construction phase of the marina project; and
- **Other General Hazards:** Any other hazards considered relevant to the assessment in the experience of the assessors or obtained from any other source.

8.53 Further, each hazard is then classified to seek to identify its type and the type of impact it might have. In general, the types of hazard classifications used are:

- **Infrastructure / AtoN**: Those hazards linked to the provision of the fixed and mobile marina infrastructure or provision of aids to navigation;
- **Adverse environmental / weather conditions:** Those hazards linked to the environment or environmental conditions with potential impact to safe navigation;
- **Equipment / Mechanical failure**: Those hazards which relate to equipment or mechanical failures;
- **Human Error**: Those hazards which are most likely linked to being a cause or factor of human error; and
- **N/A**: Those hazards which are considered relevant, but not in terms of safety of navigation.

8.54 Full details of the hazards data is recorded within the NRA at **Appendix 8.1**.

Undesirable Scenarios

8.55 The hazards identified have potential to lead to several different undesirable scenarios. Each identified hazard is reviewed and considered carefully, both for applicability and to ascertain what undesirable scenario(s) the realisation of that hazard may lead to.

8.56 Undesirable scenarios can be categorised and may include the following:

- Grounding;
- Collision;
- Allision / contact;
- Mooring breakout;
- Foundering;
- Loss of vessel control;
- Fire / explosion;
- Structural failure; and
- Other.

8.57 The specific list of undesirable scenarios is fully developed and stated by relevance to the range of hazards and their potential outcomes. The full list of undesirable scenarios is recorded within the NRA at **Appendix 8.1**.

Types of Vessels

8.58 The identification of the range and types of vessels relevant to the project is based on consultation with users and other stakeholders to establish all of:

- The types of vessels which exist and operate in the marina, harbour and adjoining area currently;
- The types of vessels which has been identified by the project and which can reasonably be foreseen in terms of future operations; and
- The types of vessels which have been identified by the project and which can be assumed to be involved with the construction phase of the project.

8.59 Through analysis of the range of vessel types, the assessors applied their knowledge and experience to classify the vessel types into relevant and appropriate categories which would aid the conduct of the NRA and include for both the construction and operational phases of the project. The categories used are:

- Large Commercial Vessel;
- Small Commercial Vessel;
- Small Fishing Vessel;
- Superyacht;
- Large Recreational Vessel;
- Small Recreational Vessel;
- Small Personal Watercraft (PWC);
- Large Construction Vessels / Marine Equipment;
- Small Construction Vessels / Marine Equipment.

8.60 Full details and descriptions of the vessel types used in this assessment is recorded within the NRA at **Appendix 8.1**.

Control Measures

8.61 Control measures are collected through a detailed and thorough assessment of available baseline information, as a result of stakeholder consultation and by consideration of similar such assessments by experienced assessors.

8.62 For this assessment, the control measures identified are reviewed and allocated into four categories:

- **Existing Operations Control Measures:** Those control measures which can be demonstrated as already existing in relation to the current operations of the marina and harbour area;
- **Existing Construction Control Measures:** Those control measures which can be demonstrated as already existing or that have been agreed or assumed as being implemented in relation to the construction phase of the project;

- **Future Operations Control Measures:** Those control measures which have been selected by the assessors as potentially relevant and applicable to the mitigation of risk as defined by the new marina development proposals; and
- **Proposed Construction Control Measures:** Those control measures which have been selected by the assessors as potentially relevant and applicable to the mitigation of risk specifically relating to activities during the construction phase of the project.

8.63 Full details of the control measures identified within the existing and proposed situation are recorded in the NRA at **Appendix 8.1**.

Construction (Temporary) & Operational (Permanent) Phases

8.64 The methodology adopted above is used for both construction and operational phases.

Sensitivity of Receptor

8.65 Regulation 5(3) of The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017[25] lists the factors on which the project may present direct and indirect significant effects.

8.66 In terms of navigation and safety, and in line with the SIRA NRA methodology adopted, the factors (receptors) specifically selected are categorised as:

- Environment – the marine and surrounding environment;
- People – including marine users, contractor's staff and general public;
- Property – belonging to any relevant party; and
- Business – business operations, financial status and reputation.

8.67 Whereas standard EIA terminology refers to the sensitivity of receptors, the NRA methodology refers to the consequence of undesirable scenarios occurring for each of these receptors and uses an alternative, industry recognised, categorisation for each level of consequence.

8.68 The terminology and categorisation of NRA consequence used for this assessment are as described in **Table 8.2**.

[25] The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

Table 8.2 NRA Consquence

Score	Consequence	Receptor	Impact
C1	Insignificant	Environment	Near Miss, no effect of note
		People	Near Miss, no injury incident or minor injuries requiring first aid on site
		Property	Near Miss, only minor damage which can be addressed on site
		Business	No disruption to services
C2	Minor	Environment	Minor impact, e.g. Category 1 local response
		People	Several minor injuries, some may require medical attention
		Property	Minor damage, less than £10,000
		Business	Disruption to services, up to a few hours
C3	Severe	Environment	Moderate impact, e.g. Category 2 regional response
		People	Multiple minor injuries or Single serious injury (<7 days)
		Property	Moderate damage, between £10,000 & £100,000
		Business	Temporary suspension or restrictions to services, up to a few days
C4	Major	Environment	Major impact, e.g. Category 3 national response
		People	Multiple serious injuries, Single fatality (or >7days)
		Property	Major damage, between £100,000 and £1M
		Business	Indefinite suspension of services, up to a few months
C5	Catastrophic	Environment	Catastrophic impact, e.g. UK wide response
		People	Multiple fatalities, immediate or up to 5 years after incident
		Property	Catastrophic damage, over £1M
		Business	Total loss of services, for multiple months to permanent

Magnitude of Impact

8.69 Whereas standard EIA terminology refers to the magnitude of impact, the NRA methodology refers to the likelihood of impact and uses an alternative, industry recognised, categorisation for each level of impact.

8.70 The terminology and categorisation of NRA likelihood used for this assessment are as described in **Table 8.3**.

Table 8.3 NRA Likelihood

Score	Likelihood	Description
L1	Very Rare	Will occur only in exceptional circumstances and not more than once every 100 years
L2	Rare	May occur every 50 to 100 years
L3	Occasional	May occur every 10 to 50 years
L4	Frequent	May occur every 1 to 10 years
L5	Very Frequent	May occur once a year

Significance of Effect

8.71 Whereas standard EIAR terminology refers to significance of effect, the NRA methodology refers to an industry recognised categorisation of risk, in the form of a quantitative risk rating.

8.72 In NRA terms, risk is the combination of the likelihood of the impact and the severity of the consequences and is quantitatively expressed as the product of both. The risk rating produced takes into consideration those existing control measures identified through consultation and analysis of the baseline conditions (embedded mitigation).

8.73 The risk scoring matrix for navigation and safety relevant to the proposed development is shown in **Table 8.4**.

Table 8.4 NRA Risk Scoring Matrix

Consequence 'C'						
	C5	5	10	15	20	25
	C4	4	8	12	16	20
	C3	3	6	9	12	15
	C2	2	4	6	8	10
	C1	1	2	3	4	5
		L1	L2	L3	L4	L5
		Likelihood 'L'				

8.74 The categorisation and definitions of NRA risk used for this assessment are as described in **Table 8.5**.

Table 8.5 NRA Risk Scoring Definitions

Risk Score	Risk Rating	Risk Definition
20.0 - 25.0	Very High	**Very high and unacceptable risk** for which substantial and immediate improvements are necessary.
12.0 - 19.9	High	**High risk** for which substantial and urgent efforts must be made to reduce it to ALARP levels within a defined period.
8.0 - 11.9	Moderate	**Moderate risk** must be reduced to the ALARP level, through the implementation of additional risk control options.
0 - 7.9	Low	**Low risk** not requiring additional risk control options unless they can be implemented at low cost in terms of time, money and effort.

8.75 For the risk analysis conducted as part of the NRA, the assessors have adopted a principle and approach that any risk rated as 'moderate' or above, following assessment using existing control measures, shall be reassessed in consideration of any potential additional control measures. The aim of this approach being to reduce all risks to ALARP.

8.76 Through further review, analysis and comparison between the NRA risk scoring and terminology and the EIA significance of impact terminology, **Table 8.6** is used to support the identification of significant effects that align with the outcomes of the NRA exercise. Professional judgement has been used by the assessors to determine the appropriate conversion and establish the likely significance of effects based on an assessment of the available data and an understanding of how a specific feature is likely to be affected by the activities associated with the proposed development.

Table 8.6 EIA Matrix – Assigning Significance of Effect

Consequence 'C'						
	C5	Negligible	Slight	Moderate	Substantial	Substantial
	C4	Negligible	Slight	Moderate	Moderate	Substantial
	C3	Negligible	Negligible	Slight	Moderate	Moderate
	C2	Negligible	Negligible	Negligible	Slight	Slight
	C1	Negligible	Negligible	Negligible	Negligible	Negligible
		L1	L2	L3	L4	L5
Likelihood 'L'						

8.77 **Table 8.7** summarises the risk rating scoring which forms the output of the NRA and how this aligns to the EIA scoring and EIA significance of effect.

Table 8.7 EIA Significance of Impact

EIA Score	EIA Significance of Effect
15.0 - 25.0	Substantial
12.0 – 14.9	Moderate
8.0 - 11.9	Slight
0 - 7.9	Negligible

8.78 For consistency between the approaches used for the NRA and EIA, the assessors have adopted a principle that any effect classified as 'slight' or above shall be considered as significant and thereby meet the threshold for reassessment against any potential additional mitigation and consideration of any residual effects.

Limitations to Assessment

8.79 This NRA is generally limited on the basis of the agreed scope of the work and by the availability of some key existing data which was not available at the time of the assessment. Not all detail relating to local policy and standards, beyond what has been included in this chapter, was available at the time of the assessment.

8.80 Although consideration of commercial users and traffic has been undertaken in this NRA, and despite several attempts by various parties including support from D&GC, it has not yet been possible to make contact with nor consult with any of the existing commercial users of the Stranraer marina and harbour area, either resident or visiting.

8.81 The data gathered for analysis of the NRA and this chapter was based wholly on stakeholder consultation and publicly available data and information.

8.82 The NRA is based on information available at points in time. As the iterative process continues and as construction proposals are developed and amended to meet strict licencing and environmental constraints, the need to review the NRA and outcomes remains continuous.

8.83 However, these limitations do not adversely impact the findings and outcomes of the NRA and the NRA meets the requirements stated in the EIA Scoping Opinion (February 2023).

Baseline Conditions

Existing Navigational Risk Assessment & Control Measures

8.84 A document entitled "Loch Ryan South NRA 9 24" was provided by D&GC on 16 September 2024. This was a Ranked Hazard List, accompanied by a statement that Stena remains the Statutory Harbour Authority for Loch Ryan South until such time as the Harbour Revision Order to change this to D&GC is approved and adopted. This document was provided in response to a request to provide a copy of the current NRA for Stranraer Marina.

8.85 On 09 December 2024, a copy of the Ranked Hazards List was provided along with additional supporting data. **Table 8.8** provides an extract from the D&GC NRA listing the hazards identified through that exercise. In addition, **Table 8.9** provides an extract from the D&GC NRA listing the risk control measures identified through that exercise.

Table 8.8 Existing Stranraer NRA Hazards

Rank	Hazard Ref	Hazard Title	Category	Risk (Baseline)
1	15	Unplanned immersion	Personal Injury	3.39
2	11	Mooring Incident - Inshore Fishing Vessel / Small Commercial Vessel / Large Recreational Vessel	Mooring Incident / Breakout	3.17
3	3	Inshore Fishing Vessel / Small Commercial Vessel / Large Recreational Vessel	Collision	2.94
4	5	Small Recreational Vessel - Small Recreational Vessel	Collision	2.84
5	4	Inshore Fishing Vessel / Small Commercial Vessel / Large Recreational Vessel - Small Recreational Vessel	Collision	2.72
6	9	Grounding - Inshore Fishing Vessel / Small Commercial Vessel / Large Recreational Vessel	Grounding	2.52
7	14	Swamping - Small Recreational Vessel	Swamping / Sinking	2.39
8	18	Grounding Large Commercial Vessel	Grounding	2.28
9	13	Swamping - Inshore Fishing Vessel / Small Commercial Vessel / Large Recreational Vessel	Swamping / Sinking	2.12
10	16	Large Commercial With Large Commercial	Collision	1.89
11	17	Large Commercial / Small Commercial / Leisure	Collision	1.80
12	10	Grounding - Small Recreational Vessel	Grounding	1.63
13	6	Contact - Inshore Fishing Vessel / Small Commercial Vessel / Large Recreational Vessel	Contact	1.54
14	1	Anchor Dragging - Inshore Fishing Vessel / Small Commercial Vessel / Large Recreational Vessel	Anchor Dragging	1.43
15	7	Contact - Small Recreational Vessel	Contact	1.39
16	8	Diving Incident	Diving	1.27
17	2	Anchor Dragging - Small Recreational Vessel	Anchor Dragging	1.21
18	12	Mooring Incident - Small Recreational Vessel	Mooring Incident / Breakout	1.09

Table 8.9 Existing Stranraer NRA Risk Controls

Control	Type	Hazards	Global
Aids to Navigation	Hardware	13	✓
Charts and Publications	Published Documents	14	✓
DGC SHA	Regulations	17	
Educational Information / Signage	Published Documents	17	✓
Emergency Plans	Port MSMS and Procedures	9	✓
Hydrographic Survey Programme	Port MSMS and Procedures	2	✓
International / National Regulations	Regulations	13	✓
Local Regulations / Procedures	Regulations	18	✓
Mooring Equipment	Hardware	2	✓
Permit System	Port MSMS and Procedures	1	✓
Suitably trained staff	Training / Education	16	✓

8.86 For the purposes of this exercise, it is presumed that the outputs are relevant to both D&GC and the southern area of Loch Ryan and therefore is relevant to the area in question and being assessed.

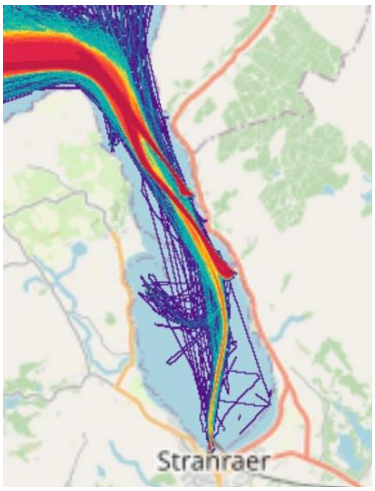
8.87 The outputs and general documented approach is recognisable as standard practice for the conduct of an NRA as is considered as key relevant baseline data.

Marina Vessel Traffic Data – Existing & Future Operations

8.88 Baseline Automatic Identification System (AIS) data for shipping has been collected utilising density maps from Marine Scotland NMPi[26] and Marine Traffic[27]. The AIS data has been collected and reviewed in order to provide an understanding of indicative vessel density within Loch Ryan, the approaches and in and around the existing marina. The AIS data, as provided in **Figure 8.5**, has not been analysed in detail as part of the assessment of the NRA. The AIS data captured includes ferry traffic in the outer approaches of Loch Ryan, as expected, with fishing vessels, tugs/workboats and pleasure craft within the vicinity and approaches to Stranraer marina.

[26] Marine Scotland Map Layers (NMPi)
[27] marinetraffic.com

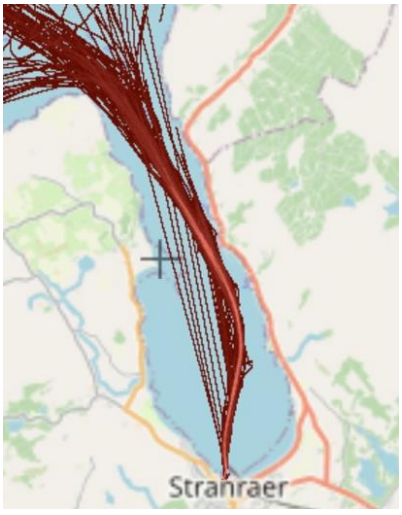
Figure 8.5 AIS Data Traffic Maps



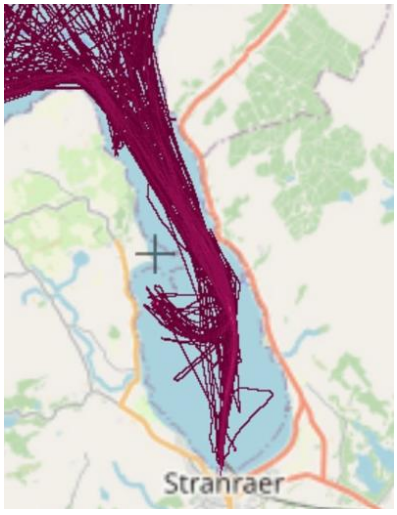
All traffic

Tugs & Workboats

Ferry Traffic



Fishing vessels



Pleasure craft

8.89 Instead, and in line with the agreed scope, data in relation to the types and frequency of vessels which currently use the marina, which it is anticipated will use the new, expanded marina in future and which might be operating at the marina during construction stages, has been elicited through consultation with stakeholders. An analysis of the data collected leads to the establishing of the certain baseline assumptions.

Existing Vessel Traffic

8.90 Limited details of existing vessel traffic was available or provided through consultation with the marina operator and users. As such, the following assumptions have been made in relation to existing operations traffic:

- A range of small and large (circa 24m LOA) independently operated fishing vessels use the marina, some of which are resident and use the marina as a base location and

some of which use the marina for landing and servicing but are generally based elsewhere such as Girvan, Portpatrick or Kirkudbright. Assuming an average of five fishing vessels working six-day weeks, this could equate to around 3,120 fishing vessel movements per annum which is considered relatively low;

- There are currently in the order of 75 resident berth holders, although not all berths are utilised all of the time, with a low level of additional visiting leisure craft during summer months. These craft are generally up to 15m LOA. Assuming that each berth user conducts six weekend trips and one cruise of two weeks, this would equate to around 1,050 leisure vessel movements which is considered relatively low;
- There are several small work boats and a small of number of larger commercial craft that use the marina. Assuming an average of one tug vessel per month, this would equate to around 24 movements per annum and assuming an average of two workboats per month, this would equate to around 48 movements per annum. As such, commercial movements are considered relatively low;
- There are a range of clubs who use the marina and the wide Loch Ryan area including Stranraer Water Sports Association (SWSA), Loch Ryan Sailing Club, Stranraer Coastal Rowing Club (SCRC).;

Future Operations Vessel Traffic

8.91 Following discussions and review in relation to the future operation of the marina and in line with general marina capacity across the UK with similar infrastructure, the following assumptions have been made in relation to future operations traffic:

- The marina will operate at a capacity of around 70% during the summer months and around 40% capacity during winter months for the first five years of operations. Beyond five years, the capacity will increase to around 85% and 55% respectively;
- The most significant increases anticipated will be in terms of leisure craft, with an assumption being that the marina will see something in the order of a three-fold increase in available capacity. This, it is hoped, will result in a significant increase in leisure traffic and this will increase the general likelihood of undesirable scenarios occurring as a result. Assuming that each berth user conducts six weekend trips and one cruise of two weeks, this would equate to around 3,100 leisure vessel movements;
- D&GC are keen to attract significant events to Loch Ryan which will see activity rise significantly, albeit for short durations. The activity will include significant visitor numbers using both the marina for berthing and fuelling, and the wider loch for a variety of events involving different types of craft;
- The marina could also see an increase in super yacht activity with its prime location and sheltered loch acting as a gateway to Scotland. Anticipated superyacht calls in year one of the new marina operation may be around five, resulting in ten movements per annum. A year-on-year increase once the facility and its marketing campaigns are

fully operational and the industry begins to adopt Loch Ryan and Stranraer marina as a 'stop-off' location and this could increase to around 20 movements per annum;

- Fishing numbers are expected to remain largely the same or incur a relatively minor increase in movements overall, at around 3,120 fishing vessel movements per annum;
- Commercial work boats are expected to remain largely the same or incur a relatively minor increase in movements overall, at around 48 movements per annum;
- There is also potential for the marina to be utilised as a crew transfer base for wind energy infrastructure in the future.

Construction Phase Vessel Traffic

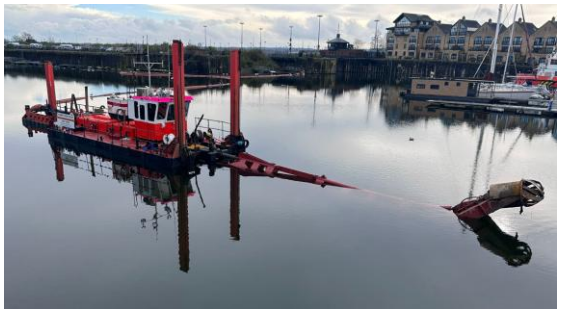
8.92 Proposals for construction phase activity and working methods remain under discussion and will be finalised as part of the construction tendering process and licencing activity. However, following discussions with the design team, a review of design information and in line with the knowledge and experience of the assessors, the following assumptions have been made in relation to construction phase vessel traffic or activities affecting the marina areas:

- Although 30-40% of dredged material may be reused as part of the development, this assessment has assumed a worst-case scenario in terms of shipping movements, with the total dredged volume of 132,606m^3 being disposed offshore at Beaufort's Dyke, an open and licenced site. This would result in circa 354 hopper movements in and out of the marina, lasting circa 17.7 weeks in total, assuming:
  - 750m^3 sediment lifted per hopper;
  - Two hopper barges utilised, conducting one loading and return trip to the disposal site at sea per day;
  - 1,500m^3 sediment disposed-of per day;
  - A five-day working week with no lost or down time;
  - That there is no requirement to increase hopper numbers to reduce overall dredging programme, in which case the activity would need to be reassessed for increased traffic and likelihood of navigational incidents.
- Cutter suction dredging will be used to lift material from the sea bed. A single unit is anticipated for this assessment;
- Barges will be utilised to support activities such as general cranage, new sheet piling wall construction and pontoon support piles. These barges will normally remain static for periods of time before moving incrementally to new positions. It is assumed that two to three units may be operating at any one time within different parts of the marina area;
- Barges will be utilised to support construction activities associated with the breakwater extension, whether by directly facilitating heavy plant operations or by delivering and transporting plant, armour stone and other materials directly to the work site;

- Small tugs or workboats may also be in operation during construction, both for general construction activities and also to transfer equipment and operatives to different parts of the marine site.

8.93 Examples of the types of construction phase vessels are provided in **Figure 8.6**.

Figure 8.6 Construction Phase Vessel Traffic Examples



Small cutter suction dredger

Small cutter dredger

Barge / Pontoon

Multicat and plough

Hopper vessel

Hopper barge transport

Existing Incident Data

8.94 **Table 8.10** provides an extract from the D&GC NRA listing the incident data identified through that exercise for the period 2021 to 2024.

Table 8.10 Existing Stranraer NRA Incident Data

#	Incident	Date	Type	Consequence	Stage
127	FV struck berthed FV departing West Quay Str	12 Nov 2024	Collision	ML 1.00	AC
120	Leisure mooring breakout Stranraer Harbour	9 Apr 2024	Mooring Incident / Breakout	NM 1.20	AC
119	Yacht auxillary engine failure	9 Apr 2024	Engine Failure	ML 1.20	AC
118	Str MarinaOil Pollution	1 Apr 2024	Breakdown	ML 1.00	AC
111	Commercial vessel mooring line parted	30 Aug 2023	Mooring Incident / Breakout	NM 1.00	AC
81	Yacht dragged onto shore	17 Aug 2021	Mooring Incident / Breakout	NM 0.00	IC
68	Grounding	21 Jul 2021	Grounding	ML 1.00	IC
67	Intoxicate youths	1 Jul 2021	Swamping / Sinking	WC 1.40	IC
63	Rock Lobster	21 May 2021	Swamping / Sinking	WC 1.20	IC
46	Calisa collision	25 Jan 2020	Collision	NM 0.00	IL

8.95 In addition, consultation with stakeholders identified the following anecdotal incident observations from the area:

- Many small bumps and scrapes with small craft when marina first opened;
- Youths jumping in off the West Pier with shallow or no water at times;
- Fatality circa fifty years ago on the West Pier when car reversed into the pier. Since installing gates, there have been two unwitnessed fatalities;
- Youths jump in to the water at the fuel berth, swim round to pontoon then go an open the gate for others;
- Angling hooks and lines getting stuck in craft mooring ropes is a common issue.

8.96 In addition, stakeholders also highlighted a significant event which they felt was relevant to the proposed development and the question of protection from significant environmental conditions. This event occurred at Holyhead Marina in March 2018 and, it is reported[28], resulted in significant damage, the release of pollutants to the sea and the loss of around 80 craft within the marina. A later report[29] suggested that lessons were learned from the storm and that a new sea wall was proposed to replace the breakwaters previously installed. It was agreed that this input was very relevant and that there were sufficient similarities between Holyhead and Stranraer to merit consideration by the design team for the proposed development.

Existing Aids to Navigation (AtoNs)

8.97 IALA defines an AtoN as: "*any device, system or service, external to vessels, designed and operated to enhance safe and efficient navigation of individual vessels and/or vessel traffic.*"

8.98 In the context of Loch Ryan and Stranraer Marina, AtoNs could be considered to include the following examples:

- Lighthouses;
- Buoys, including all types of lit and unlit marks;
- Beacons, lit and unlit;
- AIS stations;
- Tide gauges;
- Wind socks; and
- Weather & environmental condition monitoring systems.

8.99 The Dumfries and Galloway Council (Stranraer) Harbour Revision Order 2024 (see paragraph 8.112) states at clause 6(2)(a) General powers of Council, that: "*The Council may improve, maintain, regulate, manage, mark and light the harbour and provide harbour facilities in the harbour (including facilities for the supply by the Council of fuel for vessels)*".

8.100 The Merchant Shipping Act 1995[30] states, at clause 193(2)(a), that; "*each statutory harbour authority, as respects their area, are the local lighthouse authority.*" D&GC, as Statutory Harbour Authority, are therefore the Local Lighthouse Authority (LLA) for the Stranraer Harbour Area.

8.101 The D&GC Marine Safety Management System (MSMS)[31] states at Section 3.1 Navigation Safety Policy, that "*DGC is committed to complying with the Port Marine Safety Code and is responsible for maintaining safe navigation within its harbour jurisdictions. It will do this by… Placing and maintaining aids to navigation marks where they will be of best advantage to vessels and work in close liaison with the Northern Lighthouse Board.*" It is envisaged that,

[28] The Daily Post report, 03 March 2018
[29] BBC News, 31 July 2019
[30] The Merchant Shipping Act 1995
[31] D&GC Marine Safety Management System (MSMS), Purpose and Policy (Part 1), Issue B – Rev 03 Jan 2024

owing to the HRO only being recently enacted, D&GC will not yet have had appropriate opportunity to undertake a full and detailed review of the provision of AtoNs for the wider harbour area, including for consultation with all relevant parties to such a review.

8.102 As part of the NRA consultation process, anecdotal feedback was collected in relation to the provision of AtoNs on the approach to and within the marina. The feedback gathered is summarised in **Appendix 8.2** and it varied in terms of existing AtoNs. However, there was a consistent and reasoned viewpoint that the approach to the marina from the Northern end of Loch Ryan is not well defined and that the marina is very difficult to see from distance as a result of fixed and mobile background lighting from the town of Stranraer which impedes the effectiveness of existing AtoNs. AtoN visibility only improves in very clear conditions and as vessels get close to the marina entrance.

8.103 No further specific data relating to existing AtoNs was available as part of this assessment.

Existing Environmental Data

Tidal Range

8.104 The following data was collected in the conduct of the NRA.

8.105 The D&GC Harbours website[32] provides tidal range and depth advice to mariners and states that Stranraer harbour has the following tidal ranges and depths:

- Springs: 2.7 to 3.5m
- Neaps: 2.2 to 3m

8.106 The website further suggests that any vessels drawing 3m or less can reach the harbour but may have to lie aground over low water.

8.107 The Admiralty Tide Tables NP201B[33] identifies the mean tidal ranges at Stranraer as being:

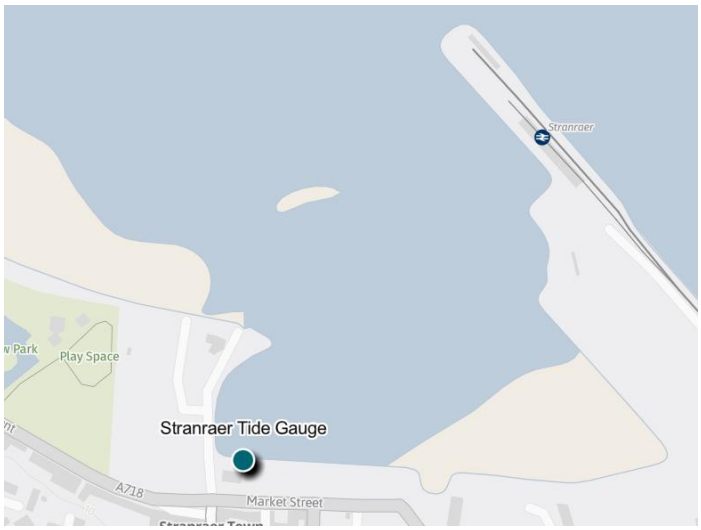
- Springs: 2.8m
- Neaps: 1.7m

8.108 NP201B identifies the location of this tidal range a 54’ 55N 005’02W. Owing to the lack of accuracy provided for within NP201B, it is therefore difficult to be sure at which location within this range applies, be it the entrance or the southern shore.

8.109 Within the current marina basin there is a Scottish Environmental Protection Agency (SEPA) tide gauge[34], installed August 2018 with location shown in **Figure 8.7**. SEPA provide a ‘normal’ tidal range within the Loch of 0.083m to 4.092m. The highest recorded level of the SEPA Stranraer station was 4.389m on 15 February 2020 and the lowest recorded level of 0.053m.

[32] D&GC Harbours Website – Stranraer Harbour
[33] Admiralty Tide Tables NP201B
[34] Scottish Environmental Protection Agency (SEPA) tide gauge

Figure 8.7 Location of SEPA Tide Gauge at Stranraer (Image from SEPA Website)



Tidal Calculations

8.110 Stranraer is identified as a Secondary Port with Greenock as the standard port and mean high and low water levels differ as shown in **Figure 8.8**.

Figure 8.8 Mean High and Low Water at Stranraer (image from D&GC Harbours Website)

Standard Port is Greenock. Stranraer is a Secondary Port.

	MHWS	MHWN	MLWN	MLWS
Greenock	3.4m	2.9m	1.0m	0.4m
Differences at Stranraer	-0.4m	-0.4m	-0.4m	-0.2m
Stranraer	3.0m	2.5m	0.6m	0.2m

Currents and tidal streams

8.111 Following a review of the range of data available from D&GC, Admiralty Publications and the Reeds Nautical Almanac 2025, it was established that currents within Loch Ryan are tidal movements are not of significance to impact the safety of navigation.

Existing Statutory Harbour Areas & Orders

8.112 The following relevant Statutory Harbour Areas (SHA) and Harbour Orders (HEO, HRO or HCO) have been identified during the course of this NRA:

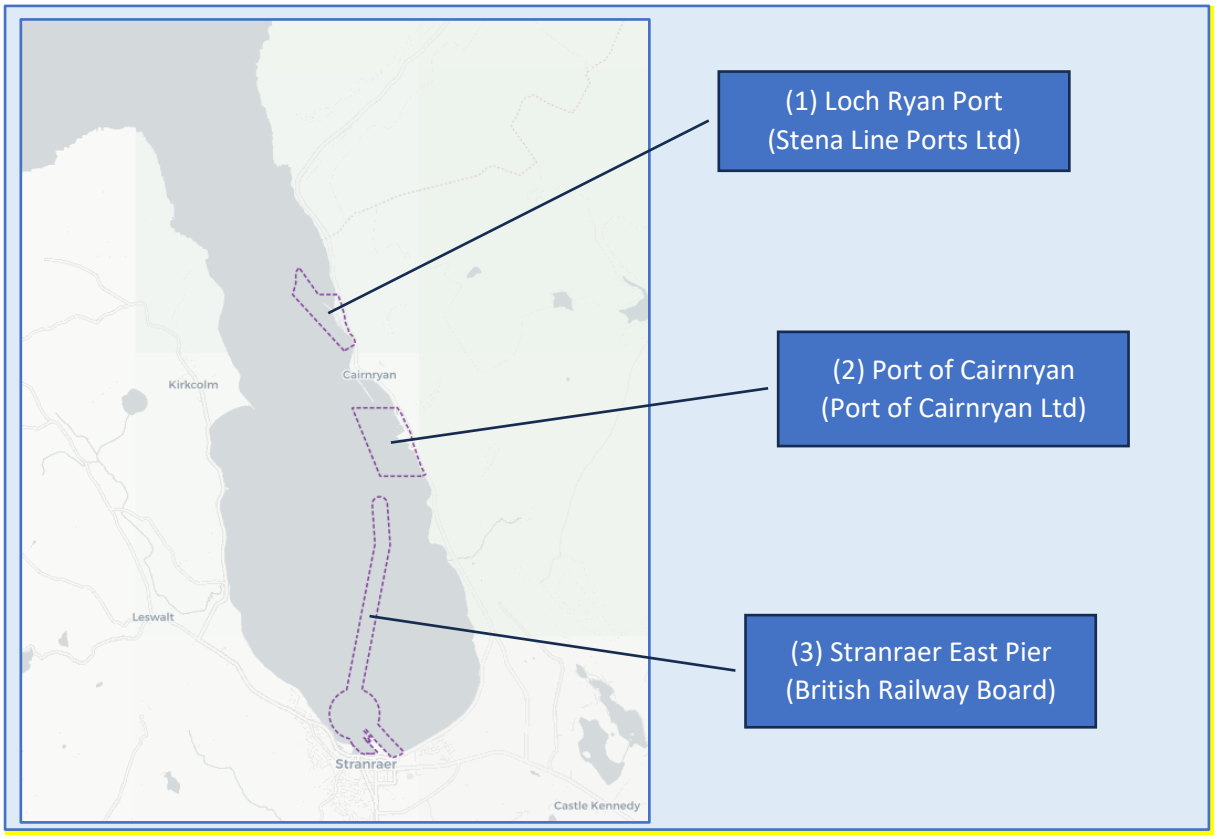
- The Loch Ryan Port (Harbour Empowerment) Order 2009[35]

[35] The Loch Ryan Port (Harbour Empowerment) Order 2009

- The Port of Cairnryan Harbour Empowerment Order 2007[36] & Port of Cairnryan Harbour Revision Order 2012[37].
- British Railways Order Confirmation Act 1977[38]

8.113 The harbour areas and jurisdictions can be identified pictorially as detailed in **Figure 8.9** which is extracted from the 'Ports and Harbours - Statutory harbour limits[39]' mapping facilities.

Figure 8.9 Existing Harbour Areas in Loch Ryan



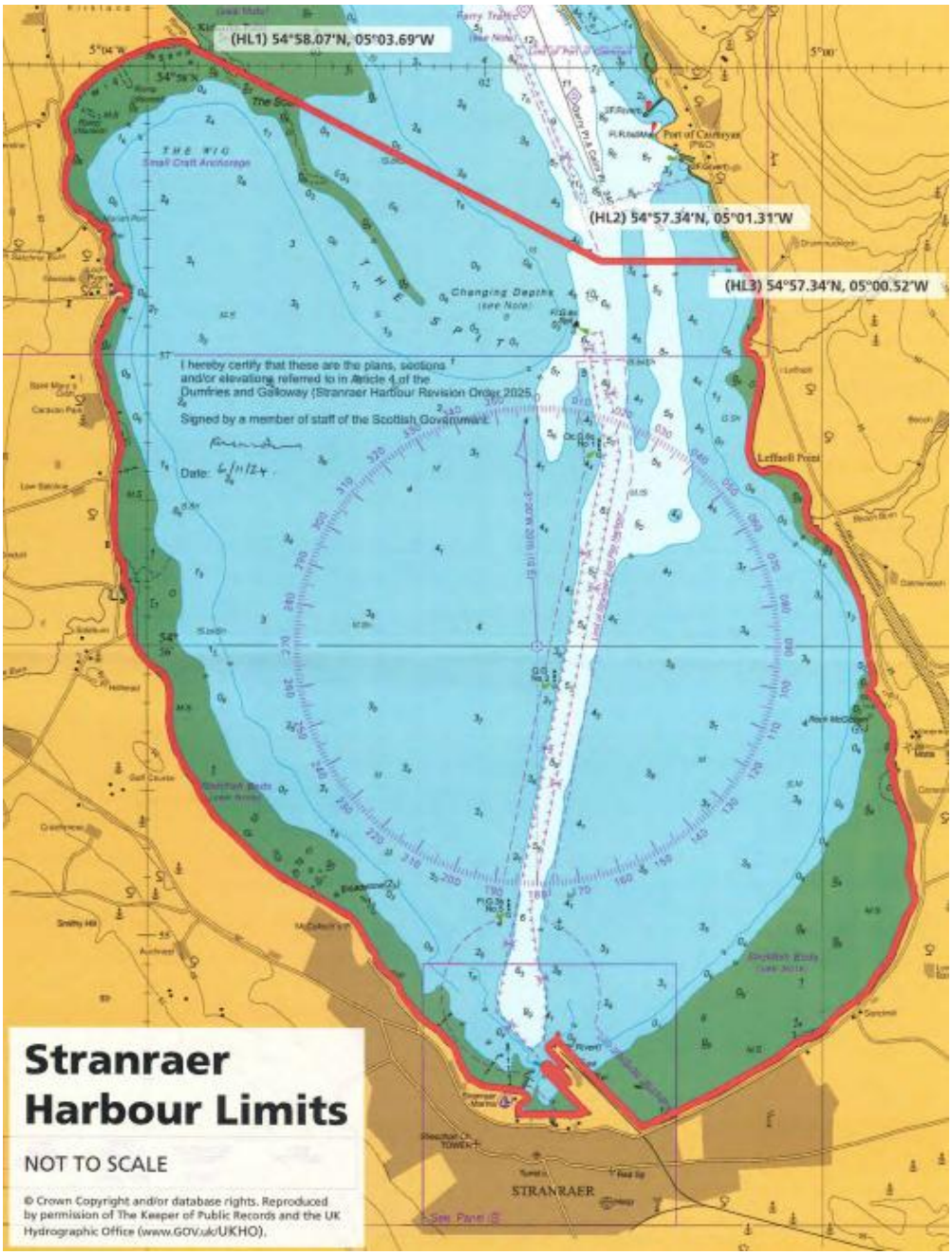
8.114 Although outwith the direct scope of this NRA, the SHAs identified at (1) and (2) represent significant ferry operations in the nearby area and which impact he approached used by vessels which currently and may seek to use and visit Stranraer Marina.

8.115 The legislation which governed the SHA identified at (3) has recently been repealed and has since been replaced by a wider HRO for Loch Ryan. D&GC made application of The Dumfries and Galloway Council (Stranraer) Harbour Revision Order 2024[40] and this came into effect 07 November 2024.

8.116 The new SHA, referred to as the Stranraer Harbour Limits, is shown in **Figure 8.10**.

[36] The Port of Cairnryan Harbour Empowerment Order 2007
[37] Port of Cairnryan Harbour Revision Order 2012
[38] British Railways Order Confirmation Act 1977
[39] Ports and Harbours - Statutory harbour limits, hosted by the Scottish Government's Marine Directorate, which includes data up to the end of 2022
[40] The Dumfries and Galloway Council (Stranraer) Harbour Revision Order 2024

Figure 8.10 New Stranraer Harbour Area at November 2024



Other Harbour Legislation

8.117 D&GC are developing General Directions for Navigation which are intended to support and further detail the provisions allowed for within the Stranraer HRO 2024.

8.118 An initial review of the draft document, as part of this NRA, indicates that it includes content which seeks to deal with a number of the risks and proposed mitigations as identified by this NRA. The General Directions for Navigation remain in draft form at the time of writing this report and are still to be consulted upon and implemented through the normal channels.

Existing Marine Safety Management System Control Measures

8.119 D&GC provides further details of its MSMS via an online directory and is publicly available. It contains a variety of informational and instructional aspects.

Design Proposals & Information

8.120 Proposed development design proposals and information has been supplied and updated periodically throughout this assessment as the design has progressed. The assessors carried out a detailed review of all design proposals and information supplied and selected and reviewed all information deemed relevant to this navigation and safety chapter and the effective conduct of the NRA.

8.121 The latest design proposals were reviewed against preliminary findings to ensure this chapter and the NRA remained up to date. Some of the latest updates, specifically relevant to the conduct of the NRA, were:

- Updates to the marina, pontoon and floating breakwater arrangements;
- Updates to dredging plan and volumes;
- Removal of proposed pedestrian bridge;
- Redevelopment and extension of the existing slipway;
- Changes to revetment wall construction to include steps;
- Discussions surrounding the handling, use and disposal of dredged material;
- Updated associated committed and reasonably foreseeable projects which may impact the development proposals; and
- Sheet piling proposals for sea wall supporting construction.

Construction Phase (Temporary) Proposals & Assumptions

8.122 As would be expected of a development at this stage of consenting and licencing, a fully developed and finalised method of construction is yet to be agreed. However, in consultation with relevant parties to the design and construction phases of the project, the following assumptions have been made as part of this assessment to inform review of the construction phase:

- Assuming a worst-case scenario in terms of shipping movements, the total dredged volume of 132,606m3 would be disposed offshore at Beaufort's Dyke, which is an open and licenced site. This would result in 354 hopper movements in and out of the marina, lasting 17.7 weeks in total;
- Dredging of material from the sea bed within the harbour and entrance channel will be conducted using plant similar to cutter suction dredgers, with an assumed worst-case scenario that all dredging arisings would be disposed-of at sea. Disposal at sea will attract several towed barge movements on each tide and this will happen over a 17-week programme during the period July to January, subject to weather;

- The aggregates and lower end rock armour stone (<2t) required for the project will be transported to site via road vehicles, from landside and placed using equipment located ashore;
- The larger end rock armour stone (2-6t) will be transported to site via a combination of routes – one being road vehicles, from landside and placed using equipment located ashore and the other being transported in from sea from nearby coastal sources;
- Piling activities will be conducted using jack-up barge, supported by smaller work craft;
- The floating breakwater units proposed would be towed and floated in by sea. The remainder of the pontoon units would be delivered by road;
- Barges will be utilised to support activities such as general cranage, new sheet piling wall construction, pontoon support piling and activities associated with the breakwater extension. These barges will normally remain static for periods of time before moving incrementally to new positions. It is assumed that two to three units may be operating at any one time within different parts of the marina area. At the breakwater extension, barges may directly facilitate heavy plant operations or may deliver and transport plant, armour stone and other materials directly to the work site;
- Small tugs or workboats may also be in operation during construction, both for general construction activities and also to transfer equipment and operatives to different parts of the marine site;
- Existing commercial users could be moved around berths during works to prevent any impact to either commercial activity or the contract;
- Closures may be expected when the channel is being dredged. Otherwise, restrictions are expected throughout the construction period and can be managed by the contractor and marina operator;
- Good communications will be established early between the contractor, marina operator and all involved or affected parties;
- Based on Design Fix stage information, it will take around two full seasons to construct and complete the marina development, anticipating a late 2025 start with completion late 2027 for 2028 operations.

Future Baseline

8.123 Without the implementation of the proposed development, the marina would remain in operation in its current form. D&GC, as Statutory Harbour Authority, would remain accountable for the environmental conditions linked to conservancy of the harbour, such as surveying and dredging to maintain depth of water and aids to navigation would require ongoing maintenance in order to maintain the marina as functional. Without the investment in development and building the marina's potential for growth, there would not be the expected income generation to continue to support such maintenance, proving a challenge for D&GC and increasing the potential for the environmental conditions at the marina to deteriorate.

Impact Assessment

8.124 Whilst the construction and operational phases of the proposed development will attract specific risks or impacts relevant to each phase, the assessors concluded that there were certain similarities which made it appropriate to conduct parts of the assessment in a similar or joined up manner. As such, it was concluded as appropriate to utilise the SIRA NRA method to produce a singular assessment output which covered both construction and operational phases. This assessment is contained at **Appendix 8.1 (Volume 2)**.

8.125 One of the most relevant observations was that, as far as reasonably practicable, the marina would seek to remain open and operational throughout the construction phase. Whilst understanding that there would be a, yet to be agreed, element of acceptable disruption to normal operations, the majority of the hazards present in current and operational phases would remain applicable during the construction phase. As such, although the assessment identified hazards, undesirable scenarios, vessel types and control measures specifically relating to the construction phase, the applicability of those relevant to current and operational phases was also considered whilst undertaking the construction phase NRA.

8.126 The NRA document at **Appendix 8.1** therefore includes for the considerations of hazards, undesirable scenarios, vessel types and existing control measures (embedded mitigation) which are common to both construction and operational phases, whilst ensuring that the actual assessment of risk was conducted with specific relevance to each phase and recorded separately.

8.127 The principal driver of the NRA process is to seek to reduce negative risks to ALARP but without reducing these such that they result in any potential positive benefits. Therefore, by association and conversion with EIA terminology, all effects identified are naturally ‘adverse’ and should be considered as such, unless this is specifically noted otherwise in this chapter.

Construction Phase

8.128 The NRA in **Appendix 8.1** details the full initial assessment of risk relating to the construction phase with the embedded mitigation built-in to the proposed development design. This initial assessment identified several risks with a risk rating above negligible and which would be considered as being significant, as shown in **Table 8.11**.

Table 8.11 Likely Significant Effects (with Embedded Mitigation) – Construction Phase

Hazard ID	NRA Undesirable Scenario	NRA Risk Rating	Significance of Effect
C59	**Mooring Breakout:** Large Recreational Vessel breaks away from a securely moored or anchored position	9.0	**Slight**
C60	**Mooring Breakout:** Small Recreational Vessel breaks away from a securely moored or anchored position	8.8	**Slight**

Operational Phase

8.129 The NRA in **Appendix 8.1** details the full initial assessment of risk relating to the operational phase with the embedded mitigation built-in to the proposed development design. This initial assessment identified several risks with a risk rating above negligible and which would be considered as being significant, as shown in **Table 8.12**.

Table 8.12 Likely Significant Impacts (with Embedded Mitigation) – Operational Phase

Hazard ID	NRA Undesirable Scenario	NRA Risk Rating	Significance of Effect
F28	**Collision:** PWC collides with another PWC	9.0	**Slight**
F40	**Mooring Breakout:** Large Recreational Vessel breaks away from a securely moored or anchored position	8.5	**Slight**
F41	**Mooring Breakout:** Small Recreational Vessel breaks away from a securely moored or anchored position	8.4	**Slight**

Do Nothing Scenario

8.130 In this scenario, the existing marina facilities at Stranraer would remain the same. This option would mean no investment in the existing marina beyond regular maintenance and renewal.

8.131 As there would be no construction processes, there would be no construction related risks or likely significant effects as a result.

8.132 As the operational status quo would remain, nominal operational risks would remain and although similar to the operational risks detailed in the NRA at **Appendix 8.1**, the basis and outputs of these risks or likely significant impacts would be more aligned to that defined in the existing D&GC NRA.

Mitigation, Monitoring and Residual Effects

Mitigation – Construction Phase

8.133 The embedded mitigation considered as part of the assessment of the construction phase was identified through analysis of consultation feedback and desk-based review. The embedded mitigation is identified in the NRA at **Appendix 8.1** as 'Existing Construction Control Measures' with references prefaced using the code "EC", but can summarised as follows:

- Competent Contract Management;
- Competent Sub Contract Management;
- Construction Phase H&S Plan;
- Construction Environmental Management Plan (CEMP);
- Environmental Clerk of Works (ECoW);
- Waste Hierarchy;
- Staffing;
- Site Induction;
- Site Fire Safety Plan;
- User Engagement;
- Compliant Marine Plans;
- Work Phased Planning; and
- Industry Standards for Marina Build.

Mitigation – Operational Phase

8.134 The embedded mitigation considered as part of the assessment of the operational phase was identified through analysis of consultation feedback and desk-based review. The embedded mitigation is identified in the NRA at **Appendix 8.1** as 'Existing Operations Control Measures' with references prefaced using the code "EO", but can summarised as follows:

- Enabling Legislation;
- Harbour Order;
- Aids to Navigation;
- Code of Practice;
- Assessment of Navigational Risk;
- Marine Safety Management System (MSMS);
- Operating Manuals & Procedures;
- Charts & Bathymetric Programme and Data;
- Notices and Signage;
- Emergency Plans;
- Mooring Equipment;
- Permits;

- Competent Staffing;
- Incident Reporting;
- Audit and Reporting;
- Marine Safety Plan;
- Harbour User Consultation;
- Navigational Safety Policy;
- Marine Conservancy Policy;
- Enforcement Policy; and
- Industry Standards for Marina Build.

Monitoring

8.135 In terms of navigation and safety, the continued presence of all identified existing mitigation and the implementation of all suggested additional mitigation should be monitored throughout the progress of the project. This should include for scheduled periodic reviews at reasonable intervals in the project programme.

8.136 Monitoring of the status of mitigation and other assumptions made as part of the NRA and this impact assessment will ensure that the findings remain accurate and up to date throughout. If any one or more mitigations are not implemented, as expected or at all, then this may impact the accuracy and efficacy of the NRA and findings and residual effects of this assessment.

Residual Effects – Construction Phase

8.137 In order to address risks or likely significant impacts identified as part of the impact assessment, additional construction phase mitigation measures were considered. These additional mitigation measures, or additional control measures forming part of the NRA methodology, were formed based on normal industry practices, the knowledge and experience of the assessors and consultation with relevant parties to the proposed development.

8.138 It is considered reasonably practicable that the suggested additional mitigation measures be implemented by the project and construction management for the proposed development.

8.139 The additional mitigation measures are identified in the NRA at **Appendix 8.1** as 'Proposed Construction Control Measures' with references prefaced using the code 'PC', but are summarised as follows:

- Communications & Engagement;
- Temporary Aids to Navigation;
- Marina, Harbour & Contractor Staffing;
- Information, Signage and Notices;
- Implementation of Event Management Plans;
- Temporary Vessel Traffic Management Process;
- Engagement with Commercial Users; and

- Restricted Areas, Closed Areas and Permit Process.

8.140 The NRA in **Appendix 8.1** details the full initial assessment of risk relating to the construction phase with both embedded and 'additional' mitigation considered. This final assessment resulted in significant reduction to all risks, but also reduced those risks which were identified through impact assessment, as shown in **Table 8.13**.

Table 8.13 Likely Significant Impacts (with Additional Mitigation) – Construction Phase

Hazard ID	NRA Undesirable Scenario	Impact Assessment (Including Embedded Mitigation)		Residual Effects (With Additional Mitigation)	
		NRA Risk Rating	Significance of Effect	NRA Risk Rating	Significance of Effect
C59	**Mooring Breakout:** Large Recreational Vessel breaks away from a securely moored or anchored position	9.0	**Slight**	5.5	**Negligible**
C60	**Mooring Breakout:** Small Recreational Vessel breaks away from a securely moored or anchored position	8.8	**Slight**	5.3	**Negligible**

8.141 The application of embedded and additional mitigation has resulted in there being no likely significant environmental effects in relation to navigational and safety arising from the proposed development during the construction phase.

8.142 There are therefore considered to be no residual effects during the construction phase.

Residual Effects – Operational Phase

8.143 In order to address risks or likely significant impacts identified as part of the impact assessment, additional mitigation measures were considered. These additional mitigation measures, or additional control measures forming part of the NRA methodology, were formed based on normal industry practices, the knowledge and experience of the assessors and consultation with relevant parties to the proposed development.

8.144 It is considered reasonably practicable that the suggested additional mitigation measures used to establish whether there are any residual effects, can be implemented by future operations management for the proposed development.

8.145 The additional mitigation measures are identified in the NRA at **Appendix 8.1** as 'Future Operations Control Measures' with references prefaced using the code "FO", but are summarised as follows:

- Aids to Navigation Review, Consultation & Improvements
- Marina and Harbour Staffing & Availability

- Communications & Monitoring
- Improved provision and promulgation of information
- Local signage and notices
- Notices to Mariners
- Improved breakwater protection
- Harbour User Engagement
- Update & Promulgate Codes of Practice
- Consult on and implement General Directions
- Fuel Berth Position to Limit Navigational Impact
- Review Provision of Pillar Crane
- Expanded Dredge Area - Width at Entrance
- Expanded Dredge Area - Space around Marina
- Simplified Single Dredge Depth & Dredge Area
- Maintenance of Dredged Area
- Marina Vessel Traffic Management Process
- Implementation of Event Management Plans
- Engagement with Commercial Users
- Contingency / Emergency Planning
- Operating Limits
- Zoning within Marina
- Water Sports Management Plan
- Liaison with Associated Projects

8.146 The NRA in **Appendix 8.1** details the full initial assessment of risk relating to the operational phase with additional mitigation considered. This final assessment resulted in significant reduction to all risks, but also reduced those risks which were identified through impact assessment, as shown in **Table 8.14**.

Table 8.14 Likely Significant Impacts (with Additional Mitigation) – Operational Phase

Hazard ID	NRA Undesirable Scenario	Impact Assessment (Including Embedded Mitigation)		Residual Effects (With Additional Mitigation)	
		NRA Risk Rating	Significance of Effect	NRA Risk Rating	Significance of Effect
F28	**Collision:** PWC collides with another PWC	9.0	**Slight**	5.9	**Negligible**
F40	**Mooring Breakout:** Large Recreational Vessel breaks away from a securely moored or anchored position	8.5	**Slight**	6.5	**Negligible**
F41	**Mooring Breakout:** Small Recreational Vessel breaks away from a securely moored or anchored position	8.4	**Slight**	6.4	**Negligible**

8.147 The application of embedded and additional mitigation has resulted in there being no likely significant environmental effects in relation to navigational and safety arising from the proposed development during the operational phase.

8.148 There are therefore considered to be no residual effects during the operational phase.

Cumulative Effects

8.149 It is important to consider effects, not just in isolation, but also cumulatively, as this may show that individually analysed impacts can become significant when they are added together, or with, other effects. The co-existence of impacts may increase or decrease their combined impact. Impacts that are considered to be insignificant, when assessed individually, may become significant when combined with other impacts. The NRA approach taken to assess navigation and safety uses and applies both embedded and additional mitigation across all identified risks, not just those which are identified as being likely significant effects. As such, each individual risk is satisfactorily reduced to ALARP and it is therefore considered that there are no in-combination effects which require to be separately addressed.

8.150 Other projects can cumulatively increase risk and the consequences or likelihood of significant environmental effects. Cumulative effects are the combined impacts of a single activity or multiple activities. The individual impacts from the proposed development may not be significant on its own but when combined with other developments, the significance of the combined effects could become significant.

8.151 Committed and reasonably foreseeable projects were reviewed and considered within the NRA framework and methodology. Additional controls were specifically identified and included in the NRA, for example, early liaison with other associated projects in the area to ensure that projects do not adversely impact the planned development. As a result of the inclusion of these additional controls within the NRA, it is concluded that there is no potential for cumulative effects to arise from the committed and reasonably foreseeable projects identified.

8.152 Comments relating to the purpose and focus of early liaison with committed and reasonably foreseeable project owners have been provided against each project below where there is relevance to the subject matter of this chapter.

Committed Projects

8.153 The following committed projects within close proximity that might impact marine navigation were reviewed and consideration given to each as follows:

- Planning Permission 23/0739/CLP: The positioning of bright lights on EV charging units can have a detrimental impact on safe navigation. Representations should be made as part of the planning process or direct to the developer to ensure that consideration is given to position any EV lights in such a way as to not interfere with safe navigation in the harbour;
- Planning Permission 23/0976/FUL: This development includes the installation of floodlighting which can have a detrimental impact on safe navigation. Representations should be made as part of the planning process or direct to the developer to ensure that consideration is given to position any floodlights in such a way as to not interfere with safe navigation in the harbour;

- Planning Permission 23/0970/FUL: This development includes the introduction of water-based activities which can and should work alongside those of the marina development. However, the statutory harbour authority should seek early engagement with SWSA to agree the conduct of an NRA for this activity and to, as necessary, develop and agree a water sports management plan for the area;
- Planning Permission 22/0394/S36: No direct impact to the marina development is expected as a result of this proposed wind farm development. However, it would be prudent to liaise with the planning process or direct with the developer to check if the construction of the wind farm might require water-borne activities, such as the delivery of turbine parts through the entrance to Loch Ryan, which may impact craft using this area on approach to the marina;
- Planning Permission 24/1407/FUL: This development includes the installation of floodlighting which can have a detrimental impact on safe navigation. Representations should be made as part of the planning process or direct to the developer to ensure that consideration is given to position any floodlights in such a way as to not interfere with safe navigation in the harbour;
- Marine Licence 00008983: This licence expired in November 2021. No information relating to the maintenance dredging of the marina has been provided at this time. It is anticipated that maintenance dredging of the marina and it approaches will be required and the licence terms will be different from those within the expired licence. It is recommended that consideration of a maintenance dredging licence be made alongside or immediately following the approval of the marina expansion project;
- Marine Licence 00009930: No direct impact to the marina development is expected as a result of this proposed capital dredge activity at Loch Ryan Port, nor is it known if or when this might be undertaken. However, it is expected that the statutory harbour authority in that area (Stena Line Ports Ltd) will control the activity and promulgate relevant information to all users.

Reasonably Foreseeable Projects

8.154 The following reasonably foreseeable projects within close proximity that might impact marine navigation were reviewed and consideration given to each as follows:

- Planning Permission 25/1190/FUL: The positioning of bright lights on EV charging units can have a detrimental impact on safe navigation. Representations should be made as part of the planning process or direct to the developer to ensure that consideration is given to position any EV lights in such a way as to not interfere with safe navigation in the harbour;
- Marine Licence Applications 00010825, 00010841 & 00010772: These applications relate to proposals for beach clearance, establishment of pontoons and moorings in an area just outside and to the north and west of the marina entrance. Consideration

of appropriate lighting to align with that of the marina and positioning of mooring and pontoon equipment will be vital to the success of both projects. It is recommended that these marine licence proposals would benefit from close working between the developer and the statutory harbour authority (D&GC) to ensure that the activities are risk assessed and covered by an appropriate water sports management plan.

Summary and Conclusions

8.155 This chapter assesses the potential impacts of the proposed development on shipping and navigational safety within the study area.

Impact Assessment

8.156 This chapter involved the undertaking of a Navigational Risk Assessment (NRA), as identified as a requirement by the EIA Scoping Opinion. The NRA, detailed in **Appendix 8.1**, identified that the overall navigational risk at the marina and its immediate approaches are, and are expected to remain, at a low level.

8.157 The impact assessment methodology thereafter required the evaluation and conversion of the outputs of the NRA to report in terms of likely significant environmental effects, additional mitigation and residual effects.

Environmental Receptors

8.158 In EIA terms, the NRA identified the key receptors as being:

- Environment – the marine and surrounding environment;
- People – including marine users, contractor's staff and general public;
- Property – belonging to any relevant party; and
- Business – business operations, financial status and reputation.

Mitigation

8.159 The NRA identified a range of existing control measures, or embedded mitigation, which was considered as part of the initial impact assessment to identify likely significant environmental effects in relation to navigational and safety arising from the proposed development.

Monitoring

8.160 The NRA is based on information available at points in time. As the iterative process continues and as construction proposals are developed and amended to meet strict licencing and environmental constraints, the need to review the NRA and outcomes remains continuous.

Likely Significant Effects

8.161 For the construction phase, the NRA found slight adverse effects related to recreational craft involved in mooring breakout, which aligned with much of the stakeholder feedback and the concerns raised in relation to protection of the marina from environmental events and the potential damage this may cause within the marina itself.

8.162 For the operational phase of the new marina, the NRA found slight adverse effects related to recreational craft involved in both mooring breakout and collisions, which aligned with much of the stakeholder feedback and the concerns raised in relation to protection of the marina from

environmental events and the potential damage this may cause within the marina itself. A slight effect of collision between recreational craft in future operations is not an unexpected finding considering the anticipated increased numbers of recreational craft, much of which may be visiting the marina for the first time during large events.

Additional Mitigation

8.163 The NRA further identified reasonably practicable additional control measures, or additional mitigation, which was considered in order to address any likely significant environmental effects which were categorised as substantial, moderate or slight.

Residual Effects

8.164 The application of identified additional mitigation reduced effects to a negligible level and resulted in there being no residual effects in relation to navigational and safety arising from the proposed development during either the construction or operational phases.

Conclusions

8.165 During both the construction and operational phases of the proposed development, with the implementation of mitigation, it is predicted that there will be no likely significant adverse environmental effects in relation to navigational and safety arising from the proposed development.

8.166 Overall, the NRA shows that the proposed development represents a low risk in terms of navigation and safety and, therefore, is negligible in terms of likely significant effects. As such, the proposed development should proceed in terms of navigation and safety, subject to the maintenance of existing mitigation and implementation of additional mitigation as suggested within **Appendix 8.1** and this chapter.

Abbreviations

Acronym or Term	Definition or Description
AIS	Automatic Identification System
ALARP	As low as reasonably practicable
AtoN	Aid to Navigation
CCTV	Closed-circuit television
CDM	The Construction (Design and Management) Regulations
D&GC	Dumfries & Galloway Council
EIA	Environmental Impact Assessment
FSA	Formal Safety Assessment
GD	General Direction
GLA	General Lighthouse Authority
GTGP	A Guide to Good Practice on Port & Marine Facilities
HCO	Harbour Confirmation Order
HEO	Harbour Empowerment Order
HRO	Harbour Revision Order
IALA	International Organization for Marine Aids to Navigation
IMO	International Maritime Organization
LLA	Local Lighthouse Authority
LOA	Length overall
MCA	The Maritime & Coastguard Agency
ML	Most Likely
MOU	Memorandum of Understanding
MS-LOT	Marine Scotland – Licensing Operations Team
MSMS	Marine Safety Management System
MSS	Marine Scotland Science
NAABSA	Not Always Afloat But Safely Aground
NLB	Northern Lighthouse Board (GLA)
NRA	Navigational Risk Assessment
NS	NatureScot
NTM	Notice to Mariners
PMSC	Port & Marine Facilities Safety Code
RYA	The Royal Yachting Association
SCRC	Stranraer Coastal Rowing Club
SEPA	Scottish Environment Protection Agency
SHA	Statutory Harbour Authority or Statutory Harbour Area
SIRA	Simplified IALA Risk Assessment
SWSA	Stranraer Water Sports Association
VHF	Very High Frequency (radio)
WC	Worst Credible